

# Endoscopy

*Supplement*

This journal is indexed in MEDLINE, Current Contents (CM + LS), Science Citation Index, and in EMBASE/Excerpta Medica and SCOPUS

Official Organ of the European Society of Gastrointestinal Endoscopy (ESGE) and Affiliated Societies



**ESGE Days 2019**

Abstract issue

 **Thieme**

## ESGE Days 2019

**Date/Venue:**

4 – 6 April 2019, Prague, Czech Republic

**Chairman:**

Thierry Ponchon (France)

### Welcome message

Dear Colleagues

It is my pleasure to welcome you on behalf of the ESGE Days 2019 scientific committee to ESGE's second congress in Prague, Czech Republic.

As we are still establishing the ESGE Days congress, we had hoped to match the success of last years abstract submissions of 760, and were extremely excited to receive 1081 abstract submissions from over 66 countries for our 2019 congress. Thank you to everyone for submitting their abstracts, and your interest in being part of ESGE Days 2019.

The scientific committee worked extremely hard within a very short timeframe to evaluate all the abstracts. I wish to extend my gratitude to all reviewers for working around the clock to meet our tight deadlines.

Due to the high quality of the submissions, we have extended our scientific programme in order for the authors to present their work at the congress and will again offer ePoster podium sessions where authors present their work at specially designed stations during the breaks.

This year we have decided to publish all the abstracts in digital format. It is my pleasure to present to you the selected abstracts in this on-line publication and again would like to thank the authors for their dedication to furthering scientific research in the field of endoscopy.

Best wishes

Rodrigo Jover,  
ESGE Days 2019 scientific committee chair



► Rodrigo Jover,  
ESGE Days 2019  
scientific committee chair

- S1 Welcome message  
S5 ESGE Days 2019 oral presentations

**Friday, April 5, 2019**

- S5 Artificial intelligence
- S8 Capsule 1
- S11 Colon ESD
- S15 ERCP stones
- S18 EUS diagnosis
- S22 Stomach diagnosis
- S25 Video EUS 1
- S27 Video upper GI 1
- S30 Capsule – enteroscopy
- S33 Colon: resection
- S36 ERCP stenosis
- S40 ESD stomach 1
- S43 EUS diagnosis pancreas
- S46 Video EUS 2
- S49 Video upper GI 2
- S51 Bariatric
- S55 Colon cleansing 2
- S58 EUS therapeutic pancreas
- S62 GI bleeding
- S65 Video lower GI 1
- S68 Video Motility
- S70 Colon cleansing 1
- S73 Education
- S75 ERCP cannulation 1
- S78 ESD esophagus
- S80 IBD
- S83 Motility 1
- S85 PEG
- S87 Video ERCP 3
- S89 Video lower GI 2

**Saturday, April 6, 2019**

- S91 Colonic polyps: characterization
- S95 EUS therapeutic bile
- S98 Video ERCP 1
- S101 Colonic polyps: detection
- S104 ESD stomach 2
- S107 Esophagus diagnosis and ablation
- S111 Video ERCP 2
- S113 Best abstract awards
- S117 CRC screening
- S119 Duodenum
- S121 ERCP cannulation 2
- S123 Motility 2
- S126 Preparation
- S128 Genetic

- S129 ESGE Days 2019 ePoster podium presentations

**Friday, April 5, 2019**

- S129 Anorectal disorders
- S130 Colon stent
- S131 CRC screening 4
- S132 Colonic polyps: detection
- S133 EUS diagnosis pancreatobiliary
- S134 GI bleeding 1
- S134 Quality 1
- S136 Small bowel
- S137 Bowel cleansing 1
- S138 Colon: resection 1
- S139 CRC screening 1
- S140 ERCP pancreas 1
- S141 EUS FNA 1
- S142 GI bleeding 2
- S143 Quality 2
- S144 Stomach diagnosis 1
- S145 Bowel cleansing 2
- S146 Colon: resection 2
- S147 CRC screening 2
- S148 ERCP pancreas 2
- S149 EUS FNA 2
- S149 GI bleeding 3
- S150 Quality 3
- S151 Stomach diagnosis 2
- S152 Bowel cleansing 3
- S153 Colon: resection 3
- S154 CRC screening 3
- S155 ERCP stenosis
- S156 EUS therapeutic bile
- S157 GI bleeding 4
- S158 Quality 4
- S159 Stomach ESD
- S159 Stomach ESD
- S160 Stomach ESD
- S160 Bariatric
- S161 Colon capsule
- S162 Enteroscopy
- S163 ERCP stones
- S164 EUS therapeutic digestive tract
- S165 GI bleeding 5
- S166 Preparation: sedation 1
- S167 Small bowel tumors

**Saturday, April 6, 2019**

- S168 Barrett therapy
- S169 Colon: resection 7
- S170 Colonic polyps: characterization
- S171 Esophagus stenosis
- S172 Leaks 1
- S173 Motility – Septa
- S174 Preparation: sedation 2

S175 Third space  
S176 Colon ESD 1  
S177 Colon: resection 4  
S178 ERCP  
S179 ESD  
S179 EUS therapeutic miscellaneous  
S180 New technologies  
S181 SB Capsule 1  
S182 Zenker  
S183 Colon ESD 2  
S184 Colon: resection 5  
S185 ERCP cannulation 1  
S186 ESD 2  
S187 EUS therapeutic pancreas  
S188 Pediatric 1  
S189 SB Capsule 2  
S190 Sedation  
S191 Colon ESD 3  
S192 Colon: resection 6  
S193 ERCP cannulation 2  
S194 GERD  
S195 Leaks 2  
S196 Pediatric 2  
S196 SB Capsule 3  
S197 Complications

## S198 ESGE Days 2019 ePosters

### Friday, April 5, 2019

S198 Clinical Endoscopic Practice  
S206 Colon and rectum  
S222 Endoscopic technology  
S223 Endoscopic ultrasound  
S228 ERCP  
S237 Esophagus  
S245 Pediatric endoscopy  
S246 Stomach and small intestine

## S259 Authors' Index

The abstract issue status is as at February 2019. Final changes are available on the ESGE Days 2019 App and online at [www.esgedays.org](http://www.esgedays.org).

## ESGE Days 2019 oral presentations

Friday, April 5, 2019

08:30 – 10:30

Artificial intelligence

Club A

**OP1 AUTOMATED POLYP DIFFERENTIATION ON COLOSCOPIC DATA USING SEMANTIC SEGMENTATION WITH CNNs****Authors** Arlt M<sup>1</sup>, Peter J<sup>2</sup>, Sickert S<sup>1</sup>, Brust CA<sup>1</sup>, Denzler J<sup>1</sup>, Stallmach A<sup>2</sup>**Institute** 1 Friedrich-Schiller-University Jena, Computer Vision Group, Jena, Germany; 2 University Hospital Jena, Gastroenterology, Hepatology, and Infectious Diseases, Jena, Germany

DOI 10.1055/s-0039-1681180

**Aims** Interval carcinomas are a commonly known problem in endoscopic adenoma detection, especially when they follow negative index colonoscopy. To prevent patients from these carcinomas and support the endoscopist, we reach for a live assisted system in the future, which helps to remark polyps and increase adenoma detection rate. We present our first results of polyp recognition using a machine learning approach.

**Methods** We apply convolutional neuronal networks for semantic segmentation of colonoscopic image data. In particular, we make use of fully-convolutional networks<sup>2</sup>, which are a state-of-the-art technique for segmentation tasks. Furthermore, for the architecture we choose a modified ResNet18<sup>1</sup>. As input, we feed pairs of images to the network, which contain the original image with the polyp and a corresponding binary map, where the spatial information of polyp and background is coded as two classes. After the training process, we observe how the network performs on unknown images. During this validation process we verify the segmentation accuracy of the network.

**Results** In our experimental results, we demonstrate the overall feasibility for the task at hand. We were able to show a meaningful polyp recognition performance rate. For our experiments, we ran three different setups where we optimized hyperparameters like learning rate, batch size and regularization function. In the quantitative analysis of the performed experiments we reached a pixel-wise validation accuracy of 79%.

**Conclusions** Due to the promising accuracy results we expect to achieve beneficial polyp detection rates.

In our ongoing research we try to implement a problem-oriented pipeline, which responds to the well-known clinical problem of very few annotated image data. We also aim at proving the generalizability and clinical applicability in future work.

**OP2 COMPUTER-AIDED DIAGNOSIS (CAD) BASED ON CONVOLUTIONAL NEURAL NETWORK (CNN) SYSTEM USING ARTIFICIAL INTELLIGENCE (AI) FOR COLORECTAL POLYP CLASSIFICATION****Authors** Komeda Y<sup>1</sup>, Handa H<sup>2</sup>, Matsui R<sup>3</sup>, Kashida H<sup>1</sup>, Watanabe T<sup>1</sup>, Sakurai T<sup>1</sup>, Kudo M<sup>1</sup>**Institute** 1 Gastroenterology and Hepatology, Kindai University Faculty of Medicine, Osaka, Japan; 2 Department of Informatics, RIST, Kindai University, Osaka, Japan; 3 Graduate School of Science and Engineering, Kindai University, Osaka, Japan

DOI 10.1055/s-0039-1681181

**Aims** Computer-aided diagnosis (CAD) is becoming a next-generation tool for the diagnosis of human disease. CAD for colon polyps has been suggested as a particularly useful tool for trainee colonoscopists, as the use of a CAD system avoids the complications associated with unnecessary endoscopic resections. In addition to conventional CAD, a convolutional neural network (CNN) system utilizing artificial intelligence (AI) has been developing rapidly over the past 5 years. We firstly reported to generate a unique CNN-CAD system with an AI

function that studied endoscopic images extracted from movies obtained with colonoscopes used in routine examinations (Komeda Y, Handa H et al Oncology 2017). Here, we attempted a pilot study of this novel CNN-CAD system for the diagnosis of colon polyps.

**Methods** A total of 92,571 images from cases of colonoscopy performed between January 2010 and December 2017 at Kindai University Hospital were used. These images were extracted from the video of actual endoscopic examinations. They were simply diagnosed as either an adenomatous or non-adenomatous polyp (hyperplastic polyp). The gold standard of endoscopic diagnosis is the pathological results. The number of images used by AI to learn to distinguish adenomatous polyp from non-adenomatous polyp (hyperplastic polyp) was 29,572: 62,999. The size of each image was adjusted to 256 × 256 pixels. A 10-fold cross-validation was carried out. We carried out a pilot study evaluating the 60 cases of colonic polyp that were not learned on AI function.

**Results** The rate of diagnosis of adenomatous polyps through white-light, NBI and chromoendoscopy observation were 97.5%, 94.8% and 90.1%, respectively. The rate of diagnosis of non-adenomatous polyp (hyperplastic polyps) through white light, NBI and chromoendoscopy observation were 97.9%, 96.5% and 99.5%, respectively.

**Conclusions** A CNN-CAD system using routine colonoscopy might be useful for the rapid diagnosis of colorectal polyp classification.

**OP3 BLI AND LCI IMPROVE POLYP DETECTION RATE AND DELINEATION ACCURACY FOR DEEP LEARNING NETWORKS****Authors** Eelbode T<sup>1</sup>, Hassan C<sup>2</sup>, Demedts I<sup>3</sup>, Roelandt P<sup>3</sup>, Coron E<sup>4</sup>, Bhandari P<sup>5</sup>, Neumann H<sup>6</sup>, Pech O<sup>7</sup>, Repici A<sup>8</sup>, Maes F<sup>1</sup>, Bisschops R<sup>3</sup>**Institute** 1 KU Leuven, Medical Imaging Research Center, PSI, Leuven, Belgium; 2 Nuovo Regina Margherita Hospital, Gastroenterology, Rome, Italy; 3 KU Leuven, Department of Gastroenterology and Hepatology, Leuven, Belgium; 4 Centre Hospitalier Universitaire Hotel Dieu, Hepatogastroenterology, Nantes, France; 5 Portsmouth University Hospital, Solent Centre for Digestive Diseases, Portsmouth, United Kingdom; 6 University Medical Center Mainz, First Medical Department, Mainz, Germany; 7 Krankenhaus Barmherzige Brüder Regensburg, Department of Gastroenterology and Interventional Endoscopy, Regensburg, Germany; 8 Humanitas University, Digestive Endoscopy Unit, Milan, Italy

DOI 10.1055/s-0039-1681182

**Aims** Studies have suggested that polyp detection rates can be improved by using other modalities than white-light imaging (WLI) such as linked-color imaging (LCI) from Fujifilm. Our aim is to evaluate the influence of the modality on polyp detection rate and delineation accuracy of an artificial intelligence (AI) system.

**Methods** Colonoscopy videos from 120 patients are included with a total of 280 polyps. Shorter video clips containing the first apparition of each polyp are extracted and for each clip, a few frames are annotated by experts. These 758 manual annotations are automatically propagated over the entire clip. The resulting, much larger annotated dataset of 40887 images is then used to train a recurrent convolutional neural network (CNN).

Frame-level sensitivity and specificity are reported for evaluation of the detection power of the network. For delineation accuracy, the dice score is used which is a measure for the amount of overlap between a delineation map and its ground truth. The analysis is done for WLI, BLI (blue light imaging) and LCI. **Results** Table 1 shows that BLI significantly improves sensitivity, specificity and dice score. Similarly, LCI increases detection performance to a lesser extent, however the LCI Dice score decreases significantly compared to WLI. Pairwise t-tests show that all differences are significant with a p value < 0,00001 (significance level of 0,05).

**Tab. 1** Sample size, sensitivity, specificity and dice score (mean and stdev) for the three different modalities in the test set.

	n	Sensitivity	Specificity	Dice score (mean & std)
WLI	151	0,81	0,76	0,69+-0,33
BLI	79	0,92	0,85	0,76+-0,28
LCI	58	0,85	0,82	0,63+-0,34

**Conclusions** The choice of modality has a significant impact on the detection and delineation performance of an AI system. We show that our network performs best for both tasks on BLI and that LCI has a superior detection, but inferior delineation power compared to WLI.

## OP4 ACCURACY OF ARTIFICIAL INTELLIGENCE BASED DECISION SUPPORT SYSTEM COMBINED WITH BASIC CLASSIFICATION IN COLON POLYP DETERMINATION

**Authors** Madacsy L<sup>1</sup>, Zsobrak K<sup>1</sup>, Schmiedt P<sup>1</sup>, Szalai M<sup>1</sup>, Oczella L<sup>1</sup>, Dorottya Lovasz B<sup>2</sup>, Dubravcsik Z<sup>3</sup>

**Institute** 1 Endo-Kapszula Endoscopy Unit, Szekesfehervar, Hungary;

2 Semmelweis University, 1st Department of Medicine, Budapest, Hungary;

3 Bacs-Kiskun County Hospital, Gastroenterology&Endoscopy, Kecskemet, Hungary

DOI 10.1055/s-0039-1681183

**Aims** All colon polyps have to be removed for histological analysis due to regulatory reasons, causing real health care burden. Virtual-chromoendoscopy only in expert hands may be used for real-time diagnosis of polyp characteristics to support resect and discard strategy. In our present study, we aimed to develop an Artificial Intelligence-based Decision Support System (AI-DSS) that can assist the decision of endoscopist in the real-time determination of sub-centimetric polyp's histology with high accuracy.

**Methods** We enrolled 334 histologically identified colon polyp, having at least one good quality, zoomed and non-zoomed HD image with Blue Light Imaging (BLI) virtual-chromoendoscopy. The images were characterized by an expert endoscopist using BASIC classification, including description of surface characteristics, (pseudo)depression, pit pattern and vessel structure of the polyp (2-2-2-4-3-4 variable options). We randomly generated subgroups from polyps to train the multilayered deep learning neural network (test set: 100 hyperplastic/neoplastic (50-50%), train set: 234 polyps), then run the training process four-times with different subgroups and two output classes: hyperplastic and neoplastic. The decision is based on the highest softmax value of the output neurons. The training ran for several hundreds of epochs, and we stopped it when the test accuracy reached the best results to prevent overfitting on the training set. We analyzed the result with/without including size and localisation of the polyp (2-3 options).

**Results** The maximum accuracy of different training tests were 91, 94.5, 93.75, 88%/87.75, 92.5, 91.5, 88.5% separately with a total 91.81% and 90.06%, with/without including localisation and size information.

**Conclusions** AI-DSS combined with BASIC classification is able to predict the polyp histological dignity with a high accuracy, which could be further increased with higher number of images. This software can support the everyday clinical decision of resect and discard strategy during polypectomy, moreover it can be used by trainee endoscopists.

## OP5 APPLICATION OF DEEP LEARNING NEURAL NETWORK FOR HISTOLOGICAL PREDICTION OF COLON POLYP IMAGES WITH BLI ZOOM TECHNOLOGY

**Authors** Szalai M<sup>1</sup>, Zsobrak K<sup>1</sup>, Dorottya Lovasz B<sup>2</sup>, Oczella L<sup>1</sup>, Dubravcsik Z<sup>3</sup>, Madacsy L<sup>1</sup>

**Institute** 1 Endo-Kapszula Endoscopy Unit, Szekesfehervar, Hungary;

2 Semmelweis University, 1st Department of Medicine, Budapest, Hungary;

3 Bacs-Kiskun County Hospital, Kecskemet, Hungary

DOI 10.1055/s-0039-1681184

**Aims** In our present study we aimed to develop an Artificial Intelligence-based Decision Support System (AI-DSS) that can be used to analyze the polyp images in differentiation between neoplastic and non-neoplastic subcentimetric polyps.

**Methods** We enrolled 755 HD images with Blue Light Imaging (BLI) zoom technology of total 334 histologically identified colorectal polyps. We set up 4 subgroups for training and testing with deep learning: A: training and testing set data was selected only from typical polyps, B: training set is made from only typical polyps, and test set is made from typical and atypical polyps, C: training set is made from only typical polyps, and test set is made randomly from the whole set (mixed typical and atypical), D: both train and test set are made of polyps randomly selected from the whole set. Images for the test sets were selected randomly following these criteria. Images from the same polyp were not selected to both train and test set.

**Results** The images went through a pre-process algorithm, and then we trained and tested the neural network. We also assessed which training parameters gave the best test results. The test groups had the following accuracy, sensitivity, specificity, PPV and NPV values to predict adenomatous polyps as follows: Group A: 95%, 96.7%, 93.3%, 93.5%, 96.6%; Group B: 73.6%, 76.5%, 68.4%, 81.3%, 61.9%; Group C: 89.4%, 91.5%, 87.2%, 87.8%, 91.1%; Group D: 73.1%, 76.9%, 69.2%, 71.4%, 75%, respectively.

**Conclusions** This AI-DSS is able to predict the polyp histology with high accuracy, if the neural network is trained on typical images. Accuracy of the algorithm could be further increased with higher number of collected images. Application of Deep Learning Neural Network with BLI zoom virtual-chromoendoscopy provide a potential for real-time endoscopic optical diagnosis of hyperplastic polyps to support resect and discard strategy.

## OP6 COMPUTER-AIDED DIAGNOSIS OF GASTRIC LESIONS USING MAGNIFYING NARROW BAND IMAGING ENDOSCOPY

**Authors** Kashin S<sup>1</sup>, Kuvavov R<sup>1,2</sup>, Kraynova E<sup>1</sup>, Edelsbrunner H<sup>3</sup>, Dunaeva O<sup>4</sup>, Rusakov A<sup>4</sup>, Nikonov E<sup>2</sup>

**Institute** 1 Yaroslavl Regional Cancer Hospital, Yaroslavl, Russian Federation;

2 Pirogov Russian National Research Medical University, Moscow, Russian Federation;

3 Institute of Science and Technology Austria, Klosterneuburg, Austria;

4 P.G. Demidov Yaroslavl State University, Yaroslavl, Russian Federation

DOI 10.1055/s-0039-1681185

**Aims** The aims of this study were to develop and evaluate a computer-aided diagnosis system for histology prediction of gastric lesions using magnifying narrow band imaging (M-NBI) endoscopy.

**Methods** We selected and analyzed 265 endoscopy M-NBI images of gastric lesions from 128 patients who underwent upper M-NBI endoscopy (Olympus Exera GIF Q160Z, Lucera GIF Q260Z). All images were divided into four classes: (1) type A (n=46): non-neoplastic and non-metaplastic lesions with regular circular microsurface (MS) and regular microvascular (MV) patterns; (2) Type B (n=90): intestinal metaplasia with tubulo-villous MS and regular MV patterns; (3) Type C (n=74) neoplastic lesions with irregular MS or MV pattern; (4) artifacts (n=55). During automated classification quadrant areas were calculated on the image, geometrical and topological features were computed for every fragment. Using the greedy forward selection algorithm, the set of five most significant features were selected: three geometric features (the compactness of the MS pattern, the perimeter of the MS pattern, the average of area of the component of the MV pattern) two topological features (the kurtosis of the histogram of the 0-th persistence diagram of the image, the first norm of the 0-th persistence diagram of the signed distance function). Support vector machine (SVM) classifier was used for 4-class automated diagnosis. Training and testing were performed for every image by a k-fold method (k=10).

**Results** The average percentage of correctly recognized areas was 91.4%. Classification precision (positive predictive value), recall (sensitivity), F-score for class A were 96.5 90.4 93.3 for class B were 93.7, 92.0, 92.9, respectively, for class C were 83.3, 91.3, 87.1, respectively, and for artifacts were 99.2, 91.7, 95.3, respectively.

**Conclusions** The designed system based on the extraction of the geometrical and topological features from M-NBI image and analysis by SVM could provide effective recognition of three types of gastric mucosal changes.

## OP7 NEAR FOCUS NARROW BAND IMAGING DRIVEN ARTIFICIAL INTELLIGENCE FOR THE DIAGNOSIS OF GASTROESOPHAGEAL REFLUX DISEASE

**Authors** Gulati S<sup>1</sup>, Bernth J<sup>2</sup>, Liao J<sup>2</sup>, Poliyivets D<sup>2</sup>, Chatu S<sup>1</sup>, Emmanuel A<sup>1</sup>, Haji A<sup>1</sup>, Liu H<sup>2</sup>, Hayee B<sup>1</sup>

**Institute** 1 King's College Hospital NHS Foundation Trust, London, United Kingdom; 2 King's College London, London, United Kingdom

**DOI** 10.1055/s-0039-1681186

**Aims** To develop a near focus (NF-NBI) driven artificial intelligence (AI) model for the diagnosis of Gastroesophageal Reflux Disease (GERD).

**Methods** Patients with symptoms of GERD (recorded using the Reflux Disease Questionnaire (RDQ)) were prospectively recruited over 10 months. Upper endoscopy recorded multiple NF-NBI images, video and biopsies of the lower oesophagus. If endoscopy using High-Definition WLE was normal, a pH-recording capsule was placed. Patients were defined according to Lyon criteria; Erosive oesophagitis (EO); non-erosive reflux disease (NERD); functional heartburn (FH).

Two forms of AI were developed and evaluated to automate regions of interest (ROI) and detect IPCLs and morphology: computer vision (CV) and deep convoluted neural network (DCNN) using Resnet50. DCNN was evaluated using training: unseen testing dataset ratios of 50:50 (3872:4280 images) and 75:25 (6484:1668 images). For the purposes of training the AI models, EO and NERD cases were combined as 'GERD'. A novel combined classifier (CC) of both AI methods was evaluated.

**Results** 78 consecutive patients were recruited. n = 68 (46 Female, 44.41 +/- 12.91 years); GERD n = 27 (EO n = 6, NERD n = 21) and FH n = 41 were analysed. The mean IPCL per ROI count was greater in GERD vs. FH: 33.36 +/- 5.19 vs. 27.9 +/- 5.72 p = 0.0002 and was used as the primary diagnostic tool. IPCL morphology for GERD vs. FH: length 16.29 vs. 16.98, p = 0.19; width 7.8 vs. 7.8, p = 0.98; red 118.8 vs. 120.6, p = 0.44; green 110.3 vs. 118, p = 0.006; blue 90.95 vs. 96.81 p = 0.0016.

With CV: mean IPCLs/ROI (threshold 28.4) had sensitivity, specificity, accuracy 85.2, 58.5, 68.2% for GERD.

With DCNN 50:50 these results were 58%, 86% and 76% respectively. DCNN 75:25 produced 67%, 92%, 83% respectively.

CC improved overall specificity (89.1%) and accuracy (78.1%) but not sensitivity (63%).

**Conclusions** AI using NF-NBI is a novel method for the diagnosis of GERD. With increased data, improvements in diagnostic accuracy is achieved further improved using a CC. This model has the potential to provide a reliable safe single-test diagnosis of GERD.

## OP8 ARTIFICIAL INTELLIGENCE IN EARLY BARRETT'S CANCER: THE SEGMENTATION TASK

**Authors** Ebigbo A<sup>1</sup>, Mendel R<sup>2</sup>, Probst A<sup>1</sup>, Manzeneder J<sup>1</sup>, de Souza LA<sup>3</sup>, Papa J<sup>3</sup>, Palm C<sup>2</sup>, Messmann H<sup>1</sup>

**Institute** 1 Klinikum Augsburg, Augsburg, Germany; 2 Ostbayerische Technische Hochschule, Regensburg, Germany; 3 Department of Computing, São Paulo State University, São Paulo, Brazil

**DOI** 10.1055/s-0039-1681187

**Aims** The delineation of outer margins of early Barrett's cancer can be challenging even for experienced endoscopists. Artificial intelligence (AI) could

assist endoscopists faced with this task. As of date, there is very limited experience in this domain. In this study, we demonstrate the measure of overlap (Dice coefficient = D) between highly experienced Barrett endoscopists and an AI system in the delineation of cancer margins (segmentation task).

**Methods** An AI system with a deep convolutional neural network (CNN) was trained and tested on high-definition endoscopic images of early Barrett's cancer (n = 33) and normal Barrett's mucosa (n = 41). The reference standard for the segmentation task were the manual delineations of tumor margins by three highly experienced Barrett endoscopists. Training of the AI system included patch generation, patch augmentation and adjustment of the CNN weights. Then, the segmentation results from patch classification and thresholding of the class probabilities. Segmentation results were evaluated using the Dice coefficient (D).

**Results** The Dice coefficient (D) which can range between 0 (no overlap) and 1 (complete overlap) was computed only for images correctly classified by the AI-system as cancerous. At a threshold of t = 0.5, a mean value of D = 0.72 was computed.

**Conclusions** AI with CNN performed reasonably well in the segmentation of the tumor region in Barrett's cancer, at least when compared with expert Barrett's endoscopists. AI holds a lot of promise as a tool for better visualization of tumor margins but may need further improvement and enhancement especially in real-time settings.

## OP9 AUTOMATIC GLANDS SEGMENTATION IN HISTOLOGICAL IMAGES OBTAINED BY ENDOSCOPIC BIOPSY FROM VARIOUS PARTS OF THE COLON

**Authors** Oleynikova N<sup>1</sup>, Khvostikov A<sup>2</sup>, Krylov A<sup>2</sup>, Mikhailov I<sup>1</sup>, Kharlova O<sup>1</sup>, Danilova N<sup>1</sup>, Malkov P<sup>1</sup>, Ageykina N<sup>3</sup>, Fedorov E<sup>4,5</sup>

**Institute** 1 Lomonosov Moscow State University, Department of Pathology, Moscow, Russian Federation; 2 Lomonosov Moscow State University, Faculty of Computational Mathematics and Cybernetics, Moscow, Russian Federation; 3 Medsi Clinic, Department of Endoscopy, Moscow, Russian Federation; 4 Lomonosov Moscow State University, Department of Endoscopy, Moscow, Russian Federation; 5 Pirogov Russian National Research Medical University (RNRMU), Moscow, Russian Federation

**DOI** 10.1055/s-0039-1681188

**Aims** Artificial intelligence is rapidly gaining ground in online detection, endoscopic and morphological characterization of colon epithelial neoplasms. Even for pathologists identification of metaplasia and dysplasia in the epithelium of the mucous glands could be an extremely difficult task. The same task in vivo, directly during the endoscopic examination is no less difficult, therefore the development of auxiliary mathematical models for image recognition is requested.

**Methods** We propose a new design of a convolutional neural network (CNN) based on U-Net model and use it for mucous glands segmentation. The main distinctive ideas of the proposed CNN lay in the multiscale architecture, using non-local blocks to capture long-range dependencies in the image and using a contour-aware loss function. The network was first trained on the public Warwick-QU dataset with non-linear augmentation process and was after that fine-tuned on the manually labeled histological images obtained from paraffin sections of endoscopic biopsy material of the colon.

**Results** The multiscale architecture of the proposed segmentational CNN makes it less sensitive to the scale of the input image. Due to the specific loss function it is able to detect and separate "stuck" glands. The used non-linear blocks have a positive effect on the time needed for model to converge. Altogether this leads to the accurate segmentation of glands on histology images (Dice coefficient = 0.87 for Warwick-QU dataset, Dice coefficient = 0.83 for the obtained dataset).

**Conclusions** The generalization ability of the proposed algorithm enables it to effectively segment individual glands as well as to perform inner-gland seg-

mentation (detect nuclei, lumen and cytoplasm) in histological images. The subsequent development of this gland segmentation technology can allow to detect changes in the lumen shape (serration) of glands, in the nuclear-cytoplasmic ratio inside mucus-forming cells, and in the character of the expression of immunohistochemical markers.

## OP10 AUTOMATIC POLYP DETECTION IN COLONOSCOPY – GENERAL COMPARISON OF SYSTEM AND VIDEO ANALYSIS STATISTICS

**Authors** [Jacob H<sup>1</sup>](#), [Kopelman Y<sup>2</sup>](#), [Oren G<sup>2</sup>](#), [Siersema P<sup>3</sup>](#), [Cohen A<sup>4</sup>](#), [Eliakim R<sup>5</sup>](#), [Zaltshendler M<sup>5</sup>](#), [Zur D<sup>4</sup>](#)

**Institute** 1 Gastroenterology, Hadassah University Medical Center, Jerusalem, Israel; 2 Gastroenterology, Hillel Yaffe Medical Center, Hadera, Israel; 3 Gastroenterology, Radboudumc University, Rotterdam, Netherlands; 4 MagnetiQ Eye Ltd, Haifa, Israel; 5 Magnetic Eye Ltd., Haifa, Israel

**DOI** 10.1055/s-0039-1681189

**Aims** The Automatic Polyp Detection System (APDS) was developed to enhance the ability of endoscopists to detect polyps during screening colonoscopy. The aim of this study was to compare performance of the trained system with a known database of 35 video sequences.

**Methods** The testing database was collected from 12 physicians in 6 endoscopy centers during years 2014–2018. Each of the 35 video sequences represented consecutive frames a half-minute in length. Our goal was to define the best system performance (sensitivity and specificity working point, and the percentage of polyps detected by the system) in at least 3 consecutive frames under a given system specificity. In addition, the number of polyps that were estimated to be missed during the procedure according to a manual analysis of the video sequences was calculated.

**Results** The best working points of the system over the testing database was 88% sensitivity with 98.7% specificity. For working points with a specificity of 97.5% and below, all polyps in the testing database were detected by the system in at least 3 consecutive frames. On the other hand, according to the manual analysis of the recorded videos, 4 polyps out of the 35 polyps in the testing database (11.4%) were missed by the physicians during the procedures.

**Conclusions** The endoscopist could be alerted to the presence of a polyp with a specificity of 97.5%. The estimated miss rate of the physicians of polyps correlates with research work that showed a reduction in the miss rate when using behind folds imaging techniques. The use of the APDS can contribute to the reduction of the miss rate of polyps in daily clinical practice.

Friday, April 5, 2019

08:30 – 10:30

Capsule 1

Club B

## OP11 A NEW PREPARATION METHOD FOR IMPROVING GASTRIC MUCOSAL VISIBILITY AND CLEANLINESS DURING MAGNETICALLY ASSISTED CAPSULE ENDOSCOPY: A PROSPECTIVE STUDY

**Authors** [Schmiedt P<sup>1</sup>](#), [Szalai M<sup>1</sup>](#), [Oczella L<sup>1</sup>](#), [Zsobrak K<sup>1</sup>](#), [Dorottya Lovasz B<sup>2</sup>](#), [Dubravcsik Z<sup>3</sup>](#), [Madacsy L<sup>1</sup>](#)

**Institute** 1 Endo-Kapszula Endoscopy Unit, Szekesfehervar, Hungary; 2 Semmelweis University, 1st Department of Medicine, Budapest, Hungary; 3 Bacs-Kiskun County Hospital, Kecskemet, Hungary

**DOI** 10.1055/s-0039-1681190

**Aims** Optimal mucosal visibility is essential during gastrointestinal endoscopy and it is even more important during magnetically assisted capsule endoscopy (MACE) as cleaning the mucosa during the procedure is not possible. Better pre-procedural preparation may improve the sensitivity and specificity of the MACE investigation. The aim of the current study was to compare the cleanliness of the stomach with or without our new gastric preparation protocol.

**Methods** We performed a prospective study. 30 patients received our new gastric preparation protocol (Group A; 46,4 years; 50% female). Another 30 patients without gastric preparation served as controls (Group B; 47,1 years; 33,3% female). The same preparation protocol was used on the previous day (24 hours liquid diet, two doses of PEG). Group A received 200 mg simethicone 40 minutes, 40 mg pronase B and 1 mg sodium-bicarbonate 30 and 20 minutes before MACE, then patients were laid down and rotated every 5 minutes in 90 degrees increments around their axis, finally 600 ml clear water was given directly before swallowing the capsule. Group B had simethicone only before swallowing the water and the capsule. Typical pictures from the fundus, body and antrum were analyzed with a self developed software calculating the proportion of clean and covered surfaces of gastric mucosa.

**Results** The average proportion of covered areas were 7.26%-12.32% (fundus), 3.36%-9.22% (body) and 0.31%-6.14% (antrum) in group A vs. B respectively. The differences were statistically significant in all and more pronounced in body and antral regions ( $p = 0.0053$ ,  $0.0012$  and  $0.0321$  in body, antrum and fundus, respectively).

**Conclusions** The visibility and cleanliness of the whole gastric mucosa in our study could be significantly improved with specific gastric preparation. Therefore, we suggest our combined preparation protocol with simethicone and pronase to optimize the diagnostic performance of gastric MACE.

## OP12 ENDOCLEAN: AUTOMATIC EVALUATION OF THE CLEANLINESS OF THE SMALL BOWEL IN CAPSULE ENDOSCOPY PROCEDURES

**Authors** [Nevárez A<sup>1</sup>](#), [Noorda R<sup>2</sup>](#), [Naranjo V<sup>2</sup>](#), [Alonso N<sup>1</sup>](#), [Pons V<sup>1</sup>](#)

**Institute** 1 Endoscopy Unit, La Fe University Hospital, Valencia, Spain; 2 CVB Lab Institute for Research and Innovation in Bioengineering, Valencia Polytechnic University, Valencia, Spain

**DOI** 10.1055/s-0039-1681191

**Aims** Poor visualization of the small bowel due to the presence of intestinal content remains one of the main limitations in capsule endoscopy (CE) procedures. The aim of our study was to develop a tool that can automatically detect intestinal content in CE procedures.

**Methods** We created computer algorithms capable of distinguishing automatically between dirty and clean regions in frames from CE videos. We extracted 563 frame images from 35 different CE videos. Each frame was divided in segments of  $64 \times 64$  pixels, referred to as patches. A total of 55293 patches were annotated by an experienced reader. We assigned the frame images to two different sets: 80% for the training set and 20% for the testing set. We extracted features based on colour and texture for discrimination between clean regions and regions with intestinal content. With frames used for test purposes we calculated accuracy (ACC), sensibility (S) and specificity (SP) in five different models to analyze their performance. We then used the model to predict whether the region is clean or contains intestinal content and also the pixel probability.

**Results** 51,04% patches were classified as dirty regions and 48,96% as clean regions. We performed 5 different validation tests to evaluate different algorithms and their performance in predicting a patch as either clean or dirty. We obtained an average accuracy of 87,12%, sensitivity of 89,89% and specificity of 84,50% using Supporting Vector Machine (SVM) classification.

**Conclusions** Using patch probabilities, Endoclean system allows the estimation at a pixel level of the percentage of cleanliness in images of CE videos with high accuracy. With optimization of our results, this tool can be implemented for objective assessment of the quality of mucosal visualization in CE procedures and can later provide the opportunity to compare different types of preparations that can be used to improve the procedure reliability.

### OP13 IMPACT OF PILLCAM CROHN'S CAPSULE ON DIAGNOSTIC YIELD AND CLINICAL MANAGEMENT: RESULTS OF THE FIRST MULTICENTER, OBSERVATIONAL STUDY

**Authors** Tontini GE<sup>1</sup>, Rizzello F<sup>2</sup>, Topa M<sup>1</sup>, Cavallaro F<sup>3</sup>, Bonitta G<sup>3</sup>, Gelli D<sup>2</sup>, Pastorelli L<sup>3,4</sup>, Salice M<sup>2</sup>, Vecchi M<sup>1,5</sup>, Gionchetti P<sup>2</sup>, Calabrese C<sup>2</sup>

**Institute** 1 Gastroenterology and Endoscopy Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy; 2 IBD Unit, Department of Medical and Surgical Sciences (DIMEC), Policlinico S. Orsola-Malpighi, University of Bologna, Bologna, Italy; 3 Gastroenterology and Digestive Endoscopy Unit, IRCCS Policlinico San Donato, San Donato Milanese (Milan), Italy; 4 Department of Biomedical Sciences for Health, University of Milan, Milan, Italy; 5 Department of Pathophysiology and Transplantation, University of Milan, Milan, Italy

DOI 10.1055/s-0039-1681192

**Aims** A capsule endoscopy (CE) system tailored for Crohn's disease (CD) patients has been recently developed. This new device features two advanced optics allowing a 344°-view between both capsule heads and a prolonged operative time, to provide the direct visualization of the entire digestive tract. The present study has evaluated, for the first time, the performance of the PillCam Crohn's System in a multi-center real-life setting.

**Methods** Consecutive patients with suspected or established CD were included between June 2017 and June 2018. Technical and clinical data, including the Lewis score and capsule impact on clinical management, were collected, thereby evaluating the added value of the 344° panoramic-view over the standard 172°-view.

**Results** Among 41 patients (16 men; aged 43 ± 20 years), 73% underwent CE for suspected CD and 27% for established CD, with a mean time lapse of 12 years from diagnosis. The rate of complete enteroscopy was 90%. No technical failure or retention occurred. CE detected relevant lesions in 56.1% of patients, a Lewis score ≥ 135 in 51.4%, and had an impact on clinical management for 48.8% of patients. Compared to the standard 172°-view, the panoramic 344°-view revealed a greater number of patients with a relevant lesion (56.1% vs. 39.0%;  $P=0.023$ ), resulting in higher Lewis score (222.8 vs. 185.7;  $P=0.031$ ), and improved clinical management (48.8% vs. 31.7%,  $P=0.023$ ).

**Conclusions** The panoramic 344°-view improves both CE accuracy and the resulting clinical management of CD. This system should be regarded as a new standard for both small-bowel diagnosis and inflammatory bowel diseases monitoring.

### OP14 SMALL BOWEL ANGIOECTASIAS REBLEEDING AND THE IDENTIFICATION OF HIGHER RISK PATIENTS

**Authors** Arieira C<sup>1,2,3</sup>, Magalhães R<sup>1,2,3</sup>, de Castro FD<sup>1,2,3</sup>, Carvalho PB<sup>1,2,3</sup>, Rosa B<sup>1,2,3</sup>, Moreira MJ<sup>1,2,3</sup>, Cotter J<sup>1,2,3</sup>

**Institute** 1 Gastroenterology Department, Hospital da Senhora da Oliveira, Guimarães, Portugal; 2 School of Medicine, University of Minho, Life and Health Sciences Research Institute, Braga/Guimarães, Portugal; 3 PT Government Associate Laboratory, ICVS/3B's, Braga/Guimarães, Portugal  
DOI 10.1055/s-0039-1681193

**Aims** Small Bowel Capsule Endoscopy (SBCE) is the gold standard in Mid-gastrointestinal bleeding (MGIB). Angioectasias are the most common vascular anomalies in the GI tract and considering their frequency, their usual intermittent bleeding nature and their risk of rebleeding, the aim of this study was to identify some characteristics and possible predictors of rebleeding in the presence of these lesions.

**Methods** Retrospective study, which included consecutive SBCE with angioectasias between 2008 and 2018 with a minimum follow up of 12 months. Rebleeding was defined when a drop of hemoglobin ≥ 2 g/dl (occult) was observed and/or in the presence of hematoquezia or melenas (overt) with negative esophagogastroduodenoscopy and ileocolonoscopy. Data were col-

lected from medical records: patients' age, gender and comorbidities and use of antiplatelets and/or anticoagulants. Angioectasias were classified by number, location, size and type according to Yano-Yamamoto Classification. Univariate and multivariable statistical analyses were performed to identify possible predictors of rebleeding.

**Results** From a total of 630 patients submitted to SBCE for suspected small bowel bleeding, 129 with angioectasias were included, 59.7% female, with median age of 72 (19–91) years and a mean follow up of 44.0 ± 31.9 months. 88 patients (68.2%) performed SBCE for occult and 41 (31.8%) for overt gastrointestinal bleeding. In 32.6% (n=42) of the patients at least one episode of rebleeding was documented.

In univariate analysis, patients presenting with rebleeding were older (74.2 vs. 67.9 years;  $p=0.021$ ), and were more frequently diagnosed with chronic kidney disease (44.4% vs. 26.2%;  $p<0.035$ ) and heart failure (HF) (51.9% vs. 19.5%;  $p<0.001$ ). Regarding the characteristics of angioectasias, patients that rebled had more frequently angioectasias of larger size (>5 mm) (69% vs. 27.6%;  $p<0.001$ ). In multivariate analysis we identified the presence of HF (OR 3.3; IC95% 1.3–8.6;  $p=0.014$ ), and the size of the angioectasias (OR 4.9; IC95% 2.1–11.4;  $p<0.001$ ) as independent predictor factors for risk of rebleeding.

**Conclusions** HF and angioectasias with size superior to 5 mm are the independent predictor factors of rebleeding in a population with angioectasias diagnosed by SBCE.

### OP15 POOR QUALITY OF CAPSULE ENDOSCOPY IMAGES HAS A SIGNIFICANT NEGATIVE EFFECT ON THE DIAGNOSIS OF SMALL BOWEL MALIGNANCY

**Authors** Yung DE<sup>1</sup>, Plevris JN<sup>1</sup>, Koulaouzidis A<sup>1</sup>, ESGE Small Bowel Working Group

**Institute** 1 Royal Infirmary of Edinburgh, Edinburgh, United Kingdom  
DOI 10.1055/s-0039-1681194

**Aims** Capsule endoscopy (CE) diagnosis relies on image quality, commonly affected by poor preparation. Currently, there is no widely-accepted method for quantifying visualisation quality. We examined the contribution of image parameters to visualisation quality and their effect on diagnostic certainty of small bowel (SB) lesions.

**Methods** Five clear CE images of SB pathology were processed for 3 parameters to simulate increasingly poor SB preparation:

- *opacity* (colour-matched to luminal content; 10–90%, 10% increments),
- *blurriness* (radius 1–10px; 1px increments), and
- *contrast* (-50–50%; 10% increments).

9 experts evaluated whether images were adequate for diagnosis. Points where perception of image quality changed significantly were determined for each parameter. Three further sets of SBCE images (vascular, inflammatory and malignant lesions) were processed for 4 points per parameter. 20 experienced-expert CE readers reviewed the resulting images.

**Results** In vascular and inflammatory lesions, diagnostic certainty was least affected by increasing image opacity, requiring opacities >90% before most readers considered images inadequate for diagnosis. The greatest negative effects of image opacity were seen in malignancies where significantly fewer readers found images adequate at >50% opacity. Similar results were obtained with increasing blur radius, simulating motion blur and poor focus. The proportions of readers finding vascular and inflammatory images adequate did not drop significantly at wider blur radii, while the proportion who found images of malignancies diagnostically adequate dropped at blur radius 6px. Decreasing contrast had greater negative effect than raised contrast, most obvious in malignant lesions.

**Conclusions** Poor visualisation quality in all parameters had the greatest effect on images of malignant lesions. Software to increase contrast and sharpen images can improve visualisation quality; smart frame rate adaptation could also improve the number of high-quality frames obtained. Furthermore,

our results suggest that thoroughness in SB cleansing is most important when there is suspicion of malignancy, so as to improve diagnostic certainty from the images obtained.

## OP16 DOUBLE-HEADED SMALL BOWEL CAPSULE ENDOSCOPY: REAL-WORLD EXPERIENCE AT A TERTIARY REFERRAL CENTRE

**Authors** Yung DE<sup>1</sup>, Douglas S<sup>1</sup>, Brzezczynska J<sup>2</sup>, Plevris JN<sup>1,2</sup>, Koulaouzidis A<sup>1</sup>

**Institute** 1 Royal Infirmary of Edinburgh, Edinburgh, United Kingdom;

2 University of Edinburgh, Edinburgh, United Kingdom

**DOI** 10.1055/s-0039-1681195

**Aims** Capsule endoscopy (CE) is a well-established mode of investigation for small bowel (SB) pathology. This study aims to characterise the potential benefits of using double-headed capsules (vs conventional single-headed ones) in a real-world cohort of patients referred for CE. We present initial results from a single centre as part of a multicentre British study.

**Methods** Over a 9-month study period, patients referred for routine SBCE at a tertiary referral centre underwent double-headed CE in lieu of conventional single-headed CE. Clinical data were anonymised. One head (left or right) was chosen at random and reported by an expert reviewer. After an interval of 4 weeks, the other heads, also anonymised and in random order, were read and reported by the same reviewer. For each CE examination, the numbers and types of findings, and overall conclusion/diagnosis were compared between L/R heads.

**Results** In total 98 CE examinations were performed. There were 3 stomach retentions, therefore 95 cases were analysed. Indications were:

1. SB bleeding (n = 53);
2. suspected SB inflammation or reassessment of known inflammatory bowel disease (IBD) (n = 28);
3. suspected SB malignancy (n = 8) and
4. others (n = 6).

The findings for each group are as follows:

1. 14/53 (26.4%) patients had differences in findings between L/R heads. The differences changed diagnosis in 6 (11.3%) patients.
2. 12/28 (42.9%) patients had differences between L/R heads, which changed diagnosis in 4 (14.3%) patients.
3. 1/8 (12.5%) patient had differences between L/R heads which changed the diagnosis in this patient.

Overall, use of two CE heads impacted the diagnosis in 11/95 (11.6%) of cases in our cohort.

**Conclusions:**

- Conventional single-headed CE has a relatively high proportion of negative examinations, often leading to multiple and repeated investigations in patients referred for suspected SB pathology.
- Use of double-headed CE provides more information which has potential to change clinical diagnosis and therefore management.

## OP17 SINGLE-CENTRE EXPERIENCE USING UPPER GASTROINTESTINAL (UGI) CAPSULE AS AN ALTERNATIVE TO DIAGNOSTIC GASTROSCOPY

**Authors** D'Errico F<sup>1</sup>, Crudeli A<sup>1</sup>, Borrow DM<sup>1</sup>, Morre C<sup>1</sup>, Mangsat E<sup>1</sup>, Hampal R<sup>1</sup>, Meade S<sup>1</sup>, Reynolds R<sup>1</sup>, Anderson SH<sup>1</sup>, Nasr I<sup>1</sup>

**Institute** 1 Guy's and St Thomas' NHS Foundation Trust, Gastroenterology, London, United Kingdom

**DOI** 10.1055/s-0039-1681196

**Aims** The demand for diagnostic upper gastrointestinal (UGI) endoscopy is high, often exceeding the resources. UGI capsule has already been shown to be an effective diagnostic tool to detect UGI diseases but its cost effectiveness has not been investigated yet. The aim of this study was to evaluate the diagnostic ability and costs of UGI capsule.

**Methods** This is an observational study of patients who had a UGI capsule endoscopy between April 2017 and November 2018 at Guy's and St Thomas' Hospital. Patients swallowed the UGI capsule (ESO3, Medtronic) following ingestion of 1 liter of water (containing simethicone). A series of positional changes were used to facilitate the UGI capsule transit. Indications for the procedure, quality indicators and findings were evaluated.

**Results** 76 patients were included in the study: 55 preferred capsule, 1 was not suitable for a gastroscopy, 10 failed gastroscopy and 10 would require general anesthesia. Regarding the indications, the majority had heartburn (30%) followed by abdominal pain (22%) and iron deficiency anemia (15%). The UGI capsule reached D2 in 73% of patients. Ampulla pick up rate (13.5%), incisura, fundus and cardias pick up rates (100%), inlet patch pick up rate (9.5%) were considered as quality indicators. The following findings were reported: 34 normal, 15 gastritis, 9 fundic glands polyps, 7 oesophagitis, 3 hiatus haernia, 1 Barrett's. Of note, only 4 (5%) needed a gastroscopy thereafter (further assessment/biopsies). In the majority of UGI capsules the results were conclusive. UGI capsule costs have been estimated around £412 per procedure. The tariff for one procedure is £970 (total earned £557). In comparison, a gastroscopy costs approximately £66 per procedure with a tariff of £341 (total earned £275).

**Conclusions** UGI capsule is a potential, non-invasive, cost-effective alternative to diagnostic UGI endoscopy. Further improvement are needed to increase ampulla pick up rate and completion rate.

## OP18 EVALUATION OF THE SENSITIVITY OF THE EXPRESS-VIEW MODE OF THE MIROCAM CAPSULE ENDOSCOPY PLATFORM COMPARED TO CONVENTIONAL READING IN OBSCURE GASTROINTESTINAL BLEEDING

**Authors** Gomes AC<sup>1</sup>, Pinho R<sup>1</sup>, Ponte A<sup>1</sup>, Rodrigues A<sup>1</sup>, Rodrigues J<sup>1</sup>, Sousa M<sup>1</sup>, Silva JC<sup>1</sup>, Carvalho J<sup>1</sup>

**Institute** 1 Gastroenterology, Centro Hospitalar de Vila Nova de Gaia e Espinho, Vila Nova de Gaia, Portugal

**DOI** 10.1055/s-0039-1681197

**Aims** The Express-View mode of the Mirocam capsule endoscopy (CE) platform is a newly introduced feature that aims to decrease the reading time by not capturing small bowel (SB) images considered repetitive. There is no evidence yet that its use can replace conventional reading. The authors aimed to evaluate the proportion of lesions detected by the *Express-view* reading mode.

**Methods** Single-center study, including individuals who underwent CE due to obscure gastrointestinal bleeding (OGIB) (overt or occult). Each CE was reviewed in standard reading mode and the findings were identified. Afterwards, the same CE was visualized with the Express-View mode and the authors evaluated if the findings previously identified were represented with this mode.

**Results** 208 CE were evaluated. The mean age was 66.4 years old ( $\pm$  13.83) and 55.8% (n = 116) were female. The majority of CE were performed due to anemia (78.8%, n = 164). A total of 1667 lesions were identified using standard reading. The *Express-View* mode had a sensitivity per lesion of 88.7% (n = 1479). Non-visualized lesions (n = 188) were mainly angiectasias (54.3%, n = 102) and erosions or ulcers (24.5%, n = 46). The detection rate per lesion was the lowest in the duodenum (p < 0.05). The use of the *Express-View* mode was able to capture all clinically significant lesions in 66.3% of the patients.

**Conclusions** In this study, per lesion sensitivity was higher to the one described in a previous multicenter study (88.7% vs. 77.2%). However, per patient sensitivity for significant lesions appeared to be lower (66.3% vs. 82.2%). Per lesion sensitivity was lower in the duodenum, which may be associated with a faster transit time in this segment. The *express-view* mode cannot substitute conventional reading.

## OP19 CAPSULE RETENTION IN CROHN DISEASE: A META-ANALYSIS

**Authors** Pasha SF<sup>1</sup>, Pennazio M<sup>2</sup>, Rondonotti E<sup>3</sup>, Wolf D<sup>4</sup>, Buras MR<sup>5</sup>, Albert JG<sup>6</sup>, Cohen SA<sup>7</sup>, Cotter J<sup>8,9,10</sup>, D'Haens G<sup>11</sup>, Eliakim R<sup>12</sup>, Rubin DT<sup>13</sup>, Leighton JA<sup>1</sup>

**Institute** 1 Division of Gastroenterology and Hepatology, Mayo Clinic College of Medicine, Arizona, Scottsdale, United States; 2 Division of Gastroenterology, San Giovanni AS University Teaching Hospital, Torino, Italy; 3 Gastroenterology Unit, Ospedale Valduce, Como, Italy; 4 Gastroenterology, Atlanta Gastroenterology Associates, Atlanta, United States; 5 Division of Health Sciences Research, Mayo Clinic, Arizona, Scottsdale, United States; 6 Department of Medicine, Johann Wolfgang Goethe University Hospital and Clinics, Frankfurt, Germany; 7 Children's Center for Digestive Healthcare, Children's Healthcare of Atlanta, Atlanta, United States; 8 Gastroenterology Department, Hospital da Senhora da Oliveira, Guimarães, Portugal; 9 ICVS/3B's Associate Laboratory, University of Minho, Braga, Portugal; 10 Life and Health Sciences Research Institute, School of Medicine, University of Minho, Braga, Portugal; 11 Imelda GI Clinical Research Centre, Bonheiden, Belgium; 12 Department of Gastroenterology, Sheba Medical Center, Tel Aviv, Israel; 13 Section of Gastroenterology, Hepatology and Nutrition, University of Chicago Medicine, Chicago, United States

**DOI** 10.1055/s-0039-1681198

**Aims** To evaluate capsule retention rates in adult and pediatric Crohn disease (CD) and determine if retention risk can be reduced in established CD (ECD) with patency capsule (PC) or dedicated small bowel (SB) cross sectional imaging (MR/CT enterography) using meta-analysis.

**Methods** Publications were identified in MEDLINE, EMBASE, Cochrane Database of Systematic Reviews, and Web of Science for studies of CD patients undergoing capsule endoscopy (CE) that reported retention. The retention rate and relative risk (RR) of retention in ECD to suspected CD (SCD) was estimated for each study. The pooled estimates for the various capsule retention rates and for RR were also calculated. All hypothesis tests were two-sided with  $p < 0.05$  considered statistically significant.

**Results** Retention rates were 0.03 (95% CI 0.03–0.04) in the overall CD cohort, 0.05 (95% CI 0.03–0.06) in ECD, and 0.02 (95% CI 0.01–0.04) in SCD. The retention rates in adult and pediatric studies were 0.03 (95% CI 0.03–0.04) and 0.02 (95% CI 0.01–0.04), respectively. Retention risk in adult ECD was 3.50 times higher than SCD (95% CI 2.12–5.78). There was no difference in retention risk in pediatric ECD compared with SCD (RR 4.92; 95% CI 0.80–30.08). Retention rates in ECD were decreased to 0.02 (95% CI 0.01–0.06) after cross-sectional imaging, and 0.03 (95% CI 0.02–0.05) after negative PC.

**Conclusions** Our meta-analysis shows lower CE retention rates in both SCD and ECD compared to older literature. The retention rate in adult ECD was significantly higher than adult SCD. In patients with ECD, retention rates were lower after negative PC or cross-sectional imaging. Retention rates in pediatric CD were lower than adult CD, and in contrast to adults, there was no difference in retention rates between pediatric ECD and SCD.

## OP20 MAPPING THE DISTRIBUTION OF SMALL BOWEL ANGIOECTASIAS

**Authors** Davie M<sup>1</sup>, Yung D<sup>2</sup>, Plevris J<sup>2</sup>, Koulaouzidis A<sup>2</sup>

**Institute** 1 University of Edinburgh, Edinburgh, United Kingdom; 2 The Royal Infirmary of Edinburgh, Endoscopy Unit, Edinburgh, United Kingdom

**DOI** 10.1055/s-0039-1681199

**Aims** Angioectasias are the main cause of small bowel (SB) bleeding. They are frequently identified during capsule endoscopy (CE). Subsequent management depends upon severity/extent and location. There is mounting evidence that the location of SB angioectasias is not entirely random. We aimed to map the distribution and size of SB angioectasias, and assess whether this impacted clinical outcomes significantly.

**Methods** Retrospective study examining CEs performed over a 10-year period at a tertiary referral centre. Information regarding number, location, and Saurin classification (P0–2) of SB angioectasias were collected. Clinically significant angioectasias (P1/P2) and active SB bleeding were analysed. Clinical outcomes in patients with P2 angioectasia or active SB bleeding were recorded.

**Results** 164 SBCE examinations in our cohort reported angioectasias. 554 P1–2 angioectasias and areas of active bleeding were seen, 435 (78.52%) of these within the first tertile of SB transit time (SBTT). 277 (50%) angioectasias were identified within the first 10% of SBTT. 40/75 (53.3%) patients with >1 P2 angioectasia and/or active bleeding were referred for intervention. Of the initial interventions, 24 patients underwent upper GI endoscopy; 13 underwent double balloon enteroscopy (DBE) (12 oral, 1 anal route). 9/37 (24.3%) had no identifiable angioectasias on endoscopy. Of those receiving ablative therapy, 20/28 (71.4%) re-presented with iron-deficiency anaemia or bleeding. In this group, average angioectasia position was within the first 15.6% of SBTT, compared with 7.9% in those who did not re-present ( $p = 0.3442$ ). Patients who re-presented had an average 1.6 additional P1 angioectasias, compared with 7.6 amongst those who did not return ( $p = 0.0173$ ).

**Conclusions** Clinically significant angioectasias are overwhelmingly located within the first 30% of SB. The majority are within reach of conventional endoscopy. However, AEs are often multiple and patients often re-present following intervention. In our cohort, additional P1 angioectasias in patients with P2 angioectasias/active bleeding were not associated with increased re-bleeding.

Friday, April 5, 2019

08:30 – 10:30

Colon ESD

South Hall 2B

## OP21 LYMPHOVASCULAR INFILTRATION IS A HIGH RISK FACTOR FOR LYMPH NODE METASTASIS INDEPENDENT OF DEPTH OF INVASION IN T1 COLORECTAL CANCERS

**Authors** Thorlacius H<sup>1</sup>, Rönnow CF<sup>1</sup>, Andersson V<sup>1</sup>, Toth E<sup>2</sup>, Syk I<sup>1</sup>

**Institute** 1 Lund University, Surgery, Malmö, Sweden; 2 Lund University, Gastroenterology, Malmö, Sweden

**DOI** 10.1055/s-0039-1681200

**Aims** Depth of submucosal invasion is commonly used to predict risk for lymph node metastasis in T1 colorectal cancers although published data are conflicting on the risk of metastasis in relation to level of submucosal growth. The aim of this study was to identify risk factors for lymph node metastasis in T1 colorectal cancers.

**Methods** Data on all patients with T1 colorectal cancer undergoing surgical resection between 2009–2017 were collected from the Swedish Colorectal Cancer Registry. Potential risk factors for lymph node metastasis, including age, gender, tumour location, submucosal invasion (Sm1–3), grade of differentiation, lymphovascular invasion, perineural invasion, tumour deposits and mucinous subtype were recorded. Patients lacking one of these factors were not included.

**Results** 991 patients (51% male) were included with median age of 72 years. 110 patients (11%) had lymph node metastasis in the surgical specimens. The overall incidence of lymph node metastasis was 8% (26/314) in Sm1, 12% (28/231) in Sm2 and 13% (56/446) in Sm3. In the absence of lymphovascular infiltration, the rate of lymph node metastasis was 6% in Sm1, 9% in Sm2 and 13% in Sm3. Notably, the incidence of lymph node metastasis markedly increased to 40% (37/92) in cases with lymphovascular infiltration regardless of Sm classification. Presence of tumour deposits (14 cases) and perineural invasion (15 cases) also increased the rate of metastasis but the numbers of these cases were too few for solid conclusions. Grade of differentiation and mucinous subtype had only a minor impact on the incidence of lymph node metastasis (16%).

**Conclusions** This is the largest study in the literature examining risk factors for lymph node metastasis in T1 colorectal cancers. Our results show that depth of submucosal invasion has limited influence and that lymphovascular infiltration is the most important risk predictor for lymph node metastasis in T1 colorectal cancers.

## OP22 INVASIVE RECURRENCE RATE AND CLINICOPATHOLOGICAL FEATURES AFTER ENDOSCOPIC RESECTION FOR 591 T1 COLORECTAL CANCERS

**Authors** [Kawashima K](#)<sup>1</sup>, [Saito Y](#)<sup>1</sup>, [Mizuguchi Y](#)<sup>1</sup>, [Takamaru H](#)<sup>1</sup>, [Wu SYS](#)<sup>1</sup>, [Sekiguchi M](#)<sup>1</sup>, [Yamada M](#)<sup>1</sup>, [Sakamoto T](#)<sup>1</sup>, [Matsuda T](#)<sup>1</sup>

**Institute** 1 National Cancer Center Hospital, Tokyo, Japan

**DOI** 10.1055/s-0039-1681201

**Aims** Recent studies reported that invasion depth only has no clinical impact to lymph node metastasis (LNM) of colorectal cancer (CRC). Several recurrent cases have been reported, however, after endoscopic resection for T1b (SM deep) CRC without any unfavorable histological factors. We, therefore, aim to investigate the recurrence rate and clinicopathological features associated with invasive recurrence after endoscopic resection for T1 CRC.

**Methods** A total of 516 patients (591 lesions) with T1 CRCs treated by endoscopic resection (ER) between January 2000 and December 2017 at NCC were analyzed retrospectively. We evaluated the invasive recurrence (distant metastasis and invasive cancer recurrence) rate and clinicopathological features of primary CRC.

**Results** The invasive recurrence rate for overall T1 CRC was 2.9% (17/591), while that of T1b CRC was 4.7% (15/317). Among them, 139 T1b CRC patients showed any other unfavorable histological factors, but five patients (3.6%) showed invasive recurrences. In these 139 patients, 87 patients (64%) underwent surgery within 3 months, and 3 of 87 (3.4%) showed invasive recurrences (two lungs, one liver). On the other hand, 52 patients (37%) were followed-up without surgery, and 2 of 52 (3.8%) showed invasive metastasis (one lung with local, and one liver with local). The median period from ER to diagnosis of recurrence was 45 months (range, 6–73 months) in surgery group and 30.9 months (range, 0–175 months) in non-surgery group. All of five cases were resected by en-bloc ER with VM0. Three were well differentiated adenocarcinoma, 2 were well and moderately differentiated adenocarcinoma, originally. The median depth of invasion was 1250 mm (range, 1000–7500 mm). The interruption of muscularis mucosae was seen in four cases and abscess formation in one.

**Conclusions** The invasive recurrences for T1b CRC was 4.7% overall and 3.6% for T1b without any unfavorable histological factors. This recurrence rate was similar in patients with and without surgery.

## OP23 SMSA SCORE FOR COLORECTAL ENDOSCOPIC SUBMUCOSAL DISSECTION (CR-ESD): IS IT USEFUL FOR PLANNING RESOURCES OR PREDICTING PROCEDURAL OUTCOMES? A MULTICENTER SPANISH PROSPECTIVE STUDY

**Authors** [Marín-Gabriel J](#)<sup>1,2</sup>, [Herreros de Tejada E](#)<sup>3,4</sup>, [Múgica-Aguinaga F](#)<sup>5</sup>, [Ramos-Zabala F](#)<sup>6</sup>, [Albéniz-Arbizu E](#)<sup>7</sup>, [Rosón-Rodríguez P](#)<sup>8</sup>, [de la Peña-García J](#)<sup>9</sup>, [Terán-Lantarón A](#)<sup>10</sup>, [Rodríguez-Sánchez J](#)<sup>11</sup>, [García-Romero D](#)<sup>12</sup>, [Amorós-Tenorio A](#)<sup>12</sup>, [Sánchez-Yagüe A](#)<sup>13</sup>, [Uchima H](#)<sup>14</sup>, [del Pozo-García A](#)<sup>1</sup>, [Dolz-Abadía C](#)<sup>15</sup>, [Fernández-Esparrach M](#)<sup>16</sup>, [Santiago-García J](#)<sup>3</sup>, [Nogales-Rincón O](#)<sup>17</sup>, [Álvarez-Delgado A](#)<sup>18</sup>, [Cortes-Pérez H](#)<sup>19</sup>, [Durán-Bermejo R](#)<sup>20</sup>, ESD Interest Group – GSEED Endoscopic Resection Working Group

**Institute** 1 Gastroenterology, Endoscopy Unit, '12 de Octubre' University Hospital, Madrid, Spain; 2 Gastroenterology, Endoscopy Unit, HM Sanchinarro University Hospital, Madrid, Spain; 3 Gastroenterology, Endoscopy Unit, Puerta de Hierro – Majadahonda University Hospital, Majadahonda, Spain;

4 Gastroenterology, Endoscopy Unit, MD Anderson Cancer Centre Madrid, Madrid, Spain; 5 Gastroenterology, Endoscopy Unit, Donostia University Hospital, San Sebastián, Spain; 6 Gastroenterology, Endoscopy Unit, HM Montepíncipe University Hospital, Boadilla del Monte, Spain; 7 Gastroenterology, Endoscopy Unit, Navarra University Hospital, Pamplona, Spain; 8 Gastroenterology, Endoscopy Unit, Quirón Málaga Hospital, Málaga, Spain; 9 Gastroenterology, Endoscopy Unit, 'Marqués de Valdecilla' University Hospital, Santander, Spain; 10 Gastroenterology, Endoscopy Unit, 'Marques de Valdecilla' University Hospital, Santander, Spain; 11 Gastroenterology, Endoscopy Unit, 'Ciudad Real' General University Hospital, Ciudad Real, Spain; 12 Gastroenterology, Endoscopy Unit, 'Nuestra Sra. de la Candelaria' University Hospital, Santa Cruz de Tenerife, Spain; 13 Gastroenterology, Endoscopy Unit, 'Costa del Sol' Health Agency, Marbella, Spain; 14 Gastroenterology, Endoscopy Unit, 'Doctor Josep Trueta' University Hospital, Girona, Spain; 15 Gastroenterology, Endoscopy Unit, 'Son Llatzer' University Hospital, Palma de Mallorca, Spain; 16 Gastroenterology, Endoscopy Unit, 'Clínica' University Hospital, Barcelona, Spain; 17 Gastroenterology, Endoscopy Unit, 'Gregorio Marañón' General University Hospital, Madrid, Spain; 18 Gastroenterology, Endoscopy Unit, 'Salamanca' University Hospital, Salamanca, Spain; 19 Gastroenterology, Endoscopy Unit, 'San Juan de Dios' Medical Center, Santurce, Spain; 20 Gastroenterology, Endoscopy Unit, 'ServiDigest' Clinic, Barcelona, Spain  
**DOI** 10.1055/s-0039-1681202

**Aims** To assess the ability of SMSA to predict clinical outcomes of CR-ESD: length of the procedure and percentages of piecemeal resections, aborted procedures and complications.

**Methods** Consecutive patients were enrolled in a prospective multicenter Spanish CR-ESD registry since January 2016 to October 2018. We analyzed 585 cases in 19 hospitals.

**Results** The duration of the procedure was >240 min in 36 ESDs (6.2%). There were 13 aborted procedures (2.2%), 92 piecemeal resections (16.1%), 86 intraprocedural perforations (14.7%), 19 delayed perforations (3.4%) and 37 delayed bleedings (6.6%). There were 40 SMSA2 (6.8%), 189 SMSA3 (32.3%) and 356 SMSA4 (60.8%) lesions. The median procedure duration was 74.5 min for SMSA2, 80 min for SMSA3 and 120 min for SMSA4. A statistically significant association was observed for SMSA4 and duration of the procedure >240 min (8.4% vs. 2.6%; OR = 3.4; CI95%: 1.4–8.3; p = 0.004). The percentage of piecemeal resections was as follows SMSA2: 27.5% vs. SMSA3: 11.4% vs. SMSA4: 17.2%; p = 0.03. SMSA2 lesions were significantly associated with piecemeal resections (SMSA2 vs. SMSA3/4: 27.5% vs. 14.8%; OR = 2.1; CI95%: 1.01–4.4; p = 0.04). No significant differences were noted for aborted ESDs: SMSA2: 0% vs. SMSA3: 2.6% vs. SMSA4: 2.2%; p = 0.59. Statistically significant differences were observed between intraprocedural perforations and SMSA3/4 lesions (SMSA2 vs. SMSA3/4: 2.5% vs. 15.6%; OR = 7.2; CI95%: 1.01–53.1; p = 0.02). The delayed perforation rate was: 0%/2.7%/4.2%; p = 0.3 and the delayed bleeding rate: 8.1%/5.9%/6.8%; p = 0.8, respectively.

**Conclusions** The SMSA score may be useful for planning endoscopy lists since it significantly correlates with the length of the procedure. Higher scores were also associated with intraprocedural perforations. However, we did not find a direct proportional link when considering other procedural outcomes (piecemeal resections, aborted procedures and delayed perforation or bleeding).

## OP24 ENDOSCOPIC SUBMUCOSAL DISSECTION OF RECTAL SUPERFICIAL TUMORS WITH A NEW ENDOSCOPIC PLATFORM: THE ORISE TISSUE RETRACTOR SYSTEM. A MULTICENTER EUROPEAN SERIES

**Authors** Maselli R<sup>1</sup>, Galtieri PA<sup>1</sup>, Belletrutti PJ<sup>1</sup>, D'Amico F<sup>1</sup>, Varytimiadis L<sup>2</sup>, Albizu EA<sup>3</sup>, Repici A<sup>1,4,5</sup>

**Institute** 1 Digestive Endoscopy Unit, Department of Gastroenterology, Humanitas Clinical and Research Center, Milan, Italy; 2 Gastroenterology Department, University of Portsmouth, Portsmouth, United Kingdom; 3 Gastroenterology Department, Complejo Hospitalario de Navarra, Navarra, Spain; 4 Humanitas University, Milan, Italy; 5 Department of Biomedical Science, Humanitas University, Milan, Italy

DOI 10.1055/s-0039-1681203

**Aims** Endoscopic submucosal dissection (ESD) is accepted worldwide for resection of most superficial tumors >20 mm in the GI. The main challenges of ESD are related to the instability of the operative field and the lack of tissue traction. The ORISE Tissue Retractor System (TRS, Boston Scientific) is a new endoscopic platform designed to overcome these limitations. Aim of this study is to assess the efficacy and safety of the TRS used in the first human procedures in three different European centers.

**Methods** The TRS consists of an expandable intra-luminal chamber mounted on a flexible overtube with two grasping retractors. It is front-loaded over the endoscope and inserted into the rectum. The cage is then opened to create a stable operating field around the lesion. The submucosal dissection is simplified by two grasping retractors in order to provide traction and improve visualization of planes. Data on lesion characteristics, procedure details and adverse events were collected and analyzed.

**Results** Data are available on the first 10 cases of rectal ESD (5 males/4 females, mean age 67±9 years). The mean size of the lesions was 56.7 ± 25.1 mm (range 25 – 100 mm). The TRS and graspers were easily placed in all cases; mean procedure time was 107.11 ± 31.3 minutes. All lesions were removed en-bloc with an R0 resection. The final histological assessment was LGD in 1 case, HGD in 7 and adenocarcinoma in 2. All but one were curative resections. No adverse events were recorded, except 1 case of self-limited fever during the first 24 hours.

**Conclusions** The ORISE TRS both stabilizes the operative field and allows for tissue retraction, thus improving visualization of the dissection plane, potentially increasing the efficiency of the ESD and reducing the risk of adverse events. Although prospective studies are needed, this initial human experience shows the TRS be a promising tool for the treatment of colorectal neoplastic lesions.

## OP25 RECURRENCE AND CANCER-SPECIFIC MORTALITY DURING FOLLOW UP OF LOW-AND HIGH-RISK ENDOSCOPICALLY RESECTED PT1 COLORECTAL CANCERS: A META-ANALYSIS

**Authors** Antonelli G<sup>1</sup>, Vanella G<sup>1</sup>, Orlando DG<sup>1</sup>, Angeletti S<sup>1</sup>, Di Giulio E<sup>1</sup>

**Institute** 1 Digestive Endoscopy Unit, "Sapienza" University of Rome, St. Andrea University Hospital, Rome, Italy, Sapienza University of Rome, Rome, Italy

DOI 10.1055/s-0039-1681204

**Aims** Oncological radicality of endoscopic resection of pT1 colorectal cancers (CRCs) is still under debate. Need for subsequent surgery is defined by histopathological factors associated to increased risk of lymph-node metastasis. Data describing this risk are heterogeneous and based on small retrospective surgical series, while follow-up data of non-surgically resected lesions are poorly reported, resulting in a great variability in management of these patients.

Our aim was to meta-analyze recurrence and cancer-specific mortality (CSM) occurring during follow-up of patients with low- and high-risk endoscopically resected pT1-CRCs undergoing a conservative follow-up.

**Methods** The protocol was registered in PROSPERO (CRD42018110402). PubMed was searched until September 2018 for studies describing patients with pT1-CRCs, classifiable as low- or high-risk according to current knowledge, who were endoscopically resected without complementary surgery and underwent follow-up for at least 12 months. PRISMA methodology was used. Pooled cumulative incidence (and incidence rate when specific follow-up intervals were available) of recurrence and CSM were calculated separately for low- and high-risk pT1-CRCs. Quality, publication bias and heterogeneity were explored.

**Results** Pooled cumulative incidence of recurrence and CSM among high-risk lesions (6 studies, 586 patients) was respectively 10.4% [95% CI: 7 – 15%; I<sup>2</sup>: 51.8%] and 4.1% [CI: 2.7 – 6.2%; I<sup>2</sup>: 0], while among low-risk lesions (6 studies, 529 patients) recurrence and CSM were respectively 1.3% [CI: 0.6 – 2.8%; I<sup>2</sup>: 0] and 0.8% [CI: 0.3 – 2.1%; I<sup>2</sup>: 0]. Pooled incidence rate of recurrence and CSM among high risk lesions (3 cohorts, 237 patients) was 11 [CI: 2 – 20; I<sup>2</sup>: 43.3%] and 4 per 1000 patient-years [95% CI: 1 – 7; I<sup>2</sup>: 0] respectively, while among low risk lesions (3 cohorts, 229 patients), recurrence and CSM was 3 [CI: 0 – 6; I<sup>2</sup>: 0] and 2 per 1000 patient-years [95% CI: 0 – 4; I<sup>2</sup>: 0] respectively. No publication bias was found.

**Conclusions** Among patients with endoscopically resected pT1 CRCs, available data warrants a conservative approach for low-risk patients. In high-risk patients, advanced age or increased surgical risk may justify a prudent management.

## OP26 ESD WITH DOUBLE CLIP AND RUBBER BAND TRACTION OF NEOPLASTIC LESIONS DEVELOPED IN THE APPENDICEAL ORIFICE IS EFFECTIVE AND SAFE

**Authors** Oung B<sup>1</sup>, Jacques J<sup>2</sup>, Rivory J<sup>1</sup>, Legros R<sup>2</sup>, Rostain F<sup>1</sup>, Chabrun E<sup>3</sup>, Hervieu V<sup>4</sup>, Moreno-Garcia M<sup>1</sup>, Saurin JC<sup>1</sup>, Ponchon T<sup>1</sup>, Pioche M<sup>1,5</sup>

**Institute** 1 Gastroenterology and Endoscopy Unit, Pavillon H, Edouard Herriot Hospital, Hospices Civils de Lyon, Lyon, France; 2 Gastroenterology and Endoscopy Unit, Dupuytren University Hospital, Limoges, France; 3 Gastroenterology and Endoscopy Unit, Haut l'Éveque University Hospital, Bordeaux, France; 4 Anatomy and Pathology Unit, Edouard Herriot Hospital, Hospices Civils de Lyon, Lyon, France; 5 Inserm U 1032, Labtau, Lyon, France

DOI 10.1055/s-0039-1681205

**Aims** Endoscopic resection of Superficial Colorectal lesions in close proximity to the Appendiceal Orifice (L-PAO) was shown to be feasible but is considered impossible in case of deep invasion into the appendix (type 3). We report here a series of Endoscopic Submucosal Dissection with double clip and rubber band traction (DCT-ESD) of L-PAO to determine the outcomes.

**Methods** We reviewed retrospectively 21 resections of L-PAO in 3 centers. Toyonaga classification was described for each lesion. We excluded type 0 lesions which are not in contact of appendiceal orifice. Our primary outcome was En bloc resection rate and R0 resection rate. The morbidities (bleeding, perforation and acute appendicitis) and alternative surgery were studied as well.

**Results** 21 patients underwent DCT-ESD (mean of age 69-year-old). 6 patients had previous appendectomy (28.6%). The dominant localization type of lesion was type 3 (enter deeply in appendiceal orifice) with 14 lesions (66.7%), followed by 6 type 2 lesions (enters orifice, and transition to normal appendiceal mucosa is discernible on inspection of the appendiceal lumen) (28.6%) and 1 type 1 lesion (reaches border of the appendix, but does not enter orifice) (4.8%). The mean lesion size was 38 mm (10 – 70 mm) and the mean duration of resection was 63 min (10 – 230 min). En bloc resection was achieved in all cases, while 1 resection was not R0 and was found to have lateral contact with low grade dysplasia (2 pathologies is still ongoing). 8 perforations occurred during procedure and were immediately closed by clips.

Among them, one patient (4.8%) experienced postoperative perforation associated with acute appendicitis and was successfully resolved by an alternative surgery. There was no death, nor any stoma reported in our series.

**Conclusions** DCT-ESD is effective and safe for lesions developed in appendiceal orifice. A surprisingly large amount of curative resection was accomplished with just endoscopic procedure alone.

## OP27 PREDICTING ADVERSE CLINICAL OUTCOMES FOR COLORECTAL ENDOSCOPIC SUBMUCOSAL DISSECTION (CR-ESD): SMSA VERSUS A NEW EXPERIENCE-LESION SCORE. A MULTICENTER SPANISH PROSPECTIVE STUDY

**Authors** Marín-Gabriel J<sup>C1,2</sup>, Herreros de Tejada Echanojauregui A<sup>3,4</sup>, Múgica-Aguinaga F<sup>5</sup>, Ramos-Zabala F<sup>6</sup>, Albéniz-Arbizu E<sup>7</sup>, Rosón-Rodríguez PJ<sup>8</sup>, de la Peña-García J<sup>9</sup>, Terán-Lantarón Á<sup>9</sup>, Rodríguez-Sánchez J<sup>10</sup>, García-Romero D<sup>11</sup>, Amorós-Tenorio A<sup>11</sup>, Sánchez-Yagüe A<sup>12</sup>, Uchima H<sup>13</sup>, del Pozo-García AJ<sup>1</sup>, Dolz-Abadía C<sup>14</sup>, Fernández-Esparrach MG<sup>15</sup>, Santiago-García J<sup>3</sup>, Nogales-Rincón Ó<sup>16</sup>, Álvarez-Delgado A<sup>17</sup>, Cortes-Pérez H<sup>18</sup>, Durán-Bermejo R<sup>19</sup>, , ESD Interest Group – GSEED Endoscopic Resection Working Group

**Institute** 1 Gastroenterology, Endoscopy Unit, '12 de Octubre' University Hospital, Madrid, Spain; 2 Gastroenterology, Endoscopy Unit, HM Sanchinarro University Hospital, Madrid, Spain; 3 Gastroenterology, Endoscopy Unit, Puerta de Hierro – Majadahonda University Hospital, Majadahonda, Spain; 4 Gastroenterology, Endoscopy Unit, MD Anderson Cancer Centre Madrid, Madrid, Spain; 5 Gastroenterology, Endoscopy Unit, Donostia University Hospital, San Sebastián, Spain; 6 Gastroenterology, Endoscopy Unit, HM Montepíncipe University Hospital, Boadilla del Monte, Spain; 7 Gastroenterology, Endoscopy Unit, Navarra University Hospital, Pamplona, Spain; 8 Gastroenterology, Endoscopy Unit, Quirón Málaga Hospital, Málaga, Spain; 9 Gastroenterology, Endoscopy Unit, 'Marques de Valdecilla' University Hospital, Santander, Spain; 10 Gastroenterology, Endoscopy Unit, 'Ciudad Real' General University Hospital, Ciudad Real, Spain; 11 Gastroenterology, Endoscopy Unit, 'Nuestra Sra. de la Candelaria' University Hospital, Santa Cruz de Tenerife, Spain; 12 Gastroenterology, Endoscopy Unit, 'Costa del Sol' Health Agency, Marbella, Spain; 13 Gastroenterology, Endoscopy Unit, 'Doctor Josep Trueta' University Hospital, Girona, Spain; 14 Gastroenterology, Endoscopy Unit, 'Son Llatzer' University Hospital, Palma de Mallorca, Spain; 15 Gastroenterology, Endoscopy Unit, 'Clínica' University Hospital, Barcelona, Spain; 16 Gastroenterology, Endoscopy Unit, 'Gregorio Marañón' General University Hospital, Madrid, Spain; 17 Gastroenterology, Endoscopy Unit, 'Salamanca' University Hospital, Salamanca, Spain; 18 Gastroenterology, Endoscopy Unit, 'San Juan de Dios' Medical Center, Santurce, Spain; 19 Gastroenterology, Endoscopy Unit, 'ServiDigest' Clinic, Barcelona, Spain  
DOI 10.1055/s-0039-1681206

**Aims** To develop a new preoperative model to improve the ability of the SMSA score to predict adverse clinical outcomes of CR-ESD: duration of the procedure >240 min., piecemeal resections, aborted procedures and complications (intraprocedural and delayed perforations and delayed bleedings).

**Methods** Consecutive patients were enrolled in a prospective multicenter Spanish CR-ESD registry since January 2016 to October 2018. We analyzed 585 cases in 19 hospitals. The overall ability of both scores to discriminate between those who developed adverse outcomes and those who did not was assessed by the area under the ROC curve.

**Results** Overall, 221 cases developed any of the predefined adverse outcomes. The AUROC of the SMSA score  $\geq 3$  was 0.51 (CI95%: 0.46–0.55). Thus, an alternative logistic regression model was designed. It included significant variables that were associated with the predefined outcomes in the univariate analysis. One of them was related with the experience of the endoscopic team, case load  $\leq 10$  lesions: OR = 4.5 (CI95%: 1.5–13.2;  $p = 0.007$ ) and the remaining were associated with characteristics of the lesion: poor manoeuvrability, OR = 1.6 (CI95%: 1.1–2.2;  $p = 0.007$ ), size >30 mm,

OR = 1.5 (CI95%: 1.01–2.2;  $p = 0.02$ ), LST-G mixed type with a nodule >10 mm, OR = 2.8 (CI95%: 1.1–7.1;  $p = 0.03$ ) and previous endoscopic electrosurgical treatment, OR = 2.2 (CI95%: 1.06–4.6;  $p = 0.03$ ). The AUROC for this multivariate model was 0.61 (CI95%: 0.57–0.66). The difference between both AUROCs was statistically significant ( $p < 0.00001$ ).

**Conclusions** The SMSA score was useless to predict adverse outcomes for CR-ESD. A new score based on a multivariate logistic regression model, the Experience-Lesion score, showed better discrimination abilities to predict these unfavourable events.

## OP28 EFFICACY OF ESD IN LESIONS LOCATED IN DENTATE LINE. A PROSPECTIVE MULTICENTRIC COMPARATIVE STUDY

**Authors** Rodríguez-Sánchez J<sup>1</sup>, Múgica F<sup>2</sup>, Eduardo A<sup>3</sup>, Tasende JD<sup>4</sup>, Rosón P<sup>5</sup>, De la Peña J<sup>6</sup>, Terán Á<sup>6</sup>, Herreros de Tejada A<sup>7</sup>, Ramos F<sup>8</sup>, Rodríguez S<sup>9</sup>, Fernández Esparrach G<sup>10</sup>, Del Pozo A<sup>4</sup>, Dolz C<sup>11</sup>, Uchima H<sup>12</sup>, Álvarez A<sup>13</sup>, Amoros A<sup>14</sup>, Duran R<sup>15</sup>, Cortés H<sup>16</sup>, Marín Gabriel JC<sup>4</sup>, , Spanish Group of Endoscopic Mucosal Resection

**Institute** 1 Hospital General Universitario Ciudad Real, Ciudad Real, Spain; 2 Hospital Universitario de Donostia, San Sebastian, Spain; 3 Hospital de Navarra, Pamplona, Spain; 4 Hospital 12 de Octubre, Madrid, Spain; 5 Hospital Quiron Salud Malaga, Malaga, Spain; 6 Hospital Marques de Valdecilla, Santander, Spain; 7 Hospital Universitario de Majadahonda, Madrid, Spain; 8 Hospital de Montepíncipe, Madrid, Spain; 9 Hospital Quiron Juan Bravo, Madrid, Spain; 10 Hospital Clinic de Barcelona, Barcelona, Spain; 11 Hospital Son Llatzer, Mallorca, Spain; 12 Hospital Josep Trueta, Girona, Spain; 13 Hospital de Salamanca, Salamanca, Spain; 14 Hospital Universitario Ntra Sra de la Candelaria, Santa Cruz de Tenerife, Spain; 15 Clinica Servidigest Barcelona, Barcelona, Spain; 16 Hospital de Urduliz, Urduliz, Spain  
DOI 10.1055/s-0039-1681207

**Aims** Endoscopic submucosal dissection (ESD) is a well-established treatment for complex colorectal lesions. However, those which involve the dentate line (DL) up to 1 cm, have been traditionally treated by transanal endoscopic microsurgery (TEM). Poor manoeuvrability and the presumable risk of bleeding might become ESD more difficult and unfeasible. Therefore, the lack of prospective comparative studies of ESD with this indication, makes it questionable.

**Methods** All rectal lesions from the Spanish registry of ESD resected from January 2016 to November 2018 were prospectively included. Lesions involving the DL (from anal verge to 1 cm) were compared with those located in upper portions of the rectum (from 1 cm to 15 cm).

**Results** 159 rectal lesions resected by ESD were prospectively included. Of those, 46 (28.9%) involving DL and 113 (71.1%) were located in proximal portions. Both groups have similar size (DL 34.35 mm vs. NoDL 30.38 mm;  $p = 0.056$ ) and shape (LST-G homogeneous) (DL 9.8% vs. NoDL 17.3%;  $p = 0.25$ ). All lesions showed the same findings in terms of fibrosis (F2; DL 21.7% vs. 21.4% NoDL;  $p = 0.82$ ). Manoeuvrability was equivalent regardless the location (Good in DL 63.4% vs. No DL 71.7%;  $p = 0.42$ ). In terms of efficacy, ESD showed slightly higher rates of en bloc resection in No DL group (80.4% vs. 73.9%;  $p = 0.37$ ). However, R0 rates were quite similar (DL 63% vs. NoDL 71.4%;  $p = 0.31$ ). Regarding the adverse events, delayed bleeding was 2 fold higher in the DL group (19.6% vs. 8.8%;  $p = 0.05$ ). One perforation occurred in the DL group.

**Conclusions** ESD shows to be effective in lesions which involve the DL, with similar results in terms of en-bloc and R0 resection compared with ESD in other rectal areas. However, this location could be a risk factor for delayed bleeding.

## OP29 COLONIC ENDOSCOPIC SUBMUCOSAL DISSECTION USING MASTER ROBOTIC SYSTEM – A PRECLINICAL STUDY

**Authors** Chiu P<sup>1</sup>, Phee S<sup>2</sup>, Ho KY<sup>3</sup>

**Institute** 1 Dept of Surgery, Chinese University of Hong Kong, Hong Kong, Hong Kong; 2 College of Engineering, Nanyang Technological University, Singapore, Singapore; 3 Dept of Medicine, National University of Singapore, Singapore, Singapore

**DOI** 10.1055/s-0039-1681208

**Aims** One of the difficulties in performing endoscopic submucosal dissection (ESD) is the lack of retraction during submucosal dissection. The development of master and slave transluminal endoscopic robot (MASTER) aimed to enhance safety and efficacy of ESD through two flexible robotic arms for tissue retraction and dissection. This is a preclinical animal study to evaluate performance of colorectal ESD using latest version of MASTER.

**Methods** The latest version of MASTER consisted of an independently designed flexible platform with build-in imaging system and working channels for passage of robotic arms [Figure 1]. In this animal study, outcome measures included operating time (from starting incision to finishing dissection), completeness of resection, procedure-related complications as well as limitation of arms manipulation in narrow working space.

**Results** A total of 5 colorectal ESD procedures were performed in a 66.7 kg porcine model under general anesthesia. The mean operative time was 73.8 minutes, and size of specimen resected was 1340 mm<sup>2</sup>. There was no perforation while profuse bleeding was encountered during one procedure. Hemostasis was achieved after adequate exposure of bleeding arteriole by retracting the mucosal with robotic arm. The en-bloc resection rate was 100%.

**Tab. 1** Outcomes of Colorectal ESD using MASTER in porcine model

Sigmoid (36 cm from verge)	OT time: 68 mins	Dissection time 46 mins	Specimen size 35 × 35 mm	No complication
Rectum (5 cm from verge)	OT time: 46 mins	Dissection time 26 mins	Specimen size 50 × 45 mm	No complication
Sigmoid (28 cm from verge)	OT time: 30 mins	Dissection time: 18 mins	Specimen size 25 × 25 mm	No complication
Sigmoid (36 cm from verge)	OT time: 158 mins	Dissection time: 100 mins	Specimen size 40 × 50 mm	Intra-procedural bleeding
Sigmoid (24 cm from verge)	OT time: 79 mins	Dissection time: 67 mins	Specimen size 20 × 30 mm	No complication

**Conclusions** This study confirmed the feasibility and safety in performing ESD using MASTER system in porcine colon. This provided an important preclinical experience for the conduction of clinical trial.

## OP76 PATHOLOGICAL “SECOND-LOOK” SIGNIFICANTLY ALTERS CLINICAL MANAGEMENT IN ENDOSCOPICALLY RESECTED PT1 COLORECTAL CANCER

**Authors** Antonelli G<sup>1</sup>, Rampioni Vinciguerra GL<sup>2</sup>, Berardi G<sup>3</sup>, Vanella G<sup>1</sup>, Angeletti S<sup>1</sup>, Pillozzi E<sup>2</sup>, Di Giulio E<sup>1</sup>

**Institute** 1 Digestive Endoscopy Unit, St. Andrea University Hospital, ‘Sapienza’ University of Rome, Rome, Italy; 2 Pathology Unit, Sant’Andrea University Hospital, ‘Sapienza’ University of Rome, Rome, Italy; 3 General Surgery Unit, Sant’Andrea University Hospital, ‘Sapienza’ University of Rome, Rome, Italy

**DOI** 10.1055/s-0039-1681209

**Aims** Clinical management of endoscopically resected pT1 colorectal cancers (CRC) is still under debate. Guidelines prudentially suggest subsequent surgery in presence of one or more histological factors linked to increased risk of LNM, but a great variability in histological analysis, LNM rates and clinical management has been reported. Lack of standardization and interobserver variability in reporting histological factors may explain this heterogeneity. This kind of pitfall has been overcome in surveillance of Barrett’s Esophagus, with systematical pathological second opinion, recommended by international guidelines. In pT1-CRC, pathologist second opinion is rarely reported,

although “European CRC screening Guidelines” suggest its employment, especially when surgical resection is considered. Main aim of our study was to assess how second opinion of an expert GI pathologist may affect clinical management of pT1-CRC.

**Methods** We reviewed data of 83 patients undergoing primary endoscopic resection of pT1-CRC in our center from June 2006 to December 2017. Clinical, histopathological, endoscopic, eventual subsequent surgery and follow up data were collected. Pathological specimens were recovered, and evaluated by a second GI pathologist, blinded to the primary diagnosis. When uncertain, opinion of a third pathologist was sought to achieve a final diagnosis.

**Results** Of 83 pT1-CRCs resected endoscopically, second-look modified diagnosis in 16/83 (19,2%) patients, seemingly exposing them to suboptimal clinical choices. In 9/16 patients that were originally classified as harbouring a low-risk polyp, at least one overlooked histological risk factor was found, shifting them in high-risk group, with a much higher risk of LNM. By contrast, 7/16 polyps were downgraded to low-risk, as second-look did not encounter any risk factor, potentially exposing them to unnecessary surgery.

**Conclusions** Almost 20% of endoscopically resected pT1-CRCs in daily clinical practice would benefit by histopathological second-look, that can significantly modify clinical management, and permit a more accurate risk stratification. Systematic implementation of this practice may be auspicious.

Friday, April 5, 2019

08:30 – 10:30

ERCP stones

Club H

## OP30 IS ENDOSCOPIC BALLOON DILATION STILL ASSOCIATED WITH HIGHER RATES OF PANCREATITIS? A COMPREHENSIVE SYSTEMATIC REVIEW AND META-ANALYSIS

**Authors** Ogawa Matsubayashi C<sup>1</sup>, Marques Bernardo W<sup>2</sup>, Coutinho Madruga A<sup>3</sup>, Lins Mota RC<sup>3</sup>, Oliveira de Marco M<sup>3</sup>, Tavares Rezende D<sup>3</sup>,

Ottoboni Brunaldi V<sup>4</sup>, Prince Franzini T<sup>3</sup>, Guimarães Hourneaux de Moura E<sup>4</sup>

**Institute** 1 Gastrointestinal Endoscopy Unit, University of Sao Paulo, Sao Paulo, Brazil; 2 University of São Paulo, Sao Paulo, Brazil; 3 Gastrointestinal Endoscopy Unit, University of São Paulo, Sao Paulo, Brazil; 4 Gastrointestinal Endoscopy Unit, University of Sao Paulo, São Paulo, Brazil

**DOI** 10.1055/s-0039-1681210

**Aims** Evaluate effectiveness and safety of endoscopic balloon dilation compared with sphincterotomy or with endoscopic balloon dilation plus sphincterotomy in patients with common bile duct stones.

**Methods** We searched MEDLINE, EMBASE, CENTRAL up to September 2018 and selected only randomized controlled trials (RCTs). Two investigators independently conducted data extraction, and risk of bias. Summary effect sizes were estimated using risk difference with fixed effects model. Heterogeneity was assessed with the Higgins’ test (I<sup>2</sup>). If I<sup>2</sup>>50%, we analyzed forest plot in an attempt to identify a study with a higher likelihood of outlier publication or we considered a random-effect model.

**Results** Twenty-five randomized controlled trials, enrolling a total of 3347 patients met our inclusion criteria.

EPBD x EST.

EPBD was associated with lower bleeding and higher pancreatitis and severe pancreatitis rates. Perforation and cholangitis incidence was similar in both groups.

We carried out subgroup analysis by stratifying the balloon size and observed that higher incidences of PEP was seen in the studies which performed dilation with balloons smaller than 10 mm (RD=0.05; IC [0.03, 0.08]; I<sup>2</sup>=52%; P<0.0001) than balloons ≥ 10 mm (RD=-0.01; IC [-0.04, 0.02]; I<sup>2</sup>=31%; P=0.52).

EPLBD x EPLBD+EST.

In this analysis 456 patients were enrolled and almost none heterogeneity was observed. Both techniques had almost the same safety and achieved similar rate of complete retrieval in the first ERCP attempt.

EPLBD x ES and EPLBD+EST.

Finally, we made an analysis comparing balloon dilation versus both techniques, considering only patients who underwent dilation with balloons equal or bigger than 10 mm. No significant differences were found in PEP.

**Conclusions** The results of our meta-analysis showed that the pancreatitis rate is higher in EPBD compared to EST. However, when considering only balloon  $\geq 10$  mm, this difference disappeared. Moreover, PEP rates was also not higher when comparing EPLBD versus EPBL plus EST.

### OP31 A MULTICENTER RANDOMIZED TRIAL OF LASER VERSUS ELECTROHYDRAULIC LITHOTRIPSY FOR DIFFICULT BILE DUCT STONES

**Authors** Koh DH<sup>1</sup>, Lee J<sup>1</sup>, Moon SH<sup>2</sup>, Jung S<sup>3</sup>, Moon JH<sup>4</sup>, Choi HJ<sup>4</sup>, Lee IS<sup>5</sup>, Shim CS<sup>6</sup>, Lee TY<sup>6</sup>, Lee JK<sup>7</sup>, Han JH<sup>8</sup>, Cho JH<sup>9</sup>, Kim HG<sup>10</sup>, Lee SH<sup>11</sup>, Seo DW<sup>12</sup>, Jang HJ<sup>1</sup>

**Institute** 1 Internal Medicine, Hallym University Dongtan Sacred Heart Hospital, Hwaseong, Korea, Republic of; 2 Internal Medicine, Hallym University Sacred Heart Hospital, Anyang, Korea, Republic of; 3 Internal Medicine, Inha University College of Medicine, Incheon, Korea, Republic of; 4 Internal Medicine, Soonchunhyang University College of Medicine, Bucheon, Korea, Republic of; 5 Internal Medicine, The Catholic University of Korea, College of Medicine, Seoul, Korea, Republic of; 6 Internal Medicine, Konkuk University School of Medicine, Seoul, Korea, Republic of; 7 Internal Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea, Republic of; 8 Internal Medicine, Chungbuk National University College of Medicine, Cheongju, Korea, Republic of; 9 Internal Medicine, Gachon University Gil Medical Center, Incheon, Korea, Republic of; 10 Internal Medicine, Catholic University of Daegu School of Medicine, Daegu, Korea, Republic of; 11 Internal Medicine, Seoul National University Hospital, Seoul National University College of Medicine, Seoul, Korea, Republic of; 12 Internal Medicine, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea, Republic of

DOI 10.1055/s-0039-1681211

**Aims** Firstly, difficult bile duct stones were removed by mechanical lithotripsy. But, if this fail, the electrohydraulic (EHL) or laser lithotripsy (LL) could be performed. We performed the first prospective randomized controlled study to compare the efficiency and safety of LL and EHL in multicenter of South Korea.

**Methods** Between 2014 and 2016, a total of 122 patients who underwent LL or EHL was enrolled from 12 centers. All patients had failed to remove stones by conventional endoscopic stone extraction method including mechanical lithotripsy because huge stone, inaccessible major duodenal papilla, or intrahepatic bile duct (IHD) stone. For laser lithotripsy, we used holmium laser technology. Main outcome measures included complete stone clearance, procedure times and post-procedure complications.

**Results** Thirty one patients received LL and 33 received EHL. Those in the LL treatment were older, had longer procedure times (EHL  $33.3 \pm 13.8$  min, LL  $47.9 \pm 25.7$  min,  $P = 0.006$ ). There were no significant differences in stone size (EHL  $15.0 \pm 7.6$  mm, LL  $13.1 \pm 4.4$  mm,  $P = 0.235$ ), number of session (EHL  $2.4 \pm 1.1$ , LL  $3.0 \pm 1.6$ ,  $P = 0.113$ ), stone location between the two treatment groups. Rate of complete clearance (EHL 90.9%, LL 96.8%,  $P = 0.333$ ) and complications (EHL 15.2%, Holmium 19.4%,  $P = 0.656$ ) were not different between the groups. Main complications included bleeding ( $n = 3$ ), infection ( $n = 7$ ), and pancreatitis ( $n = 1$ ), although there were no differences in complications between the two treatments, and no severe complications were observed. Recurrence rate was 22.6% (14/62), although no differences were seen in either LL or EHL treatment groups (EHL 57.1%, Holmium 42.9%,  $P = 0.638$ ). IHD stone was significantly associated with recurrence compared

to common bile duct (CBD) stones (Odds ratio = 1.957, 95% confidence interval = 1.017 – 3.767,  $P = 0.045$ ).

**Conclusions** Although both LL and EHL were safe and effective in the treatment of refractory CBD stones or intrahepatic stones, LL had longer procedure. However, the number of session was not different. Further large comparative studies are warranted.

### OP33 EVALUATING DIGITAL SINGLE-OPERATOR-CHOLANGIOSCOPY FOR THE TREATMENT OF DIFFICULT BILIARY STONES: A RETROSPECTIVE MULTICENTER TRIAL

**Authors** Bokemeyer A<sup>1</sup>, Lenze F<sup>1</sup>, Lang D<sup>2</sup>, Gerges C<sup>2</sup>, Bettenworth D<sup>1</sup>, Schmidt H<sup>1</sup>, Neuhaus H<sup>2</sup>, Ullerich H<sup>1</sup>, Beyna T<sup>2</sup>

**Institute** 1 Department of Medicine B for Gastroenterology and Hepatology, University Hospital Münster, Münster, Germany; 2 Department of Internal Medicine, Evangelisches Krankenhaus Düsseldorf, Düsseldorf, Germany

DOI 10.1055/s-0039-1681212

**Aims** In patients with difficult biliary stones, standard endoscopic treatment might fail and recently introduced digital single-operator cholangioscopes (SOCs), equipped with an improved imaging quality, might be used as a rescue treatment approach.

**Methods** In two tertiary referral centers in Germany, a total of 422 digital SOC procedures performed between 2015 and 2018 were retrospectively analyzed. The examinations were performed due to a previous or expected failure of standard endoscopic techniques to treat biliary stones and only cases with a SOC-based biliary stone treatment using electrohydraulic lithotripsy (EHL) or laser lithotripsy (LL) were included.

**Results** Overall, 76 examinations with a digital SOC-assisted biliary stone treatment, performed in 61 patients, were identified. Biliary stones were mainly extrahepatic (64.5%) and less frequently intrahepatic localized (35.5%) and the median stone size was 20 mm. Complete stone removal was achieved in 67.1% of cholangioscopies, while an incomplete removal was accomplished in 32.9% of examinations. Per SOC procedure, LL and EHL were similarly effective to achieve a complete stone removal ( $p = 0.90$ ). Finally, the digital SOC-based treatment of biliary stone disease was successful in 97% of all patients; however, 13% of the patients needed at least two SOC-examinations for treatment.

Major complications, defined as postinterventional cholangitis and pancreatitis, occurred in 15.8% of cases. All cases of SOC-related complications had a mild clinical course and no mortalities occurred due to procedure related complications.

**Conclusions** Digital SOC-assisted biliary stone treatment is highly effective in patients with difficult biliary stone disease and should be considered the new standard of care for these patients; however, despite high treatment success rates, physicians should monitor these patients after performed procedures due to the significant rate of adverse events.

### OP34 ELECTROHYDRAULIC LITHOTRIPSY (EHL) WITH A SHORT-ACCESS-MOTHER-BABY-SYSTEM (SAMBA) FOR THE THERAPY OF COMPLICATED BILE DUCT STONES (SAMBA-EHL STUDY)

**Authors** Boedeker S<sup>1</sup>, Delius S von<sup>2</sup>, Neu B<sup>3</sup>, Weber A<sup>4</sup>, Schmid RM<sup>1</sup>, Frimberger E<sup>1</sup>, Abdelhafez M<sup>1</sup>

**Institute** 1 Medizinische Klinik II, Technische Universität München, München, Germany; 2 Medizinische Klinik II, RoMed Klinikum Rosenheim, Rosenheim, Germany; 3 Medizinische Klinik, Klinikum Landshut/Achdorf, Landshut, Germany; 4 Medizinische Klinik, Wertachkliniken, Bobingen, Germany

DOI 10.1055/s-0039-1681213

**Aims** Cholangioscopy with EHL is a method of choice for managing complicated bile duct stones. The SAMBA-system is a new endoscope with a shor-

tened baby scope, which allows a more direct handling. Up to now only a few studies evaluated the SAMBA-scope. The aim of the actual study was to evaluate the effectiveness of EHL during cholangioscopy utilizing the SAMBA-scope.

**Methods** The SAMBA-EHL study was a prospective, single-center and investigator initiated trial. The primary endpoint of the study was the rate of complete stone clearance after therapy. Patients > 18 years with choledocholithiasis after failed conventional extraction attempts were included. Exclusion criteria were general contraindications to ERC, ASA classes IV-VI, and the presence of a pacemaker or ICD. After admission to the study, peroral cholangioscopy was performed with the SAMBA-system (Karl-Storz, Tuttlingen) and EHL (Walz Elektronik, Rohrdorf). Successful stone-removal was confirmed by cholangiography and cholangioscopy. Clinical follow up was performed after 30 days.

**Results** 31 patients (16 men, 15 women) at a median age of 73 (32–94) years participated in the study during September 2014 thru December 2016. In 39 examinations a median stone size of 15 mm (7–25) was identified during a median procedure time of 95 min (30–180). For sedation, a median propofol dose of 905 mg (340–1800) was applied. Patients' stone clearance required on average 1.3 sessions. 24 patients required 1 EHL session, 6 required 2 and 1 patient required 3 sessions. One examination was stopped due to failure of the EHL probe. 5 patients needed further ERCPs to eventually retrieve residual stone fragments. Finally, all 31 patients were successfully treated. Minor complications included cholangitis (n = 4), pancreatitis (n = 1) and sepsis (n = 1).

**Conclusions** Therapy with EHL applied with the SAMBA-scope is an efficient and safe treatment for complicated choledocholithiasis.

### OP35 INCIDENCE AND RISK FACTORS OF REMNANT CBD STONES IN PATIENTS UNDERWENT CHOLECYSTECTOMY AFTER ENDOSCOPIC CBD STONE EXTRACTION FOR BOTH CBD STONE AND GB STONE

**Authors** Choe JW<sup>1</sup>, Hyun JJ<sup>1</sup>, Kim SY<sup>1</sup>, Jung SW<sup>1</sup>, Jung YK<sup>1</sup>, Koo JS<sup>1</sup>, Yim HJ<sup>1</sup>, Lee SW<sup>1</sup>

**Institute** 1 Korea University Ansan Hospital, Ansan-si, Korea, Republic of  
DOI 10.1055/s-0039-1681214

**Aims** Patients with choledocho-cholecystolithiasis undergo generally cholecystectomy after endoscopic CBD stone extraction. Early recurrence of CBD stone after cholecystectomy can occur due to migration of GB stone into bile duct during operation or incomplete endoscopic removal of CBD stone. The aim of this study was to investigate the incidence and risk factors of remnant CBD stones after cholecystectomy.

**Methods** A total of 139 patients (mean age 59.2 yrs, male 71 (51.1%)) who underwent endoscopic CBD stones removal followed by cholecystectomy from 2011 to 2015 were included. All patients had the placement of an endoscopic nasobiliary drainage (ENBD) tube from the time after endoscopic clearance of the CBD stones to the time after the cholecystectomy. ENBD tubogram was obtained in all patients to check the recurrence of CBD stone after operation.

**Results** CBD stone recurred in 19.0% (27/139). Post operation ENBD tubogram was done after average 2.42 days of post operation. In univariate analysis for risk factors of remained CBD stone, CBD stone number > 2, GB stone number > 2, Cholesterol stone, Muddy CBD stone, max diameter of CBD > 15 mm, EST alone (rather than EPBD or EST with EPBD), performing endoscopic mechanical lithotripsy (EML) influenced the CBD stone recurrence with statistical significance. In multivariate analysis, CBD stone number > 2, Cholesterol stone, EML are significantly related with remained CBD stone after cholecystectomy.

**Conclusions** Considering there was relatively high rate of remnant CBD stone after cholecystectomy, a routinely consecutive ERCP after cholecystectomy is worthy to consider in patients with high risk factors.

### OP36 IS DIFFICULT CHOLEDOCHOLITHIASIS RELATED TO EARLY RECURRENCE?

**Authors** Konstantakis C<sup>1</sup>, Patrikakos P<sup>2</sup>, Aggeletopoulou I<sup>1</sup>, Triantos C<sup>1</sup>, Thomopoulos K<sup>1</sup>

**Institute** 1 Division of Gastroenterology, Department of Internal Medicine, University Hospital of Patras, Patras, Greece; 2 Department of Surgery, General Hospital of Patras, Patras, Greece

DOI 10.1055/s-0039-1681215

**Aims** To investigate if presence of difficult common bile duct (CBD) stones (CBDS) is associated with an early recurrence of CBDS following endoscopic extraction.

**Methods** We retrospectively analyzed data of patients who underwent ERCP/endoscopic sphincterotomy, with successful CBD clearance, during 01/01/2005–31/12/2008 for CBDS. Symptomatic recurrences during the study period (up to 31/12/2015) were recorded. Patients were divided into two groups depending on presence or absence of difficult choledocholithiasis (defined as large (> 10 mm)/multiple (≥ 3) and/or embedded stones).

**Results** 495 patients were included. 62 patients with clinical significant recurrence were enrolled. 27/62 patients (43%) presented with difficult choledocholithiasis. They relapsed after 27.4 ± 10 months. 35/62 patients (57%) exhibited "simple" lithiasis recurring after 38.7 ± 15 months. This difference in recurrence timing was statistically significant (p = 0.003). No statistically significant differences were noted (similar "recurrence profiles") in: Episode(s) (number) of recurrence (p = 0.579), age (p = 0.929)/sex, CBD diameter (p = 0.264), CBD angulation scores (p = 0.276/0.525), interval between recurrence episodes (36 ± 24 vs. 32 ± 21, p = 0.697). Patients with difficult lithiasis required more frequently multiple ERCP sessions (p = 0.043). The main risk factor associated with an early recurrence (≤ 24 months after baseline ERCP) was the presence of difficult lithiasis at first presentation (p = 0.007).

**Conclusions** Difficult CBD lithiasis at first presentation appears to be a risk factor for early recurrence. It is likely that the underlying mechanism of early CBDS recurrence differs from that of the late one (> 24 months). Late recurrence has been associated with Duodenal – Biliary Reflux and bile stasis. Patients with an "unfavorable stone profile" are at greater risk for residual microlithiasis, as confirmed by EUS studies, which could act as nidus for re-accumulation of lithiasic content. Microlithiasis/sludge could elude the imaging sensitivity of classical cholangiography.

### OP37 CLINICAL IMPACT OF PREOPERATIVE RELIEF OF JAUNDICE FOLLOWING ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY ON DETERMINING OPTIMAL TIMING OF LAPAROSCOPIC CHOLECYSTECTOMY

**Authors** Yi SW<sup>1</sup>, Paik KH<sup>2</sup>, Paik WH<sup>3</sup>

**Institute** 1 Internal Medicine, Yonsei University/Severance Hospital, Gyeonggido, Korea, Republic of; 2 Internal Medicine, The Catholic University of Korea, Daejeon St. Mary's Hospital, Daejeon, Korea, Republic of; 3 Internal Medicine, Seoul National University Hospital, Seoul National University College of Medicine, Seoul, Korea, Republic of

DOI 10.1055/s-0039-1681216

**Aims** About 10% of patients with cholecystolithiasis also have concomitant choledocholithiasis. Laparoscopic cholecystectomy (LC) preceded by preoperative endoscopic retrograde cholangiopancreatography (ERCP) is the most commonly practiced strategy worldwide for managing co-existing gallbladder and common bile duct stones. In this study, we evaluated the optimal timing of LC according to clinical factor, focusing on preoperative relief of jaundice.

**Methods** A total of 153 patients who underwent elective LC after ERCP because of choledocholithiasis and cholecystolithiasis from January 2010 to April 2014 were retrospectively reviewed. We compared hospital stay, perioperative morbidity, and rate of surgical conversion to open cholecystectomy according to relief of jaundice before surgery. These enrolled patients were divided into

two groups: relief of jaundice before surgery (group 1, n = 76) or not (group 2, n = 77).

**Results** There were no significant differences in age, sex distribution, American Society of Anesthesiologists score, previous surgical history, white blood cell count, c-reactive protein, or operative time between the two groups. There was no significant difference in postoperative hospital stay between the two groups (4.9 ± 3.2 vs. 6.0 ± 5.2 days, p = 0.103). There were no statistical differences in conversion rate (3.9% vs. 5.4%, p = 0.717) or perioperative morbidity (0.0% vs. 3.9%, p = 0.125) either.

**Conclusions** LC would not be delayed until relief of jaundice after ERCP since there were no significant differences in perioperative morbidity or surgical conversion rate to open cholecystectomy. Early LC after ERCP may be feasible and safe in patients with acute cholangitis and cholelithiasis.

### OP38 SINGLE-OPERATOR PERORAL CHOLANGIOPANCREATOSCOPY-GUIDED LITHOTRIPSY FOR DIFFICULT BILIARY AND PANCREATIC STONES – A PROSPECTIVE MULTICENTER STUDY

**Authors** Fernandes J<sup>1,2</sup>, Araújo T<sup>1</sup>, Alexandrino G<sup>3</sup>, Lourenço L<sup>3</sup>, Barreiro P<sup>4</sup>, Horta D<sup>3</sup>, Moreira M<sup>1</sup>, Ribeiro H<sup>1</sup>, Giestas S<sup>1</sup>, Lucas F<sup>5</sup>, Libânio D<sup>1,6</sup>, Reis J<sup>3</sup>, Bana e Costa T<sup>4</sup>, Certo M<sup>7</sup>, Lopes L<sup>1,8,9</sup>, Canena J<sup>3,10</sup>

**Institute** 1 Gastroenterology, Hospital de Santa Luzia, Viana do Castelo, Portugal; 2 Gastroenterology, Centro Hospitalar Cova da Beira, Covilhã, Portugal; 3 Gastroenterology, Hospital Amadora Sinta, Amadora, Portugal; 4 Gastroenterology, Hospital Egas Moniz, Lisboa, Portugal; 5 Serviço de Medicina do Hospital de Cascais, Cascais, Portugal; 6 Gastroenterology, Instituto Português de Oncologia do Porto, Porto, Portugal; 7 Hospital de Braga, Braga, Portugal; 8 Life and Health Sciences Research Institute (ICVS), School of Medicine, University of Minho, Braga, Portugal; 9 ICVS/3B's – PT Government Associate Laboratory, Braga/Guimarães, Portugal; 10 Gastroenterology, Nova Medical School/FCML da UNL, Lisbon, Portugal  
DOI 10.1055/s-0039-1681217

**Aims** ERCP is the first choice for the removal of biliary and pancreatic stones. In difficult stones, advanced therapeutic techniques, such as electrohydraulic lithotripsy (EHL) and laser lithotripsy (LL) have been proposed. Recently, the availability of single-operator cholangiopancreatography (SOCP) turned these techniques more accessible and easier to perform. We sought to evaluate the clinical efficacy and safety of SOCP guided-lithotripsy using EHL/LL in patients with complex biliary and pancreatic stones.

**Methods** A prospective study was carried out in 3 hospitals, comprising 30 consecutive patients with complicated biliary and pancreatic stones treated with SpyGlass DS (Boston Scientific, Marlborough, United States) guided-lithotripsy using EHL or Holmium LL. We analyzed the complete cleaning of the ducts, the incidence of adverse events, the impact of the number of stones and its location on clinical success, and the performance of the 2 lithotripsy modalities.

**Results** 22 patients (73.3%) had common bile duct/common hepatic duct stones, 2 patients (6.7%) had a single cystic stump stone, 4 patients (13.3%) had pancreatic calculi and 2 patients (6.7%) had intrahepatic stones. 28 patients (93.3%) were successfully treated in one procedure and the remaining 2 patients (6.7%) required additional sessions to obtain cleaning of the ducts. 22 patients were treated with LL and 8 patients with EHL; 2 of the EHL-treated patients required more than one probe in the first ERCP; one of these patients was submitted to a subsequent ERCP in which LL was opted in, with success. The median duration of each session was 62 minutes (30 – 110). Complications were mild in 6 patients (20%) and included fever (n = 4), pain (n = 1) and mild pancreatitis (n = 1).

**Conclusions** SOCP guided-lithotripsy using EHL or LL in patients with difficult biliary and pancreatic stones is very effective and is associated with transient and mild complications. There is a clear need for comparative studies between EHL and LL.

### OP39 ENDOSCOPIC PAPPILARY AND BILIARY LARGE BALLOON DILATION IS SAFE AND EFFECTIVE FOR DIFFICULT STONES REMOVAL IN PATIENTS WITH NONDILATED OR TAPERED DISTAL BILE DUCT

**Authors** Pereira Lima J<sup>1</sup>, Pereira Lima G<sup>2</sup>, Contin I<sup>3</sup>, Arciniegas ID<sup>3</sup>, Saul C<sup>2</sup>, Oliveira dos Santos CE<sup>4</sup>

**Institute** 1 Gastroenterology, UFCSPA, Porto Alegre, Brazil; 2 ULBRA, Porto Alegre, Brazil; 3 UFCSPA, Porto Alegre, Brazil; 4 Santa Casa, Bagé, Brazil  
DOI 10.1055/s-0039-1681218

**Aims** According to guidelines, papillary/biliary balloon dilation (PBBD) should not exceed the maximum diameter of the distal bile duct and should not be performed in cases of nondilated distal bile duct. So, the use of papillary/biliary balloon dilation is contraindicated in patients with nondilated or tapered distal bile duct, in whom there is disproportion between the size of the stone and the distal bile duct. In this series, we analyze the feasibility of balloon dilation for difficult stones (> 1 cm, impacted or multiple) in patients with a narrow distal bile duct.

**Methods** Data from 1289 ERCPs from two prospective studies performed between 2014 and 2018 for post ERCP pancreatitis prevention were retrieved. 258 cases had difficult stones and 182 underwent papillary/biliary balloon dilation up to 18 mm after endoscopic papillotomy. The balloon was always inflated across the papilla up to 18 mm in order to obliterate its waist, regardless the presence of a distal situated stone. Primary outcomes were clearance rate at 1st ERCP and complications.

**Results** Of the 182 patients (120F; mean age 60 yr.), who underwent PBBD for difficult stones, 111 (61%) had non-dilated or tapered distal bile duct. Clearance rate at first ERCP was comparable among patients with dilated distal duct (67 of 71; 94%) and nondilated distal duct (102 of 111; 92%). Procedures were faster in patients with dilated distal duct (mean 17 vs. 24 min, p < 0.005). Complications were comparable in both groups (7.04% VS 7.2%).

**Conclusions** PBBD for giant, multiple or impacted stones is feasible and safe in patients with nondilated or, even narrow, distal bile duct.

Friday, April 5, 2019  
EUS diagnosis

08:30 – 10:30  
Club D

### OP40 REPEATED ENDOSCOPIC ULTRASOUND (EUS)-GUIDED FINE NEEDLE ASPIRATION (EUS-FNA) AFTER NON-DIAGNOSTIC OR INCONCLUSIVE RESULTS – A SYSTEMATIC REVIEW AND META-ANALYSIS

**Authors** Lisotti A<sup>1</sup>, Fusaroli P<sup>2</sup>

**Institute** 1 Gastroenterology Unit, Hospital of Imola, Imola, Italy; 2 Gastroenterology Unit, University of Bologna, Hospital of Imola, Imola, Italy  
DOI 10.1055/s-0039-1681219

**Aims** EUS-guided fine needle aspiration (EUS-FNA) is the gold standard technique for the pathological diagnosis of solid pancreatic lesions. Several studies have been conducted to assess the role of repeat EUS-FNA after an inconclusive index study, reporting different outcomes. The aim of this study was to evaluate the pooled diagnostic accuracy of repeated EUS-FNA after previous non-diagnostic or inconclusive results on first attempt.

**Methods** We performed a systematic research on electronic databases (MEDLINE, PubMed, EMBASE) for relevant studies. Meta-analysis was performed to obtain pooled sensitivity, specificity, positive and negative likelihood ratio and diagnostic odd ratio. Summary ROC curve was used to calculate area under the curve. Meta-regression was used to assess the role of rapid on-site evaluation (ROSE).

**Results** 12 studies (486 patients) were included in the analysis. Pooled sensitivity was 77.1% (72.4 – 81.4%) and pooled specificity was 89.4% (82.9 – 94.1%); significant heterogeneity among studies was found both in sensitivity and specificity; positive-likelihood ratio (LR) was 5.96 (2.38 – 14.90) and ne-

gative-LR 0.29 (0.19–0.45); pooled diagnostic odd ratio (DOR) was 25.0 (7.8–80.2). Summary of ROC curves showed a pooled area under curve (AUROC) of 0.882 with a standard error of 0.047. Meta-regression for potential source of heterogeneity identified a significant role of ROSE: relative DOR was 14.06 (95% C.I. 3.10–63.7;  $P=0.003$ ) for studies conducted with ROSE. **Conclusions** These data provide strong evidence on the diagnostic accuracy of repeated EUS-FNA after first non-diagnostic or inconclusive results; the use of ROSE seems to be recommended in these cases.

## OP41 RISK OF ADVANCED LESIONS IN PATIENTS WITH BRANCH-DUCT IPMN AND RELATIVE INDICATIONS FOR SURGERY ACCORDING TO EUROPEAN EVIDENCE-BASED GUIDELINES

**Authors** Pérez-Cuadrado-Robles E<sup>1</sup>, Uribarri-González L<sup>2</sup>, Ivan B<sup>1</sup>, Vila JJ<sup>2</sup>, López-López S<sup>2</sup>, Deprez PH<sup>1</sup>

**Institute** 1 Cliniques Universitaires Saint-Luc, Endoscopy Unit, Brussels, Belgium; 2 Complejo Hospitalario de Navarra, Digestive System Service, Endoscopy Unit, Navarra, Spain

DOI 10.1055/s-0039-1681220

**Aims** Recently, European evidence-based guidelines proposed surgery for branch-duct intraductal papillary mucinous neoplasms (BD-IPMNs) based on the presence of 1–2 relative indications, depending on the comorbidity burden. However, most of studies to date considered patients with absolute and relative indications together and radiological examinations in the baseline evaluation.

The aim was to assess the accuracy of the guidelines in patients with relative indications, in a surgical cohort of demonstrated BD-IPMNs previously evaluated by endoscopic ultrasound (EUS).

**Methods** This is a multi-centre, observational, retrospective study. All consecutive patients with relative indications and histologically confirmed BD-IPMN were included. Only patients assessed by EUS were included. Radiological examinations (CT, MRI) were not considered in this study. Patients with absolute indications or no indications according to recent guidelines were also excluded. Advanced lesions were invasive cancer or high-grade dysplasia.

The main outcome was risk of advanced lesions and invasive carcinoma in patients with only relative indications.

**Results** Ninety-one patients with BD-IPMN underwent surgery because of absolute ( $n=21$ ), relative ( $n=60$ ), or no formal indications ( $n=10$ ). In total, there were 60 patients (mean age:  $66 \pm 9$ , 50% male) with one ( $n=35$ , 58.3%) or  $\geq 2$  relative indications ( $n=25$ , 41.7%). The global advanced lesion and invasive carcinoma rates were 40% and 13.3%, respectively. No risk factor was associated with high-grade dysplasia or invasive carcinoma. Patients with one indication had a lower risk of invasive carcinoma than did those with  $\geq 2$  relative indications (5.7% vs. 24%, respectively,  $p=0.048$ ); however, the advanced lesion rates were comparable (37.1% vs. 44%,  $p=0.593$ ).

**Conclusions** Invasive carcinoma is considerably more frequent in patients with two or more relative indications described by EUS. The surgical strategy in these selected cases should be decided on an individual basis.

## OP42 STAGING ESOPHAGEAL AND JUNCTIONAL CANCER: IS EUS AN ACCURATE TOOL IN T2 NO PATIENTS?

**Authors** de Nucci G<sup>1</sup>, Petrone MC<sup>2</sup>, Rossi G<sup>2</sup>, Asti E<sup>3</sup>, Manes G<sup>1</sup>, Bonavina L<sup>3</sup>, Arcidiacono PG<sup>2</sup>

**Institute** 1 Gastroenterology and Endoscopy Unit, ASST Rhodense, Garbagnate Milanese-Milano, Italy; 2 Bilio Pancreatic Endoscopy and Endoscopy Ultrasound Unit, San Raffaele Hospital, Milan, Italy; 3 General Surgery Unit II, San Donato Hospital, Milano, Italy

DOI 10.1055/s-0039-1681221

**Aims** Esophageal cancer (EC) is one of the most lethal malignancies worldwide. Staging of EC is performed with computed tomography (CT), endo-

scopic ultrasonography (EUS) and (FDG) positron-emission tomography (PET). Patients can be managed in different ways, and this is influenced by the lymphnode (N)-stage of disease. Compared to surgical pathology, EUS has 85% accuracy in staging tumor depth and only about 75% accuracy in staging regional N metastases. Diagnosing clinical T2N0M0 cancers is the most challenging because an error in staging, changes the treatment. The aim of this study is to report a single high volume center's experience in this subset of patients combined with the experience of a high volume thoracic surgery center.

**Methods** 259 patients, retrospective collected, underwent EUS for staging of EC between January 2010 and August 2018. 62 patients (49 men) received a diagnosis of cT2N0M0 disease by EUS with previous staging with Ct scan and PET confirming the absence of distant/nodal metastasis. All the patient underwent standard surgical resection without preoperative chemoradiation. The preoperative EUS staging (cTNM) was then compared to surgical pathology (pTNM) results to evaluate accuracy.

**Results** Comparing preoperative EUS stage of cT2N0 with surgical pathology, 35/62 (55%) were valuated correctly, 22 (35,5%) patients resulted understaged, 5 patients (9,5%) were overstaged. Among the understated patients, it's useful to distinguish between who was understaged by tumor depth (8 pts), by nodal involvement (7 pts) or both (8 pts). The 5 overstaged patients had a T1b stage without nodal involvement. EUS shows an accuracy of 77% in staging for tumor depth and of 84% in staging for nodal malignancy. The positive predictive value (PPV) of a cT2N0 EC was 56% (35 pT2N0/62 cT2N).

**Conclusions** Accuracy of eus staged T2N0M0 EC appears slightly sufficient, only the 56% of patients underwent appropriate therapy based on their pathological staging.

## OP43 HIGH DIAGNOSTIC ADEQUACY AND ACCURACY OF THE NEW 20G PROCORE NEEDLE FOR EUS-GUIDED TISSUE ACQUISITION: RESULTS OF A LARGE MULTICENTRE RETROSPECTIVE STUDY

**Authors** Fabbri C<sup>1</sup>, Fornelli A<sup>2</sup>, Fuccio L<sup>3</sup>, Giovanelli S<sup>4</sup>, Tarantino I<sup>5</sup>, Antonini F<sup>6</sup>, Liotta R<sup>7</sup>, Frazzoni L<sup>3</sup>, Gusella P<sup>8</sup>, La Marca M<sup>3</sup>, Barresi L<sup>5</sup>, Macarri G<sup>6</sup>, Traina M<sup>5</sup>, De Biase D<sup>2</sup>, Fiorino S<sup>4</sup>, Jovine E<sup>4</sup>, Larghi A<sup>9</sup>, Cennamo V<sup>4</sup>

**Institute** 1 Gastroenterology and Endoscopy Unit, AUSL Romagna, Forlì, Italy; 2 Pathology Service, Bellaria-Maggiore Hospital, Bologna, Italy; 3 Department of Medical and Surgical Sciences, University of Bologna, Bologna, Italy; 4 Unit of Gastroenterology and Digestive Endoscopy, Bellaria-Maggiore Hospital, Bologna, Italy; 5 Endoscopy Service, Department of Diagnostic and Therapeutic Services, Istituto Mediterraneo per i Trapianti e Terapie ad Alta Specializzazione (IRCCS-ISMETT), Palermo, Italy; 6 Department of Gastroenterology, A. Murri Hospital, Fermo, Italy; 7 Pathology Service, Department of Diagnostic and Therapeutic Services, Istituto Mediterraneo per i Trapianti e Terapie ad Alta Specializzazione (IRCCS-ISMETT), Palermo, Italy; 8 Pathology Service, A. Murri Hospital, Polytechnic University of Marche, Fermo, Italy; 9 Digestive Endoscopy Unit, Gemelli University Hospital, Rome, Italy

DOI 10.1055/s-0039-1681222

**Aims** EUS-guided fine-needle biopsy has become the standard for tissue sampling. A new 20G ProCore needle has been developed to overcome the limitations of tissue acquisition of the smaller needles (22G, 25G) and the rigidity of the larger one (19G). Aim of the study was to assess the performance of the 20G ProCore needle.

**Tab. 1** Diagnostic performance of the 20G ProCore needle, in pancreatic and extra-pancreatic lesions.

20G ProCore needle performance	Pancreatic lesions (n = 236)	Extra-pancreatic lesions (n = 148)
Histological/cytological diagnosis drawn from tissue sample (diagnostic yield), n (%)	218 (92.4%)	141 (95.3%)
Possibility to obtain histological core, n (%)	170 (72.0%)	125 (84.5%)
Sensitivity for malignant lesions, % (95% CI)	90.8% (86.1 – 94.3%)	92.6% (85.4 – 97.0%)
Specificity for malignant lesions, % (95% CI)	100% (82.4 – 100%)	100% (93.3 – 100%)

**Methods** Patients who underwent EUS-guided tissue acquisition with the 20G ProCore needle of pancreatic and extra-pancreatic mass lesions were retrospectively identified at three Italian centers (Bologna, Fermo, Palermo). Diagnostic adequacy, accuracy and tissue core acquisition were the outcome measures. All the cases were performed without rapid on-site evaluation.

**Results** A total of 384 patients with pancreatic (62.2%) and extra-pancreatic lesions were included. For pancreatic lesions, adequacy, accuracy, sensitivity and specificity were 92.4%, 91.5%, 90.8% and 100%, respectively with a number needed to misdiagnose (NNM) of 11.8. The tissue core was obtained in 72% cases. Trans-duodenal approach was performed in 150 pancreatic lesions; adequacy, accuracy and tissue core acquisition were 88.7%, 90% and 66%, respectively (NNM 10). For extra-pancreatic lesions, adequacy, accuracy, sensitivity, specificity and tissue core sampling were 95.3%, 95.3%, 92.6%, 100% and 84.5% (NNM 21.3). Details are reported in **Table 1**.

**Conclusions** The 20G ProCore needle showed high diagnostic adequacy and accuracy, regardless of the access route.

#### OP44 PROSPECTIVE EVALUATION OF CONTRAST-ENHANCED ENDOSCOPIC ULTRASOUND AND ELASTOGRAPHY FOR DEEP PELVIC ENDOMETRIOSIS WITH BOWEL INVOLVEMENT

**Authors** Fortier Beaulieu C<sup>1</sup>, Chassang M<sup>1</sup>, Le Maréchal M<sup>1</sup>, Gomeric C<sup>1</sup>, Barthet M<sup>2</sup>, Piche T<sup>1</sup>, Delotte J<sup>1</sup>, Vanbiervliet G<sup>1</sup>

**Institute** 1 Hôpital Archet 2, CHU de Nice, Nice, France; 2 Assistance Publique des Hôpitaux de Marseille, Marseille, France

**DOI** 10.1055/s-0039-1681223

**Aims** Rectal endoscopic ultrasonography completes the iconographic assessment of Deep Pelvic Endometriosis (DPE) with a diagnostic sensitivity of 90% for bowel involvement. No study has evaluated the value of endoscopic ultrasound with elastography and contrast enhancement (CE-EUS) to characterize bowel lesions in DPE. The aim of this study was to characterize the bowel involvement of DPE by elastography and CE-EUS.

**Methods** This was a prospective, non-comparative, monocentric study evaluating a single group of patients, conducted from April 2015 to January 2018 at Nice University Hospital (ClinicalTrials.gov NCT03138954). Women with deep pelvic endometriosis and bowel involvement suggested beforehand by Magnetic Resonance Imaging were included. Each patient benefited from standard rectal EUS under sedation with a series of elastographic measurements and evaluation of CE-EUS (Sonovue) on bowel endometriosis's nodules.

**Results** Thirty-three patients (mean age 34.4 years [24 – 45]) with 41 bowel nodules of endometriosis were included. On the 33 nodules selected to perform the different analyses, 32 (97%) had significant contrast-enhancement. Eleven presented a hyper-enhancement (34.4%), nine an iso-enhancement (28.1%) and 12 a hypo-enhancement (37.5%). The mean elastography of the nodules, expressed as a ratio without unit, was  $9.3 \pm 5.2$  [3.74 – 23.86]. The presence of an iso or hyper-enhancement associated with a high elastographic ratio was associated with active lesions and a better therapeutic response. Of the 11 patients with these ultrasound characteristics, 9 responded favorably symptomatically after the introduction of a hormonal treatment brake. The 2 patients who had no clinical improvement had not benefited from a specific care.

**Conclusions** EUS with elastography and CE-EUS during DPE assessment is safe and improves the characterization of bowel lesions of endometriosis. The description of active lesions (iso- or hyper-enhancement, high ratio of elastometry) could be predictive of a better response to medical treatment.

#### OP45 A HEAD TO HEAD ANALYSIS OF ENDOSCOPIC ULTRASOUND AND ENDO-BRONCHIAL ULTRASOUND GUIDED FINE NEEDLE ASPIRATION OF SUB-CARINAL LYMPHADENOPATHY

**Authors** Mehmood S<sup>1</sup>, Ali N<sup>1</sup>, Bilal S<sup>2</sup>, Yusuf MA<sup>1</sup>, Loya A<sup>3</sup>

**Institute** 1 Gastroenterology, Shaukat Khanum Memorial Cancer Hospital and Research Center, Lahore, Pakistan; 2 Internal Medicine, Shaukat Khanum Memorial Cancer Hospital and Research Center, Lahore, Pakistan; 3 Pathology, Shaukat Khanum Memorial Cancer Hospital and Research Center, Lahore, Pakistan

**DOI** 10.1055/s-0039-1681224

**Aims** Very few studies have compared the diagnostic utility of these two tests in sub-carinal lymphadenopathy. The aim of this study was to compare effectiveness and safety of both modalities and assess their diagnostic accuracy.

**Methods** In this retrospective cross sectional study, data were collected from patients who underwent either EBUS-TBNA or EUS-FNA of sub-carinal lymphadenopathy for a range of clinical indications between February 2013 and August 2015, at Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore. Histopathology, clinical and radiological follow up was considered as gold standard to calculate the sensitivity, specificity, NPV and PPV.

**Results** In total, 131 eligible patients (mean age 49.69 years; range 8 – 87; 51.9% males) were reviewed. Of these, 82 patients had EUS-FNA (mean age 49.68 years; range 8 – 83; 51.2% males) and 49 patients underwent EBUS-TBNA (mean age 49.69 years; range 12 – 87; 53.1% males) of sub-carinal lymph nodes. The diagnostic yield of EUS-FNA and EBUS-TBNA were 91.4% vs. 71.4%  $p$ -value:0.005. Only one patient in each group suffered a complication and was managed conservatively. The sensitivity, specificity, PPV and NPV for EUS-FNA was 92.8%, 100%, 100% and 28.5% whereas for EBUS-FNA, it was 83.8%, 100%, 100% and 69.3%.

**Conclusions** Beyond doubt, both EUS-FNA and EBUS-TBNA are the future of mediastinal staging obviating the need of futile or unnecessary invasive staging procedures due to their minimally invasive approach, accuracy, safety record and diagnostic reach. EUS FNA should be considered as a first line investigation for the evaluation of subcarinal lymph nodes.

#### OP46 YIELD OF MALIGNANT LYMPH NODE DETECTION BY EUS AND FNA IN RESTAGING AFTER NEOADJUVANT CHEMORADIOTHERAPY FOR OESOPHAGEAL CANCER

**Authors** van der Bogt RD<sup>1</sup>, van der Wilk BJ<sup>2</sup>, Poley JW<sup>1</sup>, Krishnadath KK<sup>3</sup>, Schoon EJ<sup>4</sup>, Oostenbrug LE<sup>5</sup>, Siersema PD<sup>6</sup>, Vleggaar FP<sup>7</sup>, Biermann K<sup>8</sup>, van Lanschot JJB<sup>2</sup>, Spaander MCW<sup>1</sup>

**Institute** 1 Department of Gastroenterology and Hepatology, Erasmus MC University Medical Center, Rotterdam, Netherlands; 2 Department of Surgery, Erasmus MC University Medical Center, Rotterdam, Netherlands; 3 Department of Gastroenterology and Hepatology, Academic Medical Center Amsterdam, Amsterdam, Netherlands; 4 Department of Gastroenterology and Hepatology, Catharina Hospital, Eindhoven, Netherlands; 5 Department of Gastroenterology and Hepatology, Zuyderland Medical Center, Heerlen, Netherlands; 6 Department of Gastroenterology and Hepatology, Radboud University Medical Center, Nijmegen, Netherlands; 7 Department of Gastroenterology and Hepatology, University Medical Center Utrecht, Utrecht, Netherlands; 8 Department of Pathology, Erasmus MC University Medical Center, Rotterdam, Netherlands

**DOI** 10.1055/s-0039-1681225

**Aims** Despite the known decreased accuracy, endoscopic ultrasonography (EUS) and fine-needle aspiration (FNA) are believed to be potential tools for detection of residual disease after neoadjuvant chemoradiotherapy (nCRT) for oesophageal cancer. This study aimed to investigate the yield of EUS and FNA for detection of malignant lymph nodes after nCRT.

**Methods** EUS and FNA were performed 12 weeks after completion of nCRT. Suspect lymph nodes were defined as round, hypo-echogenic, and with a size of  $\geq 5$  millimetres. Lymph nodes that were considered suspect but did not meet aforementioned criteria were recorded separately. To guide targeting of suspect lymph nodes, F18-FDG PET-CT was performed beforehand. Endoscopic nodal staging by EUS (uN) was compared to the histopathological examination of the resection specimen (ypN). Primary outcome of this study was the proportion of patients with malignant lymph nodes (ypN+) that was identified by EUS (uN+).

**Results** 100 consecutive patients were included in this analysis. Tumour was passable in all patients. Twenty-one patients had ypN+ residual disease of which 11 were identified by EUS (sensitivity 52%). Subsequently, 62 of 79 ypN- patients were classified accordingly by EUS (specificity 78%). More than half of patients (n=6, 55%) in whom suspect lymph nodes did not meet predefined criteria had ypN+ residual disease. Missed malignant lymph nodes were located at the coeliac trunk, the lesser curvature, and at the paraoesophageal stations. Sensitivity and specificity of FNA were 75% (3/4) and 100% (11/11), respectively. FNA outcome was uncertain in 8 patients. A positive aspirate was collected in one FDG-avid lymph node that was deemed benign by EUS.

**Conclusions** Only half of patients with ypN+ residual disease was identified by EUS after nCRT. For this reason and the absence of false-positive findings by FNA, all lymph nodes detected after nCRT should be sampled when aiming to detect residual disease.

#### OP47 PERFORMANCE OF EUS-GUIDED TISSUE ACQUISITION IN SAMPLING OF GI SUBEPITHELIAL LESIONS

**Authors** Di Leo M<sup>1</sup>, Auriemma F<sup>2</sup>, Stasi E<sup>3</sup>, Lamonaca L<sup>1</sup>, Cananzi F<sup>4</sup>, Rahal D<sup>5</sup>, Bossi P<sup>5</sup>, Fugazza A<sup>1</sup>, Anderloni A<sup>1</sup>, Colombo P<sup>5</sup>, Maselli R<sup>1</sup>, Galtieri PA<sup>1</sup>, Ferrara EC<sup>1</sup>, Quagliuolo V<sup>4</sup>, Repici A<sup>1</sup>, Carrara S<sup>1</sup>

**Institute** 1 Digestive Endoscopy Unit, Division of Gastroenterology, Humanitas Clinical and Research Center, Rozzano (Milan), Italy;

2 Gastroenterology and Digestive Endoscopy Unit, Humanitas Mater Domini, Castellanza (VA), Italy; 3 Gastroenterology Unit, IRCCS Saverio De Bellis, Castellana Grotte (Ba), Italy; 4 Department of Surgical Oncology, Humanitas Clinical and Research Center, Rozzano (Milan), Italy; 5 Department of Pathology, Humanitas Clinical and Research Center, Rozzano (Milan), Italy

DOI 10.1055/s-0039-1681226

**Aims** The pathological diagnosis of gastrointestinal subepithelial lesions (SELs) is fundamental to guide management decisions. EUS guided tissue acquisition (EUS-TA) is crucial technique to reach the final pathological diagnosis. Different types of needles have been developed to perform fine needle biopsy (FNB) in order to overcome the limitations of standard fine-needle aspiration (FNA). The aim of the study was to evaluate the performance of EUS-TA in the diagnosis of SELs.

**Methods** This is a retrospective, single-center study of consecutive patients with suspected SELs underwent EUS-TA.

**Results** A total of 82 patients were included in the study (41 female, 50%), with mean age of 64 years (SD 11.8). The average size of the lesions was 36.5 mm (SD 23.1); 61% of lesions were in stomach, 19.5% in the duodenum, 14.6% in the esophagus and cardias, and 4.9% in the rectosigmoid colon. In 61% of cases, an FNB needle was used. Overall, the most frequent caliber used was 22 G (74.4%).

Overall adequacy was reached in 75.6% of patients, without a statistically significant difference between FNA and FNB samples and between different

needle calibers. However, a histological core was obtained more frequently with FNB than with FNA, 90% vs. 68.75%, respectively (p = 0.02). No immediate adverse events or technical difficulties were reported.

Fifty-one patients underwent surgical resection (62.2%), 38 of them had a diagnostic EUS-guided TA. In all of them, the pathological diagnosis obtained with EUS-TA was confirmed with the pathological analysis of surgical specimens.

Overall, the pathological diagnosis was GIST in 65 patients (79.3%), leiomyoma in 6 (7.3%), desmoid tumor in 1 (1.2%), schwannoma in 2 (2.4%), no adequacy and no surgery in 8 patients (9.8%).

**Conclusions** EUS-FNB for suspected SELs tumors had the same adequacy of FNA, with the same profile risk, but gave more histological core.

#### OP48 CLINICAL PERFORMANCE OF NEW THREE POINTS 19 G ENDOSCOPIC ULTRASOUND CORE NEEDLE FOR THE HISTOLOGICAL DIAGNOSIS OF MESENCHYMAL TUMORS

**Authors** Delconte G<sup>1</sup>, Cavalcoli F<sup>1</sup>, Collini P<sup>2</sup>, Pasquali S<sup>3</sup>, Magarotto A<sup>1</sup>, Masci E<sup>1</sup>

**Institute** 1 Diagnostic and Therapeutic Endoscopy Unit, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy; 2 Sarcoma Unit, Surgery Department, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy; 3 Pathology Department, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy

DOI 10.1055/s-0039-1681227

**Aims** Different type and size of histological needles for endoscopic ultrasound guided fine needle biopsies (EUS-FNB) have been developed, however their best application has to be defined. The diagnosis of mesenchymal tumors (MT) often requires tissue for molecular studies (i.e. ISH, FISH, NGS) beside H&E and immunohistochemistry. Aim of the study was to evaluate the clinical performance of a new three-points 19 G core needle in MT.

**Methods** From July 2017 to October 2018, all the consecutive patients who underwent EUS-FNB at a single referral with a three-points 19 G core needle for suspected abdominal MT, were prospectively analyzed. Gross visual inspection was performed to determine the number of passes.

**Results** 26 patients were evaluated. The procedure was technically feasible in all cases. Five patients were excluded due to diagnosis of other malignancies. The remaining 21 patients were diagnosed with MT (17 males, mean age 51  $\pm$  18.2 years). Based on gross visual inspection a mean number of 1.3 passes (range 1 – 2) were performed without major adverse events. The diagnosis was established by FNB in 20 cases (accuracy 95.2%). Final diagnosis were GIST in 10 cases, sarcoma in 3, leiomyoma in 2, angiomixoma, schwannoma, glioma, and desmoid-type fibromatosis in one case each. The mean size of the lesions was 77 mm (range 25 – 190). FNB was non-diagnostic in a patient with a large mass with lipomatous radiological features. Pathological examination showed adequate material for full histological and molecular diagnosis at the first pass in 19/20 cases.

**Conclusions** This is the first report on new three-points design 19 G histological EUS needle. In the setting of MT this needle showed high feasibility and safety with a high-rate of core tissue in the specimen allowing full histological and molecular evaluations. These evidences support this device as a promising tool when a histological diagnosis is needed as in case of MT.

## OP49 HIGH ACCURACY OF TRANSDUODENAL ENDOSCOPIC FINE NEEDLE BIOPSY USING A 19 G FLEXIBLE NEEDLE: A RETROSPECTIVE MULTICENTER STUDY

**Authors** de Nucci G<sup>1</sup>, Petrone MC<sup>2</sup>, Imperatore N<sup>3</sup>, Forti E<sup>4</sup>, Grassia R<sup>5</sup>, Giovannelli S<sup>6</sup>, Ottaviani L<sup>7</sup>, Mirante V<sup>8</sup>, Manno M<sup>8</sup>, Fabbri C<sup>6</sup>, Arcidiacono PG<sup>2</sup>, Manes G<sup>1</sup>

**Institute** 1 Gastroenterology and Endoscopy Unit, ASST Rhodense, Garbagnate Milanese-Milano, Italy; 2 Bilio Pancreatic Endoscopy and Endoscopy Ultrasound Unit, San Raffaele Hospital, Milan, Italy; 3 Gastroenterology Unit, Federico II University, Naples, Italy; 4 Endoscopy Unit, Ca Grande Niguarda Hospital, Milan, Italy; 5 Endoscopy Unit, Cremona Hospital, Cremona, Italy; 6 Gastroenterology Unit, Bellaria Hospital, Bologna, Italy; 7 Gastroenterology Unit, Santa Maria Hospital, Perugia, Italy; 8 Endoscopy Unit, Carpi Civil Hospital, Carpi (MO), Italy

DOI 10.1055/s-0039-1681228

**Aims** Endoscopic ultrasound-guided fine needle aspiration (EUS FNA) is the gold standard to obtain samples from gastrointestinal tract and pancreatic lesions. EUS-FNA is accurate especially when rapid on-site evaluation (ROSE) is performed. The use of EUS-guided fine needle biopsy (EUS FNB) can give a chance to reach a diagnosis. For lesions from the duodenum, it's recommended the use of a nitinol 19-gauge needle that is more flexible. Recent data shared doubts about feasibility and safety of this needles used through the duodenum. The aim of the study is to evaluate the feasibility, safety and accuracy of 19-gauge nitinol flexible needle in patients with solid lesions punctured from duodenum.

**Methods** We performed a retrospective analysis of prospective databases from eight Italian Endoscopic centres, including consecutive patients with solid lesions who underwent EUS with tissue sampling through duodenum by using 19-gauge needles between 2015 and 2018. All lesions localized at pancreas, nodes, biliary/kidney/liver periduodenal abdominal masses were enrolled in the study.

**Results** 201 patients (60.2% males) met the inclusion criteria and were enrolled. EUS-FNB was performed by using the Ex-19G needle in 43.8% of cases and ExF-19G in the remaining 56.2%, through duodenal bulb (47, 23.4%), second (143, 71.1%) and third (11, 5.5%) duodenal portion. FNB was feasible in all cases, while an adequate histology sample was obtained in all but 8 cases (96.1%). 151 lesions were considered malignant and 50 were considered as benign. 154 lesions were finally considered as malignant and 47 as benign (8 inadequate samples), leading to a diagnostic accuracy for EUS-FNB of 93.5% (95% IC 89.2%-96.5%), sensitivity of 92.1% (95% IC 86.8%-95.7%), specificity of 100% (95% CI 90.5%-100%), PPV of 100%, NPV of 74% (95% CI 62.8%-82.7%).

**Conclusions** Our data suggest that 19 flexible needles can be used safely through all the duodenum providing a sufficient tissue samples to reach a diagnosis and to perform ancillary techniques.

Friday, April 5, 2019

08:30 – 10:30

Stomach diagnosis

Club C

## OP50 FACTORS ASSOCIATED WITH THE PROGRESSION OF GASTRIC INTESTINAL METAPLASIA IN A LOW RISK POPULATION – A MULTICENTER, PROSPECTIVE COHORT STUDY

**Authors** Nieuwenburg SAV<sup>1</sup>, Mommersteeg MC<sup>1</sup>, Tang TJ<sup>2</sup>, Anten MP<sup>3</sup>, Prytz-Berset I<sup>4</sup>, Witteman E<sup>5</sup>, ter Borg F<sup>6</sup>, den Hartog GD<sup>7</sup>, Bruno MJ<sup>1</sup>, Peppelenbosch MP<sup>1</sup>, Doukas M<sup>8</sup>, Kuipers EJ<sup>1</sup>, Spaander MCW<sup>1</sup>

**Institute** 1 Gastroenterology & Hepatology, Erasmus University Medical Center, Rotterdam, Netherlands; 2 Gastroenterology & Hepatology, IJsselland Hospital, Capelle a/d IJssel, Netherlands; 3 Gastroenterology & Hepatology, Sint

Fransiscus Hospital, Rotterdam, Netherlands; 4 Gastroenterology & Hepatology, More and Romsdal Trust, Alesund, Norway; 5 Gastroenterology & Hepatology, Canisius Wilhelmina Hospital, Nijmegen, Netherlands; 6 Gastroenterology & Hepatology, Deventer Hospital, Deventer, Netherlands; 7 Gastroenterology & Hepatology, Rijnstate, Arnhem, Netherlands; 8 Pathology, Erasmus University Medical Center, Rotterdam, Netherlands  
DOI 10.1055/s-0039-1681229

**Aims** Gastric cancer (GC) is preceded by several gastric precursor lesions (GPL) which makes it suitable for surveillance. For low risk areas method and frequency of endoscopic surveillance is still under debate. This study aims to identify high and low risk subjects for progression of GPL to prevent unnecessary performed endoscopies. Patient characteristics and previously described discriminative serum markers at baseline (pepsinogens (PG) and gastrin-17) are assessed to predict progression of PGL.

**Methods** The PROREGAL study started in 2009 and is one of the largest prospective cohorts in the Netherlands and Norway. Inclusion: 1) > 18 years of age, 2) previous diagnosis of GPL. Patients completed a questionnaire on lifestyle factors and underwent at least two endoscopies. Biopsies were obtained from visible lesions and 12 standardised stomach sites and assessed according to the operative link on gastric intestinal metaplasia (OLGIM) system. At baseline, PG and gastrin-17 samples were drawn. Progression of IM was defined as progression of OLGIM classification between follow-up (FU) endoscopy. Cox-regression was performed with a significance level of 0.05.

**Results** 308 patients (median age 61 years, IQR17; male 48.4%) were included. Median FU time was 48 months (IQR 24). During FU 116 patients showed progression of OLGIM stage (37.7%) providing an incidence rate of 9 events/100 personyears (95% CI 8.8–9.2). Six patients (1.9%) developed GC (0.4 events/100 personyears (95% CI 0.002–0.01)). History of Hp-infection, smoking, alcohol use and increased BMI did not show significant associations. Also serum levels of PG I/II, and gastrin-17 were not significantly correlated with progression of IM.

**Conclusions** This is the first study to assess RF for the progression of IM in low risk areas. Lifestyle factors were not correlated with progression of IM. Moreover, baseline serum markers are not predictive for future progression of IM during FU. Future studies should focus on the longitudinal assessment of these markers.

## OP51 DUAL FOCUS NARROW-BAND IMAGING ENDOSCOPY FOR THE “OPTICAL BIOPSY” OF GASTRIC LESIONS

**Authors** Kuvaev R<sup>1,2</sup>, Kashin S<sup>1</sup>, Kraynova E<sup>3</sup>, Nikonov E<sup>2</sup>

**Institute** 1 Endoscopy, Yaroslavl Regional Cancer Hospital, Yaroslavl, Russian Federation; 2 Gastroenterology, Pirogov Russian National Research Medical University, Moscow, Russian Federation; 3 Pathology, Yaroslavl Regional Cancer Hospital, Yaroslavl, Russian Federation

DOI 10.1055/s-0039-1681230

**Aims** The aim of this study was to evaluate the accuracy of NBI features described in ESGE proposed classification (simplified NBI classification for gastric lesions, Pimentel-Nunes P. et al. 2012) when using dual focus narrow-band imaging (DF-NBI) endoscopy.

**Methods** 180 gastric lesions in 97 patients (mean age 59.7 years, SD = 13.7, 48% male, 52% female) were observed with NBI-DF (GIF- HQ190, Exera III, Olympus, Japan). Mucosal patterns were classified into type A (regular circular), B (tubulo-villous) and C (irregular), presence of “light blue crests” (LBC) and demarcation line (DL) were assessed. Forceps biopsy or endoscopic resection was performed for a histological evaluation of the lesions.

**Results** From 180 gastric lesions (62 – chronic gastritis, 67 – intestinal metaplasia (IM), 20 – hyperplastic polyp, 5 – low grade dysplasia, 10 – high grade dysplasia, 16 – adenocarcinoma) 70 had pattern A, 62 – B (36 LBC+ and 26 LBC-) and 28 – C. 20 hyperplastic polyps had a specific coarse pattern and were not classified. DL was identified in 2%, 66% and 100% in patterns A, B,

and C, respectively. Sensitivity, specificity, accuracy for pattern A (for absence of IM and neoplasia) were 0.94, 0.88, 0.90, respectively; for pattern B (for IM) were 0.84, 0.94, 0.89, respectively; for pattern B+LBC +DL (for IM) were 0.97, 1.00, 0.99, respectively; for pattern C (for neoplasia) were 0.87, 0.99, 0.97, respectively.

**Conclusions** ESGE proposed NBI classification for gastric lesions demonstrated high diagnostic accuracy of DF-NBI endoscopy. The combination of pattern B+LBC +DL was found to be the most accurate criteria for IM. Benign hyperplastic polyps were characterized by a specific pattern that needs to be validated in further studies.

## OP52 LINKED COLOR IMAGING CONFERS BENEFITS IN PROFILING H. PYLORI INFECTION IN THE STOMACH

**Authors** Sun X<sup>1</sup>, Bi Y<sup>1</sup>, Hu D<sup>2</sup>, Nong B<sup>3</sup>, Sun X<sup>4</sup>, Chen H<sup>5</sup>, Xu Y<sup>1</sup>, Liu X<sup>1</sup>, Liu Y<sup>1</sup>  
**Institute** 1 Chinese PLA General Hospital, Beijing, China; 2 The Second Affiliated Hospital of Soochow University, Suzhou, China; 3 The People's Hospital of Guangxi Zhuang Autonomous Region, Nanning, China; 4 Shanghai Tenth People's Hospital, Shanghai, China; 5 The Sixth Affiliated Hospital of Sun Yat-sen University, Guangzhou, China

**DOI** 10.1055/s-0039-1681231

**Aims** There is a high prevalence of helicobacter pylori (*H. pylori*) infection. White light endoscopy (WLE) can be used for evaluating the mucosal lesions, but WLE does not have high diagnostic efficiency. Linked color imaging (LCI) is a newly developed endoscopic imaging technique. This study aimed to compare LCI with WLE in detecting and staging *H. pylori* infection in the stomach in a randomized controlled clinical trial.

**Methods** A total of 253 patients who had indications for gastroduodenoscopy were enrolled and randomized into Group A ( $n=127$ ), who underwent WLE followed by LCI, and Group B ( $n=126$ ), who underwent LCI followed by WLE. The clinical data were collected, and the diagnostic accuracy of WLE and LCI was calculated and compared.

**Results** The overall diagnostic accuracy of WLE and LCI for *H. pylori* infection was 31.5% ( $n=40$ ) and 50.4% ( $n=64$ ) in Group A ( $P=0.001$ ), and 36.5% ( $n=46$ ) and 49.2% ( $n=62$ ) in Group B ( $P=0.029$ ). In both groups, LCI had higher sensitivity, specificity, and Youden index scores than did WLE. Four stages were defined in the course of *H. pylori* infection in the stomach. LCI staging results were more highly consistent with pathological staging than were WLE staging results (kappa value 0.772 vs. 0.516). The LCI observations were closely correlated with the pathology.

**Conclusions** LCI had a higher diagnostic efficacy for *H. pylori* infection in the stomach. The endoscopic color features under LCI can help to stage and profile the *H. pylori*-associated gastritis. This study was registered at ClinicalTrials.gov (ClinicalTrials.gov ID: NCT02724280).

## OP53 RASPBERRY SHAPED FOVEOLAR TYPE ADENOCARCINOMA

**Authors** Nomura K<sup>1</sup>, Hoteya S<sup>1</sup>, Inoshita N<sup>1</sup>, Tanaka M<sup>1</sup>, Kikuchi D<sup>1</sup>, Iizuka T<sup>1</sup>  
**Institute** 1 Toranomon Hospital, Tokyo, Japan

**DOI** 10.1055/s-0039-1681232

**Aims** Atrophic gastritis and intestinal metaplasia caused by *Helicobacter pylori* infection are frequently involved in gastric cancer. A novel concept, gastric adenocarcinoma of fundic gland type (GA-FG), was recently proposed to define adenocarcinomas that apparently do not involve *H. pylori* infection. Here, we propose the new entity of gastric adenocarcinoma of foveolar type (GA-FV) and describe its characteristic endoscopy findings.

**Methods** Subjects were 1412 patients who underwent endoscopic resection of early gastric tumors (1666 lesions) at our hospital between January 2013 and August 2018. Endoscopic findings were screened for reddish semi-pedunculated protruding lesions with a morphological raspberry-like appearance and we identified 13 patients with such GA-FV (11 men, 2 women; mean age

54.2 [range, 43–62] years). Clinicopathological assessment was completed for these 13 patients.

**Results** All patients were negative for *H. pylori* infection. Tumor location was in the upper or middle parts of the stomach in 12 patients and the elevated stomach in 1. Macroscopic type was 0-I in all patients. Tumor size was 2–9 (mean, 4.0) mm. Pathological examination in all patients revealed intramucosal invasive carcinoma, limited to between the proliferative zone and mucosal surface with fused irregular glands and loss of compartmentalization. Nail head-like structures were observed in the top mucosal layer. All lesions remained confined to the mucosa with no vascular invasion and were immunopositive for mucin 5AC, negative for mucin 6, and diffusely positive for Ki-67.  
**Conclusions** We propose GA-FV, seen as reddish semi-pedunculated protruding lesions, as a new entity of gastric adenocarcinoma.

## OP55 NARROW BAND IMAGING CHARACTERISTICS OF POLYPOID GASTRIC LESIONS: A SINGLE CENTER PROSPECTIVE STUDY

**Authors** Esposito C<sup>1</sup>, Angeletti S<sup>1</sup>, Cazzato M<sup>1</sup>, Galli G<sup>1</sup>, Conti L<sup>1</sup>, Lahner E<sup>1</sup>, Di Giulio E<sup>1</sup>, Annibale B<sup>1</sup>

**Institute** 1 Department of Medical-Surgical Sciences and Translational Medicine, Sapienza University, Rome, Italy

**DOI** 10.1055/s-0039-1681233

**Aims** To investigate endoscopic NBI appearances of gastric polyloid lesions (GPL).

**Methods** Forty pts (F 55%; median age 63 (36–85) yrs) presenting at least one GPL were investigated. Gastroscopies were performed by two experienced endoscopists. GPL images were recorded during gastroscopies and GPL were removed for histological examinations. Both endoscopists independently reviewed digital images in a blinded manner and registered endoscopic NBI appearances on a specific check-list previously elaborated. Endoscopists evaluated the mucosal and vascular pattern and could further indicate other features. Disagreement was resolved by discussion. GPL were then categorized in three different groups (HP, adenomas and T1-GC) using the histological exam as gold standard.

**Results** Overall, 52 GPL were included (29 (55.8%) HP; 18 (34.6%) T1-GC; 5 (9.6%) adenomas). The median size was 7 mm (range 2–35). Agreement between endoscopists was 0.92. As shown in Table 1, the presence of a regular circular mucosal pattern was more frequently observed in HP and T1-GC compared to adenomas ( $p<0.001$ ). The presence of a central erosion with or without demarcation line was more frequently observed in T1-GC ( $p<0.001$  vs. HP) and adenomas had a tubule-villous mucosal pattern in 80% ( $p=0.01$  versus other lesions).

**Tab. 1** n (%); \* $p<0.012$  versus adenoma; † $p=0.003$  versus adenoma; # versus HP and T1-GC  $p=0.01$ ; ‡ versus HP  $p<0.001$

	Hyperplastic polyps n = 29 (55.8)	Adenomas n = 5 (9.6)	Type-1 gastric carcinoids n = 18 (34.6)
Mucosal pattern Regular circular Regular tubulo-villous Irregular	24 (82.8)* 5 (17.2) 0	1 (20) 4 (80)# 0	17 (94.4)* 0 1 (5.6)
Vascular thickness Normal or thick Thin or ultrathin	28 (96.6) 1 (3.4)	5 (100) 0	17 (94.4) 1 (5.6)
Other features Central erosion Central erosion + demarcation line	1 (3.4) 0	0 0	8 (44.4)† 6 (33.3)‡

**Conclusions** The NBI analysis of the mucosal pattern seems to be effective to endoscopically discriminate between adenomas and HP while the main characteristic of T1-GC is the presence of a central erosion sometimes with a clear demarcation line. Accordingly, NBI could be an important tool to endoscopically distinguish the histological nature of GPL.

## OP56 THE DEGREE OF ENDOSCOPICALLY EVALUATED MUCOSAL ATROPHY AND GASTRIC CANCER RISK

**Authors** Agapov M<sup>1</sup>, Khalin K<sup>1</sup>, Zvereva L<sup>2</sup>

**Institute** 1 Endoscopy, Vladivostok Railway Clinical Hospital, Vladivostok, Russian Federation; 2 Pathology, Vladivostok Railway Clinical Hospital, Vladivostok, Russian Federation

DOI 10.1055/s-0039-1681234

**Aims** To determine the risk of gastric cancer in western patients with various degree of endoscopically evaluated mucosal atrophy.

**Methods** Data from 2 885 patients were retrospectively analyzed. The degree of mucosal atrophy was classified according to Kimura-Takemoto classification system. We analyzed the frequency of gastric cancer detection in patients with various degree of mucosal atrophy.

**Results** Among 2 885 patients 641 had no atrophy, 494 – C1, 515 – C2, 408 – C3, 241 – O1, 285 – O2, 301 – O3. Gastric cancer was detected in 68 patients (2.3%) including 8 cases of synchronous multiple tumors (totally 83 lesions; 16 – diffuse type and 67 – intestinal type). Patients with diffuse type cancer were younger than those with intestinal type ( $48.9 \pm 3.5$  vs.  $67.5 \pm 1.1$ ;  $p < 0.0001$ ). The relation between the degree of mucosal atrophy and frequency of gastric cancer detection was as following: 0 degree – 6 cases (0.9%) of cancer; C1 – 1 (0.2%); C2 – 3 (0.6%); C3 – 4 (0.9%); O1 – 10 (4.1%); O2 – 13 (4.6%); O3 – 31 (10.2%). The cancer risk was significantly higher with opened type atrophy than with no or closed type ( $< 0.00001$ ). Intestinal type of cancer was more common for patients with O1 – O3 atrophy and diffuse type – for patients with 0 and C1 – C3 atrophy ( $< 0.00001$ ).

**Conclusions** The degree of endoscopically evaluated mucosal atrophy can be used to predict gastric cancer risk and to select the group patients who need endoscopic surveillance.

## OP57 GASTRIC POLYPS: A RETROSPECTIVE COHORT ANALYSIS OF EPIDEMIOLOGICAL AND PHENOTYPIC CHARACTERISTICS

**Authors** Kapizioni C<sup>1</sup>, Kourkoulis P<sup>1</sup>, Giannelis P<sup>1</sup>, Mellos A<sup>1</sup>, Koutoufaris G<sup>1</sup>, Milioni K<sup>1</sup>, Xourgia E<sup>1</sup>, Makris K<sup>1</sup>, Ntouli V<sup>1</sup>, Michalopoulos G<sup>1</sup>, Vrakas S<sup>1</sup>, Xourgias V<sup>1</sup>

**Institute** 1 Gastroenterology, Tzaneio General Hospital of Piraeus, Athens, Greece

DOI 10.1055/s-0039-1681235

**Aims** Gastric polyps are usually benign lesions incidentally found during upper gastrointestinal endoscopy. Aim of this study was to identify the frequency and topography of different types of gastric polyps as well as their epidemiologic characteristics.

**Methods** All gastroscopies having been performed in our center over the last 15 years were retrospectively reviewed (1.1.2003 – 28.2.2018). Demographics, morphological and histological characteristics of polyps were collected.

**Results** Nine hundred eighty nine (4.1%) patients with at least one gastric polyp were identified from a total of 23668 gastroscopies. Mean patient age was 63.6 years old (range 15 – 92) with 58.8% being female. 46.5% of patients had more than one polyp detected. 66.3% of patients had polyps sized less than 5 mm while 3.7% had large polyps sized more than 20 mm. The most common site of polyp detection was fundus (37%) and 19.6% of patients had polyps in more than one sites of the stomach. 47.4% of patients had hyperplastic, 6.5% had adenomatous and 30.1% had fundic gland polyps. Some other pathology was detected in the rest 15.9% of patients. High Grade Dysplasia, detected in 5.6% of patients, was recognized only in adenomatous polyps.

**Conclusions** Gastric polyps were rather rare (4%) in our study population and more common in women. Most patients harbored hyperplastic polyps while adenomas represented the least common but more aggressive histological type.

## OP58 GASTRIC POLYPS: VARYING PATTERN OF EPIDEMIOLOGIC AND PHENOTYPIC CHARACTERISTICS BETWEEN 2003 – 2010 AND 2010 – 2017

**Authors** Kourkoulis P<sup>1</sup>, Kapizioni C<sup>1</sup>, Mellos A<sup>1</sup>, Giannelis P<sup>1</sup>, Koutoufaris G<sup>1</sup>, Milioni K<sup>1</sup>, Xourgia E<sup>1</sup>, Makris K<sup>1</sup>, Ntouli V<sup>1</sup>, Michalopoulos G<sup>1</sup>, Vrakas S<sup>1</sup>, Xourgias V<sup>1</sup>

**Institute** 1 Gastroenterology, Tzaneio General Hospital of Piraeus, Athens, Greece

DOI 10.1055/s-0039-1681236

**Aims** Epidemiologic and phenotypic characteristics of gastric polyps are directly associated to Proton Pump Inhibitors (PPI) use and Helicobacter pylori (Hp) infection. Aim of this study was to outline any changes of these parameters during different time periods.

**Methods** All gastroscopies having been performed in our center over the last 15 years were retrospectively reviewed. Demographic, topographic and histological characteristics of polyps as well as Hp infection were documented. Differences of the aforementioned parameters between 1.1.2003 – 30.6.2010 (Period 1) and 1.7.2010 – 31.12.2017 (Period 2) were analyzed using Chi Square test.

**Results** The most common site of polyp detection, polyp histology and number of polyps per patient (data not shown) were significantly different between the 2 periods (Table 1). No difference was detected in demographic characteristics as well as polyp size. Hp was found positive in 25.54% of gastroscopies. Patients harboring hyperplastic polyps had significantly higher chance of having positive Hp in Period 2 compared to Period 1.

Tab. 1

Histology/Site	Period 1	Period 2	P-value
Fundic Gland Polyps	11%	31.9%	< 0.05
Hyperplastic Polyps	25.9%	29.5%	
Antrum	43.5%	31.3%	< 0.05
Fundus	28.7%	44.9%	

**Conclusions** During the last few years a significant rise of fundic gland over hyperplastic polyps is observed, probably due to decreasing Hp prevalence and increasing PPI use in the West. That explains change of the most common polyp site to fundus and more polyps per patient between Period 1 and 2 in our study population. Hp was more regularly investigated in patients with hyperplastic polyps during Period 2 reflecting better clinical practice after the release of relevant guidelines.

## OP59 DIAGNOSTIC ACCURACY OF ACETIC ACID OR CRYSTAL VIOLET ENHANCED NARROW BAND IMAGING (NBI) FOR DETECTING GASTRIC INTESTINAL METAPLASIA (MAPS) USING EGGIM AND SIMPLIFIED NBI CLASSIFICATION

**Authors** Lyutakov I<sup>1</sup>, Nakov R<sup>1</sup>, Valkov H<sup>1</sup>, Dimov A<sup>2</sup>, Penchev P<sup>1</sup>, Vladimirov B<sup>1</sup>

**Institute** 1 Gastroenterology Clinic, University Hospital 'Tsaritsa Yoanna – ISUL', Sofia, Bulgaria; 2 Department of Statistics and Econometrics, University of National and World Economy, Sofia, Bulgaria

DOI 10.1055/s-0039-1681237

**Aims** To evaluate the sensitivity, specificity and the predictive value of acetic acid-enhanced NBI (AA-NBI) or crystal violet-enhanced NBI (CV-NBI) versus white-light endoscopy (WLE) using endoscopic grading of gastric intestinal metaplasia (EGGIM) and simplified NBI classification compare to Operative Link for Gastritis assessment based on Intestinal Metaplasia (OLGIM/OLGA) assessment in patients referred for upper endoscopy with suspected gastric intestinal metaplasia (GIM).

**Methods** In this prospective study we enrolled in 34 patients age 30 – 75 years with dyspepsia based on presenting signs and symptoms, who underwent upper endoscopy and biopsy of the mucosae in mono-center study at "Tsaritsa Yoanna – ISUL" University Hospital, Sofia, Bulgaria. We divided the

patients into 3 groups: 12 patients using WLE + random biopsy, 10 patients using CV-NBI and targeted biopsy and 12 patients using AA-NBI and targeted biopsy. The ability of the three different methods to diagnose GIM in these patients was compared. We compare EGGIM and simplified NBI classification with the results from OLGIM/OLGA.

**Results** Of 34 patients included in the analysis, the diagnosis of GIM was confirmed in 4 (11,8%) and excluded in 30 (88,2%) patients, of which 3 (75%) were diagnosed by AA-NBI and 1 (25%) by CV-NBI as compared to WLE, no patient was identified with random biopsy. Therefore, the overall diagnostic accuracy of chromoendoscopy using EGGIM score is with sensitivity 83.3% and specificity 82.12%, positive predictive values 50% and negative predictive values 95.83% for detecting GIM using OLGIM/OLGA.

**Conclusions** AA-NBI and CV-NBI showed high sensitivity, specificity and very high NPV for detecting (diagnosing) GIM in patients with gastric atrophy and significantly higher diagnostic yield compare to WLE+random biopsy. Chromoendoscopy combined with NBI should be used for detecting GIM and can improve the accuracy of endoscopy-targeted biopsies in patients with suspected gastric atrophy. Further bigger studies are needed to establish the efficacy of AA-NBI and CV-NBI.

Friday, April 5, 2019

08:30 – 10:30

Video EUS 1

South Hall 1A

## OP60V EUS-DIRECTED TRANS-JEJUNO-GASTRIC BYPASS ERCPS WITH USE OF 20MM LUMEN-APPOSING METAL STENTS (LAMS) IN A PATIENT WITH ROUX-EN-Y GASTRIC BYPASS (RYGB) DUE TO REFRACTORY BILIARY LEAK

**Authors** Sanchez-Ocaña R<sup>1</sup>, Yaiza Carbajo A<sup>1</sup>, Tejedor J<sup>1</sup>, De Benito M<sup>1</sup>, García-Alonso J<sup>1</sup>, Bazaga S<sup>1</sup>, De la Serna Higuera C<sup>1</sup>, Pérez-Miranda M<sup>1</sup>

**Institute** 1 Hospital Universitario Rio Hortega, Valladolid, Spain

**DOI** 10.1055/s-0039-1681238

**Introduction** EUS-guided gastrostomy with LAMS between pouch and gastric remnant of the RYGB gain acceptance to practice ERCP. LAMS migration during the passage of the duodenoscope occurs up to 60%. Deferred ERCP until maturation of the fistula is advised. New 20-mm LAMS have a 25% larger diameter, and could facilitate ERCP, but have not been tested on RYGB yet.

**Description** Woman who undergone a RYGB presents early bile leak post-cholecystectomy. EUS-guided JG-assisted ERCP was performed. The excluded stomach was identified with an echoendoscope from the proximal jejunum and contrast was injected through a 19-G needle to confirm the position within and to distend the stomach remnant. Jejunogastrostomy was performed using hot-Axios system and a 20 mm LAMS.

Then, ERCP was performed through the LAMS in the same session. The ampulla of Vater were easily accessed using duodenoscope.

Sphincterotomy and stone extraction were performed and a plastic-10F stent was placed. A week later, new ERCP was performed cause of the persistent bile leak, and the plastic stent was replaced with metal stent and coaxial pigtail stent.

The biliary stent, pigtail stent and LAMS were removed when the bile leak stopped.

the fistula was closed using endoscopic suturing (Overstitch; Apollo Endosurgery) and over-the scope clip (Ovesco).

**Conclusion** We describe the use of 20-mm-LAMS and combined endoscopic closure Ovesco-suturing in RYGB with refractory bile leak. None ERCPS caused stent migration. Thanks to these technical modifications, the endoscopic management did not require any additional session respect to a patient non-RyGB.

## OP61V ENDOSCOPIC MANAGEMENT OF ACCIDENTAL PORTAL VEIN PUNCTURE DURING CHOLEDOCHODUODENOSTOMY USING HOT-AXIOS LUMEN APPOSING METAL STENT

**Authors** Mangas-Sanjuan C<sup>1,2</sup>, Bozhychko M<sup>1,2</sup>, Compañy L<sup>1,2</sup>, Antonio Ruiz F<sup>1,2</sup>, Martínez Sempere J<sup>1,2</sup>, Casellas JA<sup>1,2</sup>, Ramón Aparicio J<sup>1,2</sup>

**Institute** 1 Endoscopy Unit, Hospital General Universitario de Alicante, Alicante, Spain; 2 Instituto de Investigación Sanitaria y Biomédica de Alicante, ISABIAL, Alicante, Spain

**DOI** 10.1055/s-0039-1681239

**Introduction** EUS-guided choledochoduodenostomy is an endoscopic alternative technique to PTHB drainage in patients with malignant distal biliary obstruction when ERCP has failed. However, it is not well established how the procedure must be performed when using lumen-apposing metal stents (LAMS) and severe complications associated with the technique may occur. So our aim was to describe the endoscopic management of an accidental portal vein puncture during this procedure.

**Endoscopic technique** We report a clinical case of a 65 year-old woman with obstructive jaundice due to locally advanced unresectable pancreatic adenocarcinoma. After ERCP failure, EUS-guided choledochoduodenostomy was performed. A dilated common bile duct (CBD) (14 mm) was observed so a HOT-Axios catheter using electrocautery was directly inserted into the CBD; after that, a guidewire was introduced through LAMS catheter. However, after CBD puncture, LAMS catheter and the guidewire were observed inside portal vein. The procedure was continued controlling that the opening of distal flange took place within the CBD. Once the proximal flange was delivered, a severe bleeding was observed through LAMS. After that, EUS was exchanged by a gastroscope. A guidewire through LAMS using a sphincterotome was introduced, and the guidewire was passed across the tumor and finally across the papilla. Then, EUS-guided biliary rendezvous technique was performed. A fully-covered self-expandable metal stent was placed to seal disruption between the CBD and portal vein.

Finally, the patient was discharged after 72 h without any complication (pain, rebleeding or infection), and bilirubin test normalized after 7 days.

**CONCLUSION** EUS-guided choledochoduodenostomy using Hot-AXIOS stent placement may be faster than using conventional self-expandable metal or plastic stents, however LAMS-related severe complications may occur. By introducing a guidewire into CBD before LAMS delivery, accidental portal vein puncture may be avoided.

## OP62V SINGLE-SCOPE TRANSGASTRIC ANTEGRADE CHOLANGIOSCOPY (STAC) AND INTRADUCTAL POLYPECTOMY VIA EUS-GUIDED HEPATOGASTROSTOMY (HGS) WITH A LUMEN-APPOSING-METAL STENT (LAMS)

**Authors** de Benito M<sup>1</sup>, Tejedor J<sup>1</sup>, Carbajo AY<sup>1</sup>, Bazaga S<sup>1</sup>, García-Alonso FJ<sup>1</sup>, Sánchez-Ocaña R<sup>1</sup>, de la Serna C<sup>1</sup>, Perez-Miranda M<sup>1</sup>

**Institute** 1 Hospital Universitario Rio Hortega, Valladolid, Spain

**DOI** 10.1055/s-0039-1681240

EUS-FNA failed to diagnose polypoid hilar cholangiocarcinoma and ERCP failed to drain the up-stream duct. EUS-guided hepatogastrostomy (HGS) was performed with a lumen-apposing metal stent (LAMS). Biliary drainage and access for single-scope transgastric antegrade cholangioscopy (STAC) was possible. Cholangiocarcinoma was diagnosed in the resected specimen of STAC-guided intraductal polypectomy.

**DESCRIPTION.** HGS was performed after failed ERCP and EUS-guided FNA. EUS-guided 19G needle access into a segment II radicle was achieved. Marked intrahepatic dilation and proximity to the GI wall allowed transgastric deployment of a dedicated, 8 × 8 mm fully-covered LAMS for HGS. The rationale for LAMS-HGS was to offer large-diameter drainage preventing blockage of per-

ipheral branches. HGS with a plastic stent in a dilated biliary ducts have a high risk of bile leakage. Two 7F pig-tail stents were placed through the LAMS in opposite directions to prevent dysfunction. EUS-FNA and brush cytology of a polypoid mass in the proximal CBD was performed with eventually inconclusive results. The patient cleared his jaundice. A second attempt at tissue diagnosis was made two weeks later. A transnasal upper endoscope 5-mm in diameter was passed through the LAMS into the proximal CBD, where a polypoid mass was seen. The LAMS was removed and the scope was reintroduced through the naked mature HGS fistula. A modified Intraductal polypectomy was performed with 5F-polypectomy snare and the specimen was retrieved. Tissue diagnosis of cholangiocarcinoma was confirmed. The LAMS was put back in place at the HGS. Two argon fulguration sessions by STAC through HGS were performed. Patient remains asymptomatic.

**Conclusions** Favorable Anatomical and technical factors made EUS-guided HGS with LAMS the best option in this case. Specimen of STAC-guided Intraductal polypectomy afforded tissue diagnosis of cholangiocarcinoma after prior negative EUS-FNA. Coaxial Pigtail minimize the risk of migration. Several successful tumor ablation sessions using STAC by HGS were performed.

### OP63V SINGLE-SCOPE MONO-RAIL EUS-GUIDED RENDEZVOUS TO SALVAGE FAILED DUODENAL INTUBATION AND FAILED BILIARY CANNULATION

**Authors** Sánchez-Ocaña Hernández R<sup>1</sup>, Tejedor Tejada J<sup>1</sup>, Carbajo López AY<sup>1</sup>, De Benito Sanz M<sup>1</sup>, García-Alonso FJ<sup>1</sup>, Bazaga Pérez De Rozas S<sup>1</sup>, De la Serna-Higuera C<sup>1</sup>, Pérez-Miranda Castillo M<sup>1</sup>

**Institute** 1 Hospital Universitario Rio Hortega, Gastroenterology, Valladolid, Spain

**DOI** 10.1055/s-0039-1681241

**Introduction** All reported variants of EUS-guided rendezvous (EUS-RV) require echoendoscope exchange. Exchanging the echoendoscope is tricky because it entails the risk of guidewire loss (Baron & Levy, PMID: 22622737). We describe a new variant of EUS-RV that does not require echoendoscope exchange. This was combined with the previously reported mono-rail RV, using a home-made sphincterotome.

**Description** 93-year-old old woman. Cholangitis. MRI: gallbladder hydrops, cholelithiasis, choledocholithiasis, hiatal hernia containing stomach and intestinal loops. ERCP: impossible to pass pylorus with duodenoscope, despite compression, postural changes and others for 1-hour. Second ERCP: the duodenoscope loops again in stomach. We proceed to a EUS-guided approach with possible antegrade removal of choledocholithiasis and/or access + drainage from the gallbladder. Transgastric EUS-guided biliary access was ruled out due to the lack of intrahepatic bile-duct dilation. With the echoendoscope in the bulb, we punctured with 19G needle the distal CBD passing antegradely through papilla a 0.025 guidewire. After removing the needle and pushing the guide, we unexpectedly accessed the second duodenal portion. We introduced with a snare the distal end of the guide inside the channel, although the guidewired slipped out by the mounting friction before retrieving it. We cut a slot at the tip of a standard sphincterotome, sliding it under endoscopic vision over the distal end of the guide. With a second guide through the sphincterotome lumen, we obtained bile-duct access and completed sphincterotomy and extraction of choledocholithiasis.

**Conclusions** Rigidity of the echoendoscope allowed the transpyloric passage when it had been impossible to achieve it with a duodenoscope in a patient with giant hiatal hernia. This serendipitous finding is intriguing. We were able to perform the ERCP with the echoendoscope itself without the need for exchange, an auto-rendezvous mono-rail technique, which others might also find useful in extreme cases such as the one presented.

### OP64V EUS-DIRECTED TRANSGASTRIC ERCP IN A BILLROTH II GASTRECTOMY BY USING LUMEN-APPPOSING METAL STENT

**Authors** Martínez B<sup>1</sup>, Casellas JA<sup>2</sup>, Aparicio JR<sup>3</sup>

**Institute** 1 Hospital Universitario del Vinalopó, Elche, Spain; 2 Unidad de Endoscopia, Servicio de Medicina Digestiva, Hospital General Universitario de Alicante, Alicante, Spain; 3 Unidad de Endoscopia. Servicio de Medicina Digestiva, ISABIAL, Hospital General Universitario de Alicante, Alicante, Spain  
**DOI** 10.1055/s-0039-1681242

In Billroth II anatomy, ERCP is challenging. Intubation of the afferent limb is sometime imposible due to an acute angle or long afferent limb.

We present a patient with Billroth II gastrectomy admitted due to biliary sepsis secondary to choledocholithiasis. The afferent limb was not accessible with the duodenoscope and gastroscope, due to acute angle for accessing the afferent limb and for long afferent loop. A nasobiliary catheter was inserted into the afferent limb and contrast, physiological and methylene blue were instilled to distend the afferent limb.

By means of endoscopic ultrasound, a portion of the loop near the gastric lumen was located, confirming by needle puncture and guidewire, which corresponds to the part closest to the papillary area. EUS-guided gastrojejunostomy was performed with a 15 × 10 mm Hot Axios stent. Subsequently, an ERCP was performed advancing the duodenoscope through the axios to the afferent limb, cannulating with double guidewire technique. During the extraction of a stone, it was impacted in the papilla. Electrohydraulic lithotripsy (EHL) was performed by introducing the Autolith probe through an extractor balloon. The fragmentation of the stones was completed by cholangioscopy with SpyGlass and EHL.

**Conclusions** There are no previously described cases of gastroenteroanastomosis bridge in patients with Billroth II for the performance of ERCP. This procedure is feasible with lumen-apposing metal stent and may be useful in some cases in which the afferent limb can not be accessed.

### OP65V ANTEROGRADE BILIARY DRAINAGE AS SECOND STEP AFTER EUS HEPATICOGASTROSTOMY (ABD-HG) FOR MANAGING BENIGN BILIO-DIGESTIVE ANASTOMOTIC STRICTURES

**Authors** Gonzalez JM<sup>1</sup>, Bodiou J<sup>1</sup>, Gasmi M<sup>1</sup>, Barthet M<sup>1</sup>

**Institute** 1 Gastroenterology, Hôpital Nord, AP-HM, Aix Marseille Univ., Marseille, France

**DOI** 10.1055/s-0039-1681243

**Introduction and aims** Benign strictures of bilio-digestive anastomoses (ABDS) are classical complications after biliary surgery. We propose an approach in two consecutive steps:

1. EUS-guided HG to create an access to the biliary tree;
2. antegrade treatment of the stricture.

The objectives were to evaluate the feasibility, the safety, and the efficacy of this strategy.

**Methods** Monocentric retrospective study including patients with ABDS managed by ADB-HG. One month after the first step was scheduled an antegrade treatment being:

1. anastomotic dilatation using 8 mm balloon + double pigtail stents (DPS) placement if the ABDS was crossed;
2. antegrade cholangioscopy (+ electro-hydraulic lithotripsy) in case of lithiasis.

**Results** 12 patients (mean of 61 years) were included. Nine had a hepatico-jejunal stricture, 2 biliary stricture with duodenal occlusion, and one a post-hepatectomy defect of the convergence. The symptoms were 50% of cholangitis, 50% of jaundice.

**First step:** the technical and clinical success were 100% (SEMS placement in 9 cases, DPS and/or naso-biliary drain in 2, and dilation + DPS in one case. There

were 4 post-operative adverse events (3 cholangitis, 1 abscess) managed conservatively.

**Second step:** was done after 7 weeks average. The ABDS was crossed in 36.4%, allowing for dilation and DPS placement. In other cases (63.6%), hepatico-gastric stents were placed (4 DPS; 4 SEMS). Two patients had anterograde cholangioscopy with electro-hydraulic lithotripsy for macrolithiasis (Video).

Then, a mean of 4.4 subsequent ambulatory endoscopies were performed, with final crossing and dilation of the ABDS in 75% (+DPS). There was no complication. In a mean follow-up of 100 weeks [12–213]. One patient had one dilatation without recurrence, the 11 others undergo stent exchanges every year and remain asymptomatic.

**Conclusion** The management of ABDS with this two-steps approach, allowed for stricture repermeabilization rate of 75% and constant clinical symptoms regression.

### OP66V BURIED LUMEN-APPPOSING METAL STENT (LAMS) IN ESOPHAGO-GASTRIC ANASTOMOSIS: THE LAMS-IN-LAMS RESCUE TREATMENT

**Authors** Bazaga S<sup>1</sup>, Chahal P<sup>2</sup>, Sánchez-Ocaña R<sup>1</sup>, Yaiza Carbajo A<sup>1</sup>, García-Alonso F<sup>1</sup>, de la Serna Higuera C<sup>1</sup>, Pérez-Miranda M<sup>1</sup>

**Institute** 1 Hospital Universitario Rio Hortega, Valladolid, Spain;

2 Gastroenterology and Hepatology Department, Digestive Disease Institute, Cleveland Clinic Foundation, Cleveland, United States

DOI 10.1055/s-0039-1681244

A 61-year-old man presented with progressive dysphagia and post prandial vomiting one year after undergoing esophago-gastric anastomosis for adenocarcinoma of the gastroesophageal junction. Upper endoscopy revealed a high grade, 1 cm long anastomotic stricture at 25 cm from incisors which failed to respond to multiple, serial 15 mm balloon dilation sessions. He subsequently underwent uneventful 15 mm diameter lumen apposing metal stent ((LAMS), Axios, Boston Scientific, Marlborough, MA) placement. This resulted in complete resolution of his symptoms. At six month follow up endoscopy, almost the entire LAMS was found to be embedded with significant tissue overgrowth. A second 15 mm LAMS was placed with "stent within stent" technique, completely overlapping the first LAMS. During three month follow up endoscopy, both LAMS were easily removed in an atraumatic fashion using a rat-tooth forceps. Post removal inspection of the first LAMS revealed complete disintegration of the coating which led to its embedding due to the prolonged in-dwell time.

Tissue overgrowth resulting in embedding of LAMS is a rare complication. It results from the foreign body reaction when used for the management of benign strictures. In the setting of benign tissue hyperplasia, forcible removal of the stent has been reported to cause luminal perforation. Thus, the "stent in stent" technique for removal of embedded covered metal stents has gained the best acceptance among the endoscopists. This technique involves placement of another stent covering in its entirety the inside of the trapped stent. This second stent should be of the same diameter, in order to achieve tissue necrosis of the hyperplasia resulting in easy, atraumatic removal of embedded stent. To our knowledge, this is the first report of successful removal of embedded LAMS using stent within stent technique.

### OP67V EUS GUIDED ENTEROENTEROSTOMY FOR AFFERENT LIMB SYNDROME

**Authors** El Bacha H<sup>1,2</sup>, Leblanc S<sup>3</sup>, Bordacahar B<sup>3</sup>, Brieau B<sup>3</sup>, Barret M<sup>3</sup>, Doat S<sup>4</sup>, Savier E<sup>4</sup>, Dousset B<sup>5</sup>, Soubrane O<sup>6</sup>, Prat F<sup>3</sup>

**Institute** 1 Medecine b, Hopital Ibn Sina, Rabat, Morocco; 2 Faculte de Medecine, University Mohammed V, Rabat, Morocco; 3 Gastro Enterologie, Hopital Cochin, Paris, France; 4 Chirurgie, Hopital Pitier Salpetriere, Paris, France; 5 Chirurgie, Hopital Cochin, Paris, France; 6 Chirurgie, Beaujon, Paris, France

DOI 10.1055/s-0039-1681245

**Background** Afferent limb syndrome (ALS) is a rare complication of duodenopancreatectomy resulting from the mechanical obstruction of the afferent limb usually after local malignancy recurrence. Conventional management of ALS (ie surgery and conservative palliative therapy) is often unsatisfactory.

**Methods** we present here five cases of EUS guided internal drainage of the afferent limb using lumen apposing metal stents (LAMS). IRB approval/written consent not needed.

**Results** All procedures were successful with no related complications, two patients had a complete regression of their symptoms, one experienced cholangitis recurrence after 3months, two patients died after some weeks due to their malignancies.

**Conclusions** EUS-guided entero-enterostomy by LAMS offers a convenient and safe palliative solution for patients presenting ALS due to progressive malignancy after duodenopancreatectomy.

Friday, April 5, 2019  
Video upper GI 1

08:30 – 10:30  
South Hall 1B

### OP68V FIRST SUCCESSFUL SCAR EXCISION, RE-VASCULARIZATION AND TRANSPLANTATION OF SMALL INTESTINAL MUCOSA TO THE CERVICAL ESOPHAGUS IN MAN

**Authors** Hochberger J<sup>1</sup>, Loss M<sup>2</sup>, Bernhardt J<sup>3</sup>, Koehler P<sup>4</sup>, Koop S<sup>5</sup>

**Institute** 1 Vivantes Klinikum im Friedrichshain, Gastroenterology, Berlin, Germany; 2 Vivantes Klinikum im Friedrichshain, Visceral Surgery, Berlin, Germany; 3 Südklinikum, Rostock, Germany; 4 Friedrich Loeffler Institut für Tiergenetik, Mariensee/Neustadt Rübenberge, Germany; 5 Vivantes Klinikum Berlin Friedrichshain, Plastic Surgery, Berlin, Germany

DOI 10.1055/s-0039-1681246

A 62 year old man had undergone a curative circumferential tubular endoscopic submucosal dissection (ESD) from 20–27 cm aborally in July 2015 due to an early SCC located in the upper esophageal sphincter area.

Different measures to prevent stricture formation failed and one year later the patient had to return every 10 days to the hospital for dilatation. Due to poor surgical alternatives an experimental concept was carried out after acute and chronic animal experiments in the pig. The scar was first excised in a tubular fashion from the upper esophageal sphincter over 7 centimeters and a PEG tube placed into the stomach. Two polyurethan vacuum sponges were implanted into the cervical esophagus and changed every 3–4 days over 20 days in order to stimulate neovascularization.

In a second intervention a 30 cm segment of small intestine was harvested surgically, specially prepared and transplanted to the priorly conditioned scar area. The specimen was temporarily fixed against the wall using a non-covered nitinol stent.

Two month after the second procedure several islands of histologically proven vital PAS positive small intestinal mucosa could be observed. In the meantime, small intestinal mucosa can clearly be visualized at the transplantation site. Clinically the patient has recovered completely from the intervention and works full time as engineer.

Our case shows the feasibility of a new concept: endoscopic scar excision, induction of neo-vascularization in analogy to plastic surgery over 3 weeks and transplantation of surgically harvested and specially prepared small intestinal mucosa the pretreated area. The concept offers a new perspective for the treatment and potentially the prevention of scar formation after primary tubular mucosal excision in the esophagus.

## OP69V SUBMUCOSAL TUNNELING ENDOSCOPIC RESECTION (STER) FOR OBSTRUCTIVE DUODENAL LIPOMA

**Authors** Mavrogenis G<sup>1</sup>, Bazerbachi F<sup>2</sup>, Tsevas I<sup>3</sup>, Zachariadis D<sup>3</sup>

**Institute** 1 Endoscopy, Mediterraneo Hospital, Mytilene, Greece; 2 Mayo Clinic, Rochester, United States; 3 Mediterraneo Hospital, Athens, Greece  
**DOI** 10.1055/s-0039-1681247

A 35-year-old male presented with a 6-month history of postprandial epigastric pain and nausea. Gastroscopy revealed a 3 cm soft subepithelial mass that originated from the duodenal bulb and prolapsed into the antrum. Endoscopic ultrasonography showed a hyperechoic homogenous mass that originated from the submucosal layer of the duodenum, consistent with a lipoma. The mass had a broad base, preventing the application of endoscopic loop ligation. Therefore, submucosal tunneling endoscopic resection (STER) technique was applied. A mixture of hydroxyethyl starch (500 ml) with methylene blue (1 ml) and epinephrine (1 mg) was injected above the pylorus. Then, a submucosal pocket was created at the lesser curvature of the antrum that was extended all along the length of the superior wall of the duodenal bulb. The endoscope was advanced between the superior pole of the lesion and the duodenal wall. Dissection of the inferior and posterior part of the lesion was achieved with a blunt tip knife in order to diminish the risk of perforation due to poor visualization or due to tangential access. In addition, a tapered tip cap was used in order to push the endoscope into the tight space between the mass and the underlying duodenal mucosa. Finally, the lesion was completely resected and the specimen was retrieved with a basket. At the end of the procedure small incisions were made around the edges of the entrance of the tunnel. These superficial defects allowed clip grip for traction and apposition. Using two clips, the mucosal defect was partially closed. Complete closure was achieved with additional clips. The patient was discharged after 24 hours and had an uneventful recovery. At 10 months of follow up the patient remains asymptomatic and endoscopy showed a smooth passage of the gastroscopy to the duodenum.

## OP70V EUS-GUIDED TREATMENT OF GASTRIC FUNDAL VARICES WITH COMBINED INJECTION OF COILS AND CYANOACRYLATE GLUE: INITIAL EXPERIENCE OF A BRAZILIAN ACADEMIC INSTITUTION

**Authors** Gardone R<sup>1</sup>, Retes F<sup>1</sup>, Roda R<sup>1</sup>, Gomes C<sup>2</sup>, Vilela E<sup>3</sup>, Arantes V<sup>1</sup>

**Institute** 1 Federal University of Minas Gerais, Belo Horizonte, Brazil; 2 Universidade Federal de Juiz de Fora, Belo Horizonte, Brazil; 3 Universidade Federal de Minas Gerais, Belo Horizonte, Brazil  
**DOI** 10.1055/s-0039-1681248

Conventional endoscopic treatment of gastric fundus varices (GOV 2/IGV 1) consists of the application of cyanoacrylate glue, however, such technique is associated with risk of embolization and re-bleeding.

The aim of this study was to evaluate the efficacy and complication rate of combined injection of coils and cyanoacrylate glue in the secondary prophylaxis of gastric fundus variceal bleeding.

Single-center retrospective review of prospectively collected data investigating consecutive patients that underwent EUS-guided treatment of gastric fundal varices with combined injection of coils and cyanoacrylate glue March 2018 and June 2018, at an Academic Institution. A trained operator performed procedures. Standard diagnostic upper endoscopy was first performed. EUS was performed using a forward-viewing curved linear array echoendoscope. Active flow within GFV was confirmed by color Doppler before treatment. The transesophageal approach was preferred. EUS-directed intravascular puncture of the GFV was performed using a standard FNA needle (19G) and two embolization coils 14 mm were delivered into the varix through the FNA needle. The immediate injection of 1-mL aliquots of n-butyl-cyanoacrylate after coil deployment was made through the same needle. The main out-

comes measured were hemostasis, obliteration on surveillance EUS, post-treatment bleeding rate and adverse events.

The technical success occurred in 6/6 cases (100%) and the therapeutic success in 6/6 cases (100%). There were no adverse events. Control with echoendoscopy at 8 weeks showed no doppler flow in all six cases. During the follow-up period (156 days, range 56 – 206), there was no recurrence of bleeding. EUS-guided treatment of gastric fundal varices with combined injection of coils and cyanoacrylate glue proved to be safe and effective in this small series of cases. Especially in patients with portosystemic shunt, combined EUS-guided treatment should be considered.

## OP71V UNDERWATER RESECTION OF DUODENAL SUBMUCOSAL TUMOR AND ENDOSCOPIC FULL THICKNESS SUTURING

**Authors** Granata A<sup>1</sup>, Amata M<sup>1</sup>, Ligresti D<sup>1</sup>, Tarantino I<sup>1</sup>, Barresi L<sup>1</sup>, Traina M<sup>1</sup>

**Institute** 1 Endoscopy Service, ISMETT – IRCCS – UPMC ITAY, Palermo, Italy  
**DOI** 10.1055/s-0039-1681249

A 61-year-old man was referred to our institute for subepithelial lesion of the duodenal bulb. Echographic imaging showed a 15-millimeter in diameter, homogeneous, hypoechoic lesion of the fourth layer of the inferior wall of the duodenal bulb. The EUS-guided fine needle aspiration showed a gastrointestinal stromal tumor (GIST). The increasing in size of the GIST with respect to the previous examination indicated resection, which remains the only modality that can offer a permanent cure of GISTs, and avoid tumor rupture and injuries to the pseudocapsule.

Considering the will of the patient and in order to avoid major surgery, a multidisciplinary team (endoscopist, oncologist, and surgeon) proposed an endoscopic mini-invasive approach. The procedure was performed under general anesthesia with administration of prophylactic antibiotics. Dissection was performed using an O-type HybridKnife (Erbe Elektromedizin, Germany) and we just and only inflate saline solution in the lumen in order to prevent retroperitoneal CO2 leak and the consequent subcutaneous emphysema. We performed a full-thickness resection to achieve a radical oncological resection. The excision resulted in a complete duodenal wall defect, about 25 × 25 mm in length, which was closed with three endosutures placed using OverStitch Endoscopic Suturing System (Apollo Endosurgery, USA). In the post-procedural phase, the patient developed hypochondriac pain easily controlled with single dose of ibuprofen and oral intake was restarted in the fourth post-operative day. In the successively two months follow-up the patient remained asymptomatic.

In conclusion, endoscopic full-thickness resection of duodenal GIST appears to be safe even if skill demanding and can be a valid mini-invasive alternative to surgery.

## OP72V MULTIPLE OVER-THE-SCOPE CLIPS (OTSCS) AS FIRST-LINE THERAPY OF WIDE DUODENAL BLEEDING ULCER IN ANTICOAGULATED PATIENT: A VIDEO REPORT

**Authors** Gabbani T<sup>1</sup>, Deiana S<sup>1</sup>, Soriani P<sup>1</sup>, Mirante V<sup>1</sup>, Manno M<sup>1</sup>

**Institute** 1 Digestive Endoscopy Modena Northern Area, Carpi and Mirandola Hospital, AUSL Modena, Carpi, Italy  
**DOI** 10.1055/s-0039-1681250

The Over-The-Scope Clip (OTSC, Ovesco Endoscopy GmbH, Tübingen, Germany) is a safe and effective tool for the treatment of bleeding and perforations of the gastrointestinal (GI) tract.

Concerning GI bleeding, it is recommended as rescue therapy after failure of primary hemostasis, but it is also useful as first-line therapy, particularly in high-risk lesions located in difficult sites (i.e. angulus, posterior duodenal wall) or in high-risk patients (ongoing anti-thrombotic therapy).

To the best of our knowledge, the successful placement of 3 adjacent OTSCs as primary hemostasis of a wide high-risk duodenal ulcer has not been described in medical literature.

Here, we report the case of a 76-years-old man hospitalized for pneumonia complicated by new-onset atrial fibrillation. After the beginning of anticoagulation therapy, melena and anemia occurred. Emergency upper GI endoscopy showed a wide (40 mm in diameter) Forrest IIa ulcer, with 3 bleeding vessels, on the supero-anterior duodenal wall, near to the Vater papilla.

Considering the overall high risk of therapeutic failure and rebleeding, three non-traumatic 11/6 mm OTSCs adjacent to each other were successfully deployed with suction technique, paying attention to avoid any involvement of Vater papilla. Complete hemostasis was obtained and no lumen stenosis occurred.

Few days later, second endoscopic look confirmed the 3 OTSCs with progressive ulcer's healing and the patient was discharged home on anti-thrombotic therapy.

In conclusion, even though the procedure is challenging, the closely placement of 3 OTSCs is feasible and effective as first-line treatment of wide high-risk ulcer in patient ongoing anti-thrombotic therapy. However, particular caution is necessary to avoid biliary and/or pancreatic injuries.

### OP73V ENDOSCOPIC REMOVAL OF MIGRATED ADJUSTABLE GASTRIC BANDING

**Authors** Bove V<sup>1</sup>, Boškosi I<sup>1</sup>, Tringali A<sup>1</sup>, Landi R<sup>1</sup>, Familiari P<sup>1</sup>, Perri V<sup>1</sup>, Costamagna G<sup>1</sup>

**Institute** 1 Digestive Endoscopy Unit, Fondazione Policlinico Universitario A. Gemelli IRCCS. Università Cattolica del Sacro Cuore, Centre for Endoscopic Research Therapeutics and Training – CERTT, Rome, Italy

DOI 10.1055/s-0039-1681251

**Background and aims** Intra-gastric band migrations or dysfunctions are common long-term complications of laparoscopic adjustable gastric banding (Lap-Band) that classically require surgical treatment. In this video case we describe the endoscopic removal of partially eroded Lap-Bands.

**Material and methods** We present the case of a 61 years-old female that underwent a Lap-Band in 2002 for morbid obesity (weight 150 Kg, BMI 55.1). In November 2017 she had abdominal pain and an EGD showed erosion of the gastric mucosa and partial intra-gastric migration of the Lap-Band (>50%). After surgical removal of the subcutaneous reservoir an endoscopic procedure was planned to remove the migrated gastric band. The procedure was performed under general anesthesia, with CO2 insufflation and using a therapeutic gastroscope (GIF-1T 160, Olympus, Japan).

**Results** The ring was captured with a guidewire (Jagwire, Boston Scientific, Marlborough, MA) under endoscopic control and fluoroscopic control in a "loop shape". The endoscope was then removed, and a mechanical lithotripter (Endobair, London, UK) was placed over the 2 extremities of the wire and a biliary lithotripsy device was used to cut the migrated band. The band was pushed into the stomach, captured with a snare and pulled out. There were no procedure related complications.

**Conclusions** Endoscopic removal of intra-gastric migrated Lap-Band is safe, repeatable and procedure and is a valide alternative over surgery.

### OP74V ENDOSCOPIC TREATMENT OF A DIVERTICULAR OESOPHAGEAL DUPLICATION

**Authors** Familiari P<sup>1</sup>, Landi R<sup>1</sup>, Gibiino G<sup>1</sup>, Mangiola F<sup>1</sup>, D'Aversa F<sup>1</sup>, Bove V<sup>1</sup>, Boskoski I<sup>1</sup>, Perri V<sup>1</sup>, Tringali A<sup>1</sup>, Costamagna G<sup>1</sup>

**Institute** 1 Università Cattolica del Sacro Cuore, Fondazione Policlinico Universitario A. Gemelli – IRCCS, Unità Operativa Complessa di Endoscopia Digestiva Chirurgica, Centre for Endoscopic Research Therapeutics and Training – CERTT, Rome, Italy

DOI 10.1055/s-0039-1681252

**Aims** Oesophageal duplications are rare congenital malformations, presenting as cystic, tubular or diverticular. Oesophageal duplications can remain asymptomatic for decades, and clinical manifestations can occur at any moment.

**Methods** We present the case of a 24-year-old man with an oesophageal duplication, who received successful endoscopic treatment.

The patient, with mental retardation, had a history of dysphagia since the childhood. Dysphagia worsened recently, and was associated with regurgitation and abdominal pain. For this reason, he underwent barium oesophagram and esophagogastroduodenoscopy that showed a paraesophageal diverticulum suggestive for diverticular oesophageal duplication.

Open surgery was attempted, but eventually the diverticulum was not excised, being the resection considered too dangerous.

The patient was thus referred to our Unit.

Preliminary esophagogastroduodenoscopy confirmed the presence of a diverticulum, extended for 7 cm, and starting at 35 cm from the upper incisors. A cap-assisted septotomy was performed. The endoscopic procedure was done with the patient supine, under general anaesthesia. The septum between the original oesophageal lumen and the diverticulum was carefully cut with a needle-knife.

At the end of the procedure, endoscopic clips were placed at the base of incision, to prevent bleeding and perforation.

**Results** Post-operative course was uneventful. A water-soluble contrast study on first post-operative day confirmed the absence of leakages or stasis into the diverticulum. On second post-operative day the patient started oral feeding and, two days later, he was discharged.

Six months after the treatment he is in good clinical conditions, having normal diet, without dysphagia or regurgitation.

**Conclusions** To our knowledge, this is the first report of a completely endoscopic treatment of diverticular oesophageal duplication. The procedure was relatively easy and extremely rapid. Recovery after the operation was very quick, with an early oral feeding. This procedure should probably be considered as first line therapy of this rare disorder.

### OP75V ENDOSCOPIC CLOSURE OF COMPLEX OESOPHAGO-PLEURO-CUTANEOUS FISTULA

**Authors** Puli C<sup>1</sup>, Maddirala V<sup>1</sup>, Singh A<sup>1</sup>, Shasi P<sup>1</sup>, Khoo D<sup>2</sup>

**Institute** 1 Department of Gastroenterology, Queen's Hospital, Romford, United Kingdom; 2 Department of Surgery, Queen's Hospital, Romford, United Kingdom

DOI 10.1055/s-0039-1681253

**Aim** Oesophago-pleural fistula is a difficult complication to treat in post gastrectomy patients, often requiring surgical interventions. However, recent advances mean that endoscopic techniques can provide a safe and effective alternative. Here, we describe a case of successful endoscopic closure of a oesophago-jejunal-pleurocutaneous fistula using multimodality endoscopic closure.

**Methods** A 64 year-old lady, who previously had a total gastrectomy for a neuroendocrine tumour presented with malnutrition and postprandial back pain. Investigations confirmed a fistulous tract at the site of oesophageo-jejunal anastomosis into the right pleura which was tracking into the posterior thoracic wall.

Initial attempts with naso-jejunal feeding as well as three attempts of fibrin glue injection failed to heal the fistula. Malnutrition and poor functional status precluded surgical intervention. Hence, endoscopic closure of fistulous tract was attempted.

After careful inspection, the tract was vigorously brushed using biliary cytology brush, to encourage formation of granulation tissue to assist healing. Argon plasma coagulation was then applied to the area around fistula opening. Surgifoam was then placed into the tract, followed by Fibrin glue injection. An OVESCO anchor was used to pull the opening of fistula and a 12T OVESCO clip was applied to the edges of the defect with constant soft suction to achieve watertight closure. Following deployment of an over the scope OVESCO clip, technical success was confirmed by direct endoscopic visualization and by fluoroscopic confirmation, showing no contrast extravasation.

**Results** Once normal feeding was established, the patient was discharged. She has been followed up at 2 weeks and a few months, with no evidence of recurrence of the fistula.

**Conclusion** Although surgery remains the preferred treatment for anastomotic fistulae, recent advances in endoscopic techniques have provided a safer and more effective alternative. This case demonstrates the safety and effectiveness of a multimodal endoscopic approach in the managing complex fistulae.

Friday, April 5, 2019

11:00 – 13:00

Capsule – enteroscopy

Club B

## OP77 TERMINAL ILEUM ILEOSCOPY AND HISTOLOGY IN PATIENTS UNDERGOING HIGH-DEFINITION COLONOSCOPY WITH VIRTUAL CHROMO-ENDOSCOPY FOR CHRONIC NON-BLOODY DIARRHEA: A PROSPECTIVE MULTI-CENTER STUDY

**Authors** [Borsotti E](#)<sup>1</sup>, [Barberio B](#)<sup>2</sup>, [D'Inca R](#)<sup>2</sup>, [Bonitta G](#)<sup>1</sup>, [Cavallaro F](#)<sup>1</sup>, [Pastorelli L](#)<sup>1</sup>, [Rondonotti E](#)<sup>3</sup>, [Samperi L](#)<sup>4</sup>, [Neumann H](#)<sup>5</sup>, [Viganò C](#)<sup>6</sup>, [Vecchi M](#)<sup>7</sup>, [Tontini GE](#)<sup>7</sup>

**Institute** 1 San Donato Hospital, San Donato Milanese, Italy; 2 University of Padua, Padua, Italy; 3 Ospedale Valduce, Como, Italy; 4 Ospedale Morgagni Pierantoni, Forlì, Italy; 5 Department of Interdisciplinary Endoscopy, 1st Medical Clinic and Polyclinic, University Hospital Mainz, Mainz, Germany; 6 San Gerardo Hospital, Monza, Italy; 7 IRCCS Ca' Granda Ospedale Maggiore Policlinico Foundation, Milano, Italy

DOI 10.1055/s-0039-1681254

**Aims** Ileo-colonoscopy is the procedure of choice for chronic non-bloody diarrhea (CNBD) of unknown origin. The histological evaluation at different colonic sites is mandatory to assess the presence of microscopic colitis. However, the value of routine ileal biopsy on normal-appearing mucosa as assessed with standard-resolution white-light ileoscopy is controversial given its reported low diagnostic yield. Hence, we have assessed for the first time the accuracy of retrograde ileoscopy using high-definition and dye-less chromo-endoscopy (HD+DLC), thereby calculating the impact and cost of routine ileal biopsy in CNBD.

**Tab. 1** Statistical measures of the performance of retrograde ileoscopy with HD plus virtual chromo-endoscopy using histopathology as the gold standard

Test	Value
Sensitivity	0.933 (0.660 – 0.996)
Specificity	0.983 (0.966 – 0.992)
Positive Likelihood ratio	55.6 (27.6 – 112.1)
Negative Likelihood ratio	0.068 (0.010 – 0.450)

**Methods** Patients with CNBD of unknown origin were prospectively enrolled for ileo-colonoscopy with HD+DLC in 5 referral centers. Multiple biopsies were systematically performed in each colo-rectal segment and terminal ileum for histo-pathological analysis.

**Results** Between 2014 and 2017, 546 consecutive patients were recruited. Retrograde ileoscopy success rate was 97.6%. 492 patients (mean age: 53 ± 18 years) fulfilled all the inclusion criteria: following endoscopic and histo-pathological work-up, 7% had lymphoid nodular hyperplasia and 3% had isolated ileitis. Compared to the histo-pathology as the gold standard, retrograde ileoscopy with HD+DLC showed 93% sensitivity, 98% specificity and 99.8% negative predictive value. In patients with normal ileo-colonoscopy, ileum histology had no diagnostic gain and came with a US\$ 26.5 cost per patient.

**Conclusions** Retrograde ileoscopy with HD+DLC predicts the presence of ileitis in CNBD with excellent performance. The histo-pathological evaluation of the terminal ileum is the gold standard for the diagnostic assessment of visible lesions but has no added diagnostic value in CNBD patients with negative ileo-colonoscopy inspection using modern endoscopic imaging techniques.

## OP78 FUTURE KEY PERFORMANCE INDICES FOR DEVICE ASSISTED ENTEROSCOPY; WHAT WE CAN LEARN FROM CURRENT PRACTICE

**Authors** [Ismail MS](#)<sup>1,2</sup>, [O'Keefe A](#)<sup>1</sup>, [Aylward CJ](#)<sup>3</sup>, [Hickey N](#)<sup>3</sup>, [McNamara D](#)<sup>1,2</sup>, Trinity Academic Gastroenterology Group

**Institute** 1 Department of Gastroenterology, Tallaght University Hospital, Dublin, Ireland; 2 Trinity Academic Gastroenterology Group, Trinity College Dublin, Dublin, Ireland; 3 Trinity College Dublin, Dublin, Ireland

DOI 10.1055/s-0039-1681255

**Aims: Introduction** ESGE has recommended device-assisted-enteroscopy (DAE) is used to confirm and treat small bowel lesions. DAE is relatively new and lacks Key Performance Indices (KPI). Quality of DAE would have significant impact on patient outcome; assessment of current practice could highlight important future KPIs.

**Aims** To identify potential KPIs for DAE through assessment of current practice in a single university-affiliated DAE centre.

**Methods** DAE procedures from 2014 – 2017 were included. Electronic records were reviewed including small-bowel capsule-endoscopy (SBCE) reporting system. Demographics, indication, findings, histology, intervention and complication rates were documented. Data was analysed according to potential KPI and compared using a chi<sup>2</sup> test, a p < 0.05 was considered significant.

**Results** 251 DAE cases were reviewed; 146 (58%) male; mean age 59+/-17years. Of DAE-procedures, 186 (74%) were antegrade; average depth of insertion was significantly longer 2.37+/-0.97 vs. 1.06+/-0.66 m for antegrade versus retrograde, p < 0.0001 (95%-CI 1.05 – 1.58). 83%(n=206) had small bowel imaging. The overall diagnostic yield was 58%(n=145); 30% (n=74) involved a therapeutic procedure, and tattooing was undertaken in 36%(n=99). Complications was low, 2 (0.8%); one post-polypectomy bleed and one mild pancreatitis.

Diagnostic yield was higher for patients with a prior SBCE (64%, n = 103/162) compared to both those with prior radiology (51%, n = 21/47) or with no prior small bowel imaging (47%, n = 42/89), p = 0.02, OR 1.9 (95%, CI-1.15 – 3.3). Therapeutic intent was achieved in 98%(n=74/75) of cases including APC, polypectomies and tattooing for localisation. Independent trainees, trainees under supervision or a consultant performed 21%, 49% and 30% of procedures respectively. Reporting of positive findings was significantly higher 66% vs. 49%(p = 0.02) by independent trainees.

Overall reporting quality was good with approach, indication and bowel preparation clearly documented in 99.6%(n=250), while depth of insertion was reported in 95%(n=238) and findings in 100%.

**Conclusions** DAE in our practice was effective and associated with few complications. Our data suggests that pre-screening with SBCE could be a future KPI, enhancing diagnostic yield and targeting approach.

## OP79 RISK OF SMALL BOWEL BLEEDING ASSOCIATED WITH USE OF ORAL ANTICOAGULANTS OR ANTIPLATELET AGENTS: A RETROSPECTIVE COHORT STUDY

**Authors** [Mussetto A](#)<sup>1</sup>, [Garrriba AT](#)<sup>1</sup>, [Gasperoni S](#)<sup>1</sup>, [Triossi O](#)<sup>1</sup>

**Institute** 1 Santa Maria delle Croci Hospital, Gastroenterology, Ravenna, Italy  
DOI 10.1055/s-0039-1681256

**Aims** Antiplatelet and anticoagulant therapy is increasingly being used for cardiovascular prevention. Novel direct-acting oral anticoagulants (NOAC) represent a recent, alternative, family of drugs. Rate of bleeding complications by NOAC seems to be comparable to those of warfarin but a previously assumed increase in gastrointestinal bleeding complications was meanwhile confirmed. The risk of bleeding in the setting of suspected small bowel bleeding (SSBB) in patients taking antiplatelets or anticoagulants has been poorly investigated.

Aim of this study was to evaluate diagnostic yield using video capsule endoscopy in SSBB patients taking antiplatelets or anticoagulants.

**Methods** This is a retrospective review of chronic users of anticoagulants or antiplatelet agents who underwent VCE for SSBB. Small bowel findings were evaluated using Mirocam VCE (Intromedic, Korea).

**Results** 264 patients (134 women, mean age 72.3 years, 55% occult SSBB) underwent VCE from January 2014 to March 2018 for SSBB. 162 out of 264 patients were taking antiplatelets or anticoagulants agents. 44 patients were taking 100 mg of enteric-coated aspirin, 24 taking thienopyridine (ticlopidine or clopidogrel), 39 taking aspirin combined with thienopyridine (combined group), 27 taking warfarin and 28 patients taking NOAC (20% dabigatran, 32% apixaban, 48% rivaroxaban). Diagnostic yield in this specific cohort was 54.9%. Relevant lesions were most frequently detected in the "combined" group (74.3%) among the five groups (aspirin group 52.2%, NOAC group 50%, warfarin group 48.1%, thienopyridine group 41.6%) ( $p < 0.05$ ).

**Conclusions** The risk of small bowel bleeding related to antiplatelet/anticoagulant therapy seems to be increased in patients taking the combination of aspirin and thienopyridine and preventive strategies in this group should be established. The risk related to novel oral anticoagulants seems to be similar to that for warfarin and aspirin alone.

## OP80 PAN-ENTERIC CAPSULE IN PATIENTS WITH MELENA AND A NEGATIVE UPPER ENDOSCOPY: A PILOT STUDY

**Authors** Mussetto A<sup>1</sup>, Arena R<sup>1</sup>, Triossi O<sup>1</sup>

**Institute** 1 Gastroenterology, Santa Maria delle Croci Hospital, Ravenna, Italy  
DOI 10.1055/s-0039-1681257

**Aims** Melena can be caused both by bleeding from upper sources and from mid/lower gastrointestinal bleeding. Colonoscopy is frequently used to investigate melena after a non-diagnostic EGD but retrospective studies showed that its diagnostic and therapeutic yield is low. Aim of our study was to perform a pan-enteric capsule endoscopy (PCE) with PillCam Colon2 capsule and evaluate its ability to avoid unnecessary colonoscopies when performed on patients with melena after an initial negative upper endoscopy.

**Methods** Between January and September 2018 patients with melena, negative gastroscopy and the need to be hospitalized for drop of haemoglobin level, were prospectively included. After a negative upper endoscopy examination, a PCE was performed after a split, high-volume preparation. After the passage through the stomach, the capsule was "forced" to acquire images of the small bowel at a rate similar to that of current-generation small-bowel capsules.

**Results** 12 patients (8 female, mean age 76 years) met the criteria. Capsule was egested "on" in 11 out of 12 patients. PCE found small bowel findings in 6/12 patients (blood in lumen in 2 patients, angiodysplasias in 2 patients, ileal ulcer in one patient and jejunitis with substenosis in one patient); colon findings were revealed in 4 patients (polyps in 1 patient, diverticulosis with haemorrhagic stigmata in 1 patient, blood in caecum in 1 patient and right colon cancer in another patient) and both small bowel and colon findings in 2 patients. One patient had a negative, incomplete study. The pan-enteric study led to a double balloon enteroscopy in six cases and a colonoscopy in 5 patients.

**Conclusions** In this small, prospective, study, the PCE was useful to identify the site of bleeding in 92% of patients with melena and a negative gastroscopy and was able to guide the subsequent endoscopic treatments. In particular, PCE resulted in less unnecessary colon investigations.

## OP81 COMPARISON OF THE DIAGNOSTIC YIELD OF "PILLCAM SB3" AND "OMOM" CAPSULE ENDOSCOPY IN SMALL BOWEL BLEEDING

**Authors** Blanco-Velasco G<sup>1</sup>, Solorzano-Pineda OM<sup>1</sup>, Zamarripa-Mottu R<sup>1</sup>, Espinosa-Saavedra D<sup>1</sup>, Hernandez-Mondragon OV<sup>1</sup>

**Institute** 1 Endoscopy, CMN Siglo XXI, IMSS, Mexico City, Mexico  
DOI 10.1055/s-0039-1681258

**Aims** Capsule endoscopy (CE) is considered the gold standard for the diagnosis of small bowel bleeding (SBB). The CE Pillcam SB3 has a diagnostic yield above 80% for SBB. CE OMOM offers an adequate diagnostic yield with a lower price.

The objective of this study is to compare the diagnostic yield of the Pillcam SB3 and OMOM CE in SBB.

**Methods** This is a prospective, comparative, observational, randomized and blinded study. Patients with suspected SBB were included. All the patients were given randomly both CE (OMOM Smart Capsule 2 and Pillcam SB3) with a difference of 24 hours between them and were read by two endoscopists. Saurin's classification was used to divide the findings into P2, P1 and P0. The diagnostic yield and functionality between the two CEs were analyzed.

**Results** We included 20 patients with SBB, 45% female and 65.5 years old. Small bowel complete visualization was achieved in 18 SB3 and in 19 OMOM ( $p = 0.548$ ). The median intestinal transit time was 355 with SB3 and 240 with OMOM ( $p = 0.445$ ). The battery time was significantly longer with SB3 (821 vs. 703 minutes,  $p < 0.001$ ) and the download time was shorter with the OMOM (31 vs. 117 minutes,  $p < 0.001$ ). Both CEs presented a failure. The cause of the bleeding was identified in 18 SB3 (90%) and 16 OMOM CE (80%) ( $p = 0.331$ ). P2 lesions were observed in 12 SB3 (60%) and 11 OMOM ( $p = 0.749$ ). P1 lesions were identified in 3 patients with both capsules and extraintestinal lesions were found in 3 patients with SB3 and in 2 with OMOM ( $p = 0.633$ ).

**Conclusions** No significant differences were found between the two CEs for the identification of the P2 lesions. Significant differences were observed in the battery life and the download time of both ECs.

## OP82 THE RELATION BETWEEN SMALL BOWEL CAPSULE ENDOSCOPY TRANSIT TIME AND DIAGNOSTIC YIELD AMONG PATIENTS PRESENTED WITH IRON DEFICIENCY ANAEMIA

**Authors** Ahmed H<sup>1</sup>, Uddin B<sup>1</sup>, Kapur K<sup>1</sup>, Said E<sup>1</sup>

**Institute** 1 Barnsley District General Hospital, Gastroenterology Department, Barnsley, United Kingdom

DOI 10.1055/s-0039-1681259

**Aims** Investigate small bowel capsule transit times in relation to diagnostic yield and detection of angiodysplasias.

**Methods** We retrospectively reviewed small bowel capsule endoscopy (SBCE) reports of patients referred with iron deficiency anaemia (IDA) between April 2011 and April 2017 to our center. Exclusion criteria were; tests with capsule retention, inadequate intestinal views due to poor bowel preparation and unrecorded small bowel transit time (SBTT). We assessed demographics, significant outcomes that explain IDA, SBTT and number of detected angiodysplasias (AD). A positive diagnostic yield (PDY) was detection of a significant pathology that explains IDA.

**Results** We investigated a total of 766 SBCE reports with indication of IDA. Capsule retention was recorded in thirteen patients (1.7%). A total of 675 reports were analysed following the exclusion of 91 SBCE procedures as per the protocol above. Mean age was 61.6 years +/- 13.6. Male to female ratio: 313/362. The overall PDY was 24.3% (164/675) with a mean small bowel transit time (SBTT) of 236.73 minutes +/- 88.81. Mean SBTT was significantly higher in those with a PDY compared to those without (254.6 min +/- 89.2 vs. 231 min +/- 88,  $P$  value 0.003). While mean Age was significantly higher in those with a PDY (63.6 yrs +/- 14.2 vs. 61 yrs +/- 13.3,  $P = 0.029$ ), Gender did not seem to have an impact on the outcome (Males = 24.9% vs. Females = 23.7%,  $p = 0.71$ ). On subgroup analysis, SBTT did not influence the number of AD lesions detected (267.8 min +/- 103 for a single AD Vs 243.5 min +/- 82.3 for multiple ADs,  $P = 0.17$ ).

**Conclusions** In patients with IDA undergoing SBCE, identifying a clinically significant pathology increases significantly with the increase in SBTT and Age. We recommend either repeating test using bowel anti-motility drug or considering alternative diagnostic methods in tests with rapid SBTT.

## OP83 CECDALIC – A NEW SCORE FOR PANENTERIC EVALUATION IN CROHN'S DISEASE PATIENTS

**Authors** Arieira C<sup>1,2,3</sup>, Magalhães R<sup>1,2,3</sup>, Dias de Castro F<sup>1,2,3</sup>, Boal Carvalho P<sup>1,2,3</sup>, Rosa B<sup>1,2,3</sup>, Moreira MJ<sup>1,2,3</sup>, Cotter J<sup>1,2,3</sup>

**Institute** 1 Gastroenterology, Hospital da Senhora da Oliveira, Guimarães, Portugal; 2 School of Medicine, University of Minho, Life and Health Sciences Research Institute, Braga/Guimarães, Portugal; 3 PT Government Associate Laboratory, ICVS/3B's, Braga/Guimarães, Portugal

**DOI** 10.1055/s-0039-1681260

**Aims** Crohn's Disease (CD) is a chronic and progressive disease. Panenteric capsule endoscopy has been used to assess both the small and large bowel in a single examination. The Capsule Endoscopy Crohn's Disease Activity Index (CECDAI) was initially devised to measure mucosal disease activity in small bowel, although in 2018 it was extended to the colon for standardization of inflammatory activity (CECDALic).

The aim of this study was to apply the CECDALic in a cohort of CD patients that underwent panenteric capsule to evaluate the inter-observer agreement among 3 observers and the correlation between this score and inflammatory parameters.

**Methods** CECDALic was calculated after dividing the bowel in 4 segments (1 = proximal small bowel, 2 = distal small bowel, 3 = right colon, 4 = left colon) and according to the formula defined by the authors ( $A1 \times B1 + C1$ ) + ( $A2 \times B2 + C2$ ) + ( $A3 \times B3 + C3$ ) + ( $A4 \times B4 + C4$ ), A-inflammation; B-extent of disease and C-presence of strictures.

The videos were read and scored by the 3 independent and experienced operators, blinded to the results of the standard workup.

Statistical analysis was performed with SPSS, using Kendall's Coefficient to evaluate the interobserver agreement. Spearman correlation ( $r_s$ ) was used to access the correlation between the score and inflammatory biomarkers.

**Results** Included 22 patients, 59.1% (n = 13) male gender with median age 28.0 (17 – 54) years. In 3 patients (13.6%) the capsule was not exteriorized within the battery time. The median CECDALic score was 9.17 (0 – 37). The overall CECDALic score Kendall coefficient was 0.94, demonstrating a statistically significant ( $p < 0.001$ ) excellent agreement between the 3 observers.

We found a very good correlation between CECDALic and Calprotectin ( $r_s = 0.82$ ;  $p = 0.012$ ) and a moderate correlation with C-reactive Protein ( $r_s = 0.50$ ;  $p = 0.019$ ).

**Conclusions** CECDALic is a new score with excellent inter-observer agreement and with a strong correlation with calprotectin. These characteristics, associated with its ease of application, may enable CECDALic to become the tool of choice when reviewing panenteric capsule endoscopy, in order to more accurately and objectively assess CD inflammatory activity.

## OP84 THE ROLE OF CAPSULE ENTEROSCOPY IN COELIAC DISEASE: RESULTS OF A PROSPECTIVE STUDY IN A TERTIARY REFERRAL CENTER

**Authors** Elli L<sup>1</sup>, Marinoni B<sup>1</sup>, Topa M<sup>2</sup>, Roncoroni L<sup>1</sup>, Vecchi M<sup>1,2</sup>

**Institute** 1 Center for the Prevention of Celiac Disease, Gastroenterology and Endoscopy Unit, IRCCS Ca' Granda Ospedale Maggiore Policlinico Foundation, Milan, Italy; 2 Pathophysiology and Transplantation, Università degli Studi di Milano, Milan, Italy

**DOI** 10.1055/s-0039-1681261

**Aims** Coeliac disease (CD) is a chronic enteropathy, rarely complicated with refractory disease (RCD type 1, 2) and malignancies. Capsule endoscopy (CE) is a useful tool to evaluate patients with persistence or recurrence of symptoms despite an ongoing gluten free diet (GFD). The aim of this study was to evaluate the diagnostic performance of CE in detecting CD-related complications.

**Methods** Between 2014 and 2017 we prospectively enrolled patients undergoing CE for suspected complicated CD, non-adherence to GFD or for follow-up in known RCD. CE was defined as positive in case of CD-related findings in

SB (i.e. atrophy, erosions, ulcers or masses). Patients with a final diagnosis of RCD or malignancy were defined as complicated CD.

**Results** 121 CD patients were enrolled and 143 CE were performed. 61% of patients underwent CE for suspected CD complication, 25% for non-adherence to GFD and 14% for RCD follow-up. The mean follow-up time after CE was  $13 \pm 9$  months. As a result, 17% were diagnosed as complicated CD (11 RCD-type 1, 8 RCD-type 2 and 2 lymphoma). CD-related findings were detected in 55%. CE sensitivity for the detection of mucosal atrophy was 62% and specificity was 81%. The incidence of complications in patients with suspected complicated CD and non-adherence to GFD was 5.7%. Among patients with known RCD, two patients (1.6%) developed EATL. Patients with positive CE were significantly older at CD diagnosis compared to patients with negative CE ( $p = 0.005$ ). Moreover, CD-related findings were more frequently detected in patients aged  $> 50$  years old ( $p = 0.01$ ). Any statistical correlation was found with positive CD serology and incorrect GFD ( $p > 0.05$ ).

**Conclusions** CE plays a pivotal role in detecting atrophy, extension of SB lesions and in identifying CD-related complications. According to our results, complicated CD is an uncommon condition; however patients aged  $> 50$  years old and with older age at CD diagnosis should be considered at higher risk of complications, thus accurately investigated with CE.

## OP85 HIGH REBLEEDING RATE IN PATIENTS EVALUATED FOR OBSCURE GASTROINTESTINAL BLEEDING AFTER A FALSE-NEGATIVE DEEP ENTEROSCOPY

**Authors** Gomes AC<sup>1</sup>, Pinho R<sup>1</sup>, Rodrigues A<sup>1</sup>, Ponte A<sup>1</sup>, Rodrigues J<sup>1</sup>, Sousa M<sup>1</sup>, Silva JC<sup>1</sup>, Pvão-Borges V<sup>2</sup>, Carvalho J<sup>1</sup>

**Institute** 1 Centro Hospitalar de Vila Nova de Gaia e Espinho, Gastroenterology, Vila Nova de Gaia, Portugal; 2 Centro Hospitalar de Lisboa Central, E.P.E, Gastroenterology, Lisboa, Portugal

**DOI** 10.1055/s-0039-1681262

**Aims** Data on the long-term outcomes after a false-negative enteroscopy in obscure gastrointestinal bleeding (OGIB), following capsule endoscopy (CE) with positive findings is scarce.

**Aim** To evaluate rebleeding rate, risk factors and characteristics of rebleeding in OGIB patients with false-negative enteroscopy after positive CE.

**Methods** Retrospective single-center analysis of 24 patients with false negative-enteroscopy, after a positive CE. Patients: 62.5% female, median age 64.5 years-old (IQR 50.2 – 74.0), 37.5% presenting with overt-OGIB.

**Results** Previous CE findings: subepitelial lesions (n = 9), blood (n = 6), inflammatory lesions (n = 5), angioectasias (n = 2), polyps (n = 2). The lesions were isolated in 20 patients and multiple in 4, and located in duodenum (n = 1), jejunum (n = 10), ileum (n = 11), and multiple segments (n = 2). Enteroscopy was performed via the oral route in 15 patients, anal route in 8, and oral + anal in 1 patient. 13 patients had no findings at the enteroscopy, and 11 patients had non-significant findings.

Rebleeding occurred in 45.8% (n = 11). The rebleeding rate at 1 month, 1, 2, 3 and 4 years was 20.8%, 25.2%, 35.9%, 50.6% and 62.9%, respectively. 90.9% (n = 10) of rebleeding patients underwent further radiological/endoscopic evaluation, of which only 4 had a conclusive diagnosis and treatment (2 vascular lesions and 2 small-bowel tumors). Rebleeding patients had higher median transfusion requirements ( $p = 0.001$ ) and lower hemoglobin ( $p = 0.02$ ) (4 [IQR 2 – 8], 7.7 IQR [6.2 – 8.8]) than non-rebleeding patients (0 [IQR 0 – 1], 10.3 [IQR 8.2 – 11.0]), respectively and presented more often with overt-OGIB ( $p = 0.001$ , 88.9% vs. 20%). No association between the presence of comorbidities or the use anticoagulants/antiplatelet drugs and rebleeding was found.

**Conclusions** Patients with a false-negative enteroscopy have a high rebleeding rate. Despite further evaluation after a rebleeding episode, a conclusive diagnosis is obtained in only 36.4% of the patients. Patients with overt-OGIB,

lower hemoglobin and higher transfusion requirements have higher rebleed rate. These patients need close follow-up.

## OP86 NEED FOR ENTEROSCOPY IN OBSCURE DIGESTIVE HAEMORRHAGE: VALIDATION OF DISCRIMINATIVE SCORE

**Authors** Silva JC<sup>1</sup>, Rodrigues J<sup>1</sup>, Pinho R<sup>1</sup>, Rodrigues A<sup>1</sup>, Ponte A<sup>1</sup>, Sousa M<sup>1</sup>, Gomes AC<sup>1</sup>, Silva AP<sup>1</sup>, Carvalho J<sup>1</sup>

**Institute** 1 Gastroenterology, Centro Hospitalar de Vila Nova de Gaia e Espinho, Vila Nova de Gaia, Portugal

**DOI** 10.1055/s-0039-1681263

**Aims** Capsule endoscopy (CE) is the first-line diagnostic method in obscure GI bleeding (OGIB). Balloon-assisted enteroscopy may also be weighted, however, its use is not always necessary. Uchida et al. score recently described for enteroscopy need after CE for OGIB, includes the type of OGIB (occult/manifest), blood transfusion and CE findings. The present study aims to evaluate and validate the proposed score as discriminator for enteroscopy need in OGIB.

**Methods** Retrospective, unicentric study including all CE performed for OGIB between 2010–2017. Demographic, clinical and analytical data as well as CE reports were analyzed. The proposed score was calculated and acuity in patient selection for the need of enteroscopy was assessed. Enteroscopy was considered necessary according to the criteria established by Uchida et al.

**Results** 207 patients were selected, 187 with OGIB. 54.0% (n = 101) were female, mean age 64.5 ± 15.1 years. Mean hemoglobin 8.5 ± 2.1 g/dl. Occult OGIB was the indication for CE in 71.5% (n = 148), manifest OGIB in 28.5% (n = 59). Enteroscopy was considered necessary in 53.1% (n = 110). OGIB type, blood transfusion requirements and CE findings were significantly associated with the need for enteroscopy (p < 0.001). The score ranged from 0–7, with mean = 2.3 ± 1.9. The proposed cutoff of 2.5 allowed differentiation between patients requiring enteroscopy (p < 0.001), with sensitivity 78.4%, specificity 84.6%, positive predictive value 81.7% and negative predictive value 81.6%. Enteroscopy was required in 81.7% of patients with a score > 2.5 and 18.4% with a score < 2.5. The area under the ROC curve for predicting the need for enteroscopy was 0.81 (95% CI, 0.75–0.88, p < 0.001).

**Conclusions** The present data support the use of the score proposed by Uchida et al., through a cutoff of 2.5, as a predictor of the need for enteroscopy. Its use in OGIB may allow a more efficient patient management.

Friday, April 5, 2019

11:00 – 13:00

Colon: resection

South Hall 2B

## OP87 CLIP CLOSURE OF LARGE NON-PEDUNCULATED COLON POLYPS WITH AVERAGE AND HIGH RISK OF DELAYED BLEEDING

**Authors** Albeniz E<sup>1</sup>, Alvarez-Gonzalez MA<sup>2</sup>, Espinós JC<sup>3</sup>, Nogales O<sup>4</sup>, Guarner C<sup>5</sup>, Alonso P<sup>6</sup>, Rodriguez-Tellez M<sup>7</sup>, Herreros de Tejada A<sup>8</sup>, Bustamante M<sup>9</sup>, Rodriguez Sanchez J<sup>10</sup>, Ramos F<sup>11</sup>, Valdivieso E<sup>6</sup>, Fraile M<sup>12</sup>, Martínez-Alcalá F<sup>13</sup>, Elosua A<sup>14</sup>, Guerra MF<sup>7</sup>, Gordillo Abalos J<sup>5</sup>, Ibáñez Beroiz B<sup>15</sup>, Capdevilla F<sup>15</sup>, Enguita M<sup>15</sup>, Endoscopic Resection Endoscopic Spanish Society Group

**Institute** 1 Gastroenterology, Hospital del Mar Complejo Hospitalario de Navarra, Pamplona, Spain; 2 Digestive Diseases, Hospital del Mar, Barcelona, Spain; 3 Hospital Universitari Mútua Terrassa, Barcelona, Spain; 4 Hospital Gregorio Marañón, Madrid, Spain; 5 Hospital de la Santa Creu i Sant Pau, Barcelona, Spain; 6 Hospital Juan Canalejo, A Coruña, Spain; 7 Hospital Universitario Virgen Macarena, Sevilla, Spain; 8 Hospital Universitario Puerta de Hierro, Madrid, Spain; 9 Hospital Universitario La Fe, Valencia, Spain; 10 Hospital General de Ciudad Real, Ciudad Real, Spain; 11 Hospital Universitario Montepríncipe, Madrid, Spain; 12 San Pedro de Logroño,

Logroño, Spain; 13 Clínica de Gastroenterología Integral, Sevilla, Spain;

14 Complejo Hospitalario de Navarra, Pamplona, Spain; 15 Navarrabiomed-UPNA-IDISNA, Pamplona, Spain

**DOI** 10.1055/s-0039-1681264

**Aims** The efficacy of clip closure (CC) of the mucosal defect after colonic endoscopic mucosal resection (EMR) to prevent a delayed bleeding (DB) is unclear. Previous studies included unselected cases with a wide range of DB risks. Our aim was to evaluate the efficacy of clip closure after EMR of large (>= 20 mm) non-pedunculated colon polyps (LNPCP) in selected cases with average or high risk of DB.

**Methods** Multicentre single blind randomised controlled clinical trial. The bleeding risk was established using a previous published score (Albeniz et al. CGH 2016). The inclusion criteria were consecutive cases of EMR of LNPCP >= 20 mm with average or high DB risk, defined as a score >= 4. A sample size of 200 cases of EMR of LNPCP >= 20 mm was estimated. The participants were randomised 1:1 to complete mucosal defect clip closure (CC) or control groups. The main outcome measure was the DB rate. The intention to treat (ITT) analysis included all randomised participants and the per protocol (PP) analysis included cases that achieved a complete mucosal closure.

**Results** A total of 210 cases were included in 11 hospitals (104 CC, 106 control). Both groups were comparable in terms of baseline characteristics. In the CC group, 54% achieved a complete closure, 31% partial closure and 15% failure to close. In the ITT analysis, DB risk was 11.3% vs. 5.8%, p = 0.15 in control and CC groups respectively. In the PP analysis, DB risk was 11.3% vs. 1.8%, p = 0.036 in control and CC groups respectively.

**Conclusions** Complete clip closure of the mucosal defect is effective to prevent a delayed bleeding after a large colonic endoscopic mucosal resection with average or high delayed bleeding risk.

However it is not possible to achieve a complete closure in roughly half of the cases due to the great size or the difficult localization.

## OP88 ELECTROCAUTERY SETTING DOES NOT AFFECT EFFICACY AND SAFETY OF ENDOSCOPIC RESECTION OF LARGE COLORECTAL POLYPS

**Authors** Pohl H<sup>1</sup>, Grimm IS<sup>2</sup>, Moyer MT<sup>3</sup>, Hasan MK<sup>4</sup>, Pleskow D<sup>5</sup>, Elmunzer BJ<sup>6</sup>, Khashab MA<sup>7</sup>, Sanaei O<sup>7</sup>, Al-Kawas FH<sup>8</sup>, Gordon SR<sup>9</sup>, Mathew A<sup>3</sup>, Levenick JM<sup>3</sup>, Aslanian HR<sup>10</sup>, Antaki F<sup>11</sup>, Renteln D von<sup>12</sup>, Crockett SD<sup>2</sup>, Rastogi A<sup>13</sup>, Gill JA<sup>14</sup>, Law RJ<sup>15</sup>, Elias PA<sup>6</sup>, Pellise M<sup>16</sup>, Mackenzie TA<sup>17</sup>, Rex DK<sup>18</sup>

**Institute** 1 VAMC White River Junction/Dartmouth Medical School, Lyme, United States; 2 University of North Carolina School of Medicine, Chapel Hill, United States; 3 Penn State Hershey Medical Center, Hershey, United States; 4 Florida Hospital, Orlando, United States; 5 Beth Israel Deaconess Medical Center, Boston, United States; 6 Medical University of South Carolina, Charleston, United States; 7 Johns Hopkins Hospital, Baltimore, United States; 8 Sibley Memorial Hospital, Washington, United States; 9 Dartmouth-Hitchcock Medical Center, Lebanon, United States; 10 Yale-New Haven Hospital, New Haven, United States; 11 John D. Dingell Veterans Affairs Medical Center and Wayne State University, Detroit, United States; 12 University of Montreal Medical Center (CHUM), Montreal, Canada; 13 University of Kansas Medical Center, Kansas City, United States; 14 James A. Haley VA, University of South Florida, Tampa, United States; 15 University of Michigan, Ann Arbor, United States; 16 Hospital Clínic de Barcelona, Barcelona, Spain; 17 The Dartmouth Institute, Lebanon, United States; 18 Indiana University School of Medicine, Indianapolis, United States

**DOI** 10.1055/s-0039-1681265

**Aims** The type of electrocautery setting that should be used for polyp resection has long been a matter of debate. It remains unknown whether the type of electrocautery setting affects resection efficacy, risk of adverse events, or recurrence rates. We aimed to compare two commonly used electrocautery

settings for endoscopic mucosal resection of large colorectal polyps in a multicenter, randomized trial.

**Methods** Patients with a  $\geq 20$  mm non-pedunculated colorectal polyp were randomized in a 2  $\times$  2 design to clip closure or no clip closure of the mucosal defect (reported at DDW 2018) and to one of two electrocautery settings: forced coagulation or Endocut (ERBE). Related to electrocautery setting, the primary outcome was the incidence of severe adverse events during or within 30 days following the procedure (per patient analysis). Secondary outcomes were technical resection characteristics and recurrence at first surveillance colonoscopy (per polyp analysis).

**Results** 928 patients (mean age 65, 59% men) were randomized, 919 patients completed 30-day follow-up, and 658 patients (71%) completed the first surveillance colonoscopy after a median of 6 months. Resection with Endocut more frequently caused intraprocedural bleeding than forced coagulation (17% vs. 11%,  $p = 0.02$ ), while other technical outcomes were similar (e.g. complete resection, piecemeal resection, need for adjunctive means, time of resection). Severe adverse events occurred in 7.3% and 8.0% in the respective groups, with no difference in the occurrence of types of events. Similarly, no difference was seen in polyp recurrence at surveillance colonoscopy, which was observed in 17.7% in the Endocut group and 17.5% in the forced coagulation group.

**Conclusions** This first randomized trial on electrocautery settings for the resection of large non-pedunculated colorectal polyps showed a difference in intraprocedural bleeding; however, neither setting was superior with respect to important safety and efficacy outcomes. Selection of electrocautery setting may therefore be based on expertise and preference of the endoscopist.

## OP91 CLINICAL MANAGEMENT OF COLORECTAL POLYPS: RESULTS OF AN INTERNATIONAL SURVEY

**Authors** Willems P<sup>1</sup>, Orkut S<sup>2</sup>, Ditisheim S<sup>3</sup>, Bouin M<sup>4</sup>, Faulques B<sup>3</sup>, Pohl H<sup>5</sup>, Renteln D von<sup>6</sup>

**Institute** 1 Gastroenterology, Centre de Recherche du Centre Hospitalier de l'Université de Montreal, Montréal, Canada; 2 Medicine, Université de Strasbourg, Strasbourg, France; 3 Gastroenterology, Centre Hospitalier de l'Université de Montreal, Montreal, Canada; 4 Gastroenterology, Centre Hospitalier de l'Université de Montreal, Montréal, Canada; 5 Gastroenterology, Dartmouth-Hitchcock Medical Center, Lebanon, United States; 6 Gastroenterology, University of Montreal, Montreal, Canada  
DOI 10.1055/s-0039-1681266

**Aims** To better understand endoscopists opinion regarding cancer risk of diminutive polyps, current use and barriers for implementation of the resect-and-discard strategy and preferred polypectomy approaches.

**Methods** A survey using Google form was distributed through national and international endoscopy, gastroenterology and surgical societies. Study domains included demographics and practice characteristics, perception of cancer risk for diminutive polyps, uptake and barriers to the resect-and-discard strategy, preferred polypectomy techniques for 1 – 20 mm polyps and uptake of novel techniques, such as cold snare polypectomy.

**Results** 808 endoscopists participated in the survey. 48.4% (95% CI 45.0%-51.9%) of endoscopists believe that leaving diminutive polyps in place is associated with an increased cancer risk and 54.7% (95% CI 53.6%-60.4%) believe that doing so within current CT-colonography screening increases patient's risk of cancer. 80.3% (95% CI 77.5%-83.0%) of endoscopists believe that using the resect-and-discard strategy for diminutive polyps will not increase cancer risk. However, 84.2% (95% CI 81.6%-86.7%) of endoscopists are presently not using this strategy and 59.9% (95% CI 56.5%-63.2%) do not believe it is feasible for use in general practice. Main barriers to implement were: being afraid of making a wrong diagnosis (44.6%), concerns of potential medico-legal issues (53.8%) and being afraid of giving wrong surveillance intervals (58.3h). 87.5% (95% CI 85.2%-89.8%) of respondents reported an

increased use of cold snare polypectomy in the past 5 years. Cold snare polypectomy is the most frequently applied polypectomy technique for 4 to 5 mm and 6 to 10 mm polyps (67.0% (95% CI (63.7%-70.2%)) and 55.2% (95% CI 51.8%-58.6%)) respectively.

**Conclusions** Half of endoscopists think that leaving diminutive polyp might increase the risk of cancer. The majority do not use the resect-and-discard strategy and think it is not feasible for clinical implementation. Cold snare polypectomy has become the preferred polypectomy technique for 4 to 10 mm polyps.

## OP89 THE SAFETY OF COLD SNARE POLYPECTOMY (CSP) ON ANTITHROMBOTIC THERAPY

**Authors** Kimoto Y<sup>1</sup>, Ohata K<sup>1</sup>, Minato Y<sup>1</sup>, Nakao T<sup>1</sup>, Konishi N<sup>1</sup>, Ishii R<sup>1</sup>, Kanda K<sup>1</sup>, Negishi R<sup>1</sup>, Ogawa S<sup>1</sup>, Takita M<sup>1</sup>, Takeda R<sup>1</sup>, Sakai E<sup>1</sup>, Muramoto T<sup>1</sup>, Shiga T<sup>1</sup>, Tanaka H<sup>1</sup>, Matsuhashi N<sup>1</sup>

**Institute** 1 NTT Medical Center Tokyo, Tokyo, Japan  
DOI 10.1055/s-0039-1681267

**Aims** Cold snare polypectomy (CSP) is a safer and more efficacious polypectomy technique without electrocautery, therefore it is widely used for the removal of small polyps (< 10 mm). Recent studies have revealed that delayed bleeding and perforation are few observed in CSP. However the safety of CSP in patients who are on antithrombotic therapy have not been fully evaluated. The aim of this study was to determine the safety of CSP in patients who are currently on antithrombotic therapy.

**Methods** 3021 consecutive patients with colorectal polyps (< 10 mm) were removed by CSP between March 2016 and Oct 2018. We retrospectively assessed the characteristics of polyps, histological results, and delayed bleeding rates.

**Results** 5706 polyps in 3021 patients (2266 males and 755 females) were removed by CSP. There were 1197 polyps (19.4%) in 586 patients (antiplatelets to 155, anticoagulants to 83 and both to 28 patients) in the antithrombotic group (group A) and 4509 polyps (80.6%) in 2435 patients in the non-antithrombotic group (group B). Delayed bleeding occurred in 0.51% (3/586) of patients in group A and 0.12% (3/2435) of patients in group B, showing no significant difference ( $p = 0.09$ ). The patients delayed bleeding occurred in Group A included 2 aspirin users with 2 polyps and 1 aspirin plus rivaroxaban user with 2 polyps. No delayed bleeding occurred in patients on other antithrombotic agents or receiving heparin bridging. There was no significant difference between delayed bleeding rates in group A and group B. No delayed bleeding cases required transfusion and surgery. None of the followings correlated with delayed bleeding: age, gender, polyp location, size, morphology, histology, number of polyps resected.

**Conclusions** CSP is safety technique for removal of diminutive or small polyp even if patients receive antithrombotic therapy. And without cessation of the antithrombotic therapy, it is possible to reduce the risk of thromboembolism.

## OP90 3D POLYPECTOMY: RANDOMISED COMPARISON TO 2D POLYPECTOMY IN AN EX-VIVO MODEL

**Authors** Gmeiner S<sup>1</sup>, Delius S von<sup>2</sup>, Abdelhafez M<sup>1</sup>, Kohn N<sup>3</sup>, Reiser S<sup>3</sup>, Wießner J<sup>1</sup>, Feußner H<sup>3</sup>, Wilhelm D<sup>3</sup>

**Institute** 1 II. Medizinische Klinik und Poliklinik, Klinikum rechts der Isar der Technischen Universität München, Munich, Germany; 2 Medizinische Klinik II, RoMed Klinikum Rosenheim, Rosenheim, Germany; 3 Forschungsgruppe für Minimal-Invasive Interdisziplinäre Therapeutische Intervention (MITI), Klinikum rechts der Isar der Technischen Universität München, Munich, Germany  
DOI 10.1055/s-0039-1681268

**Aims** Three-dimensional (3D) visualisation has been established for laparoscopy, but not for endoluminal flexible endoscopy. In the actual study we investigated the effects of 3D imaging on endoluminal endoscopic procedures.

**Methods** The study was conducted as an experimental endoscopic study in an ex-vivo porcine stomach model. Artificial polyps were created by band ligation. For endoluminal polypectomy a commercially available 3D laparoscope from Storz was inserted in a specially designed tube with additional working channels for endoscopic instruments.

The task was to perform six polypectomies with two-dimensional (2D) and 3D visualisation with an electric endoscopic snare in a prospective randomized cross-over manner. Participants consisted of ten experts (group 1) and ten novices (group 2).

Duration and completeness were assessed. Before and after each visualisation method the participants had to answer questionnaires and perform tests to evaluate their concentration level and strain.

**Results** 3D visualisation allowed for significantly faster polypectomy (3D vs. 2D: mean 27 s vs. 36 s;  $p = 0.029$ ) and led to a significantly higher frequency of complete polypectomy (3D vs. 2D: 106/120, 88% vs. 81/120, 68%;  $p < 0.01$ ) in both groups.

Regarding overall workload, the NASA-Task-Load-Index showed similar figures for 3D and 2D. According to the participants, 3D enabled significantly better depth perception than 2D.

We noticed blurring at close distance for 3D and a tendency to cause higher eye strain.

Finally, most of the participants favoured the 3D visualisation.

**Conclusions** 3D imaging may facilitate endoscopic procedures by improving speed and completeness. We did not find increased mental workload and most of our participants preferred the 3D method. The difficulties concerning blurring at close distance could be alleviated by technological progress. Therefore, the development of a flexible 3D endoscope seems promising.

## OP92 SUCCESSFULLY PREDICTING RECURRENCE OF COLORECTAL POLYPS AT RESECTION- A UK TERTIARY REFERRAL CENTRE EXPERIENCE

**Authors** Hossain E<sup>1</sup>, Thayalasekaran S<sup>1</sup>, Alkandari A<sup>1</sup>, Arndtz S<sup>1</sup>, Abdelrahim M<sup>1</sup>, Bhandari P<sup>1</sup>, Varytimiadis L<sup>1</sup>

**Institute** 1 Queen Alexandra Hospital, Portsmouth, United Kingdom

**DOI** 10.1055/s-0039-1681269

**Aims** To identify colorectal polyp features during a complex EMR which could be associated with its recurrence.

**Methods** A retrospective study looking at patients who underwent EMR for complex colorectal lesions from a period of January 2007 to July 2018. It included patients referred to a single endoscopist primarily due to the complexity of the polyp (SMSA level 3 or 4) who underwent a colorectal EMR. It excluded patients undergoing an ESD with an en bloc resection. Data was collected through the online endoscopy reporting system and pathology reporting system. Events like scarring, size and morphology were documented in the endoscopy report at the time of resection. Recurrence was noted on follow up endoscopies at 3–6 months, one year and other subsequent endoscopies.

**Results** Total no of polyps resected: 668.

Total cases of recurrences: 90 (13.7%).

**Tab. 1**

	Recurrence (n = 90)	No Recurrence (578)	p-value
Scarring (n = 95)	20 (22.2%)	75 (13%)	0.04
Mean size (mm)	59.6	39.7	0.006
Accessibility	70 (77.8%)	439 (75.9%)	0.88
Morphology- Flat	49 (54.4%)	293 (50.7%)	0.7
Morphology- Sessile	39 (43.3%)	223 (38.6%)	0.57
Morphology- Pedunculated	2 (2.3%)	62 (10.7%)	0.03
Site- Rectum	51 (56.7%)	150 (26%)	<0.001
Site- Colon	39 (43.3%)	428 (74%)	0.008

**Conclusions** This study provides crucial evidence in determining factors that could predict recurrence in patients with complex colorectal polyps. It shows that larger polyps and rectal polyps have higher recurrence and interestingly

also proves scarring of a polyp may be an important factor in its recurrence. We also noted that scarred polyps had a higher rate of recurrence than non scarred polyps (21% and 12%).

This study may help us to develop a scoring system to predict recurrence.

## OP93 UNDERWATER ENDOSCOPIC RESECTION FOR COLONIC LESIONS IN DIFFICULT AND CHALLENGING SITUATIONS. MULTICENTER – PRELIMINARY RESULTS

**Authors** Uchima H<sup>1,2</sup>, Rodriguez-Sanchez J<sup>3</sup>, Marin JC<sup>4</sup>, Torrealba L<sup>1</sup>, Sánchez-Alonso M<sup>3</sup>, Busquets D<sup>1</sup>, Turro R<sup>2</sup>, Albert M<sup>1</sup>, Mata Bilbao A<sup>2</sup>, Espinos JC<sup>2</sup>

**Institute** 1 Gastrointestinal Endoscopy, Hospital Universitario Doctor Josep Trueta de Girona, Girona, Spain; 2 Gastrointestinal Endoscopy, Centro Medico Teknon, Barcelona, Spain; 3 Gastrointestinal Endoscopy, Hospital General Universitario Ciudad Real, Ciudad Real, Spain; 4 Gastroenterology, Hospital Universitario 12 de Octubre, Digestive System Service, Madrid, Spain

**DOI** 10.1055/s-0039-1681270

**Aims** Underwater endoscopic resection (uEMR) avoids the need for submucosal injection, and it may be helpful in challenging situations such as non-lifting lesions, or difficult locations.

The aims of the study were to assess the safety, utility and technical success rate of the underwater technique for the treatment of challenging colonic lesions.

**Methods** Clinical, endoscopic and histological data were collected from cases of uEMR performed in 4 centers between January 2016 and July 2018. Inclusion criteria was lesions with no-lifting sign (if a previous endoscopic injection) that were poor candidates for classic EMR, difficult location (ileocecal valve or appendix) or lesions with a previous failed attempt for EMR in an expert center.

**Results** 60 uEMR in challenging situations were performed, of which 41 completed follow-up (mean 168 days) to date. The mean age of the patients was 66.14, being 68% men.

There were 37 (61.67%) non-lifting lesions (including recurrent/residual lesions in ICV and appendix, and non-treated lesions), 17 (28.3%) appendicular or ileocecal valve lesions not previously treated, 1 (1.6%) intradiverticular lesion, 2 (3.3%) lesions in complex sigma and 3 (5%) residual lesion including ileocecal valve.

The mean size (diameter) of the lesions was 19mm, and the mean size (largest diameter) of the resection specimen was 15.3mm (95% CI 13.68–16.99mm) being the largest specimen of 30mm in diameter. The histology showed T1 in 4 cases (one of good prognosis), HGD and intramucosal cancer in 8 cases, and no advanced histology (LGD, SSP/A without displasia) in the others. There were no major complications (no major bleedig nor perforations). The success of the technique was 98% with 3 recurrences, that were successfully re-treated endoscopically.

**Conclusions** Underwater endoscopic resection in the colon is a safe and useful technique for challenging colorectal lesions such as non-lifting lesions, appendiceal, ileocecal valve, diverticular, and difficult sigmoid locations.

## OP94 ROLE OF DOUBLE CHANNEL ENDOSCOPE (DCE) IN ENDOSCOPIC MUCOSAL RESECTION (EMR) COMPARED WITH CONVENTIONAL SINGLE CHANNEL ENDOSCOPE (SCE): EFFECTIVENESS AND SAFETY

**Authors** Sevilla-Ribota S<sup>1</sup>, Gonzalez-Lopez T<sup>1</sup>, Juarez-Perez C<sup>1</sup>, Gullon P<sup>2</sup>, Vazquez-Sequeiros E<sup>1</sup>, Juzgado-Lucas D<sup>1</sup>

**Institute** 1 Hospital Universitario Quirón Madrid, Madrid, Spain;

2 Universidad de Alcalá, Madrid, Spain

**DOI** 10.1055/s-0039-1681271

**Aims** EMR may present up to 25% complications and 15% recurrences. Polypectomy assisted with DCE has not been studied. Main objectives were determine clinical success and safety of EMR-DCE compared to SCE.

**Methods** 53 EMR achieved between 2013–2018 with DCE (GIF-180-Olympus). 106 polyps >15 mm in control-group. Polyps mean size was 27 mm ( $p < 0.007$ ). 24 variables. EMR-DCE were performed by 2 endoscopists with simultaneous forceps-diathermy loop. Transversal-right colon were the most frequent location in DCE-group where sessile and flat polyps ( $p < 0.001$ ) with previous biopsies and central depression ( $p = 0.005$ ) had predominance. Failed Previous Attempts ( $p < 0.001$ ) were defined when an endoscopist was not able to perform a complex polypectomy or he started it and could not be completed. We defined clinical success as the absence of recurrence in the endoscopic control.

**Results** Serrated polyps ( $p < 0.011$ ) and in-situ carcinoma ( $p < 0.001$ ) were resected more in DCE-group. We have completely resected 8 subepithelial lesions with DCE: neuroendocrine tumors (carcinoids = 5), leiomyomas = 2, GIST = 1. All complications were solved during endoscopy.

**Tab. 1** Results

	Double Channel Endoscope (n = 53)	Single Channel Endoscope (n = 106)	aOR (95% CI)	Significance
Clinical success	44 (93.61%)	93 (87.74%)	5.23 (1.27;30.39)	$p = 0.037$
Total complications/Hemorrhages/Perforations	13 (24.53%)/9 (16.98%)/4 (7.55%)	9 (8.49%)/7 (6.60%)/2 (1.89%)	2.40 (0.87;6.62)/2.59 (0.85;8.12)/1.18 (0.14;10.83)	$p = 0.08$ / $p = 0.09$ / $p = 0.87$

**Conclusions** EMR-DCE is more effective than EMR-SCE for large and complex polyps and it could be a rescue technique for failed EMR-SCE attempts. This may be due to DCE allows to extend lateral safety margins more easily and to resect fibrin plates of the polyps with central depression with the help of the forceps traction. Also, DCE permits to reach deeper resection planes resecting subepithelial lesions. Although DCE is a short endoscope we believe that its rigidity allows to arrive in the right colon without difficulty. While the rate of complications is higher with DCE due to its complexity, there are no differences in severity compared to EMR-SCE.

## OP96 CLINICAL OUTCOMES OF RECTAL NEUROENDOCRINE TUMORS TREATED BY ESMR-L

**Authors** Takita M<sup>1</sup>, Ohata K<sup>1</sup>, Matsuhashi N<sup>1</sup>

**Institute** 1 Department of Gastroenterology, NTT Medical Center Tokyo, Tokyo, Japan

**DOI** 10.1055/s-0039-1681272

**Aims** The therapeutic strategies for the rectal neuroendocrine tumor (NET) have not been still established. We often use endoscopic submucosal resection with ligation device (ESMR-L) for treatment of rectal NET. We conducted this study to evaluate the clinical outcomes of rectal NET treated by ESMR-L.

**Methods** Between May 2002 and December 2017, 191 patients with 192 rectal NET (G1) underwent ESMR-L in our hospital. Firstly, we investigated association between clinicopathological characteristics including endoscopic findings and therapeutic outcomes. Curative resection was defined as R0 resection without LVI. Subsequently, the long-term outcomes after a 45-months follow-up period were also evaluated.

**Results** The average age was 52 years, and the majority were male (74%). Most of the lesions were located at Rb (82%), and the average size was 4.6 mm. Of the 192 lesions, 191 and 122 achieved complete and curative resection, respectively. Multivariate logistic regression analyses revealed that the tumor size  $\geq 5$  mm (OR: 2.96, 95% CI: 1.60–5.45,  $P = 0.001$ ) and presence of central depression (OR: 5.50, 95% CI: 1.68–18.0,  $P = 0.005$ ) are significantly associated with non-curative resection. 13 of the 70 lesions with non-curative resection underwent additional surgery, among which 2 cases had histological lymph node metastasis. No case had local or distant metastases during the follow-up period. With respect to complications, one perforation (0.5%) and 13 delayed bleeding (6.8%) were observed, but they were successfully managed conservatively.

**Conclusions** ESMR-L is a feasible measure as an endoscopic resection for rectal NET. Given that there was no recurrence without additional surgery in

cases regarded as non-curative resection, observation without additional surgery might be allowed. Further investigations are needed to establish the indication of endoscopic treatment.

Friday, April 5, 2019

ERCP stenosis

11:00 – 13:00

Club H

## OP97 A PROSPECTIVE, RANDOMIZED, MULTICENTER STUDY COMPARING SEMS PLACEMENT WITH AND WITHOUT BILIARY SPHINCTERECTOMY IN PATIENTS WITH MALIGNANT BILIARY OBSTRUCTION: AN INTERIM ANALYSIS

**Authors** Anderloni A<sup>1</sup>, Fugazza A<sup>2</sup>, D'Amico F<sup>2</sup>, De Nucci G<sup>3</sup>, Manes G<sup>4</sup>, Maselli R<sup>2</sup>, Mangiavillano B<sup>5</sup>, Auriemma F<sup>5</sup>, Belletrutti P<sup>6</sup>, Hassan C<sup>7</sup>, Maydeo AP<sup>8</sup>, Repici A<sup>2</sup>

**Institute** 1 Humanitas Research Hospital Humanitas Clinical and Research Center, Rozzano (MI), Italy; 2 Humanitas Clinical and Research Center, Rozzano (MI), Italy; 3 Endoscopy Unit, ASST-Rhodense, Garbagnate Milanese, Milan, Italy; 4 Endoscopy Unit, ASST-Rhodense, Rho, Milan, Italy; 5 Digestive Endoscopy Unit, Humanitas – Mater Domini Hospital, Castellanza, Varese, Italy; 6 Department of Medicine, Division of Gastroenterology and Hepatology, University of Calgary, Calgary, Canada; 7 Digestive Endoscopy Unit, Nuovo Regina Margherita Hospital, Rome, Italy; 8 Baldota Institute of Digestive Sciences, Mumbai, India

**DOI** 10.1055/s-0039-1681273

**Aims** Aim of the study was to investigate the outcomes of patients with malignant biliary obstruction undergoing self-expandable metallic stent (SEMS) placement with and without endoscopic sphincterotomy (ES). NCT number 03628001.

**Methods** This is an interim analysis of an ongoing multicenter randomized prospective study conducted in four international tertiary referral centers from March 2016 to October 2018 in patients with malignant distal biliary obstruction with indication to SEMS placement. Patients were randomized to ES prior to fully covered (FC) SEMS placement (ES, G1) versus FCSEMS placement leaving the papilla without (No ES, G2). The primary outcomes were immediate (periprocedural) and delayed (<30 days) post-ERCP adverse events (AE) including PEP, SEMS migration, bleeding and perforation (defined according to the ASGE lexicon).

**Results** 152 patients (82 (54%) female) of mean age 69.7 (range 43–93 years) with distal malignant biliary obstruction were included in the study. FCSEMS were successfully deployed in all patients in both groups. 76 patients (G1) were randomized to perform ES before placement of SEMS, and 76 patients to no ES (G2). Overall, complications occurred in 24 (31.5%) patients in G1 and in 17 (22.3%) in G2 ( $p = 0.2008$ ). Although not statistically significant there was a trend toward increased risk of PEP in the G2 compared to the G1 (15.8% vs. 11.8%,  $p = 0.4807$ ). Fatal AEs occurred in 1 patient because of cholangitis in G1 and in 1 patient because of post-ERCP pancreatitis in G2.

**Conclusions** At interim analysis, placement of biliary FCSEMS without prior ES in patients with distal common bile duct obstruction showed a lower rate of cumulative AEs. On the other hand patients in G2 reported an higher incidence of PEP (although not statistically significant). We aim to complete enrollment to the target sample size before making final conclusions.

## OP98 ERCP TISSUE SAMPLING FROM COMMON BILE DUCT STRICTURES: BRUSH CITOTOLOGY AND INTRADUCTAL FORCEPS BIOPSY – WHICH ONE SHOULD I PERFORM FIRST?

**Authors** Zaragoza Velasco N<sup>1</sup>, Albuquerque Miranda M<sup>2</sup>, Miñana JM<sup>1</sup>, Figa Francesch M<sup>2</sup>, Vargas García A<sup>2</sup>, Domper Arnal MJ<sup>1</sup>, Ballester Clau R<sup>1</sup>, Torres Vicente G<sup>1</sup>, Salas IM<sup>1</sup>, Espinet JMR<sup>1</sup>, González-Huix i Ildó F<sup>1,2</sup>

**Institute** 1 Hospital Universitario Arnau de Vilanova, Gastroenterology, Lleida, Spain; 2 Clínica Girona, Gastroenterology, Girona, Spain

**DOI** 10.1055/s-0039-1681274

**Introduction** The accuracy of brush citology (BC) plus intraductal forceps biopsy (IFB) in diagnosis of common bile duct strictures (CBDs) is about 60%. It is unknown whether the order of perform both methods improves accuracy.

**Objective** To compare the accuracy of BC plus IFB sampling in diagnosis of CBDs regarding the order of perform both.

**Main outcome measures** Accuracy of BC plus IFB sampling from CBDs.

**Secondary outcomes measures** Sensitivity, specificity and accuracy of BC and IFB separately and combined.

**Method** Open label randomized controlled trial.

**Participants** Patients with CBDs.

**Intervention** We randomly assigned patients to BC plus IFB or IFB plus BC sampling from CBDs.

**Results** We included 130 patients. Age: 72.5 ± 13.84y; 54.6% men. The 63.1% of CBDs were malignant (48.8% pancreatic tumours, 48.8% cholangiocarcinomas and 0.2% others). The diagnostic accuracy, defined as the confirmation of the initial diagnosis during a follow-up by 6 months, reached 95.8% in benign strictures and 79.3% in malignant. Take ≥ 3 tissue samples increases accuracy in 7% respect take < 3. Separately BC reached a 75.4% and IFB, 76.9%, which rose up to 85.4% in combination. There was not difference according to the order of method perform: BC plus IFB was 82.4% and IFB plus BC was 88.7%, p = n. s.

The specificity and PPV of BC and IFB was 100% while the sensitivity was 62.7% with BC; and 63.7% IFB, which increase until 78% when both methods were combined.

**Conclusions** The order of perform brush citology plus intraductal forceps biopsy does not change the diagnostic accuracy in common bile duct strictures.

The diagnostic accuracy and sensitivity substantially increase when both methods are combined and ≥ 3 tissue samples are taken.

## OP99 CHOLANGIOSCOPIC CRITERIA FOR INDETERMINATE BILIARY STENOSIS DIAGNOSIS

**Authors** El Bacha H<sup>1,2</sup>, Harizi R<sup>3</sup>, Laugier R<sup>4</sup>, Leblanc S<sup>5</sup>, Barange K<sup>6</sup>, Fumex F<sup>7</sup>, Laquiere A<sup>8</sup>, Napoleon B<sup>7</sup>, Vedrenne B<sup>9</sup>, Grabar S<sup>10</sup>, Prat F<sup>5</sup>

**Institute** 1 Gastro Enterologie, Hopital Ibn-Sina, Rabat, Morocco; 2 Faculte de Medecine, University Mohammed V, Rabat, Morocco; 3 Hopital Cochin, Paris, France; 4 Hopital la Timone, Marseille, France; 5 Gastro Enterologie, Hopital Cochin, Paris, France; 6 Hopital Purpan, Toulouse, France; 7 Jean Mermoz Private Hospital, Lyon, France; 8 Marseille, Marseille, France; 9 Mulhouse, Mulhouse, France; 10 Hotel Dieu, Paris, France

**DOI** 10.1055/s-0039-1681275

**Aims** Single-operator cholangioscopy (SOC) has been a major advance in indeterminate biliary stricture (IDBS) diagnosis because it has made direct visualization and optically guided biopsy of these lesions. However, SOC-guided biopsies have shown limited sensitivity. In order to overcome this limitation, identifying the cholangioscopic features that most strongly suggest malignancy is an interesting way to improve SOC diagnostic capabilities; however, no systematic analysis of SOC findings has been conducted to date.

The aim of our study is to establish endoscopic criteria allowing to distinguish between benign and malignant lesions.

**Methods** 4 referral centers included 98 Spyglass DS cholangioscopy recordings performed for indeterminate biliary strictures (IDBS) whose final diagnosis was known by histology or follow-up for more than 1 year. 7 experts in cholangioscopy participated in the development of a consensual reading grouping 20 semiological criteria. The videos were analyzed individually by each expert after randomization according to the reading grid. A hypothesis diagnosis was issued for each examination. After a statistic analysis a second meeting with the same methodology were held for criteria validation.

**Results** 98 IDBS videos from 95 patients of mean age 66 years (13 – 89) were analyzed; there were 38 benign and 60 malignant strictures. The Sensitivity ranged from 68% to 81% and specificity from 55 to 71%. The univariate and multivariate analysis identified 4 significant criteria. One for benign lesions: the presence of endobiliary material odds ratio (OR)= 0.649; 95% confidence interval (CI), 0.427 – 0.988. Three for malignant lesions: villous pattern OR = 1.477; 95% CI, 0.98 – 2.21; irregular vessels OR = 2.042; 95% CI, 1.35 – 3.08; redish aspect OR = 1.67; 95% CI, 1.09 – 2.53.

**Conclusions** Simple criteria's could assist malignancy diagnosis and enhance The performance of cholangioscopic visual diagnosis of IDBS.

## OP100 ENDOSCOPIC RADIOFREQUENCY ABLATION PROLONGS SURVIVAL IN PATIENTS WITH ADVANCED HILAR CHOLANGIOCELLULAR CARCINOMAS

**Authors** Bokemeyer A<sup>1</sup>, Matern P<sup>1</sup>, Bettenworth D<sup>1</sup>, Cordes F<sup>1</sup>, Nowacki T<sup>1,2</sup>, Heinzow H<sup>1</sup>, Kabar I<sup>1</sup>, Schmidt H<sup>1</sup>, Ullerich H<sup>1</sup>, Lenze F<sup>1</sup>

**Institute** 1 University Hospital Münster, Department of Medicine B for Gastroenterology and Hepatology, Münster, Germany; 2 Joseph Hospital Warendorf, Department of Internal Medicine I, Warendorf, Germany

**DOI** 10.1055/s-0039-1681276

**Aims** Patients with an unresectable advanced hilar cholangiocellular carcinoma (CCC) suffer from a particularly short life expectancy. Endoscopic radiofrequency ablation (ERFA) of the malignant biliary obstruction may substantially prolong survival in these patients.

**Methods** All CCC cases with an ERFA of the biliary tract, performed at our tertiary referral center between a six-year period from 2012 to 2017, were retrospectively analyzed. For survival analysis using Kaplan-Meier method, these cases were compared to historical control cases who received the endoscopic standard treatment of sole stent application. Historical controls were chosen from an equal time-period (from 2006 and 2011) in which ERFA was not yet available at our tertiary referral center.

**Results** ERFA was performed in 32 patients with malignant biliary strictures that were mainly caused by Bismuth III and IV hilar CCCs (66%). 44% of these patients had multiple ERFAs accounting for an overall performance of 54 ERFAs. ERFA procedures were successfully completed in all cases, for a technical success rate of 100%. In all patients, endoscopic stents were applied (100%). Complications occurred in 18.5% of cases of which a post-interventional cholangitis was most frequently observed (11.1%) followed by cases with a post-interventional pancreatitis (3.7%). No mortalities occurred due to procedure-related side effects.

The case-control analysis revealed that the survival time of cases with unresectable Bismuth type III and IV hilar CCCs (n = 20) treated with stent placement in combination with ERFA significantly prolonged survival in comparison to controls (n = 22) treated with sole endoscopic stent placement (342 vs. 221 days; p = 0.046).

**Conclusions** ERFA significantly prolongs survival in patients with an unresectable Bismuth type III and IV hilar CCC. Therefore, it provides an easy-to-use, effective and safe palliative treatment option for these patients.

## OP101 THE ROLE OF “ROSE” FOR ERCP-GUIDED BRUSHING ON INDETERMINATE BILIARY STRICTURES: EXPERIENCE OF A REFERRAL CENTER

**Authors** Archibugi L<sup>1</sup>, Mariani A<sup>1</sup>, Ciambriello B<sup>2</sup>, Petrone MC<sup>1</sup>, Rossi G<sup>1</sup>, Testoni SGG<sup>1</sup>, Traini M<sup>1</sup>, Capurso G<sup>1</sup>, Arcidiacono PG<sup>1</sup>

**Institute** 1 Pancreatobiliary and Endosonography Unit, San Raffaele Hospital, Milan, Italy; 2 Digestive Endoscopy, AO Specialistica del Colle CTO, Naples, Italy

**DOI** 10.1055/s-0039-1681277

**Aims** Endoscopic Retrograde Cholangiopancreatography (ERCP), although nowadays used only for therapeutic purposes, still has a prominent diagnostic role in patients with indeterminate biliary strictures and no evidence of mass lesion. The use of biliary stricture brushing is a safe, easy, cheap and fast way to acquire cytological specimen for the determination of the etiology, but the sensitivity can be as low as 50%. Rapid On-Site Evaluation (ROSE) of the sample has been used for years in referral centers for the determination of the adequacy of EUS-guided FNA cytological specimens, improving its sensitivity and specificity. Nevertheless, there are currently no studies evaluating its role for ERCP brushing. The aim of this study was to assess the diagnostic yield of ERCP brushing of indeterminate biliary strictures when supported by ROSE.

**Methods** Retrospective single-center study enrolling consecutive patients undergoing ERCP and brush cytology supported by ROSE for indeterminate biliary strictures, from January 1<sup>st</sup> 2010 to May 31<sup>st</sup> 2018. Data recorded included patient's characteristics, clinical/radiological/EUS features, ERCP features (stricture features, number of brush passages, final cytology or histology when biopsy was performed as an adjunct, cholangioscopy or confocal laser endomicroscopy use, final diagnosis after surgery or follow-up). The diagnostic yield of ERCP-guided brushing with ROSE was then calculated.

**Results** 96 patients underwent ERCP for indeterminate biliary stenosis, 50% males, mean age 68.1 years, 80% having an extrahepatic biliary stricture. 90 patients underwent brushing+ROSE and were included in the analysis, with 86.7% of patients having an adequate sample at ROSE. The preliminary diagnostic yield calculated showed sensitivity=80%, specificity=82%, accuracy=81%, positive predictive value=92% and negative predictive value=61%.

**Conclusions** The availability of ROSE in patients undergoing ERCP with indeterminate biliary stricture without a mass lesion increases the diagnostic yield of brushing, decreasing the need of further procedures, such as cholangioscopy and confocal laser endomicroscopy and can, therefore, decrease costs and increase safety.

## OP102 UNILATERAL VERSUS BILATERAL BILIARY DRAINAGE IN PATIENTS WITH BILIARY ANASTOMOTIC STRICTURES AFTER RIGHT-LOBE LIVING DONOR LIVER TRANSPLANTATION

**Authors** Paik WH<sup>1</sup>, You MS<sup>1</sup>, Lee SH<sup>1</sup>, Ryu JK<sup>1</sup>, Kim YT<sup>1</sup>

**Institute** 1 Seoul National University Hospital, Seoul, Korea, Republic of

**DOI** 10.1055/s-0039-1681278

**Aims** Although there are usually two bile duct anastomosis sites, i.e. right anterior segment duct (RASD) and right posterior segment duct (RPSD) after in right lobe (RL)-living donor liver transplantation (LDLT), studies comparing unilateral and bilateral biliary drainage are largely lacking. This study aimed to evaluate efficacy and safety of unilateral and bilateral biliary drainage in patients with biliary strictures following RL-LDLT.

**Methods** From January 2005 to December 2017, of the 232 patients suspected to develop biliary anastomotic strictures RL-LDLT at Seoul National University Hospital, 110 patients who have two duct-to-duct anastomosis sites including RASD and RPSD were enrolled. During follow-up, ERCP was performed if biliary anastomotic strictures were suspected. Patients were classified into unilateral and bilateral biliary drainage group according to the

results of first ERCP. The clinical success rate, complication rate, and 180-day mortality were compared between the unilateral and the bilateral group.

**Results** The mean age at the time of LDLT was 54.2 years. The duration from LDLT to initial biliary anastomotic strictures was 215.6 ± 187.3 days. At the initial ERCP, unilateral drainage was performed in 55 (50.0%) patients and bilateral drainage in 11 (10.0%) patients. In unilateral drainage group, endoscopic retrograde biliary drainage to RASD was predominant. (41/55, 74.5%). There was no significant difference in clinical success rate (80.0% vs. 90.9%; P=0.669), complication rate (16.4% vs. 18.2%; P>0.999), and 180-day mortality (1.8% vs. 0%; P>0.999) between the unilateral and bilateral drainage group. During follow-up, 71 patients (64.5%) required bilateral drainage more than once while only 27 patients (24.5%) reached resolution with unilateral biliary drainage.

**Conclusions** Most patients required bilateral biliary drainage more than once during follow-up while only one quarter of the patients were treated with unilateral drainage. An active attempt to drain bilaterally is needed in patients with biliary anastomotic strictures following RL-LDLT.

## OP103 SEQUENTIAL MULTISTENTING TECHNIQUE FOR TREATING BILIARY ANASTOMOTIC STENOSIS FOLLOWING LIVER TRANSPLANTATION

**Authors** Tarantino I<sup>1</sup>, Cicchese N<sup>1</sup>, Amata M<sup>1</sup>, Ligresti D<sup>1</sup>, Barresi L<sup>1</sup>, Granata A<sup>1</sup>, Traina M<sup>1</sup>

**Institute** 1 Endoscopy Unit, IRCCS ISMETT/UPMC, Palermo, Italy

**DOI** 10.1055/s-0039-1681279

**Aims** Biliary complications following liver transplantation (LT) range from 8% to 35%. Anastomotic stricture (AS) is the most common complication. Endoscopic Retrograde Cholangiography (ERC) with sphincterotomy and pneumatic dilation with multiple stents placement is the gold standard for treating AS.; ERC/stent exchange should be repeated every three months to get the morphological recovery of the stenosis. The success rate is approximately 70%-80%. In patients responding to endoscopic therapy, the risk of AS recurrence is around 18%. We describe *sequential multistenting technique* as a novel cost-effective strategy, in which one additional stent is placed during sequential ERCs, without stent removal/exchange.

**Aims** AS resolution, endpoint was no (or minimum) waist on cholangiography and a 12-mm extraction balloon could easily pass through the anastomosis. 2. Clinical success, as the AS resolution plus the normalization of cholestatic indices (CI) for more than one month following the last procedure. 3. Recurrence, diagnosed by an increase in the CI plus imaging tests diagnostic for stenosis. 4. Adverse events clinically related with endoscopic treatment.

**Methods** Prospective observational study at single tertiary center. All consecutive patients with diagnosis of AS after LT, underwent *sequential multistenting* therapy. The patients included in the analysis had at least 6 months of follow-up.

**Results** From May 2012 to May 2018, 88/395 patients who underwent LT, developed duct-to-duct anastomotic stricture. These patients were consecutively enrolled and treated with *sequential multistenting technique*. Initial stricture resolution was achieved in 87 patients (98.8%) and all of them showed normalization of CI after one month by the end of endotherapy. The mean follow-up time was 989.4 days (SD ± 619.2). During follow-up, seven adverse events (8%) (five cholangitis, one migration and one cholestasis) and seven recurrences (8%) were recorded.

**Conclusions** Current study shows, in a large cohort of patients with AS post-LT, the high efficacy and the low recurrence rate of *sequential multistenting technique*.

## OP104 NO BENEFIT OF PERFORMING ENDOSCOPIC SPHINCTEROTOMY BEFORE STENT PLACEMENT IN PATIENTS WITH DISTAL MALIGNANT BILIARY STRICTURES: A META-ANALYSIS OF RCTS

**Authors** Tringali A<sup>1</sup>, Stasi E<sup>2</sup>, Cintolo M<sup>1</sup>, Forti E<sup>1</sup>, Pugliese F<sup>1</sup>, Dioscoridi L<sup>1</sup>, Adler DG<sup>3</sup>, Mutignani M<sup>1</sup>

**Institute** 1 Endoscopy, ASST Grande Ospedale Niguarda, Milano, Italy; 2 Gastroenterology and Endoscopy, IRCCS De Bellis, Castellana Grotte, Italy; 3 Gastroenterology and Hepatology, University of Utah, Salt Lake City, United States

**DOI** 10.1055/s-0039-1681280

**Aims** Endoscopic sphincterotomy (ES) before stent placement in patients with distal malignant biliary obstruction is still a controversial issue. Some authors suggested that ES before stent deployment has a protective role in avoiding the risk of post ERCP pancreatitis but this attitude is not currently evidence-based. We performed a systematic review and meta-analysis to investigate the role of ES versus non endoscopic sphincterotomy (NES) before stent placement in patients with distal malignant biliary strictures.

**Methods** We searched multiple databases (Medline, Embase, Cochrane) to identify RCTs comparing the execution of ES vs. NES before stent placement in patients with distal malignant biliary obstruction. Outcome measures were the risk of PEP, successful stent insertion, stent migration, cholangitis, bleeding and procedure time. Results were reported as odds ratios (OR) with 95% confidence intervals (95% CI). Fixed and random models were used as appropriate. Heterogeneity was assessed by measuring I<sup>2</sup>.

**Results** we identified 4 RCTs for a total of 548 patients respectively randomized to ES (274) and to NES (274). No difference emerged in the rate of PEP (OR 0.62 95% CI 0.21 – 1.88), nor in stent migration (OR 1.71 95% CI 0.60 – 4.87), bleeding (OR 1.18 95% CI 0.03 – 40.74) and successful stent insertion (OR 1.70 95% CI 0.60 – 4.79). Unfortunately, only one RCT reported bleeding and procedure time rates, favoring NES ( $p = 0.02$ ).

**Conclusions** There is no increased risk of PEP in the NES group compared to ES before stent placement in patients with distal malignant biliary obstruction. According to our data, ES is not mandatory. However, due to the small number of patients and the study heterogeneity more RCTs are required before a firm recommendation could be made.

## OP105 PHOTODYNAMIC THERAPY IN THE TREATMENT OF LARGE DUODENAL PAPILLA AND EXTRAHEPATIC BILE DUCTS CANCER

**Authors** Stranadko E<sup>1</sup>, Lobakov A<sup>2</sup>, Morokhotov V<sup>2</sup>, Riabov M<sup>1</sup>, Duvansky V<sup>1</sup>

**Institute** 1 State Research Center for Laser Medicine of FMBA, Moscow, Russian Federation; 2 Moscow Regional Research and Clinical Institute (MONIKI), Moscow, Russian Federation

**DOI** 10.1055/s-0039-1681281

**Aims** Cancers of Vater's papilla and extrahepatic bile ducts are hardly accessible tumor localizations characterized by extensive tumor growth and poor prognosis. Surgical resection provides limited success with rather high recurrence rate. Photodynamic therapy (PDT) is a new technique, providing both, adequate tumor destruction and minimal damage to surrounding tissue.

The aim of this study was the development of PDT technique for the treatment of both Vater's papilla and extrahepatic bile duct cancer in inoperable patients for improvement of their quality of life and increase of their survival time.

**Methods** PDT has been performed in 29 patients. The average age was 68.5 years. Cancer of Vater's papilla was diagnosed in 20 patients, cancer of the common bile duct in 3 patients, cancer of the liver port in 1 patient, and cancer of the gall bladder in 4 patients. Photoditazine (a chlorin-e6 derivative) was used as photosensitizer, diode laser was used for irradiation via either endoscopic or transhepatic route. Patients were divided into several groups. Outcomes were assessed by determining the median survival.

**Results** The treatment was well-tolerated by the patients. The median survival time was 18 months (minimum -11 months, maximum - 24 months). There were no lethal outcomes. In patients who had only one PDT session during the year, the median survival was 12.5 months; in patients who had two or more PDT sessions, the median survival was 23 months.

**Conclusions** Results of PDT treatment for cancer of this localization are quite comparable with the results of radical surgeries and are better than palliative surgeries.

Decrease of tumor growth rate and longer survival period in patients with residual tumor after PDT treatment are determined by vascular mechanisms produced by PDT which lead to vascular thrombosis and impaired tumor blood supply, these factors provide long-term process stabilization. Repeated PDT courses significantly improve treatment results.

## OP106 DOUBLE STENTING SEEMS TO BE BETTER THAN DOUBLE BYPASS IN CASE OF COMBINED MALIGNANT BILIARY AND DUODENAL OBSTRUCTION: META-ANALYSIS AND SYSTEMATIC REVIEW

**Authors** Fábrián A<sup>1</sup>, Bor R<sup>1</sup>, Gede N<sup>2</sup>, Bacsur P<sup>1</sup>, Pécsi D<sup>2</sup>, Hegyi P<sup>2</sup>, Tóth B<sup>3</sup>, Szakács Z<sup>2</sup>, Vincze Á<sup>4</sup>, Ruzsics I<sup>5</sup>, Rakonczay Z<sup>6</sup>, Eröss B<sup>2</sup>, Sepp R<sup>7</sup>, Szepes Z<sup>1</sup>

**Institute** 1 First Department of Internal Medicine, University of Szeged, Szeged, Hungary; 2 Institute for Translational Medicine, University of Pécs, Pécs, Hungary; 3 University of Szeged, Szeged, Hungary; 4 First Department of Medicine, Division of Gastroenterology, University of Pécs, Pécs, Hungary; 5 Department of Pulmonology, University of Pécs, Pécs, Hungary; 6 Department of Pathophysiology, University of Szeged, Szeged, Hungary; 7 Second Department of Internal Medicine and Cardiology Center, University of Szeged, Szeged, Hungary

**DOI** 10.1055/s-0039-1681282

**Aims** To assess feasibility and optimal method of double stenting of malignant duodenal and biliary obstruction compared to surgical double bypass.

**Methods** A systematic literature search was performed to assess feasibility and optimal method of double stenting of malignant duodenal and biliary obstruction compared to surgical double bypass in terms of technical and clinical success, adverse events, reinterventions, and survival. A total of 72 retrospective and 8 prospective studies published until July 2018 were enrolled.

**Results** Technical and clinical success of double stenting was 97% (95% CI: 95 – 99%) and 92% (95% CI: 89 – 95%), respectively. Technical success showed no difference, but clinical success of endoscopic biliary stenting was higher than that of surgery (97% [95% CI: 94 – 99%] vs. 86% [95% CI: 78 – 92%],  $p < 0.001$ ). Double stenting was associated with less adverse events (14% [95% CI: 9 – 19%] vs. 24% [95% CI: 16 – 34%],  $p = 0.033$ ) but with more reinterventions (22% [95% CI: 17 – 27%] vs. 9% [95% CI: 3 – 18%],  $p < 0.01$ ). Mean survival was similar in the groups. No difference was found between technical and clinical success and reintervention rate of ERCP, PTD and EUS-BD. ERCP was associated with the least adverse event (4% [95% CI: 1 – 8%]), followed by PTD (10% [95% CI: 0 – 37%]) and EUS-BD (28% [95% CI: 17 – 41%]).

**Conclusions** In the difficult-to-treat cohort of patients with combined malignant biliary and duodenal obstruction, substantially high technical and clinical success rate can be reached with double stenting. ERCP should be recommended as the first choice for biliary stenting as a part of double stenting. Prospective comparative studies with well-defined outcomes and patient cohorts are needed to determine those who may benefit the most from double stenting.

## OP107 ENDOSCOPIC SUBMUCOSAL DISSECTION OF GASTRIC TUMOURS: EXPERIENCE FROM THREE LARGE EUROPEAN TERTIARY CENTRES

**Authors** Abdelrahim M<sup>1</sup>, Kandiah K<sup>2</sup>, Bhandari P<sup>1</sup>, Repici A<sup>3</sup>, Seewald S<sup>4</sup>, Masseli R<sup>3</sup>, Invernizzi M<sup>4</sup>, Alkandari A<sup>1</sup>, Hossain E<sup>1</sup>, Arndtz S<sup>1</sup>

**Institute** 1 Queen Alexandra Hospital, Gastroenterology, Portsmouth, United Kingdom; 2 St George's University Hospital, Gastroenterology, London, United Kingdom; 3 Humanitas Research Hospital, Milan, Italy; 4 GastroZentrum Hirslanden, Gastroenterology, Zurich, Switzerland

**DOI** 10.1055/s-0039-1681283

**Aims** We aim to review the efficacy and safety of ESD for early gastric neoplasia from three large European referral centres.

**Methods** Data was prospectively collected on an electronic database. We analysed this database and patient's electronic record. Parameters related to ESD outcome were collected.

**Results** A total of 175 gastric neoplasia were resected between 2009 and 2017 (152 ESD, 23 hybrid ESD), 51.4% were in proximal stomach. Mean size was 29mm. Only 13 (7.42%) were sub-epithelial lesions. Table (1) shows outcomes and procedure-related complications. The overall en-bloc resection, R0 (deep), and R0 (deep and lateral) rates were 92.5%, 83.4%, and 61%, respectively. Proximal location of the lesion was a predictor for R1 outcome (p value 0.011). Size of the lesion was not significantly related to the R0 rate. The overall adverse event rate was 11.3%. Bleeding occurred in 17 (9.71%) and perforation in 3 (1.71%) cases. 95% of these patients were treated conservatively or endoscopically, only 1 patient required surgical intervention for bleeding. There was no 30-day procedure related mortality. Recurrence at 3 months occurred in 7 patients (4%).

**Conclusions** In this large European gastric ESD series, we have demonstrated the feasibility and safety of this technique in a European setting. Lesion's site within the stomach was a predictor of R1 outcome. Despite the low R0 rate, our recurrence rate is low and comparable to Japanese data. This suggests that western endoscopists are dissecting too close to the lesion's margin and diathermy artefact could be leading to the increased R1 rate.

## OP108 FEASIBILITY OF CONSCIOUS TRANSNASAL HYBRID ENDOSCOPIC SUBMUCOSAL DISSECTION FOR EARLY GASTRIC CANCER IN ELDERLY PATIENTS

**Authors** Minato Y<sup>1</sup>, Ohata K<sup>1</sup>, Sakai E<sup>1</sup>, Matuhashi N<sup>1</sup>

**Institute** 1 NTT Medical Center Tokyo, Tokyo, Japan

**DOI** 10.1055/s-0039-1681284

**Aims** Endoscopic Submucosal Dissection (ESD) is technically difficult and time-consuming procedure which is performed under sedation. Therefore, ESD has definite risks especially for elderly patients. Transanal hybrid ESD without sedation maybe alternative therapeutic option for achieving, safe, easy and short-time en-bloc resection for superficial gastrointestinal neoplasms.

**Methods** After informed consent was obtained, transnasal Hybrid ESD was performed for elderly patients whose age were over 80 years old and clinical characteristics and outcomes were evaluated retrospectively. 10 gastric lesions were resected by transnasal Hybrid ESD between April 2016 and October 2018. All of the hybrid ESD steps were performed using a newly developed multifunctional snare 'SOUTEN' (Kaneka Medics, Tokyo, Japan) which is design to achieve Hybrid ESD which is available through the transnasal endoscope. The knobshaped tip attached to the loop top helps to stabilize the needle-knife, making it less likely to slip during circumferential incision and enables partial submucosal dissection.

**Results** The mean age was 83.7 ± 6.5 years old, the male to female ration was 7:3. The lesions locations were U/M/L:1/3/6. Mean tumor size and resected specimen size were 9.5 ± 3.2mm and 19.6 ± 6.0mm. And mean procedure time was 13.7 ± 3.1 min. En-bloc R0 resection rate were 100% respectively. In all patients, face scale was 1 and oxygen saturation could keep more than 95% during procedure, therefore oxygen administration was not needed.

**Conclusions** We confirmed favorable clinical outcomes of Hybrid ESD without sedation. We believe transanal hybrid ESD without sedation is a useful therapeutic technique for early gastric cancer in elderly patients.

## OP109 PREDICTIVE MODEL FOR NON-NEOPLASTIC PATHOLOGY RESULTS AFTER ENDOSCOPIC RESECTION OF EARLY GASTRIC CANCER

**Authors** Kim CH<sup>1</sup>

**Institute** 1 Upper Gastric Surgery, Catholic University of Korea, Incheon St. Mary's Hospital, Incheon, Korea, Republic of

**DOI** 10.1055/s-0039-1681285

**Aims** Rate of non-neoplastic pathology (NNP) results after endoscopic resection (ER) of gastric epithelial neoplasia (GEN) has been reported as 3~7%. However, pretreatment characteristics for NNP results have not been identified to date. The aim of this study was to develop a predictive model for NNP results after ER.

**Methods** Among 817 patients who underwent ER for GEN, factors associated with NNP results were identified by univariate and multivariate analyses. Weighted points considering  $\beta$  coefficient were allocated to each variables which were significant after multivariate analysis. Predictive score was calculated by total points. Area under receiver operating curve (AUROC) of the predictive score was calculated.

**Results** The rate of NNP results was 8.8%. After multivariate analysis, poor demarcation from the background, no ulcer, flat appearance, and low grade dysplasia were significant factors for NNP results. One point was allocated in no ulcer, flat appearance, and low grade dysplasia. Two points were allocated in poor demarcation from the background. Predictive score ranged from 0 to 5 point. Patients were categorized as low risk group (point 0,1,2), or high risk group (point 3,4,5) for NNP results. AUROC was 0.82 ( $p < 0.01$ , 95% CI 0.77 – 0.88). With cut-off points of 2.5, the sensitivity and specificity of predictive score was 0.72 and 0.84, respectively.

**Conclusions** We developed a predictive model for NNP results after ER. Endoscopic rebiopsy or re-evaluation by pathologists is strongly recommended in high risk group.

## OP110 THE USE OF AN ADDITIONAL WORKING CHANNEL (AWC) IN ENDOSCOPIC MUCOSAL RESECTION (EMR+) COMPARED TO CONVENTIONAL EMR

**Authors** Knoop RF<sup>1</sup>, Wedi E<sup>1</sup>, Ellenrieder V<sup>1</sup>, Neesse A<sup>1</sup>, Kunsch S<sup>1</sup>

**Institute** 1 Gastroenterology and GI Oncology, University Medical Center, Göttingen, Germany

**DOI** 10.1055/s-0039-1681286

**Aims** Endoscopic mucosal resection (EMR) can be enhanced by a new external additional working channel (AWC, Ovesco Endoscopy, Tuebingen, Germany) to "EMR+". The AWC is mounted on a standard endoscope similar to the setup known from the full-thickness resection device (FTRD). So far, we do not have much data evaluating EMR+. We compared EMR+ to the gold standard of classical EMR.

**Methods** The trial was conducted prospectively in an ex-vivo animal model with pig stomachs placed into the EASIE-R simulator (Endosim, Hudson, USA), a well-established model for research and endoscopic training. Prior to intervention, we set standardized lesions, measuring 1 cm, 2 cm, 3 cm or 4 cm. In all resections, a 33 mm snare (Boston Scientific Captivator) and an FTRD grasper (Ovesco Endoscopy) was used.

**Results** Overall, 152 procedures were performed. In lesions of 1 cm, both EMR and EMR+ were very reliable with a R0 resection rate of 100%. In 2-cm lesions, EMR already dropped to 54.55%. Classical EMR did not provide sufficient resection rates for lesions with 3 cm or even 4 cm (18.18% and 0%). EMR + still presented very satisfying results in 3 cm-lesions (86.36%) but also relevantly decreased at 4 cm (60.00%). Moreover, we observed a perforation rate of 15% in the latter.

**Conclusions** EMR+ enables a grasp-and-snare technique and consequently facilitates en-bloc resection of larger lesions compared to conventional EMR, which shows its advantages in the resection of lesions <2 cm. Consistently, we found no additional benefit of EMR+ in these lesions. From a size of 2 cm, EMR + outdoes its advantages, especially concerning the rate of R0 resections. At 3 cm, EMR+ reaches its best discriminatory power. At 4 cm, also EMR+ comes to its inherent limits and the risk of perforations rises. Then, ESD or surgery should be considered.

EMR+ could help to close a therapeutic gap in interventional endoscopy with manageable technical complexity, time and costs.

### OP111 LONG-TERM OUTCOME OF EARLY GASTRIC CANCER WITH LATERAL MARGIN POSITIVE AFTER ENDOSCOPIC RESECTION

**Authors** Kim H<sup>1</sup>, Yang DH<sup>1</sup>, Bang BW<sup>1</sup>, Kwon KS<sup>1</sup>, Shin YW<sup>1</sup>

**Institute** 1 Internal Medicine, Inha University Hospital, Incheon, Korea, Republic of

DOI 10.1055/s-0039-1681287

**Aims** The positive lateral margin after endoscopic resection (ER) of early gastric cancer (EGC), additional surgery or endoscopic submucosal dissection (ESD) are recommended. However, the additional surgery often difficult due to advanced age or patient's comorbid conditions. The aims of this study is to investigate of long term outcome in patients with positive lateral margin after ER.

**Methods** We analyzed retrospectively 103 patients with positive lateral margin after ER.

**Results** Of the 103 patients, 27 patients (26.4%) underwent re-do ESD in 17 patients and additional surgery in 10 patients within 3months. And 76 patients (73.6%) were observed under close surveillance. Median duration of follow-up period was 45.7 (6–132) months. Recurrence rates of early re-treatment group (3.7%, n = 1/27) was lower than surveillance group (18.4%, n = 14/76; p = 0.05). five-year survival rates not significantly different between the two groups, at 100%, 97.4% respectively. In close surveillance periods, 14 patients were confirmed to local recurrence by follow-up biopsy, then delayed re-treatment was performed. (7 patients in re-do ESD, 5 patients in surgery, mean time after initial ER = 27.5months) Finally, a total of 24 patients were treated with re-ESD, and 17 patients were treated with additional surgery. Among these two groups, there were no significant difference in recurrence rates (8.3% vs. 0%) and five-year survival rates (both 100%). However, adverse events that related to treatment was more frequent in additional surgical group (2 ileus, 1 umbilical hernia).

**Conclusions** Re-ESD which have a similar efficacy and a better quality of life, compared to additional surgery is a favorable option for control of recurrence or residual EGCs.

### OP112 IMPACT OF ANTIPLATELET USE ON THE RISK OF BLEEDING AFTER ENDOSCOPIC SUBMUCOSAL DISSECTION FOR GASTRIC ADENOMA AND EARLY GASTRIC CANCER

**Authors** Chang YW<sup>1</sup>, Jang JY<sup>1</sup>, Kim JW<sup>1</sup>, Han SW<sup>2</sup>, Park SH<sup>3</sup>

**Institute** 1 Gastroenterology, Kyung Hee University School of Medicine, Seoul, Korea, Republic of; 2 Gastroenterology, Buchon St. Mary Hospital, The

Catholic University Medical College, Buchon, Korea, Republic of;

3 Gastroenterology, The Catholic University of Korea, Seoul, Korea, Republic of

DOI 10.1055/s-0039-1681288

**Aims** It has been reported that the rate of bleeding after gastric endoscopic submucosal dissection (ESD) is 0.6–26.9%. Recently, as the prevalence of cardiovascular disease increases, the frequency of performing ESD is common in patients taking antiplatelet agents. We aimed to evaluate the rate of bleeding after ESD and the risk of thromboembolic events after cessation of antiplatelet agents, and to determine the optimal time of drug cessation.

**Methods** We retrospectively analyzed patients who received ESD for early gastric cancer and adenoma by using EMR databases at a single large referral hospital in Korea, between January 2010 and December 2016. We classified the patients into three groups according to the use of antiplatelet agents as follows; non-user, continuation (patients who continuously used antiplatelet or resume within 3 days) and interrupted group (patients who interrupted antiplatelet more than 3 days), and compared the rate of post-ESD bleeding and thromboembolic event. We also identified predictive factors of post-ESD bleeding by using multivariate analysis.

**Results** Of total 1379 patients, 1101 were non-users, 114 were continuation group and 164 were interrupted group. Post-ESD bleeding within 30 days occurred in 67 patients overall, where result shows statistically higher rate in the continuation group than in non-users or interrupted group (14.0 vs. 3.9 vs. 4.9%; p = 0.001). However, there were no significant differences between non-users and interrupted group. None of the patients showed thromboembolic events within 30 days. In multivariate analysis, continuous antiplatelet use was a risk factor of post-ESD bleeding (OR 3.58, 95% CI 1.94–6.59). The specimen size (≥4 cm) and procedure time (≥40 min) were also independent predictors of post-ESD bleeding.

**Conclusions** Continuous use of antiplatelet agents increased the risk of bleeding after gastric ESD. Discontinuation of antiplatelet agents within 3 days is appropriate to prevent bleeding and thromboembolic-related complications.

### OP113 GERMAN ESD REGISTRY – FIRST RESULTS

**Authors** Fleischmann C<sup>1</sup>, Probst A<sup>1</sup>, Ebigo A<sup>1</sup>, Faiss S<sup>2</sup>, Schuhmacher B<sup>3</sup>, Allgaier HP<sup>4</sup>, Hartmann D<sup>5</sup>, Dumoulin FL<sup>6</sup>, Rust C<sup>7</sup>, Pohl J<sup>8</sup>, Mörk H<sup>9</sup>, Albert J<sup>10</sup>, Reinehr R<sup>11</sup>, Kolligs F<sup>12</sup>, Mayerle J<sup>13</sup>, Caca K<sup>14</sup>, Götz M<sup>15</sup>, Denzer U<sup>16</sup>, Hampe J<sup>17</sup>, Schiefke I<sup>18</sup>, Messmann H<sup>1</sup>

**Institute** 1 3. Medizinische Klinik, Klinikum Augsburg, Augsburg, Germany; 2 Gastroenterologie und Interventionelle Endoskopie, Asklepios Klinik Barmbek, Hamburg, Germany; 3 Klinik für Innere Medizin und Gastroenterologie, Elisabeth-Krankenhaus, Essen, Germany; 4 Medizinische Klinik, Evangelisches Diakoniekrankenhaus, Freiburg, Germany; 5 Innere Medizin I, Sana-Klinikum Lichtenberg, Berlin, Germany; 6 Klinik für Innere Medizin, Gemeinschaftskrankenhaus Bonn, Bonn, Germany; 7 Klinik für Innere Medizin I, Barmherzige Brüder, München, Germany; 8 Interventionelles Endoskopiezentrum und Schwerpunkt gastrointestinale Onkologie, Asklepios Klinik Altona, Hamburg, Germany; 9 Klinik für Innere Medizin I, Kreisklinikum Calw-Nagold, Nagold, Germany; 10 Gastroenterologie, Hepatologie und Endokrinologie, Robert-Bosch-Krankenhaus, Stuttgart, Germany; 11 Innere Medizin, Elbe-Elster Klinikum, Herzberg, Germany; 12 Klinik für Innere Medizin, Helios Klinikum Berlin-Buch, Berlin, Germany; 13 Medizinische Klinik und Poliklinik II, Universitätsklinikum München, München, Germany; 14 Klinik für Innere Medizin, Gastroenterologie, Hämato-Onkologie, Pneumologie, Diabetologie und Infektiologie, Klinikum Ludwigsburg, Ludwigsburg, Germany; 15 Innere Medizin I, Universitätsklinikum Tübingen, Tübingen, Germany; 16 Klinik für Gastroenterologie, Universitätsklinikum Gießen/Marburg, Marburg, Germany; 17 Medizinische Klinik I, Universitätsklinikum Dresden, Dresden, Germany; 18 Klinik für Gastroenterologie und Hepatologie, Klinikum St. Georg, Leipzig, Germany

DOI 10.1055/s-0039-1681289

**Aims** In Europe, endoscopic submucosal dissection (ESD) is not yet the standard treatment for premalignant or early malignant lesions in the gastroin-

testinal (GI)-tract. High quality data is limited to single center studies. In this study, we present the first results of the German ESD registry which was set up to evaluate and assess the technical success, curative resection rate, economic aspects as well as long term outcomes of ESD procedures performed in Germany.

**Methods** The German ESD registry study is a prospective, multicenter trial. Management and evaluation of collected data is done in a central data base at Klinikum Augsburg, Germany. Data is collected anonymously via electronic case report form (CRF).

**Results** In the year 2017, 18 hospitals included a total amount of 381 ESDs. A total of 139 resected lesions were located in the rectum, 109 lesions in the esophagus, 105 lesions in the stomach, 26 lesions in the colon and 2 lesions in the duodenum.

An overall en bloc resection rate of 94 percent was achieved; the highest en bloc rate was in the esophagus with 98% and the lowest en bloc rate in the colon with 88%.

The overall histological R0 resection rate was 81%; the highest R0-Rate was in the rectum (88%) and the lowest in the colon (73%). The overall complication rate was 15%; when colonic- ESDs were excluded, the complication rate dropped to 8,5%.

**Conclusions** A total of 381 ESD procedures were registered in 2017 with favourable R0 resection and complication rates. The German ESD registry represents a first step towards establishing ESD as a standard treatment of choice for premalignant und early malignant lesions. However, colonic ESD still remains a hurdle for western endoscopists. Further data collection and data analysis in 2018 will help to expand on the results shown here.

## OP114 PROGNOSIS OF ENDOSCOPIC RESECTION IN PATIENT WITH EARLY GASTRIC CANCER WITH UNDIFFERENTIATED TYPE HISTOLOGY

**Authors** Shin YW<sup>1,2</sup>, Park SW<sup>3</sup>, Bang BW<sup>4</sup>, Kwon KS<sup>1</sup>, Kim H<sup>2</sup>

**Institute** 1 Inha University Hospital, Incheon, Korea, Republic of; 2 Gastroenterology, Inha University Hospital, Incheon, Korea, Republic of; 3 Division of Gastroenterology, Department of Internal Medicine, Inha University School of Medicine, Incheon, Korea, Republic of; 4 Indiana University School of Medicine, Incheon, Korea, Republic of

DOI 10.1055/s-0039-1681290

**Aims** In case of early gastric cancer (EGC) with undifferentiated type histology, which did not meet the extended criteria after endoscopic submucosal dissection (ESD), addition of surgical treatment should be recommended. In clinical practice, however, there are many patients who refuse or cannot be performed surgery due to old age and comorbidities. The aim of this study was to investigate the rate of recurrence and survival in those patients.

**Methods** A total of 77 patients who had undergone ESD due to EGC with undifferentiated type histology from January 2005 to December 2015 were analysed retrospectively. Fifty six patients of them who did not receive additional surgery were subdivided into four groups, as with submucosal or lymphovascular invasion, diameter above 2 cm, positive lateral margin and curative resection according to risk of recurrence.

**Results** The mean follow up period was 47.3 (12 – 117) months. Seven of 56 patients (12.5%) had local recurrence or lymph node metastasis during that period. The recurrence rates of the patients with submucosal or lymphovascular invasion, diameter above 2 cm, and positive lateral margin were 25% (5/20), 14.3% (1/6) and 0% (0/5) respectively. On the other hand, Among 24 patients who achieved curative resection without risk factors as above, no recurrence occurred. All of 7 patients with recurrence underwent surgery and 1 of them died of advanced gastric cancer. The mean duration of recurrence after ESD was 27.1 (12 – 69) months.

**Conclusions** Surgical resection is the definite curative treatment in undifferentiated EGC with risk factors, such as submucosal invasion, lymphovascular invasion, larger than 2 cm in diameter after endoscopic resection. But in un-

differentiated EGC without such risk factors after endoscopic resection, follow up or secondary endoscopic resection can be an alternative modality even in lateral margin positive patients.

## OP115 WHAT IS THE OPTIMAL DOSE OF PROTON PUMP INHIBITOR AFTER ENDOSCOPIC SUBMUCOSAL DISSECTION FOR GASTRIC EPITHELIAL NEOPLASM?

**Authors** Jang JY<sup>1</sup>, Kim JJ<sup>2</sup>

**Institute** 1 Internal Medicine, College of Medicine, Kyung Hee University, Seoul, Korea, Republic of; 2 Internal Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Gangnam-gu, Seoul, Korea, Republic of

DOI 10.1055/s-0039-1681291

**Aims** Endoscopic submucosal dissection (ESD) has become a widely accepted for the en bloc resection of large superficial tumors in the gastrointestinal tract. ESD is less invasive when compared to surgery but complications such as bleeding, perforation and pain can be associated. Proton pump inhibitor (PPI) is frequently used to prevent post ESD bleeding but unlike the bleeding from peptic ulcers, proper dosing for post ESD period is still questionable. We can speculate that high dose PPI infusion would be more effective to ameliorate the post ESD pain. Therefore, this study was conducted to find out optimal dose of PPI in terms of minimizing complications after ESD.

**Methods** We randomly assigned patient as high dose PPI infusion group (Esomeprazole 80 mg i.v. loading → 8 mg/hr for 48 hours) and standard dose PPI group (Esomeprazole 40 mg i.v. daily). After first 48 hours, single dose of oral esomeprazole 40 mg was given to both groups. Prospective analysis was conducted in terms of clinical, endoscopic, and pathologic results from January 2015 to September 2017 at a tertiary teaching hospital.

The primary outcome was rebleeding rate and the use of painkillers such as tramadol and pethidine.

**Results** 214 patients were randomly assigned as high dose PPI group and 215 patients were assigned to infuse regular dose PPI. Clinicopathological characteristics of enrolled patients were similar between two groups except location of the tumor. Rebleeding was observed for 13 patients (5.0%) in high dose PPI group and 11 patients (4.5%) for non high dose PPI group respectively. Use of painkiller and maximal VAS (Visual analogue scale) score between two treatment groups also didn't showed significant difference.

**Conclusions** Bleeding rate and post procedural pain reduction was not associated with the use of high dose PPI. Therefore, we concluded that the effect of standard dose PPI is comparable to that of high dose PPI.

## OP115\_1 SHORT- AND LONG-TERM OUTCOMES OF ENDOSCOPIC SUBMUCOSAL DISSECTION IN THE REMNANT STOMACH

**Authors** Nomura K<sup>1</sup>, Hoteya S<sup>1</sup>, Kikuchi D<sup>1</sup>, Iizuka T<sup>1</sup>

**Institute** 1 Toranomon Hospital, Tokyo, Japan

DOI 10.1055/s-0039-1681292

**Aims** We evaluated the short- and long-term outcomes of endoscopic submucosal dissection (ESD) performed in the remnant stomach after gastrectomy or esophagectomy.

**Methods** We retrospectively analyzed 120 patients with 139 lesions who underwent ESD in the remnant stomach at our hospital between January 2005 and December 2017. Patient characteristics, tumor diameter, operation time, rate of general anesthesia, incidence of complications, rate of en bloc resection, rate of curative resection (CR), and long-term outcome were investigated.

**Results** Median follow-up period was 1773 (7 – 4637) days. Patient characteristics were a mean age of 71.6 (45 – 87) years, mean tumor diameter of 17.9 mm, mean operation time of 112.6 min, general anesthesia rate of 23.3%, incidence of perforation and postoperative hemorrhage of 2.5% and 5.0%, respectively, en bloc resection rate of 89.2%, and CR rate of 77.0%.

Eighty-nine patients underwent CR and 31 patients underwent non-CR. Of the non-CR cases, 6 underwent total gastrectomy of the remnant stomach and none of them was found to have lymph node metastasis. The remaining 25 non-CR cases included 2 patients who underwent additional argon plasma coagulation and 23 patients placed under follow-up observation. The 5-year survival rate was 92.3% (95% confidence interval: 83.4–96.5) in the entire population, 93.3% (82.9–97.5) in the CR group, and 89.5% (63.6–97.3) in the non-CR group. No patient experienced metastasis or recurrence or died of gastric cancer. Death due to other causes was reported in 8 and 3 patients in the CR and non-CR groups, respectively (cancer in other organs in 5 and 2 patients, respectively).

**Conclusions** Despite its technical complexity, ESD in the remnant stomach provided good outcomes, with a 5-year survival of 92.3% (89.5% even in the non-CR group). However, other organs need to be carefully monitored as well because of the relatively frequent occurrence of metachronous cancer in other organs.

Friday, April 5, 2019

11:00 – 13:00

EUS diagnosis pancreas

Club D

### OP117 MEASURING KRAS MUTATIONS IN PANCREATIC CYST FLUID BY DROPLET DIGITAL PCR AND NEXT-GENERATION SEQUENCING

**Authors** van Huijgevoort NCM<sup>1</sup>, Dijk F<sup>2</sup>, Halfwerk JBG<sup>2</sup>, Lekkerkerker SJ<sup>1</sup>, Reinten RJ<sup>2</sup>, Fockens P<sup>1</sup>, Besselink MG<sup>3</sup>, Busch OR<sup>3</sup>, van Noesel CJM<sup>2</sup>, van de Vijver MJ<sup>2</sup>, Verheij J<sup>2</sup>, van Hooft JE<sup>1</sup>

**Institute** 1 Amsterdam University Medical Centers, Gastroenterology & Hepatology, Amsterdam, Netherlands; 2 Amsterdam University Medical Centers, Pathology, Amsterdam, Netherlands; 3 Amsterdam University Medical Centers, Surgery, Amsterdam, Netherlands

DOI 10.1055/s-0039-1681293

**Aims** DNA-based testing of pancreatic cyst fluid, obtained with endoscopic ultrasound-fine needle aspiration (EUS-FNA), may be useful in the evaluation of pancreatic cystic neoplasms (PCN). Mutations in KRAS/GNAS are highly specific for mucinous pancreatic cystic neoplasm and can be detected by next generation sequencing (NGS; multiple genes simultaneously) or by droplet digital PCR (ddPCR; one gene at a time, but presumed higher sensitivity). The aim of this pilot study was to evaluate and compare NGS and ddPCR for measuring KRAS mutations in cyst fluid.

**Methods** In this pilot study, pancreatic cyst fluid from patients who underwent EUS-FNA were included. KRAS mutation analysis was performed using ddPCR (Bio-Rad) and next-generation sequencing (Ion Torrent PGM). The detection of mutant alleles in cyst fluid by the different techniques was compared and correlated with histopathology.

**Results** Twenty-four EUS-FNA obtained cyst fluid specimens of patients who subsequently underwent surgery were included for analysis (2007–2014). Surgical pathology showed 13 IPMNs, 7 MCNs, 3 SCNs and 1 cNET. Among these cases, 14 specimens were satisfactory for molecular testing by NGS (6 IPMNs, 5 MCNs, 1 cNET, 2 SCNs), whereas 17 specimens by ddPCR (9 IPMNs, 6 MCNs, 1 cNET, 1 SCN). Mutations in KRAS were detected in 3/6 and 9/9 IPMNs by NGS and ddPCR, respectively. In addition, KRAS mutations were identified in 0/5 and 2/6 MCNs by NGS and ddPCR. One mutation was identified in cNET by ddPCR. No mutations were identified in SCNs.

**Conclusions** In this pilot study, ddPCR was superior to NGS for the detection of mutations in cyst fluid in concordance with surgical pathology. Although the sensitivity of both ddPCR and NGS assays is often limited by the amount of DNA that can be evaluated, less DNA is required for mutation analysis by ddPCR. The lower limits of detection of ddPCR should still be determined.

### OP118 COMPARING THE REVISED EUROPEAN, AGA AND IAP GUIDELINES ON PANCREATIC CYSTIC NEOPLASMS: ACCURACY IN IDENTIFYING ADVANCED NEOPLASIA IN IPMN

**Authors** van Huijgevoort N<sup>1</sup>, ten Bokkel-Huinink S<sup>1</sup>, Lekkerkerker SJ<sup>1</sup>, Somers I<sup>2</sup>, Del Chiaro M<sup>3</sup>, Fockens P<sup>1</sup>, Besselink MG<sup>4</sup>, van Hooft JE<sup>1</sup>

**Institute** 1 Amsterdam University Medical Centers, Gastroenterology & Hepatology, Amsterdam, Netherlands; 2 Amsterdam University Medical Centers, Radiology, Amsterdam, Netherlands; 3 University of Colorado Anschutz Medical Campus, Surgery, Aurora, United States; 4 Amsterdam University Medical Centers, Surgery, Amsterdam, Netherlands

DOI 10.1055/s-0039-1681294

**Aims** Accurate detection of advanced neoplasia (AN; high-grade dysplasia/cancer) in pancreatic cystic neoplasms (PCN) will improve outcome while minimizing unnecessary surgery. The European, American Gastroenterological Association (AGA) and International Association of Pancreatology (IAP) guidelines provide recommendations on surveillance and surgical intervention for PCN based on symptoms and risk of malignancy. We aimed to identify which guideline is the most accurate in predicting AN in IPMN.

**Methods** Patients who underwent surgery for PCN were extracted from our prospective database (2006–august 2018). We considered surgery justified for AN, pseudopapillary and neuroendocrine tumors and when symptoms improved. Patients with IPMN were evaluated separately. The final histopathological diagnosis was compared with the indication for surgery stated by different guidelines. Receiver operating characteristic (ROC) curves were calculated and compared to measure diagnostic value.

**Results** Overall, 210 patients underwent pancreatic resection for PCN. In hindsight, surgery was justified in 91 (43%) patients, based on histopathological outcomes and symptom improvement. Finally, 115 patients with IPMN were included in the analysis to identify accuracy of different guidelines for predicting AN. Of the 46 patients with AN, 44 (96%), 44 (96%) and 17 (39%) would have correctly been recommended for surgery according to European, IAP and AGA guidelines. The AGA guideline would have missed 29/46 (63%) patients with AN, including 16 with cancer. Of those without AN, 51 (74%), 56 (81%) and 5 (7%) patients would have been incorrectly recommended for surgery by the European, IAP and AGA guidelines. The ROC comparison analysis showed that the European was superior to IAP guideline ( $p=0.021$ ), versus no difference between European and AGA guideline ( $p=0.392$ ).

**Conclusions** ROC comparison analysis showed that the European guideline was superior in identifying AN in IPMN compared to IAP guideline, versus no difference between European and AGA guideline. Although fewer patients undergo unnecessary surgery based on AGA guideline, the risk of missing AN with this guideline is unacceptable high.

### OP119 LEOPARD STUDY: ITALIAN MULTICENTER PROSPECTIVE STUDY OF PANCREATIC CYSTIC LESIONS WITH CONFOCAL ENDOMICROSCOPY: FEASIBILITY AND SAFETY EVALUATION

**Authors** Bertani H<sup>1</sup>, Pezzilli R<sup>2</sup>, Pigò F<sup>1</sup>, Bruno M<sup>3</sup>, De Angelis C<sup>3</sup>, Manfredi G<sup>4</sup>, Delconte G<sup>5</sup>, Conigliaro R<sup>1</sup>, Buscarini E<sup>4</sup>

**Institute** 1 Gastroenterology and Endoscopy Unit, AOU Modena, Modena, Italy; 2 Pancreas Unit – Ospedale S. Orsola, Bologna, Italy; 3 Gastroenterology Unit, AOU Città della Salute e della Scienza, Torino, Italy; 4 Gastroenterologia – ASST, Crema, Italy; 5 Istituto Nazionale Tumori, Milano, Italy

DOI 10.1055/s-0039-1681295

**Aims** Despite significant improvements in imaging technology, the diagnosis and management of pancreatic cystic lesions remains a significant clinical challenge. Needle-based confocal laser endomicroscopy (nCLE) is a unique imaging technique, enabling microscopic observation of solid organs and cystic tumors, in vivo and in real-time, during an EUS-FNA procedure.

This multicenter prospective study evaluates the feasibility and safety of nCLE during EUS-FNA of pancreatic cystic lesions.

**Methods** 59 patients presenting for EUS-FNA of pancreatic cyst were enrolled for nCLE examination. The nCLE procedures were performed using the AQ-Flex 19 preloaded in a 19G EUS FNA needle. After IV injection of fluorescein, (2.5 mL of 10% fluorescein) confocal images were acquired then the probe was retrieved from the needle, and fluid acquisition was performed as appropriate for cytology and tumor markers (CEA, Amylase). Adverse events were recorded either during or after the procedure (immediate, within 24 hours and delayed) and classified in mild, severe (according to the requirement of specific care) and fatal.

**Results** 59 cases were enrolled, including 23 cysts located in head/uncinate (40%) of pancreas and in 53% of cases the cyst was unilocular. In 56 cases (95%) the procedure was technically feasible and in 81% was considered "easy" by operator. 3 cases were considered as procedure's failure, one case due to device malfunction and 2 cases due to impossibility to retrieve the probe at the end of nCLE imaging acquisition. 6 (10%) adverse events occurred after the procedure: 3 severe (acute pancreatitis), 3 mild (2 intracystic self-limiting bleeding and 1 cyst infection); the cases of acute pancreatitis only required patient hospitalization.

**Conclusions** Our study demonstrates an excellent feasibility rate and an acceptable safety profile for nCLE in the pancreatic cysts via a 19G needle under EUS guidance.

## OP120 RISK SCORE FOR EARLY PREDICTION OF INVASIVE CANCER OF BD-IPMN ACCORDING TO MORPHOLOGICAL CHARACTERIZATION IN EUS IN PATIENTS WHO UNDERWENT TO PANCREATIC SURGERY

**Authors** Uribarri Gonzalez L<sup>1</sup>, Perez-Cuadrado Robles E<sup>2</sup>, López López S<sup>1</sup>, Lariño Noia J<sup>3</sup>, Martínez Moneo E<sup>4</sup>, Iglesias Garcia J<sup>3</sup>, Fernandez-Urien Sanz I<sup>1</sup>, Carrascosa Gil J<sup>1</sup>, Deprez PH<sup>2</sup>, Vila Costas J<sup>1</sup>

**Institute** 1 Complejo Hospitalario de Navarra, Digestive System Service, Endoscopy Unit, Pamplona, Spain; 2 Cliniques Universitaires Saint-Luc, Endoscopy Unit, Brussels, Belgium; 3 Hospital Universitario Santiago de Compostela, Endoscopy Unit, Santiago de Compostela, Spain; 4 Hospital Universitario Cruces, Bilbao, Spain

DOI 10.1055/s-0039-1681296

**Aims** To develop a risk score for early prediction of invasive cancer of BD-IPMN according to morphological characterization in EUS, using the surgical specimens as gold standard.

**Methods** Retrospective multicenter observational study in patients with BD-IPMN who underwent EUS and a surgical treatment between 2005 and 2017. Morphological features by EUS were evaluated. A score using a logistic regression model was performed to assess the risk of invasive cancer.

**Results** One-hundred and thirty-one patients (50% men, mean age: 66 ± 11 years) were included. The presentation was incidental in 40% of cases and contrast enhancement was performed in 34.6%. The low-intermediate grade dysplasia, high grade dysplasia and invasive cancer rates were and 51.9%, 24.4% and 23.7% respectively.

Size ≥ 30 mm ( $p = 0.011$ ), enhancing nodules ( $p < 0.001$ ), pancreatic duct ≥ 10 mm ( $p < 0.001$ ), lymph nodes ( $p < 0.001$ ) and abrupt change ( $p < 0.001$ ) were associated with cancer in univariable analysis. By multivariable analysis, lymph nodes [OR: 16.612 (CI95%:2.554 – 108.058),  $p = 0.003$ , 4 score points], pancreatic duct ≥ 10 mm [OR: 8.220 (CI95%:1.774 – 38.087),  $p = 0.007$ , 2 score points], abrupt change [OR: 5.890 (CI95%:1.417 – 24.482),  $p = 0.015$ , 1.5 score point], and enhancing nodules [OR: 4.276 (CI95%:1.303 – 14.032),  $p = 0.017$ , 1 score point], were independent factors associated with invasive cancer. The Nagelkerke index of the model was 0.539. The Area under the curve was 0.857 ( $p < 0.001$ ) with a sensitivity and specificity of 84% and 70% respectively in an internal validation of the model. The following categories of the score

(0 – 8.5 points): A (0 – 1), B (1.5 – 3), C (3.5 – 5), D (5.5 – 8.5 points) presented a positive predictive value of 8.5%, 42.1%, 57.1% and 100% rates of invasive cancer.

**Conclusions** This EUS predictive score estimates the risk of invasive cancer in patients with BD-IPMN with a high accuracy.

## OP121 NEEDLE-BASED CONFOCAL LASER ENDOMICROSCOPY FINDINGS IN 101 CONSECUTIVE UNDIFFERENTIATED PANCREATIC CYSTS: DOES ROUTINE USE OF CYTOPATHOLOGY CHANGE MANAGEMENT?

**Authors** Keegan M<sup>1</sup>, Pujol B<sup>2</sup>, Gincul R<sup>2</sup>, Lefort C<sup>2</sup>, Napoleon B<sup>2</sup>

**Institute** 1 Gastroenterology, Northern Beaches Hospital, Sydney, Australia;

2 Gastroenterology, Hôpital Jean Mermoz, Lyon, France

DOI 10.1055/s-0039-1681297

**Aims** Pancreatic cysts are common and cyst fluid cytology lacks sensitivity. We aimed to describe needle-based confocal laser endomicroscopy findings (nCLE) and measure the yield of cytopathology after successful nCLE.

**Methods** Review of 100 consecutive patients undergoing nCLE (CellVizio, Mauna Kea, Paris, France) of undifferentiated pancreatic cystic lesions (PCLs) in a French referral centre between April 2016 and August 2018. Data was analysed retrospectively from a prospectively collated database. Descriptive statistics and  $\chi^2$  were employed.

**Results** 101 lesions were examined in 100 patients after administration of fluorescein and prophylactic antibiotics. Seven patients were excluded from analysis for technical failure ( $n = 1$ ) or findings of rare cysts (cystic lymphangioma,  $n = 6$ ). nCLE and cytology findings were concordant in 32 PCLs (4 operated and 2 were concordant) and nCLE was diagnostic in the setting of non-contributory cytology in a further 40 PCLs (4 operated and 3 were concordant). Two PCL diagnosed as MCN by nCLE were reported as benign inflammatory cysts by cytology, both were confirmed MCN on surgical specimens (one with high grade dysplasia). The resultant diagnostic yield for nCLE was 77% (72/94). There were 9 PCL in which cytology was positive after non-diagnostic nCLE (4/6 excluded cystic lymphangiomas; serous cystadenomas (SCA),  $n = 1$ ; mucinous cystic neoplasm (MCN),  $n = 1$ ; and neuroendocrine tumour,  $n = 1$ ) (2 operated and concordant). Fifteen PCL were not diagnosed by either modality (none operated). For the diagnosis of serous cystadenoma, nCLE had a sensitivity of 88% and specificity of 100%. There were 3 complications (pancreatitis,  $n = 2$ ; and infected cyst,  $n = 1$ ).

**Conclusions** Our data did not show a benefit for cytology when nCLE was diagnostic; there were two cases where relying on cytopathology would have missed two MCN. Cytology altered the diagnosis in 37.5% of patients where nCLE was non-diagnostic. Complications were rare.

## OP122 DIFFERENTIATION OF PANCREATIC CYST TYPES BY ANALYSIS OF RHEOLOGICAL BEHAVIOR OF PANCREATIC CYST FLUID

**Authors** Khamaysi I<sup>1,2</sup>, Abu Ammar A<sup>3</sup>, Vasilyev G<sup>3</sup>, Arenstein A<sup>3</sup>, Chowers Y<sup>4</sup>, Zussman E<sup>3</sup>

**Institute** 1 Gastroenterology, Rambam Medical Center, Haifa, Israel;

2 Rappaport Faculty of Medicine, Technion IIT, Haifa, Israel; 3 Faculty of Mechanical Engineering, Technion IIT, Haifa, Israel; 4 Rambam Medical Center, Haifa, Israel

DOI 10.1055/s-0039-1681298

**Aims** Differentiation between mucinous and non-mucinous pancreatic cysts (PC) is exceedingly important, yet remains difficult.

The relative viscosity of PC fluid has proved useful for distinguishing mucinous from non-mucinous cysts.

We aimed to assess the utility of the rheological properties (measured by a rheometer) of PC fluid, as compared with standard-of-care analysis in differentiating PC types.

**Methods** Consecutive subjects with PC's underwent EUS-FNA. In addition to routine cyst fluid, a rheological behavior curve of the cyst fluid was generated. PC's were classified as mucinous or non-mucinous based on surgical and/or clinical findings (presentation, imaging, fluid analyses and follow-up).

**Results** A total of 22 patients with PC underwent EUS-FNA.

Overall, 10 lesions (45.45%) were classified as mucinous, while 12 (54.54%) were classified as non-mucinous, 5 of which (22.72%) were considered pseudocysts.

For the rheological assessment, flow curves were drawn up, with the viscosity,  $\eta$ , plotted against the shear rate,  $\gamma$ .

Three types of rheologic curves were identified, where two types correlated with non-mucinous cysts, and the third type corresponding to mucinous cysts. Using the optimal cutoff value, the sensitivity, specificity, and accuracy of cyst fluid viscosity – based diagnosis of mucinous versus non-mucinous were 70%, 91.7%, and 81.8%, respectively. In comparison, string-sign test showed a sensitivity, specificity and accuracy of 50%, 66.7%, and 59.1%, respectively. The overall accuracy of the viscosity-based technique (81.8%) was greater than that of CEA (72.7%), cytology (72.7%) and string-sign (59.1%). When considering cyst fluid viscosity, jointly with patient age, the sensitivity and the accuracy increased to 100% and 95.5%, respectively, but the specificity remained 91.7%.

**Conclusions** Cyst fluid rheological analysis appears to accurately differentiate pancreatic cyst types. This simple and rapid diagnostic tool can be implemented on-site and provides for a low variability rate compared to the commonly used, subjective string sign technique.

### OP123 ENDOSCOPIC ULTRASOUND-GUIDED FINE-NEEDLE ASPIRATION FOR PANCREATIC SOLID LESIONS: CYTOLOGY, HISTOLOGY OR BOTH?

**Authors** João M<sup>1</sup>, Elvas L<sup>1</sup>, Brito D<sup>1</sup>, Alves S<sup>1</sup>, Areia M<sup>1</sup>, Taveira F<sup>1</sup>, Saraiva S<sup>1</sup>, Cadime AT<sup>1</sup>

**Institute** 1 Gastroenterology, Instituto Português de Oncologia de Coimbra Francisco Gentil, Coimbra, Portugal

**DOI** 10.1055/s-0039-1681299

**Aims** Endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) is the gold standard procedure for obtaining pathological diagnosis of pancreatic solid lesions. The specimen obtained by EUS-FNA can be prepared for either cytological or histological (cellblock) examinations. The aim of our study was to compare diagnostic accuracy of cytology, cellblock and both, in the absence of on-site pathologist.

**Methods** We performed a retrospective study including all patients submitted to EUS-FNA of pancreatic solid lesions at an oncology centre between January 2006 and October 2018. Data were collected from electronic medical reports. Final diagnosis was based on surgical pathology or clinical follow-up. Patients with either cytology or cellblock specimen considered 'insufficient for diagnosis' were excluded.

**Results** A total of 129 patients were included (median age: 67 ± 17 years, male:70 (54.3%)). The median size of lesions was 32.0 ± 14.5 mm; a 22G needle was used in 91.5% and median number of passages was 3 ± 1. Most lesions were adenocarcinoma (58 (45%)) and neuroendocrine tumours (23 (17.8%)) and were mostly located in the pancreatic head (54 (41.9%)) and body (32 (24.8%)). Three (2.3%) procedures were complicated with self-limited bleeding. Sensitivity, specificity, positive and negative predictive values and accuracy, for the diagnosis of malignancy were 92.3%, 82.4%, 97.0%, 63.6% and 90.9% for cytology; 96.9%, 75.0%, 97.9%, 66.7% and 95.2% for cellblock and 98.2%, 76.5%, 96.5%, 86.7% and 95.3% for both, respectively. All values obtained were statistically significant. No differences were found in

diagnostic accuracy between different needle sizes ( $p = 0.235$ ) or number of passages ( $p = 0.465$ ).

**Conclusions** Combined cytological and histological analysis for diagnosing pancreatic solid lesions may increase the diagnostic yield of conventional EUS-FNA without on-site cytology. These results are similar to rates reported in the literature.

### OP124 ENDOSCOPIC ULTRASOUND-THROUGH-THE-NEEDLE MICROFORCEPS BIOPSY IN PANCREATIC CYSTIC LESIONS: A SYSTEMATIC REVIEW

**Authors** Cazacu IM<sup>1,2</sup>, Vasile Balaban D<sup>3,4</sup>, Pinte L<sup>5</sup>, Jinga M<sup>3,4</sup>, Bhutani MS<sup>2</sup>, Saftoiu A<sup>1</sup>

**Institute** 1 Research Center of Gastroenterology and Hepatology, University of Medicine and Pharmacy, Department of Gastroenterology, Craiova, Romania; 2 Hepatology and Nutrition, University of Texas, MD Anderson Cancer Center, Department of Gastroenterology, Houston, United States; 3 'Carol Davila' University of Medicine and Pharmacy, Internal Medicine and Gastroenterology Clinic, Bucharest, Romania; 4 'Dr. Carol Davila' Central Military Emergency University Hospital, Department of Gastroenterology, Bucharest, Romania; 5 Colentina Clinical Hospital, Internal Medicine Department, Bucharest, Romania

**DOI** 10.1055/s-0039-1681300

**Aims** The Moray microforceps biopsy device (MFB) is a disposable tissue acquisition device that can be passed through a 19-gauge needle and it has been recently introduced to facilitate the EUS-guided biopsy of pancreatic cystic lesions (PCL). Our aim was to perform a systematic review of studies evaluating the technical aspects, safety and efficacy of the EUS-guided microforceps biopsy for PCLs.

**Methods** A literature search was performed in three major databases, PubMed, Embase and Web of Science in October, 2018. The search terms used were: "through-the-needle", "biopsy forceps", "microforceps", "endoscopic ultrasound", and "endosonography". Case reports and case series with less than 15 patients were excluded from the analysis.

**Results** Altogether 7 retrospective studies reporting on 269 patients were included. Mean age of the patients was 66.3 years, with a slight female predominance (59.5%). The size of the PCLs ranged from 11 to 88 mm and most of them were located in the head or body of the pancreas (69%).

Technical success of EUS-guided MFB was reported in 258/269 cases (96%). Main reasons for technical difficulties were inability to access the cyst while the echoendoscope was fully flexed, difficulty to push the instrument through the needle, and difficulty to visualize the forceps on EUS scan. The tissue acquisition yield reported was 88% (171/194). EUS-guided MFB was able to establish the correct final diagnosis in 151 PCLs out of 212 (diagnostic accuracy, 71%).

Nineteen cases with adverse events (7%) were reported: abdominal pain (1.8%), intracystic hemorrhage (3%), mild acute pancreatitis (1.5%), postprocedural infection (0.7%) and atrial fibrillation after procedure (0.3%).

**Conclusions** EUS-guided MFB is technically feasible, safe and has a high diagnostic accuracy for PCLs. These results should be, however, interpreted with caution. Given the novelty of EUS-guided MFB, further ongoing studies are expected to offer a better understanding of its safety profile and diagnostic accuracy.

## OP125 ENDOSCOPIC ULTRASOUND-GUIDED FINE NEEDLE ASPIRATION CYTOLOGY VS FINE NEEDLE BIOPSY FOR THE DIAGNOSIS OF PANCREATIC NEUROENDOCRINE TUMOURS

**Authors** Eusebi LH<sup>1,2</sup>, Thorburn D<sup>2</sup>, Toumpanakis C<sup>3</sup>, Frazzoni L<sup>1</sup>, Johnson G<sup>4</sup>, Vessal S<sup>2</sup>, Caplin M<sup>3</sup>, Pereira SP<sup>4,5</sup>

**Institute** 1 Department of Medical and Surgical Sciences, University of Bologna, Bologna, Italy; 2 HPB Endoscopy Unit, Royal Free Hospital, London, United Kingdom; 3 Neuroendocrine Tumour Unit, Centre for Gastroenterology, Royal Free Hospital, London, United Kingdom; 4 Department of Gastroenterology, University College London Hospitals, London, United Kingdom; 5 Institute for Liver & Digestive Health, University College London, London, United Kingdom

DOI 10.1055/s-0039-1681301

**Aims** Endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) as a method of obtaining preoperative diagnosis of pancreatic neuroendocrine tumours (PNETs) has been reported in several series. Fine needle biopsies (FNB) are increasingly employed to obtain core specimens during EUS. However, the differences in efficacy between these sampling methods in the diagnosis of PNETs still needs to be defined.

**Methods** Over a 12-year period, all patients who underwent EUS-guided tissue sampling of suspicious pancreatic lesions identified by pancreatic protocol CT or MRI, with clinical, endoscopic and pathologic details were entered into an electronic database. Lesions underwent EUS-FNA or FNB sampling, or a combination of the two, if feasible. The accuracy and safety of different EUS guided sampling methods for confirmed PNETs were investigated.

**Results** A total of 91 patients (M/F: 42/49, median age: 57 years, range: 26–87 years), who underwent a 102 EUS procedures, had a final diagnosis of PNET confirmed by histopathological examination as well as multidisciplinary review and clinical follow up. Preoperatively, both EUS-guided sampling modalities were used in 28 procedures, EUS-FNA alone was used in 61 cases, while EUS-FNB alone in 13 cases. The diagnostic yield of EUS-FNA and EUS-FNB alone, including the inadequate specimens, was 77.5% (95% CI: 68.9–86.2%) and 85.4% (95% CI: 74.6–96.2%), respectively. The combination of both sampling modalities established the diagnosis in 96.4% (95% CI: 89.6–100%) of cases (27/28), and was significantly superior to EUS-FNA alone. The diagnostic accuracy among the adequate samples for EUS-FNA, EUS-FNB and for the combination of the two methods were 88.4% (95% CI: 80.9–96.0%), 94.3% (95% CI: 86.6–100%) and 100% (95% CI: 100–100%). There was one reported complication, a post-FNA bleeding, treated conservatively.

**Conclusions** EUS-FNB improves the diagnostic accuracy and confers additional information to cytological assessment of PNETs.

## OP126 PANCREATIC CANCER ANGIOGENESIS ASSESSMENT BY CONFOCAL LASER ENDOMICROSCOPY AND ANTI-CD 105 ANTIBODY IN PANCREATIC CANCER – A PILOT STUDY

**Authors** Ungureanu BS<sup>1</sup>, Pirici D<sup>1</sup>, Dima S<sup>2</sup>, Popescu I<sup>2</sup>, Surlin V<sup>1</sup>, Cazacu IM<sup>1</sup>, Saftoiu A<sup>1</sup>

**Institute** 1 University of Medicine and Pharmacy Craiova, Craiova, Romania; 2 Fundeni Hospital, Craiova, Romania

DOI 10.1055/s-0039-1681302

**Aims** Pancreatic ductal adenocarcinoma (PDAC) remains one of the most aggressive types of cancer with a limited number of therapeutic options. Confocal laser endomicroscopy (CLE), with various miniprobe available is accessible tool for different lesions providing a live diagnosis. To assess neoangiogenesis PDAC diagnosed patients by two fluorescently labeled antibodies on fresh biopsy samples imaged with CLE.

**Methods** Ten consecutive patients diagnosed with PDAC following FNA -endoscopic ultrasound underwent curative therapy with tumor resection. Fresh

specimens were washed in saline solution and incubated for one hour in the dark at 37°C, with Alexa-Fluor 488 anti-CD105/Endoglin antibody (mouse anti-human IgG2a, Exbio Prague, Czech Republic). We also tested mesothelin as positive for PDAC. CLE imaging was performed to assess the microvascularization in an ex vivo setting by direct contact with the specimen. All acquired images were assessed with a dedicated processing software to obtain a Z projection of confocal serial stacks. Next we measured the vascular density and vessel diameters within 50 µm × 475 µm rectangular regions previously chosen. We also compared the results with classic immunohistochemistry technique.

**Results** CD105 expression on CLE was present within PDAC samples with a microvascular density of 13.56 ± 6.88 compared to normal pancreatic tissue 1.1 ± 0.857 (p < 0.001). Mesothelin was clearly proved to be present in every PDAC samples suggesting a potential direct target for future oncologic therapies.

**Conclusions** This pilot study proves that CLE targeted CD105 for tumoral vascular network might represent a potential tool for future studies regarding PDAC neoangiogenesis and future therapies.

Friday, April 5, 2019

Video EUS 2

11:00 – 13:00

South Hall 1A

## OP127V ENDOSCOPIC ULTRASOUND-GUIDED BIOPSY OF SUBEPITHELIAL GASTROINTESTINAL LESIONS – JUST WET-IT

**Authors** Pita I<sup>1</sup>, Fernandes J<sup>2</sup>, Pimentel-Nunes P<sup>1</sup>, Monteiro P<sup>3</sup>, Dinis-Ribeiro M<sup>1</sup>, Bastos P<sup>1</sup>

**Institute** 1 Gastroenterology, Portuguese Institute of Oncology, Porto, Portugal; 2 Gastroenterology, Centro Hospitalar Cova da Beira, Covilhã, Portugal; 3 Pathology, Portuguese Institute of Oncology, Porto, Portugal

DOI 10.1055/s-0039-1681303

**Introduction** Endoscopic ultrasound-guided fine-needle aspiration biopsy (EUSFNAB) is the main method for acquisition of tissue from gastrointestinal subepithelial lesions (SELs). Despite the development of new needles, diagnostic yield remains low. The reason may be an ineffective transmission of negative pressure with the dry technique, as these lesions often have high cellular cohesion. A new method of aspiration has been described, where the needle is filled with saline (wet suction technique, WST), with promising results in pancreatic lesions. This method hasn't been tested in SELs.

**Aims and Methods** Prospective single centre study to assess the diagnostic yield of EUSFNAB+WST in the diagnosis of SELs, without the use of rapid on-site evaluation. In mesenchymal tumours, the diagnosis was considered positive only when immunohistochemistry (IHC) could differentiate between gastrointestinal stromal tumour (GIST) and leiomyoma. The diagnostic yield of this prospective cohort between July 2015 and December 2017 was compared with a retrospective cohort using dry technique from the same institution.

**Results** Seventy-one patients with SELs were included (49% male, mean age 66 years). Mean SEL size was 32 mm (min 10, max 120 mm), mean number of passages was 3 (± 0.7). A 22G needle was used in 58 patients (82%), 19 G in 8 (12%) and 25 G in 5 (7%). We obtained a conclusive cytopathological diagnosis in 60 cases (diagnostic yield of 85%) and IHC was performed in 58 cases (82%). The most frequent diagnoses were GIST (37%), leiomyoma (14%) and metastases (13%). When compared with a retrospective cohort of 56 cases, diagnostic yield was significantly higher (85% versus 25%, p < 0.0001).

**Conclusion** Wet suction technique allowed an excellent diagnostic yield in the EUS-guided evaluation of SELs. We suggest that, after proper replication of these results, WST may become the first-line method in the management of these lesions.

## OP128V EUS GUIDED LUMINAL REMODELING AS A NOVEL TECHNIQUE TO RESTORE GASTRODUODENAL CONTINUITY

**Authors** El Bacha H<sup>1,2,3</sup>, Jung C<sup>4</sup>, Brieau B<sup>4</sup>, Bordacahar B<sup>4</sup>, Leblanc S<sup>4</sup>, Barret M<sup>4</sup>, de Chaumont A<sup>5</sup>, Dousset B<sup>6</sup>, Prat F<sup>4</sup>

**Institute** 1 Medecine b, Hopital Ibn-Sina, Rabat, Morocco; 2 Gastro Enterology, Hopital Cochin, Paris, France; 3 Faculté de Médecine, University Mohammed V, Rabat, Morocco; 4 Gastro Enterologie, Hopital Cochin, Paris, France; 5 Gastroenterologie, Hopital Percy, Paris, France; 6 Chirurgie, Hopital Cochin, Paris, France

DOI 10.1055/s-0039-1681304

**Background** Pyloric closure is a method of treatment for duodenal injury. Surgery is usually needed to restore digestive continuity in due time, yet a new surgical procedure can be challenging due to fibrotic adhesion development.

**Methods** We present here a retrospective case series of three patients' with pyloric exclusion who underwent EUS guided duodenal repermeabilization using metallic stents. IRB approval was not needed for this paper, written informed consent was obtained from all patients before the procedures.

**Results** All procedures were successful with no complication and allowed regular feeding.

**Conclusion** This case series shows that EUS guided recanalization is a feasible and safe procedure that can help avoid surgery.

## OP129V SINGLE-SESSION EUS-GUIDED CHOLECYSTODUODENOSTOMY AND TRANSCYSTIC RENDEZVOUS AS RESCUE OF FAILED ERCP BILIARY ACCESS

**Authors** Sanchez-Ocaña R<sup>1</sup>, Yaiza Carbajo A<sup>1</sup>, Bazaga S<sup>1</sup>, de Benito M<sup>1</sup>, García-Alonso FJ<sup>1</sup>, de la Serna Higuera C<sup>1</sup>, Pérez-Miranda M<sup>1</sup>

**Institute** 1 Hospital Universitario Rio Hortega, Valladolid, Spain

DOI 10.1055/s-0039-1681305

**Introduction** EUS-guided rendez-vous (EUS-RV) carries a 30% failure rate. Several transluminal endoscopic interventions within the gallbladder (GB) via EUS-guided anastomoses have recently been reported in non-surgical patients with prior EUS-guided GB drainage (EUS-GBD). We report single-session EUS-guided cholecystoduodenostomy and transduodenal cholecystoscopy aiming at transcystic RV to overcome failed ERCP.

**Description** An elderly male with multiple comorbidities and Billroth-I gastrectomy presented with cholangitis and CBD and GB stones. The papilla could barely be seen, hidden among redundant folds so EUS-RV was chosen for biliary access. After EUS-guided puncture of the CBD, echoendoscope instability resulted in guidewire dislodgment and contrast extravasation. Interposed vessels, decompressed CBD and US artifact precluded a second CBD puncture, whereas lack of intrahepatic bile duct dilation ruled out transhepatic EUS-RV. We decided to perform EUS-GBD to obtain a portal for transcystic antegrade CBD access. A 15 × 10-mm lumen-apposing metal stent (LAMS) was placed free-hand into the GB. LAMS was balloon dilated and cholecystoscopy was performed through it with a standard upper endoscope. An 8.5 Fr transcystic catheter was used to help direct the guidewire into the duodenum across the papilla. The gastroscope was removed leaving the catheter-guidewire in place and a duodenoscope was then passed alongside it. The guidewire was retrieved with a snare and over-the-wire RV sphincterotomy with stone removal was completed. The patient was admitted for post-procedure abdominal pain and right-inferior-lobe pneumonia, being finally discharged.

**Comments** EUS-guided cholecystoduodenostomy with a LAMS afforded single-session transcystic antegrade RV for sphincterotomy and stone removal after failed cannulation and EUS-RV in an elderly patient with Billroth-I anatomy. This approach might be considered in selected non-surgical patients with CBD stones and in situ gallbladders if standard biliary access is not

possible, as the GB offers a larger target than the CBD and LAMS provide a relatively leak-proof platform for intervention.

## OP130V NOVEL EUS GUIDED TREATMENT OF GASTRIC VARICES WITH A LIQUID NON-ADHESIVE NEUROVASCULAR EMBOLIZATION AGENT

**Authors** Baptista A<sup>1</sup>, Guzman M<sup>1</sup>, Piñerua J<sup>1</sup>

**Institute** 1 Hospital de Clinicas Caracas, Caracas, Venezuela

DOI 10.1055/s-0039-1681306

**Aims** Endoscopic Injection of adhesive agents as N-Butyl-2-Cyanoacrylate (NBC) is used for the management of gastric varices. Recently the combination of NBC and coils has been used with endoscopic ultrasound assistance. Adhesive properties can blockage instrumentation material and damage endoscopes. Adverse events include ulcers, vascular necrosis, rebleeding and distal embolism. We describe a novel gastric varices embolization therapy with EUS injection of a composite non-adhesive endovascular liquid agent: Ethylene-vinyl alcohol (EVOH), Tantalum as contrast media and Dimethylsulfoxide (DMSO) as primer. It has been extensively used in interventional radiology to treat cerebral arteriovenous malformations. Has the advantages of being radiopaque and immediate polymerization.

**Methods** 3 men and 2 women, 50–65 years with gastric fundus varices, portal hypertension and Child-B hepatic cirrhosis who presented previous bleeding were treated. Two patients had previously been treated with NBC and rebleeding. The ecoendoscope was advanced to the gastroesophageal junction. The selected gastric varix punctured using a 22 Gauge needle. EVOH volume ranged between 1.5 and 3cc. Vascular flow obliteration was real time monitored by EUS.

**Results** Patients were discharged on the same day. The mean follow-up was 12 months. Endoscopic and radiological control was performed at 1 and 3 months.

The average procedure time was 15 min. All patients presented mild epigastric pain effectively managed with oral analgesics. The obliteration of variceal flow was achieved in all patients in a single session. There were no new episodes of bleeding or complications related to the technique.

**Conclusions** EUS guided embolization of gastric varices with EVOH can be considered as efficient alternative. The procedure promises advantages in terms of number of sessions required, local or systemic adverse events and endoscopes damage. Prospective multicenter study with greater number of cases and cost evaluation against coils alone or combined are required.

## OP131V EUS-GUIDED DOUBLE BILIARY DRAINAGE FOR COMPLEX MALIGNANT HILAR BILIARY OBSTRUCTION

**Authors** Kongkam P<sup>1</sup>, Safa S<sup>2</sup>, Reknimitr R<sup>1</sup>, Ridditid W<sup>1</sup>, Boonmee C<sup>3</sup>

**Institute** 1 Gastrointestinal Endoscopy Excellence Center, Department of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital, Bangkok, Thailand; 2 Department of Gastroenterology, Logan Hospital, Queensland Health, Gumdale, Australia; 3 Thabo Crown Prince Hospital, Bangkok, Thailand

DOI 10.1055/s-0039-1681307

**Introduction** Endoscopic ultrasound guided biliary drainage (EUS BD) is a novel technique to rescue patients who had failed ERCP biliary drainage due to significant stricture or because of surgically altered anatomy.

The situation would be more challenging in the patient who had failed ERCP or incomplete drainage due to high grade malignant hilar biliary obstruction (MHBO). In those patient percutaneous biliary drainage (PTBD) or EUS BD would be the only options.

For high grade hilar obstruction, the efficacy of EUS hepaticogastrostomy (HGS) for the left intrahepatic duct (IHD) and hepaticoduodenostomy (HDS) for the right IHD drainage were demonstrated in different studies. However number of cases and studies in particular for the right IHD drainage are

scarce. On the other side there is no universal consensus on the optimal strategy to perform EUS-BD, and the decision is largely based on the patient's anatomy and level of obstruction.

Here we are demonstrating double EUS -BD, to drain intrahepatic bile ducts in two cases with malignant high grade hilar obstruction.

**Method** In both cases the ERCP drainage failed to provide complete biliary drainage even after the first EUS guided biliary drainage both cases had IHD obstruction so they underwent second IHD biliary drainage which successfully relieve obstructive symptoms.

In those patient we achieved technical success in both cases with no major complication related to the procedure. However our second patient had only partial clinical improvement.

**Conclusion** We believe, double EUS BD for intrahepatic duct drainage is relatively safe and feasible procedure for completion of biliary drainage in complex malignant hilar obstruction.

This procedure need to be done by experienced endosonographic in a tertiary hospital setting.

There is no universal consensus on the optimal strategy to perform EUS-BD and more case studies required.

### OP132V ENDOSCOPIC ULTRASOUND (EUS)-GUIDED SINGLE-STEP MULTIPLE GATEWAY DRAINAGE OF COMPLEX WALLED-OFF NECROSIS (WON) WITH LUMEN APPOSING METAL STENT (LAMS): A PRELIMINARY EXPERIENCE

**Authors** Fabbri C<sup>1</sup>, Binda C<sup>2</sup>, Dabizzi E<sup>3</sup>, Fiscaletti M<sup>4</sup>, Jovine E<sup>5</sup>, Gasbarrini A<sup>2</sup>, Cennamo V<sup>6</sup>

**Institute** 1 Unit of Gastroenterology and Digestive Endoscopy, Forli-Cesena, AUSL Romagna, Forli-Cesena, Italy; 2 Internal Medicine, Gastroenterology and Liver Unit, Fondazione Policlinico Universitario A. Gemelli IRCCS, Università Cattolica del Sacro Cuore, Roma, Italy; 3 Unit of Gastroenterology and Digestive Endoscopy, AUSL Bologna Bellaria-Maggiore Hospital, Bologna, Italy; 4 Department of Radiology, AUSL Bologna Bellaria-Maggiore Hospital, Bologna, Italy; 5 Department of Surgery, AUSL Bologna Bellaria-Maggiore Hospital, University of Bologna, Bologna, Italy; 6 Unit of Gastroenterology and Digestive Endoscopy, AUSL Bologna Bellaria-Maggiore Hospital, Bologna, Italy  
**DOI** 10.1055/s-0039-1681308

**Background** EUS-guided drainage is suggested as the first approach in the management of symptomatic, complicated WON. A step-up approach is proposed in case of either refractory or complex collections. Recently, a new LAMS with an integrated electrocautery delivery system have been developed, facilitating drainage, reducing procedural timing and hospital stay. Although a single transluminal access is preferred, multiple step-up gateway technique is proposed in case of multiple, large or low-responding WON.

**Methods** We present our preliminary experience on patients with symptomatic complex WON, defined as large (> 12 mm), septated or multiple, drained with a single-step, multiple gateway technique using EC-LAMS. All procedures were performed after 4 weeks from the onset and conservative treatment failure. Patients demographic, technical and clinical success, procedure time, necrosectomy sessions, further treatment needed, adverse events and post-procedure hospitalization were recorded and statistically analyzed.

**Results** This is a retrospective analysis of prospective collected data of five consecutive patients with symptomatic complex WON. WON were single with septa in 3 patients, multiple in 2 patients. 10 EC-LAMS were deployed with both transgastric and transduodenal approach. Technical success was 100%. The mean time for procedure was 29 min. Necrosectomy was completed in up to 3 sessions, achieving clinical success in 3 cases (80%), with no recurrence in all the patients. One patient required a concomitant percutaneous drainage. We reported one moderate bleeding, in the first post-operative day (POD) treated endoscopically and one severe bleeding, on 10<sup>th</sup> POD, requiring embolization and surgery with concomitant necrosectomy.

**Conclusion** Patients affected by multiple, septated, large WON can be considered "hard-to-treat-patients" and a single gateway could represent an insufficient treatment. Our case series showed that a single-step multiple gateway technique using EC-LAMS is safe and feasible.

However further prospective, randomized, controlled studies are needed to define the long-term outcomes of this approach.

### OP133V SALVAGING EUS GUIDED GASTROJEJUNOSTOMY PERFORMED TO TREAT SMA SYNDROME BY "CONTROLLING THE TWO ENDS OF THE WIRE" TECHNIQUE

**Authors** Lajin M<sup>1</sup>

**Institute** 1 Sharp Grossmont Hospital, La Mesa, United States

**DOI** 10.1055/s-0039-1681309

60 year old male presented with vomiting and weight loss.

Abdominal CT was consistent with SMA syndrome. EGD showed extrinsic compression at D3.

He declined surgery or tube feeding and agreed to endoscopic treatment.

An overtube was mounted on an endoscope. A wire was advanced to the jejunum.

The endoscope was removed, CRE balloon catheter was advanced over the wire inside the overtube. The CRE balloon was positioned past the narrowing opposing the gastric silhouette.

The balloon was inflated. An Echoendoscope with hot axios was advanced to the stomach opposing the balloon. The Axios catheter was advanced using electrocautery inside the balloon causing balloon rupture. A long wire was advanced inside the jejunum. The distal flange slipped outside the jejunum during deployment. The proximal flange was deployed. The echoendoscope was removed, keeping the wire in place.

A pediatric colonoscope was advanced to the proximal jejunum. The distal end of the wire was pulled back to the mouth as the colonoscope was removed. Both ends of the wire were controlled. The deployed axios was retrieved.

A therapeutic gastroscope was advanced over the proximal end of the wire to the gastrojejunostomy site.

A 15 mm axios was advanced over the wire through the gastrojejunostomy to the small bowel. A pediatric Endoscope was advanced on the side of the therapeutic endoscope to the second part of the duodenum confirming the position of axios catheter in the small bowel.

The distal flange of the stent was deployed under endoscopic visualization in the small bowel.

The proximal flange was then deployed in the stomach. The stent was dilated to 18 mm.

The patient had no adverse events and tolerated soft diet.

Postoperative CT showed gastrojejunostomy with decompression of the stomach.

In a follow-up visit, he was asymptomatic and gaining weight.

### OP134V GASTROJEJUNOSTOMY AND COLEDOCODUODENOSTOMY FOR BILIARY DRAINAGE IN PATIENT WITH DUODENAL AND BILIARY STENOSIS DUE TO PANCREATIC NEOPLASM

**Authors** Bozhychko M<sup>1</sup>, Mangas-Sanjuan C<sup>1</sup>, Compañy L<sup>1</sup>, Ruiz FA<sup>1</sup>, Martínez Sempere J<sup>1</sup>, Casellas JA<sup>1</sup>, Aparicio JR<sup>1</sup>

**Institute** 1 Unidad Endoscopias, Hospital General Universitario de Alicante, Alicante, Spain

**DOI** 10.1055/s-0039-1681310

**Introduction** We describe a case of a 62-year-old man with a history of cholecystectomy due to repetitive biliary colic. The patient was diagnosed with locally advanced pancreatic adenocarcinoma cT4cN1M0, in the context of constitutional syndrome and obstructive jaundice. The pancreatic mass

produced dilation of the intra and extrahepatic bile duct, as well as Wirsung (6.5 mm) and stenosis of the third duodenal portion. For this reason, we decided to do an endoscopic derivation of the bile and duodenal stenosis.

**Short Description of the Technique:** Due to the impossibility of passage the guidewire to the distal duodenum we could not put a duodenal prosthesis. Because of that we decided to perform an endoscopic gastrojejunostomy and endoscopic biliary duct derivation, at the same procedure.

Firstly, we introduced the endoscopic ultrasound (EUS) in order to identify a loop of small intestine close to the stomach. Then, the bowel was punctured with a 19 G needle so as to introduce contrast and methylene blue in order to distended the loop. The endoscopic gastrojejunostomy was performed using lumen-apposing metal stent (LAMS) (HOT Axios 15 × 10 mm) by the "free-hand" technique. After that, we verified the correct position in the jejunum by direct vision and seeing the exit of methylene blue to the stomach.

For the derivation of the biliary stenosis, we identified the dilated bile duct (2.6 cm) at the duodenal bulb level. Subsequently, we punctured it with a 19 G needle and passed a guidewire to the common bile duct. Finally, we performed a choledochoduodenostomy with 8 × 8 mm HOT Axios and verified its correct placement.

**Conclusions** The EUS allows the performing of the drainage of the biliary tract and the bowel stenosis at the same procedure, using lumen-apposing metal stent without complications.

Friday, April 5, 2019

11:00 – 13:00

Video upper GI 2

South Hall 1B

### OP135V EARLY GASTRIC ADENOCARCINOMA OF THE FUNDIC GLAND (CHIEF CELL PREDOMINANT TYPE): A NEW CHALLENGE FOR AN ENDOSCOPIST AND A PATHOLOGIST

**Authors** Kuvaev R<sup>1</sup>, Kashin S<sup>1</sup>, Kraynova E<sup>2</sup>, Yao K<sup>3</sup>, Yao T<sup>4</sup>

**Institute** 1 Yaroslavl Regional Cancer Hospital, Endoscopy, Yaroslavl, Russian Federation; 2 Yaroslavl Regional Cancer Hospital, Pathology, Yaroslavl, Russian Federation; 3 Fukuoka University Chikushi Hospital, Endoscopy, Fukuoka, Japan; 4 Juntendo University, Human Pathology, Tokyo, Japan

DOI 10.1055/s-0039-1681311

A 65-year-old female patient was referred to Yaroslavl Regional Cancer Hospital for screening upper gastrointestinal endoscopy. A 6 mm elevated lesion at the greater curvature of the upper part of gastric body was detected. The lesion had a poorly demarcated border and a whitish regular surface with dilated branching vessels by conventional white light imaging (WLI) endoscopy. Magnifying narrow-band imaging (M-NBI) observation of the lesion identified the indistinct demarcation line with a regular microsurface and a microvessel pattern. No atrophic changes were confirmed at the background gastric mucosa. *Helicobacter pylori* infection was not detected. Target forceps biopsy was taken for histological assessment of the lesion. Histology showed carcinoma mimicking the normal gastric fundic glands with an irregular branching structure. Endoscopic submucosal dissection (ESD) was performed for en-bloc resection of the lesion. Histological examination of the post-ESD specimen showed well-differentiated gastric adenocarcinoma of fundic gland (GAFG) with submucosal invasion < 500 micrometers (sm1). The tumor was located in the deep region of the fundic gland and was totally covered by non-neoplastic foveolar epithelium. Immunohistochemically, the lesion had diffuse positivity for pepsinogen I (chief cell differentiation), and focal positivity for H<sup>+</sup>/K<sup>+</sup>-ATPase (parietal cell differentiation) suggesting a chief cell-predominant type of a cancer. Endoscopic resection was assessed as complete (R0) with negative horizontal and vertical margins of the specimen, no lymphatic and venous infiltration were found. GAFG is a rarely diagnosed gastric neoplasm of oxyntic mucosa which is considered to be a limitation for M-NBI diagnosis and therefore should be identified by careful WLI endoscopy only [Ueyama et al., 2014]. A recent literature search through PubMed was conducted to obtain

111 cases of GAFG (mainly from Japan) [Benedict et al., 2018]. To the best of our knowledge this is the first report of this type of gastric cancer in Russia and Europe.

### OP136V ENDOSCOPIC BAND LIGATION WITHOUT RESECTION OF SMALL-SIZED SUBMUCOSAL TUMOURS: RESULTS IN SHORT-MEDIUM FOLLOW-UP TERM OF A MULTICENTER PROSPECTIVE STUDY (BANDING-SMT)

**Authors** Bas-Cutrina F<sup>1</sup>, Consiglieri CF<sup>1</sup>, Loras C<sup>2</sup>, Andújar X<sup>2</sup>, Huertas C<sup>3</sup>, Albert M<sup>3</sup>, Ballester R<sup>4</sup>, González-Huix F<sup>4</sup>, Guarner-Argente C<sup>5</sup>, Pardo A<sup>6</sup>, Bosch-Schips J<sup>7</sup>, Gornals JB<sup>1</sup>

**Institute** 1 Endoscopy Unit, Digestive Diseases Department, Hospital Universitari de Bellvitge – IDIBELL, Barcelona, Spain; 2 Endoscopy Unit, Digestive Diseases Department, Hospital Universitari Mútua de Terrassa, Terrassa, Barcelona, Spain; 3 Digestive Diseases Department, Hospital Universitari de Girona Doctor Josep Trueta, Girona, Spain; 4 Endoscopy Unit, Digestive Diseases Department, Hospital Universitari Arnau de Vilanova de Lleida, Lleida, Spain; 5 Endoscopy Unit, Digestive Diseases Department, Hospital de la Santa Creu i Sant Pau, Barcelona, Spain; 6 Digestive Diseases Department, Hospital Universitari Joan XXIII de Tarragona, Tarragona, Spain; 7 Pathological Anatomy Department, Hospital Universitari de Bellvitge – IDIBELL, Barcelona, Spain

DOI 10.1055/s-0039-1681312

**Aims** The endoscopic-band-ligation (EBL) without resection combined with a single-incision-needle-knife (SINK) biopsy is a little reported option in the management of submucosal-tumours (SMT). The main aim was to determine the efficacy of this technique. Secondary aims: to evaluate its safety and the diagnostic yield of biopsy.

**Methods** Prospective multicenter study. Inclusion criteria: SMT ≤ 15 mm, confirmed by endoscopic-ultrasound (EUS). Technical success: complete EBL of the SMT plus SINK biopsy. Clinical success: total disappearance of the SMT. Clinical controls: recovery at first 6-hours, calling at 48-hours and 7-days. EUS control at 4–6 weeks and 12 months. Clinical-Trials.gov register: NCT03247231.

**Results** Sixty-four cases (44% of the sample calculation); EUS-control 4–6 weeks n = 51. Esophagus n = 3, stomach n = 49, duodenum n = 11, rectum n = 1. SMT medium-size: 9.5-mm (4.5–15 mm). EBL technical success: 87.5% (n = 56/64). Clinical success at 4–6 weeks: 92.2% (n = 47/51), overall clinical success: 79.7% (n = 47/59). SMT dependence of superficial vs. deep layer subanalysis: technical success 93% vs. 75%; overall clinical success 87% vs. 65%. SMT ≤ 10-mm vs. > 10-mm: technical success 100% vs. 68%; overall clinical success 97% vs. 54%. Pathological diagnosis: 62.5% (30/48); no differences between SMT-size, SMT-layer, or number of biopsies. Two mild adverse events (3%): bleeding, pain. Incidences: epigastralgia (6 h: 33%; 24–48 h: 30%; 7-days: 14%; 4–6 weeks: 2%).

**Tab. 1** Technical and clinical success subanalysis

	Superficial layer	Deep layer	SMT ≤ 10-mm	SMT > 10-mm
YES technical success	41 (93%)	15 (75%)	39 (100%)	17 (68%)
NO technical success	3 (7%)	5 (25%)	0 (0%)	8 (32%)
YES clinical success	34 (94%)	13 (87%)	34 (97%)	13 (81%)
Overall NO clinical success	5 (13%)	7 (35%)	1 (3%)	11 (46%)

**Conclusions** Preliminary results in the short-medium follow-up term indicate that EBL of small SMT, supplemented with SINK biopsy, seems to be a feasible and safe technique. The limitations of its technical and clinical success seem to be associated with the SMT size and deep layers dependence.

## OP137V ENDOSCOPIC PERORAL DRAINAGE (EPOD) OF PERITONEAL POST BARIATRIC SURGERY COLLECTION AND ABSCESES

**Authors** Baptista A<sup>1</sup>, Salinas A<sup>1</sup>, García W<sup>1</sup>, Guzman M<sup>1</sup>, Davila M<sup>1</sup>

**Institute** 1 Hospital de Clínicas Caracas, Caracas, Venezuela

**DOI** 10.1055/s-0039-1681313

**Aims** Pancreatic collections endodrainage is a rationale for Endoscopic Peroral Drainage (EPOD) in cases of peritoneal abscess after Bariatric surgery leaks. Reoperation has a high morbidity and CTdrainage has limitations.

**Methods** We included 80 consecutive patients from 2007 to 2015 (48 Sleeve gastrectomy, 32 gastric bypass) with post operative leaks between 5 to 21 days. Patients Heart rate was over 120 bpm. Tomography showed left sub-phrenic, peri-gastric or free abdominal collections. Upper CO2 endoscopy allowed through the leak acces to peritoneum (9,8 or 5,8 mm diameter gastro-scope). In patients with orifices <5.8 mm balloon dilatation of the leak was performed. The absceses content was suctioned out (100 to 700 ml) and sample taken for bacterial culture. Cavity was flushed and cleaned with sterile saline (200 – 2000 ml). If needed surgical drains were repositioned or replaced using endoscopic forceps and snares by one of the following approaches: 1-advancing endoscopes to the skin orifice, pulling the drains tubes into the peritoneum and leave them close to the leak. 2-searching for one laparoscopic port inside peritoneum, re-opening it under endoscopic visión, advancing through it drainage catheters and pulling back to place them close to the leak. In 8 patients fórceps or knives endoscopic liberation of adhesions was required. Leaks were treated with SEMS.

**Results** Heart rate returned to normal within 24 hours. In 50% of patients it happened immediately after drainage. Average time was 55 minutes. Abdominal catheters were removed between 7 and 18 days once full resolution of the debit was achieved. Twenty patients were discharged within the first 24 hours and the rest between wwithin 8 days. SEMS were placed for 6 to 8 weeks leading to complete closure of leaks. There were no adverse events.

**Conclusion** EPOD for peritoneal abscesses secondary to Bariatric surgery leaks is feasible, safe and highly effective.

## OP138V PERCUTANEOUS ENDOSCOPIC GASTROSTOMY – “REMOVAL UNEXPECTED COMPLICATION”

**Authors** Fernandes J<sup>1</sup>, Araújo T<sup>2</sup>, Ramos R<sup>1</sup>, Vicente C<sup>1</sup>, Teles T<sup>3</sup>, Cunha R<sup>3</sup>, Azevedo C<sup>3</sup>, Lucas F<sup>4</sup>, Canena J<sup>5</sup>, Lopes L<sup>2,6,7</sup>, Casteleiro C<sup>1</sup>

**Institute** 1 Gastroenterology, Centro Hospitalar Cova da Beira, Covilhã, Portugal; 2 Gastroenterology, Hospital de Santa Luzia, Viana do Castelo, Portugal; 3 Surgery, Centro Hospitalar Cova da Beira, Covilhã, Portugal; 4 Serviço de Medicina do Hospital de Cascais, Cascais, Portugal; 5 Gastroenterology, Nova Medical School/FCML da UNL, Lisbon, Portugal; 6 Life and Health Sciences Research Institute (ICVS), School of Medicine, University of Minho, Braga, Portugal; 7 ICVS/3B's – PT Government Associate Laboratory, Braga/Guimarães, Portugal

**DOI** 10.1055/s-0039-1681314

**Description** Percutaneous endoscopic gastrostomy (PEG) tube removal is recommended after patients resume oral intake.

There are three main techniques described to remove a PEG tube: (1) external traction at the skin level, (2) the cut and push technique, and (3) retrograde esophageal exteriorization under endoscopic control. The choice depends mainly on endoscopist's preferences and local guidelines.

Several risk factors for tube deterioration have been described, such as heat and fungal colonization.

We report the case of an 83-year-old patient with a PEG inserted 2 years ago, due to dysphagia in the context of Parkinson's disease. After placement, patient missed all booked appointments. Two years later, the patient's relatives contacted our Department to inform that the patient had resumed oral intake one year ago, and that they weren't using the feeding tube ever since.

Initially, we tried to remove the tube endoscopically through the mouth as is standard practice in our department. During the procedure an esophageal laceration occurred at the lower esophageal sphincter due to the rigidity of the bumper. Given the risk of attempting to remove through the esophagus, we decided to remove the PEG tube through the gastrostomy tract. Given the rigidity of the bumper, we performed multiple radial incisions on the bumper using laparoscopic scissors inserted through the gastrostomy tract, to facilitate its collapse when extracting it through the stoma.

At the end of the procedure we confirmed that the PEG tube was rigid, demonstrating marked decrease in its elasticity. Culture of the PEG material showed fungal colonization (hyphae growth).

**Motivation** We highlight this case by the possibility of using the gastrostomy as an alternative gateway. Moreover, endoscopists which remove PEG tubes through the oral route, should be aware that several factors can modify the tubes' original properties and therefore hinder the exteriorization using the oral route.

## OP139V ENDOSCOPIC SUBMUCOSAL DISSECTION USING THE SHORT TYPE CLUTCH CUTTER FOR SUPERFICIAL NON-AMPULLARY DUODENAL EPITHELIAL TUMORS

**Authors** Akahoshi K<sup>1</sup>, Kubokawa M<sup>1</sup>, Oya M<sup>2</sup>, Shiratuchi Y<sup>1</sup>, Gibo J<sup>1</sup>,

Yodoe K<sup>1</sup>, Akahoshi K<sup>1</sup>

**Institute** 1 Aso Iizuka Hospital, Gastroenterology, Iizuka, Japan; 2 Aso Iizuka Hospital, Pathology, Iizuka, Japan

**DOI** 10.1055/s-0039-1681315

**Background and study aim** Endoscopic submucosal dissection (ESD) using conventional knives for superficial non-ampullary duodenal epithelial tumors (SNADET) is technically demanding and the reported perforation rate was 25%. The aim of this study was to evaluate the efficacy and safety of ESD using the short type CC for SNADET.

**Patients and methods** From September 2009 to March 2018, 15 consecutive patients (6 men, 9 women; mean age 60 years, range 52 – 91) with a diagnosis of SNADET confirmed by preliminary endoscopy, EUS, and endoscopic biopsies, were enrolled into this prospective study. The short type CC (blade length 3.5 mm) was used for all steps of ESD (mucosal incision, submucosal dissection, and hemostatic treatment). The therapeutic efficacy and safety were assessed.

**Results** Tumor location included 2 lesions in the bulb, 10 lesions in the 2<sup>nd</sup> portion, and 3 lesions in the 3<sup>rd</sup> portion. The final histopathological diagnoses of the resected specimens were 5 cases of adenocarcinoma, 9 cases of adenoma, and 1 case of heterotopic gastric mucosa. The mean sizes of the SNADETs and resected specimens were 19 ± 11 mm and 28 ± 11 mm respectively. The mean operating time was 119 ± 80 minutes. The rates of en-bloc resection and R0 resection were 93% (14/15) and 67% (10/15), respectively. We encountered intraoperative perforation in 1 case (7%), which was successfully treated by following endoscopic clipping and conservative treatment. There were no perforations or bleeding after ESD using the short type CC.

**Conclusions** ESD using the short type CC appears to be a relatively safe and technically efficient method for resecting SNADET.

## OP140V ENDOSCOPIC TREATMENT OF INTRALUMINAL DUODENAL ("WINDSOCK") DIVERTICULUM WITH DIVERTICULOTOMY

**Authors** Gatto Paulo AC<sup>1,2</sup>, Alves da Cruz Teixeira L<sup>1,2</sup>, Andrade Franciscani

Peixoto A<sup>1,2</sup>, Alves Retes F<sup>1,2</sup>, Coelho Fraga Moreira P<sup>1,2</sup>, Souto

Bittencourt PF<sup>1,2</sup>, Alberti LR<sup>1,2</sup>, Fraga Moreira E<sup>1,2</sup>

**Institute** 1 FELUMA – Fundação Educacional Lucas Machado, Belo Horizonte, Brazil; 2 Hospital Felício Rocho, Belo Horizonte, Brazil

**DOI** 10.1055/s-0039-1681316

**Aims** Intraluminal duodenal diverticulum (IDD), also known as windsock's diverticulum is a rare congenital anomaly, which results from an incomplete recanalization of the foregut in the embryonic formation. Although most patients are asymptomatic, the most frequent symptoms are nausea, vomit, early satiety and epigastric discomfort. Complications are rare and include gastrointestinal bleeding, obstruction, pancreatitis and cholangitis. Endoscopic therapeutic can be used as an alternative treatment in symptomatic cases.

**Methods** Case report of endoscopic treatment of IDD in a Brazilian tertiary reference center.

**Results** A 19-year-old female with uncontrollable nausea, vomit and weight loss with twenty-days evolution. Laboratory tests and abdominal ultrasonography showed no alterations. Symptoms worsened during hospitalization with refractoriness to the clinical treatment. Introduction of total parenteral nutrition was necessary. Upper gastrointestinal endoscopy revealed a large IDD in the second duodenal portion partially occupying the lumen and with a small orifice in distal portion. The duodenal papilla was identified proximal to the diverticulum. Endoscopic diverticulotomy was recommended after multidisciplinary discussion. The septotomy was performed with needle-knife from the proximal to the distal portion, pulling the catheter in a contralateral direction to the wall of the diverticulum and thermal hemostasis was done with a coagrasper, with complete diverticulotomy and allowing easy passage of the endoscope. A laceration area was observed in the second duodenal portion, contralateral to the diverticulotomy, and metal clips were placed. Patient presented massive hematemesis, one day after the procedure, which was resolved with placement of metal clips and injection of adrenaline solution. Oral diet was started without new intercurrents.

**Conclusions** IDD are rare and generally asymptomatic. New minimally invasive techniques have been described for the treatment of symptomatic cases. The endoscopic approach by diverticulotomy may be the treatment of choice, with good success rates as described in the literature.

### OP141V ENDOSCOPIC RETROGRADE DESINVAGINATION WITH DOUBLE BALLOON ENTEROSCOPE: A NEW ENDOSCOPY TREATMENT FOR SMALL BOWEL

**Authors** Pérez-Cuadrado Martínez E<sup>1</sup>, Sánchez Melgarejo JF<sup>1</sup>, Rubio Mateos JM<sup>1</sup>, Sánchez Fernández MJ<sup>1</sup>, Pérez Fernandez A<sup>1</sup>, Delgado PE<sup>1</sup>, Pérez-Cuadrado Robles E<sup>2</sup>

**Institute** 1 Morales Meseguer Hospital, Murcia, Murcia, Spain; 2 H. Saint Luc, Brussels, Brussels, Belgium

**DOI** 10.1055/s-0039-1681317

**Introduction** Symptomatic intussusception of a long ileal segment in the colon has surgical treatment. Large-channel double balloon enteroscopy (DBE) (3.2 mm) is providing new therapeutic solutions.

**Case report** During a colonoscopy in a 42-year-old patient with rectal bleeding and symptoms of subocclusion, an invaginated mass was identified through Bahuin. A DBE (via anal) identified the head of the same (large polyp) by cecal retroversion. After optimal positioning aligned with terminal ileum, the invaginated segment is reintroduced, pushing the lesion with the distal end of the enteroscope with inflated balloon, locating its implantation site at 60 cm from Bahuin but without identifying pedicle. With the enteroscope proximal to the lesion and its balloon inflated, then we retracting the lesion until its clear exposure (semipediculate very wide) and perform adrenaline infiltration for mucosal resection. The lesion was removed and schar closed with clips with tattoo of this site. The control with capsule of the asymptomatic patient shows the tattoo and eschar in good condition 70 minutes before Bahuin orifice.

**Comments** The lesion should not be removed from the colon by: 1) possibility of perforation of the invaginated serosa and 2) after polypectomy the lesion could return to its implantation origin site, leaving the eschar outside

the scope of the treatment (almost always necessary). The scheme of this new technical variant is presented. First description of disinvagination and treatment of its cause in ileum by EDB by VA. Inflation/deflation of both balloons has been shown to be useful for optimal positioning and reduction of intussusception. We have only found an antegrade disinvagination in small bowel in the jejunum (Yamamoto H et al (Gastrointest Endosc 2004), but no retrograde cases treatment with DBE are performed.

### OP142V TUNNEL DISSECTION FOR ESOPHAGEAL GLOMUS TUMOR

**Authors** Nedoluzhko I<sup>1</sup>, Shishin K<sup>1</sup>, Shumkina L<sup>1</sup>, Khvorova I<sup>1</sup>, Ratke I<sup>2</sup>

**Institute** 1 Operative Endoscopy, Moscow Clinical Scientific Center n.a. A.S. Loginov, Moscow, Russian Federation; 2 Moscow Clinical Scientific Center, Moscow, Russian Federation

**DOI** 10.1055/s-0039-1681318

Our patient, a 67-year old male, presented with a long history of COPD. Regular thoracic CT revealed a tumor in esophagus arising from the lateral posterior wall, measuring 3.0\*2.0\*2.7 cm, with mediastinal lymphadenopathy. Endoscopy with ultrasound showed a mass in the proximal third of the esophagus, of heterogenous structure, arising from 4<sup>th</sup> layer. The initial impression was that of a gastrointestinal stromal tumor. However, there were too many doubts.

He was then scheduled for a total biopsy via endoscopic tunnel access. The mass was successfully removed through the esophagus. The tumor, 27 × 25 × 23 mm in size, was composed of epithelioid cells with rounded small nuclei and eosinophilic cytoplasm. The mitotic figures were scarce [3/50 high-power fields (HPF)]. Immunohistochemically, the tumor cells were moderately positive for α-SMA, muscle-specific actin (MSA); positive for synaptophysin and CD 56 (weakly); negative for CD 34, CD 117, DOG1, desmin, HMB45, chromogranin A, melan A and S-100 protein. Ki-67 was from 2 to 10%. This features suggested glomus tumor.

The patient had an uncomplicated postoperative course and was discharged from the hospital 2 days after surgery. He remains healthy without any recurrence to date two months after surgery.

Friday, April 5, 2019

14:30 – 16:30

Bariatric

Club B

### OP143 FIRST IN HUMAN RESULTS OF ENDOZIP, A NOVEL SUTURING BARIATRIC ENDOSCOPY PROCEDURE

**Authors** Lopez-Nava G<sup>1</sup>, Bautista-Castaño I<sup>1</sup>

**Institute** 1 Bariatric Endoscopy Unit, Madrid Sanchinarro University Hospital, Madrid, Spain

**DOI** 10.1055/s-0039-1681319

**Aims** Bariatric Endoscopic techniques (BET) have emerged to provide a treatment option for weight loss and associated comorbidities, in obese patients. A novel bariatric endoscopy gastroplasty, fully automated, more operator independent, minimally -invasive suturing system, called Endozip, enables to create multiple internal gastric walls segmentations by forming wall-wall full thickness suture of the stomach.

A prospective First in human open label single center study was carried out to assess Endozip procedure in terms of safety, feasibility and efficacy.

**Methods** 13 patients (61.5% male; mean age 41 y, mean initial BMI 36.1 kg/m<sup>2</sup> (range 30 – 39) underwent Endozip procedure between May and November 2018, in the Bariatric Endoscopy Unit of Madrid HM Sanchinarro University Hospital. Durability of the procedure was scheduled for endoscopic assessment at 1 and 6 months postprocedure. The primary outcome was the procedure safety and feasibility. The secondary outcomes were weight loss out-

comes, measured by TBWL (total body weight loss), % TBWL and % excess weight loss (% EWL).

**Results** There were no intra-procedural nor early serious adverse events. All patients were discharged the day after the procedure. The average procedure time evolved from 120 min for the first 3 patients to 35 min for the last 3 patients). The average number of full thickness automatic sutures placed was 2.6 (range 2–3).

TBWL, % TBWL and % EWL were: at 1 month (n = 10): 9.3 kg, 8.9% and 33.4% respectively; at 3 month (n = 6): 11.8 kg, 11.5% and 46.1% respectively and at 6 month (n = 2): 20.9 kg, 20.9% and 95.3%. At 1 month endoscopic control showed that sutures were in place. The study is ongoing.

**Conclusions** Endozip procedure allows a minimally invasive automated suturing of the stomach. First in human results showed safety, feasibility and effectiveness in a short duration procedure. Some evolution in navigation and visibility will be key to include this procedure in the available BET.

## OP144 SAFETY PROFILE OF THE POSE PROCEDURE

**Authors** [del Pozo-García A](#)<sup>1</sup>, [de la Cruz DR](#)<sup>1</sup>, [Rosado J](#)<sup>1</sup>, [Ulloa Márquez E](#)<sup>1</sup>, [Sánchez Gómez F](#)<sup>1</sup>

**Institute** 1 Endoscopy Unit, Gastroenterology, Hospital Virgen de la Paloma, Madrid, Spain

**DOI** 10.1055/s-0039-1681320

**Aims** Bariatric surgery, diet and lifestyle modifications, and non-exogenous drugs, have not managed to stop obesity worldwide expansion. Several bariatric endoscopic techniques emerge as safe and cost-effective promising alternatives. Our aim was to evaluate the security of the POSE (Primary Obesity Surgery Endolumenal) procedure.

**Methods** Prospective registry of intraoperative incidents, and adverse effects in a consecutive cohort of 518 obese patients (BMI 30–44.9) subjected to POSE method within a multidisciplinary program of lifestyle changes. Interventions were carried out by two endoscopists between June-2012 and June-2017. All patients signed the consent informed. Interventions were performed under general anesthesia, antibiotics, and CO<sub>2</sub>, inserting an ultrathin gastro-scope in the incisionless operating platform (IOP), performing 12–18 transmural plications in fundus and distal body, in an inpatient basis. Intraoperative incidents, symptomatology, and adverse effects were described.

**Results** The procedure could be performed in 515 patients (99.4%), failing to pass the IOP through the esophagus in 3. Average surgical time: 25 minutes. Minor events: anesthetic mild complications: 2%; intraoperative submucosal bruising: 24.8%, without clinical impact; mucosal snagging with IOP or forceps were infrequent, and 100% solvable. In 5 we treated hemorrhagic points. Symptomatology: most patients had mild to moderate epigastric pain lasting 24–72 hours, requiring opioids in 3.5%; slight cervical pain: 62%; chest pain: 4.8%; low fever: 1.5%; postoperative vomiting: 5%. Major events: 2 gastric bleedings, one within 24 hours, resolved with adrenaline/clips. Another after 3 weeks in context of NSAIDs due to gout in a thrombocytopenia-HIV patient, requiring transfusions. There was an asymptomatic pneumoperitoneum. Up to 97% of patients were discharged in <24 hours.

**Conclusions** The POSE method is safe and feasible in a short surgical time. Its commonest symptom is mild epigastric pain, being its biggest drawback is asymptomatic mural bruises production. Only three major complications were registered.

## OP145 EUROPEAN ENDOSCOPIC SUTURING REGISTRY FOR BARIATRIC PATIENTS

**Authors** [Lopez-Nava G](#)<sup>1</sup>, [Bautista-Castaño I](#)<sup>2</sup>, [Perretta S](#)<sup>3</sup>, [Formiga A](#)<sup>4</sup>

**Institute** 1 Madrid Sanchinarro University Hospital, Madrid, Spain, Bariatric Endoscopy Unit, Madrid, Spain; 2 Madrid Sanchinarro University Hospital, Bariatric Endoscopy Unit, Madrid, Spain; 3 University Hospital (NHC), Strasbourg, France; 4 Istituti Clinici Zucchi, Monza, Italy

**DOI** 10.1055/s-0039-1681321

**Aims** Full-thickness endoscopic suturing has demonstrated multiple uses, including endoscopic sleeve gastropasty (ESG) as a primary bariatric procedure and a reduction of dilated gastrojejunal anastomosis (TORe: transoral outlet reduction) in patients who have weight regain after bariatric surgery. This prospective observational multicenter registry allows monitoring feasibility, safety and weight loss of patients that underwent endoscopic suturing with Overstitch system (Apollo Endosurgery).

The aim of this Registry is to determine practice patterns, complications and weight loss results in the use of this device.

**Methods** Multicenter, longitudinal, data repository for ESG and TORe. We expect to include a representative collection of European centers performing these procedures without a hard target goal of patients for each procedure (estimated 240–300 per year). Demographic, procedural and follow-up outcomes will be recovered. Longitudinal data collection will extend up to 2 years. Eight centers are enabled to enroll consecutive patients from April 2018. The study is ongoing.

**Results** To date of December 1<sup>st</sup> a total of 175 procedures were included. These included 139 ESG (117 Primary Obesity Therapy and 22 Bridge to other bariatric techniques) and 36 TORe (trans endoscopic outlet reduction) procedures. For TORe procedure, the mean number of sutures placed for outlet reduction was  $1.94 \pm 1.2$  (66.6% interrupted and 33.3% running sutures) and  $1.3 \pm 0.6$  sutures were placed for pouch volume reduction (70.8% interrupted and 29.1% running sutures). At ESG patients the suturing pattern used was 60.8% U or triangular pattern and 39.2% Zeta suture pattern.

There was only 1 complication, 1 gastric perforation in a Primary obesity ESG, solved successfully with full endoscopic treatment. No patients required surgical intervention.

**Conclusions** Data collection for mid/long term efficacy, suturing patterns and safety is still ongoing, and accumulating a significant body of evidence on endoscopic full thickness suturing for bariatric patients of different European countries.

## OP146 TRANSORAL OUTLET REDUCTION FOR WEIGHT REGAIN AFTER GASTRIC BYPASS: ONE YEAR FOLLOW-UP

**Authors** [Bove V](#)<sup>1</sup>, [Boškoski I](#)<sup>1</sup>, [Landi R](#)<sup>1</sup>, [Gibiino G](#)<sup>1</sup>, [Laterza L](#)<sup>1</sup>, [Mangiola F](#)<sup>1</sup>, [D'Aversa F](#)<sup>1</sup>, [Familiari P](#)<sup>1</sup>, [Tringali A](#)<sup>1</sup>, [Attili F](#)<sup>1</sup>, [Perri V](#)<sup>1</sup>, [Costamagna G](#)<sup>1</sup>

**Institute** 1 Digestive Endoscopy Unit, Fondazione Policlinico Universitario A. Gemelli IRCCS, Università Cattolica del Sacro Cuore, Centre for Endoscopic Research Therapeutics and Training – CERTT, Rome, Italy

**DOI** 10.1055/s-0039-1681322

**Aims** Enlargement of gastrojejunal anastomosis is associated with weight regain in patients with Roux-en-Y gastric bypass (RYGB). Endoscopic transoral outlet reduction (TORe) has proven safe and effective for treatment of weight regain. The objective of this study was to evaluate the safety and the efficacy in weight loss and quality of life after TORe.

**Methods** Patients with at least 50% of weight regain and enlarged gastric outlet after RYGB treated at our centre were retrospectively identified from a prospectively collected database. Endoscopic outlet reduction was performed with Overstitch (Apollo-Endosurgery). Before suturing the outlet rims were cauterized with pulsed Argon Plasma Coagulation on 40 Watts, 1 l/min (VIO 300D, ERBE Elektromedizin GmbH). Follow-up was done at 1, 3, 6 and 12 months. The quality of life was evaluated according to the Quality Of Life Scale (QOLS).

**Results** Thirty-three patients (29 female, mean age 43.7) underwent TORe from January 2015 to April 2017. Baseline mean BMI was 37.9 (range 31–50). Mean number of 2.3 stitches per patient were placed (range 2–4) on the level of the gastric outlet. After suturing the patency of the redone outlet was tested with a standard gastroscope. There were 2 (6%) complications: one patient developed fever due to a small retrogastric collection and was treated

with antibiotics, while one patient had a gastric perforation that required urgent surgery. Mean hospital stay was 2.4 days (range 1 – 10).

Thirty patients completed the follow up at 12 months. Three patients were lost during the follow-up. Mean weight loss at 12 months was 14.8 kg. Mean BMI was 32 and the % EWL was 34.5 at 1 year. Only two patients regained weight compared to baseline. All the patients reported satiety after 1 month, which was confirmed by 37.5% after 12 months follow-up. In addition, over 50% of the study population had an improvement quality of life in terms of physical activity, relationships and dietary habits.

**Conclusions** In our experience TORe was a safe and effective procedure in patients with weight regain after RYGB, with stable promising results even in the long-term follow-up.

## OP147 ENDOSCOPIC SLEEVE PPLICATION (ESP) FOR TREATMENT OF OBESITY I-II. PRELIMINARY RESULTS OF 2 SITES WITH THE NEW PATTERN FOR GASTRIC EMPTYING DELAY

**Authors** Turró Arau R<sup>1</sup>, Abu Dayeh B<sup>2</sup>, Lopez Nava G<sup>3</sup>, Rosinach Ribera M<sup>1</sup>, Michelena Escudero J<sup>1</sup>, Ikuo Uchima Koecklin H<sup>1</sup>, Mata Bilbao A<sup>1</sup>, Turró Homedes J<sup>1</sup>, Espinos Perez JC<sup>1</sup>

**Institute** 1 Endoscopy, Centro Medico Teknon, Barcelona, Spain; 2 Mayo Clinic, Rochester, United States; 3 Hospital Universitario San Chinarro, Madrid, Spain

DOI 10.1055/s-0039-1681323

**Aims** Obesity is major disease in our society. Intra-gastric balloon is the endoscopic gold standard on short time weight loss. Endoscopic plication can offer us better middle long term results than balloon for its durability.

**Methods** This is a multi-center, prospective pilot study intended to evaluate the safety and efficacy of the Endoscopic Sleeve Plication procedure (mid & distal body plications) (ESP).

Study was Ethics approved at institutions. Written consent obtained. Indications have been obesity grade II. Use of the Incisionless Operating Platform (IOP)<sup>TM</sup> (USGI Medical, San Clemente, CA, USA) with a defined new pattern of disposition of the transmural plications with the g-cath EZ suture anchors in the greater curvature shortening and tubulizing the stomach to potentially delay gastric emptying and reduce gastric volume/accommodation for an enhanced physiological effect.

Follow up data will be obtained prospectively every 2 weeks initially for the first 2 months and then monthly for the next 10 months on as part of our long term follow-up program that also emphasized changes in unhealthy eating/lifestyle habits.

**Results** 17 operations in 17 patients were successfully performed (M: 9 F: 8). Mean age was 44.1 (25 – 59). Mean BMI 37.4 (Range 35.2 – 40.0). Mean number of anchors placed was 18.6 (range 14 – 21). All patients were discharged ≤ 24 hours. There were no serious adverse events (SAE). % Mean Total body weight loss at 2 months for the 17 patients was 11.17 ± 2.33 Kg and the % Excess Weight loss at 2 months was 34.26 ± 8.23%. All patients reported less hunger and earlier satiety post-procedure.

**Conclusions** The ESP procedure seems to be a safe intervention without significant adverse effects to date. Initial results in weight loss are encouraging. However, long term follow-up and further study remains necessary to assess its value in treating the multi-factorial etiology of obesity.

## OP148 BARIATRIC ENDOSCOPY: COMPARISON OF 962 PATIENTS OF 4 DIFFERENT TECHNIQUES WITH SAME ENDOSCOPIST AND SAME FOLLOW UP TEAM

**Authors** Lopez-Nava G<sup>1</sup>, Bautista-Castaño I<sup>1,2</sup>

**Institute** 1 Bariatric Endoscopy Unit, Madrid Sanchinarro University Hospital, Madrid, Spain; 2 Instituto Universitario de Investigaciones Biosanitarias, University of Las Palmas de Gran Canaria, Las Palmas de Gran Canaria, Spain

DOI 10.1055/s-0039-1681324

**Aims** New bariatric endoscopic techniques (BET) have been developed for the obesity treatment. Most centers tend to specialize in one procedure, such as Endoscopic sleeve gastropasty (APOLLO gastropasty), Primary Obesity Surgery Endolumenal (POSE method) or Intra-gastric Balloon (IGB) (Orbera or Dual), so it is difficult to compare different techniques results. The objective of this study is to evaluate different BET performed by the same endoscopist and same follow up team.

**Methods** Prospective single-center study over 962 patients (28.2% men) that underwent a BET between March 2012 and January 2017, in the Bariatric Endoscopy Unit of Madrid HM Sanchinarro University Hospital, with at least 1 year of follow-up. Distribution of techniques was: Orbera IGB 389, Dual IGB 92, APOLLO gastropasty 247 and POSE method 234. Mean initial BMI and age were 37.8 kg/m<sup>2</sup> and 45.3 years. The same multidisciplinary team (nutritionist and psychologist) carried out the follow up. Lineal regression analysis was used to evaluate the % TBWL at 1 year adjusted by gender, age, initial BMI, procedure type and % of attendance at concerted visits with the team.

**Results** At 1 year of follow up, mean TBWL, % TBWL and EWL were 18 kg, 16,3% and 51% respectively. Analyzing responding rates: 2/3 of the sample reached > 10% and 1/3 > 20% of % TBWL. APOLLO gastropasty patients obtained higher TBWL, % TBWL and % TBWL > 20%. Predictive variables of higher % TBWL were: higher % of attendance (B = 0.082. p < 0.001) and higher initial BMI (B = 0.495. p < 0.001).

**Conclusions** BET can be considered an effective treatment with high rate of responders weight loss. Adequate follow-up and selection of patients, should be one of the main objectives as it is closely related to achieving better results.

## OP149 TRANSORAL OUTLET REDUCTION WITH SEMI-CIRCUMFERENTIAL ENDOSCOPIC SUBMUCOSA DISSECTION IS SUPERIOR TO ARGON PLASMA COAGULATION

**Authors** Hollenbach M<sup>1</sup>, Selig L<sup>1</sup>, Lellwitz S<sup>1</sup>, Beer S<sup>1</sup>, Feisthammel J<sup>1</sup>, Rosendahl J<sup>2</sup>, Schaumburg T<sup>1</sup>, Mössner J<sup>1</sup>, Hoffmeister A<sup>1</sup>

**Institute** 1 Department of Medicine, Neurology and Dermatology; Division of Gastroenterology, University of Leipzig, Leipzig, Germany; 2 Department of Medicine, Clinic for Internal Medicine I, Martin-Luther University Halle-Wittenberg, Halle, Germany

DOI 10.1055/s-0039-1681325

**Aims** Roux-en-Y gastric bypass (RYGB) is a standard bariatric and metabolic procedure to induce weight-loss. Years after the intervention, a dilated gastro-jejunal anastomosis (GJA) leads to weight regain or dumping syndrome. Recently, transoral outlet reduction (TOR) to GJA-diminution has been established by endoscopic suturing after tissue ablation with argon plasma coagulation (APC). However, rupture of sutures before scarring can lead to recurrent dilation of GJA. In this study, we compared a semi-circumferential endoscopic submucosa dissection (ESD) as a novel approach for its superiority over APC before TOR.

**Methods** Data of patients who underwent APC-TOR or ESD-TOR were prospectively collected and retrospectively analyzed. The main objectives were reduction in GJA diameter and ruptured sutures. Technical success, complications, total weight loss (TWL), percent of total and excess weight loss (% TWL and % EWL) at 3 and 12 months, were assessed. Fisher's exact test, Student's t-test, Chi-Square-test and regression analyses were performed.

**Results** Forty-one patients with comparable baseline characteristics were enrolled (APC-TOR: 26, ESD-TOR: 15). ESD-TOR resulted in significantly fewer ruptured sutures (20% vs. 69%, p = 0.004) and a higher reduction of GJA (major: 20% vs. 0%, minor: 54% vs. 37%, no: 13% vs. 58%, p = 0.015) after 3 months. ESD-TOR was also identified as prediction parameter for fewer broken sutures and larger GJA reduction. TWL, % TWL or % EWL revealed no significant differences between both groups. Technical efficacy, examination time and rate of complications were comparable.

**Conclusions** ESD-TOR resulted in a significantly higher reduction in GJA diameter and lower risk of ruptured sutures compared to APC-TOR.

## OP150 DUODENO-JEJUNAL BYPASS LINER FOR THE TREATMENT OF DIABETES MELLITUS IN OBESE PATIENTS: COMPLETENESS OF DUODENAL BLINDING AS THE KEY FACTOR FOR EFFICACY

**Authors** Benes M<sup>1</sup>, Hucl T<sup>1</sup>, Drastich P<sup>1</sup>, Haluzik M<sup>2</sup>, Spicak J<sup>1</sup>

**Institute** 1 Gastroenterology, Institute of Clinical and Experimental Medicine, Prague, Czech Republic; 2 Diabetology, Institute of Clinical and Experimental Medicine, Prague, Czech Republic

**DOI** 10.1055/s-0039-1681326

**Aims** The global increase in obesity incidence results in an increase of type 2 diabetes mellitus (T2DM). Surgical treatment has proven to be effective, however it carries a high risk of complications. The duodenal-jejunal bypass liner (EndoBarrier, GI Dynamics, EB) is an endoscopic implant that mimics the intestinal bypass portion of the Roux-en-Y Gastric Bypass. It results in weight loss and improvements in glucose control in obese patients with T2 diabetes mellitus (T2DM). We aimed to identify factors associated with an outcome of EB for T2DM.

**Methods** This is a analysis of a prospective, controlled, multicentre study.

**Results** Seventy subjects (45 with an implant, 25 controls) were included in the study. The groups were comparable with respect to age, gender, BMI (mean 41.7 vs. 39.5 kg/m<sup>2</sup>), T2DM duration (7.8 vs. 8.3 years), HbA1c level (88 vs. 86 mmol/mol) and T2DM treatment. In the EB group, all devices were successfully implanted. Only 6 devices had to be explanted prior to the end of the 10 months study period (bleeding, dislocation and need for ERCP because of choledocholithiasis). At 10 months there was significantly greater weight loss and % EWL (19% vs. 7% and 43 vs. 12) and significantly improved long term compensation of T2DM marker HbA1c (decreased by 25 vs. 10 mmol/mol) in the EB group. T2DM medicinal treatment could be reduced in more device subjects than controls. There was no serious adverse event. Deepness of anchor ingrow, lower initial BMI and lower body height were identified as positive factors for efficacy of EB for T2DM compensation.

**Conclusions** The EB is safe when implanted for 10 months, and results in significant weight loss and HbA1c reduction. Deepness of anchor ingrow, lower initial BMI and lower body height could be positive factors for efficacy.

## OP151 THE ROLE OF MULTIDISCIPLINARY APPROACH IN ENDOSCOPIC SLEEVE GASTROPLASTY

**Authors** Boškoski I<sup>1</sup>, Bove V<sup>1</sup>, Landi R<sup>1</sup>, Laterza L<sup>1</sup>, Mangiola F<sup>1</sup>, D'Aversa F<sup>1</sup>, Gibiino G<sup>1</sup>, Tringali A<sup>1</sup>, Familiari P<sup>1</sup>, Attili F<sup>1</sup>, Perri V<sup>1</sup>, Costamagna G<sup>1</sup>

**Institute** 1 Digestive Endoscopy Unit, Fondazione Policlinico Universitario A. Gemelli IRCCS. Università Cattolica del Sacro Cuore, Centre for Endoscopic Research Therapeutics and Training – CERTT, Rome, Italy

**DOI** 10.1055/s-0039-1681327

**Aims** Endoscopic sleeve gastroplasty (ESG) is a relatively novel endoscopic procedure that reduces the gastric lumen with proven less complications and less 6 months weight loss compared to laparoscopic sleeve gastroplasty. At present there are no studies investigating the role of multidisciplinary approach in ESG. The aims of the present study were to evaluate the role of multidisciplinary assessment (MA) prior ESG, weight loss outcomes and quality of live improvements.

**Methods** From May 2016 to May 2018 all pts that underwent ESG were retrospectively evaluated from a prospective database. Until September 2017 before ESG only psychiatric evaluation was requested, while after this date all patients were evaluated on a multidisciplinary fashion prior ESG, composed by: gastroenterologist, surgeon, psychiatrist, endocrinologist and dietitian. Pts were divided in 2 groups: group 1 were pts with ESG before MA and group 2 were pts with ESG after MA. We compared this 2 groups in terms of weight loss outcomes and quality of live improvements (BAROS scale). All

procedures were done with the Apollo Overstitch suturing system (Apollo Endosurgery) and a double channel gastroscope Olympus 2TGIF-160 (Olympus Japan). All procedures were done in general anesthesia and with CO<sub>2</sub>-insufflation. All patients had ambulatory visit at 1,3 and 6-months after ESG and the outcomes were measured in terms of Excess Weight Loss (% EWL), Total Body Weight Loss (% TBWL) and BAROS scale. Statistical analysis was done with chi-square test and <0.05 value was considered significant.

**Results** 31 pts were identified (20 F; mean age 45.4, range 23 – 73). Mean BMI at inclusion was 41.6 (range 31.6 – 62.4). Mean % EWL and % TBWL at 6-months was 37,1 and 16,7 respectively. No procedure related complications were observed. Comparing the two groups there was significant (P<0.05) difference in terms of % EWL (26.5% Vs.42.2%) and % TBWL (14.7% Vs.18.8%), with better results in group 2. There was also a significant improvement in the BAROS scale in the patients in group 2 (2.5 Vs. 5.7).

**Conclusions** MA before ESG has a fundamental role in terms of better procedure outcomes for both weight loss and quality of live in obese pts.

## OP152 BODY COMPOSITION ALTERATIONS WITH THE ENDOSCOPIC TREATMENT OF OBESITY WITH INTRAGASTRIC BALLOON (IGB). IS IT THE BEST FOLLOW UP STRATEGY?

**Authors** Barrichello S<sup>1</sup>, Hoff AC<sup>2</sup>, Fernandes Fittipaldi JR<sup>3</sup>, Galvão Neto M<sup>4</sup>, Ferreira de Souza T<sup>4</sup>, Zamarian Veinert A<sup>5</sup>, Teixeira C<sup>1</sup>, Teixeira AF<sup>6</sup>, Nobuki Usuy E<sup>7</sup>, Guimaraes Hourneax de Moura E<sup>8</sup>

**Institute** 1 Bariatric Endoscopy, Healthme Weight Management Clinic, São Paulo, Brazil; 2 Bariatric Endoscopy, Angioskope Clinic, São José dos Campos, Brazil; 3 Bariatric Endoscopy, Endogastrorio Clinic, Rio de Janeiro, Brazil; 4 Bariatric Endoscopy, FMABC, Santo André, Brazil; 5 Nutrology, Healthme Weight Management Clinic, São Paulo, Brazil; 6 Bariatric Endoscopy, Gastros Bahia Clinic, Vitoria da Conquista, Brazil; 7 Bariatric Endoscopy, Usuy Clínica Médica, Florianopolis, Brazil; 8 Bariatric Endoscopy, Hospital das Clinicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil

**DOI** 10.1055/s-0039-1681328

**Aims** IGBs are part of the therapeutic arsenal in the fight against obesity. Body mass index (BMI) is the most widespread method used worldwide to classify the degree of obesity. Since BMI is an imprecise method for analyzing body composition, there is an urgent need to adopt more objective methods for patient follow-up and the treatment of obesity, helping in the adoption of strategies for maintaining weight after withdrawal of the accessory.

**Methods** We retrospectively analyzed the results obtained after endoscopic treatment of obesity with IGB. The sample consisted of 46 patients. The variables considered were the decrease in TBWL, BMI, changes in body composition and metabolic rate. Subgroup analysis was done according to the degree of obesity. We used means and standard deviation, Wilcoxon and the T-test. In order to analyze the difference between the groups, the Kruskal-Wallis and the Dunn test were used.

**Results** The initial mean weight was 90.6 ± 16.1 kg and after removal of the IGB was 75.7 ± 12.5 kg, and the BMI ranged from 34.1 ± 4.8 to 28.6 ± 3.7 p < 0.05.

The percentage of fat free mass presented an increase of 9.4%, from 61.5 ± 4.2 to 67.3 ± 5.8 p < 0.05. The percentage of body fat ranged from 38.5 ± 4.2 to 32.6 ± 5.8 p < 0.05.

The metabolic rate decreased from 1731 ± 303 to 1589 ± 268. Patients with grade 2 and 3 obesity presented higher total body weight loss, decreased BMI, and greater loss of fat free mass. Regarding the metabolic rate, the grade 2 and 3 obesity groups presented a statistically greater reduction.

**Conclusions** Treatment with IGBs presents consistent results in weight loss, changes in body composition and metabolic rate. Follow-up considering changes in body composition and metabolic rate is efficient and may suggest different strategies for each result obtained.

Friday, April 5, 2019  
Colon cleansing 2

14:30 – 16:30  
Club D

### OP153 MORE DETECTED POLYPS PER PATIENT WITH 1L NER1006 VERSUS STANDARD BOWEL PREPARATIONS: META-ANALYSIS OF 1749 PATIENTS IN THREE RANDOMISED PHASE 3 CLINICAL TRIALS

Authors Hassan C<sup>1</sup>, Alvarez-Gonzalez MA<sup>2</sup>, Halonen J<sup>3</sup>, Manning J<sup>4</sup>

Institute 1 Gastroenterology and Endoscopic Unit, Ospedale Nuovo Regina Margherita, Roma RM, Italy; 2 Hospital del Mar, Barcelona, Spain; 3 Medical Affairs, Norgine, Harefield, United Kingdom; 4 Borders General Hospital, Berwickshire, United Kingdom

DOI 10.1055/s-0039-1681329

**Aims** Effective colonoscopy requires adequate bowel cleansing to detect polyps of 5 mm or more in size. The 1L polyethylene glycol (PEG) NER1006 recently demonstrated superior high-quality colon cleansing efficacy over standard bowel preparations with, between them, comparable cleansing efficacies on validated cleansing scales. To explore the clinical value of improved high-quality cleansing, this meta-analysis of three randomised clinical trials assessed the mean lesion detection rates per patient for NER1006 versus standard treatments.

**Methods** Colon cleansing efficacy of split-dosing NER1006 was assessed as either overnight dosing (N2D) versus 2L PEG + ascorbate (2LPEG; MORA trial) or oral sulfate solution (OSS; NOCT trial), or as day before dosing (NDB) versus sodium picosulfate + magnesium citrate (SPMC; DAYB trial). Morning only dosing of NER1006 (N1D) was also assessed in MORA. Polyp- and adenoma detection were key secondary endpoints and these lesions were detected by site endoscopists as per usual clinical practice. Per-patient averages of overall colon polyps and adenomas were calculated for NER1006 versus comparators, per treatment and at an aggregate phase 3 level.

**Results** From 1985 randomised patients, 1749 with available lesion counts were included (Table). At the aggregate level, NER1006 demonstrated a significantly higher mean polyp detection per patient than the comparators (Mean [SD]: 1.23 [2.69] vs. 1.00 [1.73];  $P=0.014$ ). Within each trial, NER1006 also demonstrated numerically higher mean polyp detection per patient than its comparator.

Tab. 1 Mean number of overall colon polyps detected per patient with 1L PEG NER1006 versus older treatments.

Phase 3 trial	MORA	NOCT	DAYB	Phase 3 aggregate: DAYB +MORA+NOCT
Split-dosing bowel preparations	N2D (n = 256) or N1D (n = 266) vs. 2LPEG +Asc (n = 250)	N2D (n = 251) vs. OSS (n = 258)	NDB (n = 229) vs. SPMC (n = 239)	NDB, N2D or N1D (n = 1002) vs. SPMC, 2LPEG or OSS (n = 747)
Overall colon polyp count per patient, NER1006 vs. Comparator, mean ± SD; p-value	N2D: 1.35 ± 2.87 and N1D: 1.24 ± 2.23 vs. 1.08 ± 1.76; 0.103 and 0.181	1.27 ± 2.94 vs. 1.13 ± 1.82; 0.255	1.04 ± 2.68 vs. 0.77 ± 1.59; 0.094	1.23 ± 2.69 vs. 1.00 ± 1.73; 0.014
Overall colon adenoma count per patient, NER1006 vs. Comparator, mean ± SD; p-value	N2D: 0.62 ± 1.41 and N1D: 0.54 ± 1.18 vs. 0.55 ± 1.25; 0.280 and 0.540	0.95 ± 2.78 vs. 0.75 ± 1.42; 0.154	0.38 ± 0.84 vs. 0.35 ± 1.17; 0.363	0.63 ± 1.73 vs. 0.56 ± 1.29; 0.160

**Conclusions** Bowel preparation with the NER1006 (PLENVU) enables greater detection of overall colon polyps per patient than the pooled use of standard alternatives SPMC, 2LPEG or OSS.

### OP154 MORE LESIONS PER PATIENT DETECTED WITH HIGH-QUALITY VERSUS ADEQUATE COLON CLEANSING: A POST HOC ANALYSIS OF UNIFORM SEGMENTAL CLEANSING SCORES USING THE HAREFIELD CLEANSING SCALE

Authors Jover R<sup>1</sup>, Manning J<sup>2</sup>, Mokashi S<sup>3</sup>, Hassan C<sup>4</sup>

Institute 1 Servicio de Medicina Digestiva, Hospital General Universitario de Alicante, Alicante, Spain; 2 Borders General Hospital, Berwickshire, United Kingdom; 3 Medical Affairs, Norgine, Harefield, United Kingdom;

4 Gastroenterology and Endoscopic Unit, Ospedale Nuovo Regina Margherita, Rome, Italy

DOI 10.1055/s-0039-1681330

**Aims** Effective colonoscopy requires colon cleansing success which is usually based on the least clean colon segment; one poorly cleansed segment triggers an overall failure. This complicates the analysis of cleansing quality versus lesion detection. We therefore analysed the relative lesion detection in patients who had the same cleansing score in all colon segments.

**Methods** Three similar phase 3 clinical trials assessed the colon cleansing efficacy of 1L NER1006 (PLENVU) versus standard bowel preparations. Cleansing quality assessment was standardised with treatment-blinded central readers using the validated Harefield Cleansing Scale (HCS). Lesions were detected by site endoscopists as per usual clinical practice. Trial results were pooled for this post hoc analysis. The mean number of polyps (MPP) and adenomas (MAP) per patient were calculated in patients with uniform segmental scores ranging from zero (failure) to four (high-quality). One-sided t-tests assuming equal variance assessed MPP and MAP of HCS 4+4+4+4+4 versus lower score groups.

**Results** Among 1749 patients included in this analysis, 469 had uniform segmental scores (Table). HCS 4+4+4+4+4 demonstrated a higher MAP vs. HCS 2+2+2+2+2 (1.18 vs. 0.51;  $P=0.001$ ) or HCS 1+1+1+1+1 (1.18 vs. 0.10;  $P=0.034$ ). MPP was improved with HCS 4+4+4+4+4 vs. HCS 1+1+1+1+1 (1.92 vs. 0.60;  $P=0.048$ ). Four patients had HCS uniform scores of zero; no lesions were detected in these patients.

Tab. 1 Uniform segmental HCS scores vs. lesion detection

Uniform segmental HCS scores 1–4	High-quality 4+4+4+4+4	High-quality 3+3+3+3+3	Adequate 2+2+2+2+2	Failure 1+1+1+1+1
Sample size, N	39	37	379	10
Polyps per patient, Mean (SD); P-value vs. 4+4+4+4+4	1.92 (2.39)	1.27 (2.05); $P=0.103$	1.21 (2.59) $P=0.050$	0.60 (1.07) $P=0.048$
Adenomas per patient, Mean (SD); P-value vs. 4+4+4+4+4	1.18 (1.80)	0.70 (1.24); $P=0.093$	0.51 (1.18) $P=0.001$	0.10 (0.32) $P=0.034$

**Conclusions** Despite variable sample sizes, this analysis demonstrated a higher MAP for high-quality versus adequate cleansing success and a consistent trend towards improved lesion detection with higher cleansing quality.

### OP155 RANDOMIZED STUDY SHOWS THAT SIMPLE, SPECIFIC VERBAL INSTRUCTIONS IMPROVE THE QUALITY OF BOWEL PREPARATION IN INPATIENTS UNDERGOING COLONOSCOPY

Authors Triantafyllou K<sup>1</sup>, Kolfakis P<sup>1</sup>, Skamnelos A<sup>2</sup>, Diamantopoulou G<sup>3</sup>, Dagas A<sup>4</sup>, Tziatzios G<sup>1</sup>, Thomopoulos K<sup>2</sup>, Potamianos S<sup>4</sup>, Christodoulou D<sup>2</sup>

Institute 1 Hepatogastroenterology Unit, Second Department of Internal Medicine – Propaedeutic, Research Institute and Diabetes Center, Medical School, National and Kapodistrian University of Athens, "Attikon" University General Hospital, Athens, Greece; 2 Division of Gastroenterology, University of Ioannina, Ioannina, Greece; 3 Division of Gastroenterology, Department of Internal Medicine, University Hospital of Patras, Patras, Greece; 4 Department of Gastroenterology, Faculty of Medicine, School of Health Sciences, University of Thessaly, Larisa, Greece

DOI 10.1055/s-0039-1681331

**Aims** Bowel preparation for colonoscopy is often inadequate in hospitalized patients. We aimed to explore the effect of specific verbal instructions on the quality of inpatients bowel preparation.

**Methods** Randomized (1:1), two strata (ambulatory vs. bedridden; 3:2) trial of consecutive inpatients from 4 tertiary centers who received either specific, simple, verbal instructions (SSVI) about bowel preparation or the standard ward instructions (SI). Endoscopists were blinded. Mean BBPS score, very good

(BBPS score $\geq$ 7, no segment score $<$ 2) and adequate (BBPS score $\geq$ 6, no segment  $<$ 2) colon preparation comprised the study endpoints.

**Results** We enrolled 300 (180 ambulatory) inpatients; 155 (51.7%) men; aged 71.7 $\pm$ 15.1 years. 151 (50.3%) patients were randomized to the SI and 149 (49.7%) to the SSVI groups, respectively. We excluded 39 incomplete examinations due to bowel obstruction or patient intolerance. Overall, the mean BBPS score was significantly higher in the intervention group (6.74 $\pm$ 2.3 vs. 6.07 $\pm$ 2.4;  $p=0.02$ ), significantly more patients in the SSVI group achieved very good bowel preparation [75/129 (58.1%) vs. 57/132 (43.2%); OR (95% CI):1.83 (1.12–2.89)] and more patients in the SSVI group achieved adequate colon preparation [90/129 (69.8%) vs. 82/132 (62.1%); OR (95% CI):1.36 (0.81–2.28)] compared to those of SI. Among ambulatory patients, the mean BBPS score (7.2 $\pm$ 1.9 vs. 6.4 $\pm$ 2.1;  $p=0.02$ ), the rates of very good [67.9% vs. 45%; OR (95% CI): 2.59 (1.36–4.91)] and adequate [81.5% vs. 66.3%; OR (95% CI): 2.12 (1.02–4.39)] bowel preparation were significantly higher in the SSVI group. Among bedridden patients the benefit of provision of SSVI was not observed either on the mean BBPS score (6.06 $\pm$ 2.1 vs. 5.52 $\pm$ 2.8;  $p=0.5$ ) or on the rate of very good [41.7% vs. 40.4%; OR (95% CI): 1.05 (0.47–2.34)] or adequate [50% vs. 55.8%; OR (95% CI): 0.79 (0.36–1.74)] colon preparation.

**Conclusions** The quality of bowel preparation significantly increases by providing SSVI to inpatients. However, this effect is restricted among the ambulatory patients, while bedridden patients do not benefit from this intervention.

## OP156 IMPLICATIONS OF REINFORCED EDUCATION IN HIGH QUALITY COLONOSCOPY PREPARATION USING A SMARTPHONE APPLICATION: RESULTS FROM THE COLOPRAPP-STUDY

**Authors** Walter B<sup>1</sup>, Frank R<sup>1</sup>, Ludwig L<sup>2</sup>, Dikopoulos N<sup>2</sup>, Mayr M<sup>3</sup>, Bruno N<sup>3</sup>, Meining A<sup>1</sup>

**Institute** 1 Klinik für Innere Medizin I, Universitätsklinikum Ulm, Ulm, Germany; 2 Gastroenterologische Schwerpunktpraxis, Dornstadt, Germany; 3 Medizinische Klinik II, Krankenhaus Landshut-Achdorf, Landshut, Germany  
**DOI** 10.1055/s-0039-1681332

**Aims** Sufficient bowel preparation is crucial for successful screening and surveillance colonoscopy. We investigated the effects of reinforced patient education using a smartphone application for colonoscopy preparation.

**Methods** In this prospective, endoscopist-blinded, multi-center study, standard instructions pertaining to split-dose preparation were provided orally and in a written format to all patients during the initial appointment. Patients were then randomly assigned (1:1) to a group that received reinforced education starting 3 days before the colonoscopy (APP group) or a control group without further education. The primary outcome was quality of bowel preparation according to the Boston Bowel Preparation Scale (BBPS). The secondary outcomes included adenoma detection rates (ADR), patients' perceived discomfort of the preparation procedure and complete implementation of laxative intake and diet assessed by a self-reporting questionnaire.

**Results** So far, 440 patients have been included. Indication for colonoscopy was CRC-screening ( $n=212$ ) or surveillance after previous polypectomy ( $n=228$ ). Mean BBPS score was significantly higher in the APP group (7.5 $\pm$ 0.1) than in the control group (6.3 $\pm$ 0.2) ( $P<0.0001$ ). The ADR was significantly higher in the APP group (39 vs. 28%) ( $P=0.0084$ ) showing that ADR correlates with BBPS. Patients randomized for the APP group reported a lower level of discomfort during preparation 7.5 vs. 7.1 (NRS) ( $P<0.0001$ ) and a higher rate of complete ingestion of recommended amount of laxatives 95% vs. 86% ( $P<0.001$ ).

**Conclusions** Reinforced patient education using a smartphone application increased bowel cleanliness. Furthermore, using an APP for instruction was associated with an increase in adenoma detection rate and patients' acceptance.

## OP157 PLAN-DO-STUDY-ACT APPROACH FOR IMPLEMENTING SPLIT REGIMEN OVER SINGLE DOSE (IMPROVES STUDY)

**Authors** Vanella G<sup>1</sup>, Hassan C<sup>2</sup>, De Bellis M<sup>3</sup>, Giardini M<sup>4</sup>, Grasso E<sup>5</sup>, Laterza F<sup>6</sup>, Tarantino O<sup>7</sup>, Di Giulio E<sup>1</sup>

**Institute** 1 Digestive Endoscopy, Sant'Andrea Hospital, Sapienza University of Rome, Rome, Italy; 2 Nuovo Regina Margherita Hospital, Rome, Italy; 3 National Cancer Institute, Naples, Italy; 4 Urbino Hospital, Urbino, Italy; 5 Tor Vergata University, Rome, Italy; 6 Gabriele d'Annunzio University and Foundation, Chieti, Italy; 7 San Giuseppe Hospital, Empoli, Italy  
**DOI** 10.1055/s-0039-1681333

**Aims** Split-dose regimen for colonoscopy is recommended by international guidelines, but its adoption is still suboptimal. The Plan-Do-Study-Act approach (PDSA) is a scientific method used to promote continuous quality improvement of complex processes. The aim of this study was to assess whether PDSA is able to improve adherence to split-dose regimen.

**Methods** According to a PDSA approach, split-dose regimen adoption was assessed in two periods separated by data analysis and tailored interventions, namely: 1) Cycle1: assessment of split dose adherence in consecutive outpatients and inpatients undergoing colonoscopies in 74 Italian centres; 2) Educational intervention: two mandatory meetings with literature review, analysis of Cycle1 data and discussion of hypothetical corrective measures; 3) Cycle2: final assessment of post-interventional adoption of split-dose regimen. Demographic, clinical and procedural variables were systematically collected. Multivariate logistic regression was used to identify predictors of split-dose regimen adoption.

**Results** 8,213 patients (mean age 60.29 (SD 13.58), men 54%, outpatients 88.4%) were enrolled between 2013 and 2016 (4,189 in Cycle1 and 4,024 in Cycle2). The Split-dose regimen adoption raised from 29.1% of Cycle1 to 51.1% of Cycle2 ( $p<0.0001$ ), and being enrolled in Cycle2 was an independent predictor of Split-dose regimen adoption (OR 2.9; 95% C.I. 2.6–3.3). The adoption improved in all time slots, including colonoscopies scheduled before 9:30 am. The main corrective measures were: rescheduling of colonoscopies between 9:30 and 11:30 am (OR 2.6; 95% CI 2.3–3.1) and after 11:30 am (OR 7; 95% CI 5.9–8.4), the cleansing regimen communicated by the Endoscopy Unit (via form: OR 1.6 95% CI 1.3–1.9; via visit: OR 2.1 95% CI 1.7–2.5) and by more than one modality (OR 2.8; 95% CI 2.3–3.3), a decrease in the use of deep sedation (OR 2; 95% CI 1.7–2.5).

**Conclusions** An educational intervention with observation-driven corrections according to a PDSA approach was able to substantially increase the adoption of the split-dose regimen.

## OP158 IMPROVED REAL-WORLD LESION DETECTION WITH HIGH-QUALITY VERSUS ADEQUATE LEVEL COLON CLEANSING: POST HOC ANALYSIS OF RANDOMISED CLINICAL TRIALS USING THE BOSTON BOWEL PREPARATION SCALE

**Authors** Manning J<sup>1</sup>, Amlani B<sup>2</sup>, Hassan C<sup>3</sup>

**Institute** 1 Borders General Hospital, Berwickshire, United Kingdom; 2 Medical Affairs, Norgine, Harefield, United Kingdom; 3 Gastroenterology and Endoscopic Unit, Ospedale Nuovo Regina Margherita, Rome, Italy  
**DOI** 10.1055/s-0039-1681334

**Aims** Adequate colon cleansing permits detection of small (>5 mm) polyps and is defined as a segmental Boston Bowel Preparation Scale (BBPS) score of at least 2 (overall 6). Minimal targeted lesion sizes may however vary by practice. This post hoc analysis of three randomised clinical trials assessed real-world lesion detection versus BBPS scores assessed with academic rigor.

**Methods** Three similar phase 3 randomised clinical trials assessed the colon cleansing efficacy and safety of 1L NER1006 (PLENVU) versus standard bowel preparations. Polyps were detected by site endoscopists as per local practice.

Cleansing quality was assessed by treatment-blinded central readers using the BBPS. This pooled analysis excluded patients with missing segmental cleansing score or lesion count data. Polyp- (PDR) and adenoma (ADR) detection rates plus the mean number of polyps (MPP) and adenomas (MAP) per patient were calculated. One-sided t-tests assuming equal variance compared the lesion detection in BBPS 7–9 (high-quality) versus lower score groups.

**Results** Out of 1985 randomised patients, 1749 were included (Table). High-quality cleansing improved lesion detection versus adequate cleansing for PDR (52% vs. 42%;  $P < 0.001$ ), ADR (36% vs. 26%;  $P < 0.001$ ), MPP (1.38 vs. 1.02;  $P = 0.003$ ) and MAP (0.81 vs. 0.52;  $P = 0.001$ ). High-quality cleansing also increased lesion detection versus cleansing failures for PDR (52% vs. 41%;  $P = 0.002$ ), ADR (36% vs. 28%;  $P = 0.008$ ), and MAP (0.81 vs. 0.51;  $P = 0.011$ ).

**Tab. 1** Overall colon cleansing quality vs. lesion detection using the BBPS; P-values vs. high-quality cleansing (BBPS 7–9)

Overall BBPS scores assessed by treatment-blinded central readers	High-quality BBPS 7–9 (N = 463)	Adequate BBPS 6 (N = 958)	Failure BBPS 0–5 (N = 328)
Polyp detection rate: patients, n/N (%); P-value vs. BBPS 7–9	240/463 (52)	399/958 (42) $P < 0.001$	135/328 (41) $P = 0.002$
Adenoma detection rate: patients, n/N (%); P-value vs. BBPS 7–9	168/463 (36)	249/958 (26) $P < 0.001$	92/328 (28) $P = 0.008$
Polyps per patient, Mean (SD); P-value vs. BBPS 7–9	1.38 (2.86)	1.02 (1.98) $P = 0.003$	1.09 (2.42) $P = 0.066$
Adenomas per patient, Mean (SD); P-value vs. BBPS 7–9	0.81 (2.21)	0.52 (1.28) $P = 0.001$	0.51 (1.13) $P = 0.011$

**Conclusions** High-quality cleansing on the BBPS enables a greater real-world detection of polyps, adenomas, mean number of polyps per patient, and mean number of adenomas per patient than adequate-only cleansing quality.

## OP159 FACTORS ASSOCIATED WITH ADEQUATE BOWEL PREPARATION: OBSERVATIONS FROM THE EUROPEAN COLONOSCOPY QUALITY INVESTIGATION (ECQI) QUESTIONNAIRE

**Authors** [Amaro P](#)<sup>1</sup>, [Agrawal A](#)<sup>2</sup>, [Brink L](#)<sup>3</sup>, [Fischbach W](#)<sup>4</sup>, [Hünger M](#)<sup>5</sup>, [Jover R](#)<sup>6</sup>, [Kinnunen U](#)<sup>7</sup>, [Koulaouzidis A](#)<sup>8</sup>, [Ono A](#)<sup>9</sup>, [Patai Á](#)<sup>10</sup>, [Pecere S](#)<sup>11,12</sup>, [Petruzzello L](#)<sup>11,12</sup>, [Toth E](#)<sup>13</sup>, [Riemann J](#)<sup>14</sup>, [Amlani B](#)<sup>15</sup>, [Spada C](#)<sup>16</sup>

**Institute** 1 Coimbra University Hospital, Coimbra, Portugal; 2 Doncaster Royal Infirmary, Doncaster, United Kingdom; 3 Herlev Hospital, Herlev, Denmark; 4 Gastroenterologie und Innere Medizin, Aschaffenburg, Germany; 5 Private Practice for Internal Medicine, Würzburg, Germany; 6 Hospital General Universitario de Alicante, Alicante, Spain; 7 Tampere University Hospital, Tampere, Finland; 8 The Royal Infirmary of Edinburgh, Edinburgh, United Kingdom; 9 Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain; 10 Markusovszky University Teaching Hospital, Szombathely, Hungary; 11 Fondazione Policlinico Universitario A. Gemelli IRCCS, Digestive Endoscopy Unit, Rome, Italy; 12 Università Cattolica del Sacro Cuore, Centre for Endoscopic Research Therapeutics and Training – CERTT, Rome, Italy; 13 Skåne University Hospital, Lund University, Malmö, Sweden; 14 Director em. Klinikum Ludwigshafen, Chairman, LebensBlicke Foundation for the Prevention of Colorectal Cancer, Ludwigshafen, Germany; 15 Norgine, Harefield, Middlesex, United Kingdom; 16 Fondazione Poliambulanza, Brescia, Italy

DOI 10.1055/s-0039-1681336

**Aims** To investigate the factors associated with adequate bowel preparation using questionnaire responses from across Europe.

**Methods** The development of the procedure questionnaire, by the European Colonoscopy Quality Investigation (ECQI) Group, has been previously described in posters presented at UEGW, 2015 and 2016. Data collection is an ongoing process. We analysed data collected between 2/6/16 and 30/4/18.

A stepwise multivariable logistic regression analysis was performed to investigate which factors are associated with achievement of adequate bowel preparation, defined as a Boston Bowel Preparation Scale (BBPS) score  $\geq 6$ . Analysis was performed on the following variables: age over or under 50; gender; body mass index (BMI) categories; inpatient/outpatient status; reason for procedure; use of bowel preparation; whether the patient followed instructions; proportion of bowel preparation consumed; total volume of fluid consumed; time period since last dose of bowel preparation; dosing regimen; time of day colonoscopy was performed.

**Results** Data were collected on 6455 procedures, of which whether bowel preparation was adequate (BBPS  $\geq 6$ ) or not could be determined in 6236. Of these, there were 2884 procedures where the results of all selected variables were known: adequate bowel preparation was achieved in 86.96% of these procedures.

The first five variables most associated with adequate bowel clearance were, in order:

1. Patient following instructions (89.1% vs. 54.3%,  $p < 0.0001$ ).
2. Split-dosing or same-day regimen (89.5% split-dosing and 90.8% same-day vs. 77.9% evening,  $p = 0.004$ ).
3. Outpatient status (88.4% vs. 77.3% inpatient,  $p < 0.0001$ ).
4. Age  $< 50$  years (93.3% vs. 85.3%  $> 50$  years,  $p < 0.0001$ ).
5. Lower time period between procedure and last intake of bowel preparation (mean 6.1 hours vs. 8.0 hours in those with inadequate bowel preparation,  $p = 0.0030$ ).

**Conclusions** Patients following instructions is the most important factor associated with achieving adequate bowel clearance followed by using a split-dosing or same-day regimen.

## OP160 COMPARISON OF THE EFFECTIVENESS OF FOUR BOWEL CLEANSING PREPARATIONS BEFORE COLONOSCOPY – RANDOMIZED, SINGLE – BLIND STUDY

**Authors** [Krnichova K](#)<sup>1</sup>, [Suchanek S](#)<sup>1</sup>, [Ngo O](#)<sup>2</sup>, [Zavoral M](#)<sup>1</sup>

**Institute** 1 Department of Medicine, 1st Faculty of Medicine, Charles University and Military University Hospital Prague, Prague, Czech Republic;

2 Institute of Biostatistics and Analyses, Faculty of Medicine, Masaryk University, Brno, Czech Republic

DOI 10.1055/s-0039-1681336

**Aims** The aim of the study is to compare the effectiveness of bowel cleansing preparations. Polyethylene glycol (PEG) as a gold standard of bowel cleansing and low – volume solutions: sulphate-based solution (SBS), low-volume PEG + ascorbic acid (2L-PEG/Asc) and sodium picosulfate + magnesium citric-acid solution (SP/MC).

**Methods** Randomized, single-blind study. Patients with colonoscopy from all indications (except planned therapeutic procedure) has been recruited. Instructions have been provided orally and in printed version with split-dose regimen recommended. The bowel cleansing quality has been evaluated by the experienced endoscopists blinded to the type of a bowel preparation. The effectiveness has been assessed by the degree of bowel cleansing according to Boston Bowel Preparation Scale (BBPS) and polyp detection rate (PDR). Interim analysis presented.

**Results** In the period 09/2017 till 09/2018 304 individuals were included. Split-dose regimen was respected in 84.2%. Adequate bowel cleansing (BBPS total score  $\geq 6$  and sub score  $\geq 2$  in each colonic segment) was comparable for all groups (96.1% PEG; 94.5% SBS; 93.5% 2L-PEG/Asc; 93.6% SP/MC;  $p = 0.912$ ). Excellent bowel cleansing (BBPS total score  $\geq 8$  and sub score  $\geq 2$  in each colonic segment) was significantly often in PEG and SBS group (90.8% PEG; 86.3% SBS; 75.3% 2L-PEG/Asc; 76.9% SP/MC;  $p = 0.031$ ). Polyp detection rate was comparable for all groups (48.7% PEG; 48.0% SBS group; 40.3% 2L-PEG/Asc; 41.0% SP/MC;  $p = 0.610$ ).

**Conclusions** The interim results show the comparable efficiency of bowel preparation for all four tested solutions. Low volume solutions could be appropriate alternative of polyethylene glycol. The results need to be verified on larger set of individuals. Target number of individuals for the study is 400. Supported by the projects MO1012 a Progres Q28/LF1. The study is registered on ClinicalTrials.gov.(NCT03242369).

## OP161 THE IMPACT OF ADDITIONAL ORAL PREPARATION ON THE QUALITY OF BOWEL PREPARATION FOR COLONOSCOPY

**Authors** Lee YJ<sup>1</sup>, Lee SY<sup>2</sup>, Cho KB<sup>1</sup>, Kim ES<sup>3</sup>, Park KS<sup>1</sup>, Kim KO<sup>4</sup>, Lee HS<sup>3</sup>  
**Institute** 1 Keimyung University School of Medicine, Daegu, Korea, Republic of; 2 Internal Medicine, Keimyung University School of Medicine/Dongsan Medical Center, Daegu, Korea, Republic of; 3 Kyungpook National University School of Medicine, Daegu, Korea, Republic of; 4 Yeungnam University College of Medicine, Daegu, Korea, Republic of  
**DOI** 10.1055/s-0039-1681337

**Aims** The data on the salvage option for patients whose bowel preparation is predicted to be inadequate are limited. This study aimed to evaluate the impact of additional oral preparation at the same day of colonoscopy on the quality of bowel preparation in patients showing opaque yellow with particles or brown effluent.

**Methods** Between September 2015 and June 2018, a multicenter, prospective endoscopist-blinded randomized controlled trial was conducted. Patients reporting their last effluent as opaque yellow with particles or brown at the time of arrival to the endoscopy unit were randomized to additional oral preparation (further preparation with 1L of PEG+Asc) group vs. Control (strongly recommend walking without taking additional purgative) group. All colonoscopies were performed on the afternoon. Bowel preparation was considered to be adequate if total Boston Bowel Preparation Scale (BBPS)  $\geq$  5 points in per-protocol analysis.

**Results** A total of 157 patients were enrolled (male, 53.5%, 61.4  $\pm$  13.9 years old). Adequate bowel preparation was significantly higher in patients assigned to additional oral preparation group compared with control (83.3% vs.61.0%,  $p=0.002$ ). More patients allocated to additional oral preparation group showed nausea during the preparation compared with those in control. There were no difference in willingness to repeat bowel preparation between two groups.

**Conclusions** Additional oral preparation could be considered in patients who is predicted to be inadequate bowel preparation before colonoscopy. Clinical-Trial.gov (NCT02540031).

## OP162 EVALUATION OF THE COMBINED EFFECTS OF SPLIT VS. DAY BEFORE AND LOW RESIDUE VS. CLEAR FLUID REGIMENS ON THE COLONOSCOPY PREPARATION

**Authors** Bari Z<sup>1</sup>, Maleki I<sup>1</sup>, Hadizadeh M<sup>1</sup>, Fakheri H<sup>1</sup>, Valizadeh SM<sup>1</sup>, Hoseini V<sup>1</sup>, Taghvaei T<sup>1</sup>, Kazemi A<sup>1</sup>  
**Institute** 1 Gut and Liver Research Center, Mazandaran University of Medical Sciences, Sari, Iran, Islamic Republic of  
**DOI** 10.1055/s-0039-1681338

**Aims** Colonoscopy is widely used to diagnose and treat colonic diseases. Its' accuracy and quality depends on the colonoscopy preparation. Split dosage of Polyethylene Glycol (PEG) has been shown to improve the colonoscopy preparation in comparison to the "day before" prescription. Also, using low residue diet can improve the patient's tolerance and satisfaction and therefore, his/her co-operation in preparation steps. In this study we have combined and assessed these two concepts on four groups of patients.

**Methods** Four hundred and seventy individuals with a variety of indications for colonoscopy were randomly allocated in 4 groups:

**Group A** 115 patients receiving PEG in the day before + eating low residue diet;

**Group B** 110 patients using PEG the day before + liquid diet only;

**Group C** split doses of PEG + low residue diet: 118 patients;

**Group D** split doses of PEG + liquids only: 111patients).

Quality of the colon cleaning was evaluated with Boston Bowel Preparation Scale.

**Results** There was no significant difference between the four groups in their age, sex, body mass index, usual bowel habit and indications for colonoscopy. Comparing the low residue versus liquid only regimens, mean Boston scores for left, transverse, right and total colon were higher for liquid only patients (2.22, 2.30, 2.12 and 6.11 vs. 2.36, 2.35, 2.38 and 7.11, respectively) ( $P < 0.05$ ); however, we did not detect any significant difference in split versus day before colon preparations. Also, success in cecal intubation and total colonoscopy times were not different comparing split versus day before regimens.

**Conclusions** According to our results, these regimens can be used interchangeably with each other; however, the clear fluid induces a mild better colon preparation in comparison to low residue protocol.

Friday, April 5, 2019

EUS therapeutic pancreas

14:30 – 16:30

South Hall 2B

## OP163 ENDOSCOPIC ULTRASOUND GUIDED RADIOFREQUENCY ABLATION FOR NEUROENDOCRINE TUMORS: A SINGLE CENTER CASE SERIES

**Authors** de Nucci G<sup>1</sup>, Mandelli ED<sup>1</sup>, Redaelli D<sup>1</sup>, Morganti D<sup>1</sup>, Imperatore N<sup>2</sup>, Reati R<sup>1</sup>, Manes G<sup>1</sup>

**Institute** 1 Gastroenterology and Endoscopy Unit, ASST Rhodense, Garbagnate Milanese-Milano, Italy; 2 Gastroenterology Unit, Federico II University, Naples, Italy

**DOI** 10.1055/s-0039-1681339

**Aims** Radiofrequency ablation (RFA) has been used to treat abdominal tumors. Pancreatic tissue is particularly sensitive to external insults, including heat, leading to slower adoption of RFA for pancreatic tumors.RFA provided survival benefit in unresectable pancreatic cancer patients. EUS-guided RFA (EUS-RFA) in the pancreas of animals is feasible, with an acceptable incidence of pancreatitis suggesting its use for managing small pancreatic neuroendocrine tumors (pNETs), above all the functions pNets such as insulinomas. The EUS-RFA system consists of a 19-gauge needle electrode, generator, and internal cooling system (EUSRA system Taewoong). The needle electrode is passed under EUS guidance into the target lesion avoiding pancreatic/bile duct. The echogenic needle tip is positioned at the far end inside the lesion. The energy delivery (10 watt) was applied when the needle tip of the electrode was visualized within the margin of lesion on EUS.

**Methods** We enrolled prospectively ten patients (6 males, mean age 78,6 years) with a diagnosis of pNets obtained with a Ct scan and an eus (with a fine needle biopsy to confirm the nature of the lesions) and all of these patients were not fit for surgery for comorbidities or refused surgery. Among these 3 patients had symptomatic insulinomas with severe difficulties to control glycemic imbalance.

**Results** 10 patients had 11 pNETs with a 14.5 mm size (9–24 mm) respectively located in 3 cases to the head, 6 to the body, 2 to the tail. The mean duration of hospital stay was 4 days. There were not early or late complications. All the patients at least 12 months of follow up had complete disappearance of the lesions with not symptoms recurrence.

**Conclusions** Our series confirm the feasibility of EUS-RFA for the treatment of functions or non functions pNets by using a novel EUS-RFA needle electrode. Excellent beneficial effects were immediate and maintained for months with no adverse events.

## OP164 ENDOSCOPIC ULTRASOUND GUIDED RADIOFREQUENCY ABLATION OF INSULINOMAS IS SAFE AND EFFECTIVE

**Authors** Dancour A<sup>1</sup>, Benson AA<sup>2</sup>, Epshtein J<sup>2</sup>, Jacob H<sup>2</sup>, Wengrower D<sup>1</sup>, Grozinsky-Glasberg S<sup>3</sup>, Goldin E<sup>1</sup>, Livovsky DM<sup>1</sup>

**Institute** 1 Digestive Diseases Institute, Shaare Zedek Medical Center, Jerusalem, Israel; 2 Department of Gastroenterology, Hadassah-Hebrew University Medical Center, Ein Kerem, Jerusalem, Israel; 3 Neuroendocrine Tumor Unit, Endocrinology Department, ENETS Centre of Excellence, Hadassah-Hebrew University Medical Center, Ein Kerem, Jerusalem, Israel  
DOI 10.1055/s-0039-1681340

**Aims** Insulinomas can produce symptomatic hypoglycemia and life threatening events. Complex surgical procedures with morbidity and occasional mortality are the treatment of choice. We aim to present our experience using a minimally invasive approach with a new, through-the-echoendoscope radiofrequency ablation (RFA) device.

**Methods** We used a Pentax EG-3870UTK linear echoendoscope with a Hitachi Preirus or Noblus Ultrasound console and a 150 cm, 19 gauge needle-electrode (EUSRA- Taewoong medical) with RF delivery in the distal 10 mm, connected to a RF generator (VIVA RF STARmed, Korea) settled to deliver 50w.

**Results** Since March 2017, 8 patients (4 females) were treated; all presented with recurrent hypoglycemic events. Median age was 58 (IQR 42.2–65). Seven patients refused surgery and one was referred after a failed surgical attempt. Lesions were located in the uncinate process, head, body and tail in 3, 2, 2, and 1 patient respectively. The median lesion size was 16 mm (IQR 13.37–17.25). The tumor was completely ablated in 7 of the 8 patients during a single session with a median of 6 (IQR 2.75–7.25) RF applications (impedance 100–130 Ohms) during 5–12 seconds. No severe adverse events occurred. After a median follow up of 9.25 (range 1.5–21) months, all patients had excellent clinical response, judged by normalization of glycaemia, by their ability to return to a normal diet and by the absence of symptoms during overnight fast. None of the patients required additional treatment.

**Conclusions** EUS-guided RFA is feasible, safe and effective for the treatment of insulinomas. It represents a promising, less invasive and more cost-effective alternative to surgery.

## OP165 LUMEN-APPOSING METAL STENTS VERSUS DOUBLE PIGTAIL PLASTIC STENTS FOR ENDOSCOPIC DRAINAGE OF PERIPANCREATIC FLUID COLLECTIONS: RESULTS FROM A MULTICENTER EUROPEAN STUDY

**Authors** Sioulas AD<sup>1</sup>, Petrone MC<sup>2</sup>, Tadic M<sup>3</sup>, Karoumpalis I<sup>4</sup>, Hritz I<sup>5</sup>, Kypraios D<sup>6</sup>, Scotiniotis I<sup>1</sup>, Vezakis A<sup>7</sup>, Kanavidis P<sup>8</sup>, Keczer B<sup>5</sup>, Tziatzios G<sup>9</sup>, Gkolfakis P<sup>9</sup>, Triantafyllou K<sup>9</sup>, Polydorou A<sup>7</sup>, Grgurevic I<sup>3</sup>, Arcidiacono PG<sup>2</sup>, Papanikolaou IS<sup>7,9</sup>

**Institute** 1 Department of Gastroenterology, Hygeia Hospital, Athens, Greece; 2 Pancreato-Biliary Endoscopy and Endosonography Division, Pancreas Translational and Clinical Research Center, San Raffaele Scientific Institute IRCCS, Vita-Salute San Raffaele University, Milan, Italy; 3 Endoscopy Unit, Dept. of Gastroenterology, Hepatology and Clinical Nutrition, Dubrava University Hospital, Zagreb, Croatia; 4 Division of Gastroenterology, General Hospital of Athens 'G. Gennimatas', Athens, Greece; 5 Center for Therapeutic Endoscopy Semmelweis University, 1st Department of Surgery, Budapest, Hungary; 6 Department of Gastroenterology, Saint Savvas Oncological Hospital, Athens, Greece; 7 2nd Department of Surgery, Aretaieio Hospital, Medical School, National and Kapodistrian University of Athens, Athens, Greece; 8 1st Department of Surgery, National and Kapodistrian University of Athens, Laikon Hospital, Athens, Greece; 9 Hepatogastroenterology Unit, 2nd Department of Internal Medicine-Propaedeutic, Research Institute and

Diabetes Center, Attikon University General Hospital, Medical School, National and Kapodistrian University of Athens, Athens, Greece

DOI 10.1055/s-0039-1681341

**Aims** Endoscopic ultrasound (EUS)-guided drainage is used to treat symptomatic peripancreatic fluid collections (PFCs). We performed a retrospective cohort study to compare the technical/clinical outcomes and adverse events of drainage with lumen-apposing metal stents (LAMSs) and double pigtail plastic stents (DPSs).

**Methods** Data from patients with PFCs managed either with LAMSs (Hot Axios, Boston Scientific, Marlborough, MA, USA) or DPSs in 8 tertiary European centers were collected. Technical success (ability to place), clinical success (ability to drain), early adverse events, ease of placement (1–10, 1 = extremely difficult), intervention duration, drainage duration and complications on removal were evaluated.

**Results** 97 patients (71 male; mean age, 59.1 years) with PFCs (63 pseudocysts, 33 walled-off necroses-WON, 1 gallbladder empyema) underwent drainage using LAMSs (n = 84, group 1) and DPSs (n = 13, group 2). Groups were matched for gender, collection type and location. Collection diameter was smaller in group 1 (mean, 10.6 cm vs. 16.5 cm, p = 0.007) and group 1 patients were older (mean, 60.5 vs. 50.4 years, p = 0.002). DPSs were placed with transgastric approach, while 13.1% of LAMSs transduodenally. No differences were noticed regarding technical success (96.4% vs. 100%, p = 1.00), clinical success (95.1% vs. 92.3%, p = 1.00) or ease of placement (8 vs. 8, p = 0.913), whereas LAMSs placement lasted shorter (mean, 9.2 vs. 46.1 min, p < 0.001). Early complications occurred in 15.6% of group 1 patients (6% bleeding, 4.8% obstruction, 2.4% migration, 2.4% perforation) and in 7.7% of group 2 patients (7.7% perforation), p = 1.00. Drainage duration was shorter in group 1 (mean, 51.5 vs. 101.5 days, p = 0.004). Complications on removal occurred in 10.7% of group 1 patients (7.1% buried stent, 3.6% bleeding), and in none of group 2.

**Conclusions** PFCs drainage with LAMSs equals DPSs regarding technical success, clinical success and early adverse events. LAMSs placement is faster and requires a shorter drainage period. LAMS removal may be accompanied with serious complications.

## OP166 ENDOSCOPIC ULTRASOUND-GUIDED HYBRIDTHERM ABLATION (EUS-HTP) IN PATIENTS (PTS) WITH LOCALLY ADVANCED (LA) PANCREATIC DUCTAL ADENOCARCINOMA (PDAC): A CASE-CONTROL COMPARATIVE SURVIVAL ANALYSIS

**Authors** Testoni S<sup>1</sup>, Petrone MC<sup>1</sup>, Linzenbold W<sup>2</sup>, Enderle M<sup>2</sup>, Capurso G<sup>1</sup>, Rossi G<sup>1</sup>, Archibugi L<sup>1</sup>, Traini M<sup>1</sup>, Reni M<sup>3</sup>, Falconi M<sup>4</sup>, Arcidiacono PG<sup>1</sup>

**Institute** 1 San Raffaele Scientific Institute, Vita-Salute San Raffaele University, Pancreato-Biliary Endoscopy and EUS Division, Pancreas Translational and Clinical Research Center, Milan, Italy; 2 Erbe Elektromedizin GmbH, Tübingen, Germany; 3 San Raffaele Scientific Institute, Vita-Salute San Raffaele University, Medical Oncology, Pancreas Translational and Clinical Research Center, Milan, Italy; 4 San Raffaele Scientific Institute, Vita-Salute San Raffaele University, Pancreatic Surgery Unit, Pancreas Translational and Clinical Research Center, Milan, Italy  
DOI 10.1055/s-0039-1681342

**Aims** Aim of the study was to assess the survival outcomes of pts with LA PDAC treated with chemotherapy ± radiotherapy (CT ± RT) plus endosonography-guided HybridTherm ablation (EUS-HTP) vs. those receiving only CT ± RT.

**Methods** Pts with LA PDAC, with local disease progression (PD) after first-line CT ± RT or unfit for CT (cases), prospectively treated by HTP (2010–2016), were retrospectively compared to similar pts not treated by HTP (controls). HTP (ERBE, Germany) is a bipolar probe combining radiofrequency with cryogenic cooling. Parametric/non-parametric tests and Log-rank Mantel-Cox tests for group differences were used (p ≤ 0.05 as significant).

**Results** 19/19 cases/controls were included. Five cases did not receive CT ± RT before EUS-HTP due to concomitant comorbidity. The 2 groups had no difference regarding features at diagnosis (sex, age, lesion site and size, serum CA19.9, CT scheme and duration) and after first-line treatment (lesion size, serum Ca 19-9, progression-free survival time). EUS-HTP was performed ≥ 2 times in 7 cases. OS in cases vs. controls from diagnosis, first-line CT ± RT onset and local PD was similar ( $p = 0.22$ ;  $p = 0.82$ ;  $p = 0.54$ ), as well as in the group of pts treated with further CT ± RT ( $p = 0.12$ ;  $p = 0.68$ ;  $p = 0.94$ ). OS was significantly longer from local PD in cases compared to controls who did not undergo second-line CT ± RT ( $p = 0.05$ ). OS in cases from EUS-HTP was 6 months, with no difference between pts treated with HTP only and those receiving concomitant CT ± RT ( $p = 0.18$ ), and OS significantly longer in pts treated with ≥ 2 sessions vs. 1 session ( $p = 0.007$ ).

**Conclusions** In pts with LA PDAC and local PD after first-line CT ± RT and unfit for a second-line treatment, EUS-HTP may obtain longer OS compared to palliative care. The increase of OS in pts treated by ≥ 2 EUS-HTP may suggest that repeated sessions can achieve a better disease control. A randomized controlled study comparing EUS-HTP plus CT ± RT vs. CT ± RT is ongoing and will better assess EUS-HTP efficacy.

### OP167 EUS-GUIDED RADIOFREQUENCY ABLATION PLUS CHEMOTHERAPY VERSUS CHEMOTHERAPY ALONE FOR UNRESECTABLE PANCREATIC CANCER (ERAP): PRELIMINARY RESULTS OF A PROSPECTIVE COMPARATIVE STUDY

**Authors** Tiankanon K<sup>1</sup>, Kongkam P<sup>1</sup>, Orprayoon T<sup>1</sup>, Luangsukrerkr T<sup>1</sup>, Seo DW<sup>2</sup>, Sriuranpong V<sup>3</sup>, Nantavithya C<sup>4</sup>, Jantarattana T<sup>5</sup>, Cañones A<sup>1,6</sup>, Angsuwatcharakon P<sup>1</sup>, Ridditid W<sup>1</sup>, Kullavanijaya P<sup>1</sup>, Rerknimitr R<sup>1</sup>

**Institute** 1 Division of Gastroenterology, Department of Medicine, Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital, Bangkok, Thailand; 2 Department of Gastroenterology, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea, Republic of; 3 Division of Oncology, Department of Medicine, Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital, Bangkok, Thailand; 4 Division of Radiation and Oncology, Department of Radiology, Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital, Bangkok, Thailand; 5 Interventional Radiology Unit, Department of Radiology, Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital, Bangkok, Thailand; 6 Section of Surgical Endoscopy, Rizal Medical Center, Pasig, Philippines  
DOI 10.1055/s-0039-1681343

**Aims** To compare EUS-RFA plus chemotherapy versus chemotherapy (CMT) alone as a primary treatment of unresectable pancreatic cancer (UPC) in a prospective comparative cohort study.

**Methods** Since July 2017 until August 2018, 20 Patients (mean age 65.2 ± 11.5 years; M: F = 1: 3) at King Chulalongkorn Memorial hospital with UPC were recruited. Patients treated with EUS-RFA plus concurrent CMT ( $n = 10$ ) versus CMT alone ( $n = 10$ ) were classified as group A and B, respectively.

**Results** 29 EUS-RFA procedures were performed with median number of procedure at 3 times (1-4 times), median total ablation time at 400 seconds (37-518 seconds), and complication rate at 10.3% (3/29). Three complications were post-procedure infection treated with intravenous antibiotic (length of stay (LOS) 7 days), bleeding from gastric wall at puncture site requiring a hemo-clip (LOS 7 days), and mild pancreatitis managed with conservative treatment (LOS 2 days). No delay of scheduled chemotherapy. Dosage reduction of morphine equivalent analgesia was significantly better in group A, 15 mg/day (0-60) versus 0 mg/day (-20 to 30) ( $p = 0.005$ ), respectively, as well as median percentage of dosage reduction (50% (37.5 to 100) versus 0% (-100 to -42.9),  $p = 0.007$ ), respectively. No enlargement of tumor measured by maximal target lesion after intervention in group A whereas in group B, both mean maximal target lesion diameter (mm) and tumor volume

(ml) were statically increased after treatment (before vs. after;  $53.0 \pm 20.7$  mm vs.  $59.2 \pm 16.6$  mm ( $P = 0.039$ ), respectively, and  $76.3 \pm 77.0$  ml vs.  $91.1 \pm 83.6$  ml ( $P = 0.014$ ), respectively). No significant difference of 6-month survival rate between both groups.

**Conclusions** In UPC patients, EUS-RFA plus concurrent CMT could significantly reduce morphine dosage requirement for pain controlled than just given CMT. RFA additionally stabilized the tumor measured by maximal target lesion diameter and tumor volume whereas only CMT failed to halt tumor progression.

### OP168 SAFETY AND EFFICACY OF ENDOSCOPIC ULTRASOUND-GUIDED RADIOFREQUENCY ABLATION (EUS-RFA) OF PANCREATIC CYSTIC NEOPLASMS (PCNS) AND PANCREATIC NEUROENDOCRINE TUMORS (PNETS): PRELIMINARY REPORT OF A PROSPECTIVE COHORT

**Authors** Younis F<sup>1</sup>, Shibolet O<sup>1</sup>, Philips A<sup>1</sup>, Santo E<sup>1</sup>, Scapa E<sup>1</sup>

**Institute** 1 Gastroenterology and Liver Disease, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel

DOI 10.1055/s-0039-1681344

**Aims** To assess the safety and efficacy of EUS guided RFA for the treatment of pancreatic lesions, initial experience of a prospective cohort.

**Methods** Patients with intraductal papillary mucinous neoplasm (IPMN) or mucinous cysts with worrisome features who were not eligible or refused surgery, as well as patients with grade 1 PNETs less than 2 cm were offered the option of RFA. Ablation was performed using a 19-gauge dedicated needle with a 1 cm long active cooled tip. The volume of PCNs was reduced with a FNA needle before the procedure. The delivery of energy was monitored by continuously monitoring tissue conductivity, and the formation of bubbles on the ultrasound image.

**Results** Eight patients were treated so far, 2 males and 6 females, average age was 73.5. Five had PCNs with a mean size of 36 mm (12-60) and three were treated for non-secreting PNETs with a mean size of 10 mm (7-16). Average CEA levels in PCNs was 1731, and average chromogranin levels was 234 in PNETs. Three patients reported abdominal pain after the procedure and median serum amylase level was 99 a day after the procedure. Of the 5 patients with PCNs 2 had complete resolution of their cysts at 6 months, 1 needed another RFA intervention, and had complete resolution of his cyst after 9 months, 2 have not reached 6 months follow-up yet. Six months follow-up for PNETs is not yet available.

**Conclusions** Nine ablations in 8 patients were performed since November 2017. Safety profile was excellent with only mild post-procedural abdominal pain reported, and only one patient with biochemical pancreatitis treated conservatively. Three patients had complete resolution of their cysts so far. EUS guided RFA seems to be a safe method for the treatment of pancreatic lesions, and efficacious for the treatment PCNs.

### OP169 DOES CO-AXIAL PLASTIC DOUBLE PIG TAIL STENT PLACEMENT INTO LUMEN-APPPOSING METAL STENTS REDUCE RISKS IN EUS-GUIDED DRAINAGE OF PANCREATIC FLUID COLLECTIONS?

**Authors** Rossi G<sup>1</sup>, Capurso G<sup>1</sup>, Petrone MC<sup>1</sup>, Testoni SGG<sup>1</sup>, Archibugi L<sup>1</sup>, Traini M<sup>1</sup>, Mariani A<sup>1</sup>, Arcidiacono PG<sup>1</sup>

**Institute** 1 Pancreato-Biliary Endoscopy and Endosonography Division, Pancreas Translational and Clinical Research Center, Milan, Italy

DOI 10.1055/s-0039-1681345

**Aims** Endoscopic ultrasound (EUS)-guided lumen-apposing metal stents (LAMS) placement may facilitate pancreatic fluid collections (PFC) drainages but data on related-adverse events, particularly bleeding, are limited. Few data suggest that a co-axial plastic double pig tail stent (DPS) might reduce bleeding risk. Primary aim was the feasibility, efficacy and safety of Hot Axios

(Boston Scientific) in a series of patients undergoing PFC EUS-guided drainage. Second aim was to assess the efficacy of DPS placement into the LAMS in order to decrease bleeding.

**Methods** A retrospective review of Hot Axios placement for PFC drainage in our Institute between Oct2014 and Sept2018 was performed. Patients demographics, PFC etiology and characteristics, technical success (TS), clinical success (CS) rate (<50% PFC + symptoms resolution) and adverse events ( $\pm$  7 days: immediate/delayed) were registered.

**Results** 49 pts were identified. TS rate was 98%, CS rate 93.9%. Total adverse events were 16.3%. Bleeding rate was 10.2%(5/49): 3 early (arterial pseudoaneurysms-1 death), 2 delayed (1 hepatic artery branch vessel bleeding, 1 fatal WON cavity hemorrhage). 1 immediate perforation and 2 "buried stent syndrome" occurred. DPS was positioned in 34.7%(17/49). Bleeding rate in patients with DPS was lower (1/17;5.9%) compared to patients without (5/32;15.6%), but this difference was not statistically significant ( $p=0.65$ ). "Other" complications rate also did not differ with or without DPS ( $p=0.23$ ). At logistic regression analysis PFC size, necrosis, access, sex, age and DPS presence were not significantly associated with complications/bleeding risk.

**Conclusions** Hot Axios PFC drainage is highly feasible and effective, with a relatively safe profile. Bleeding is a serious and potentially fatal complication. Although bleeding rate seems lower after DPS positioning (5.9% vs. 15.6%), if this difference is true, a power calculation with a  $\beta=0.20$  and an  $\alpha=0.10$  suggests that a RCT would reach statistical significance with >200 patients per arm. Further multicenter studies are needed to assess the possible DPS protective role in this setting.

### OP170 FEASIBILITY OF A THREE-DIMENSIONAL SPHEROID CULTURE USING ENDOSCOPIC ULTRASOUND-GUIDED TISSUE SAMPLING IN PANCREATIC CANCER

**Authors** Cho CM<sup>1</sup>, Nam SY<sup>1</sup>, Kim GC<sup>2</sup>, Seo AN<sup>3</sup>, Bae HI<sup>3</sup>

**Institute** 1 Internal Medicine, School of Medicine, Kyungpook National University, Daegu, Korea, Republic of; 2 Radiology, School of Medicine, Kyungpook National University, Daegu, Korea, Republic of; 3 Pathology, School of Medicine, Kyungpook National University, Daegu, Korea, Republic of  
DOI 10.1055/s-0039-1681346

**Aims** Preclinical research is recently advanced for in vitro drug testing using cancer cell lines and xenograft tissues. However, obtaining tumor cells from patients with pancreatic cancer are limited. Recently, methods to culture and/or propagate tumor tissue using specimens obtained from endoscopic ultrasound-guided tissue sampling (EUS-TS) were introduced. The aim of our study was to evaluate the feasibility of a three-dimensional (3D) spheroid culture using EUS-TS in pancreatic cancer.

**Methods** Patients with locally advanced or distant metastasis were prospectively enrolled. After the acquisition of tissue specimen for pathologic diagnosis by EUS-TS, additional EUS-TS was performed for 3D spheroid culture. The acquired specimens were processed to cultivate in culture media and/or Matrigel and observed serially by phase contrast microscopy to evaluate the growth of tumor cells. After appropriate growth of tumor cells, the specimen was examined to compare the similarity of histology between human cancer tissue and 3D spheroid tumor.

**Results** A total of 21 patients with suspected pancreatic mass lesions were enrolled between June 2017 and March 2018. After excluding five patients, EUS-TS specimen for 3D culture was obtained from 16 patients, who were diagnosed as ductal adenocarcinoma. Formation and maintenance of 3D spheroid culture at 2nd week was successfully constructed in 13 cases (81.3%) and successful tumor growth with double size was established in 6 cases (37.5%). Establishment of spheroid culture for over 2nd passages was noted in 3 cases (18.8%). The histology of 3D culture specimen was similar to that of human tumor tissue.

**Conclusions** This model, which is successfully created by means of EUS-guided core biopsy at the time of initial tumor diagnosis, can be a promising method for construction of in vitro models in the process of drug development and testing for pancreatic cancer.

### OP171 EUS-GUIDED DRAINAGE OF PERIPANCREATIC FLUID COLLECTIONS USING FULLY COVERED METAL AND PLASTIC STENTS

**Authors** Jo S<sup>1</sup>, Lee SS<sup>1</sup>, Oh D<sup>1</sup>, Song TJ<sup>1</sup>, Park DH<sup>1</sup>, Seo DW<sup>1</sup>, Lee SK<sup>1</sup>, Kim MH<sup>1</sup>

**Institute** 1 Asan Medical Center, Gastroenterology, Seoul, Korea, Republic of  
DOI 10.1055/s-0039-1681347

**Aims** Endoscopic ultrasound (EUS)-guided drainage of peripancreatic fluid collections (PFCs) by using double-pigtail plastic stents (DPPSs) requires placement of multiple stents for favorable outcomes. EUS-guided drainage PFC with fully covered metal stents (FCSEMSs) has become increasingly used. We aim to evaluate the technical, clinical outcomes, and adverse events of EUS-guided drainage of PFC with DPPSs and FCSEMSs.

**Methods** The data of patients who had undergone EUS-guided drainage of PFC with DPPSs and FCSEMSs between January 2005 and December 2017 were retrospectively analyzed. Data of EUS-guided PFC drainage is obtained from prospective collected EUS database of our institute and reviewed of patients's clinical parameters based on electrical medical record.

**Results** 133 patients (79 in FCSEMSs group and 54 in DPPSs group) were enrolled in this study. There was no difference in technical success rate between FCSEMSs and DPPSs groups (98.7% vs. 96.3%,  $P=0.35$ ). The procedure time was significantly shorter in FCSEMSs group than in DPPSs group (FCSEMS vs. DPPSs;  $13.7 \pm 6.35$  vs.  $25.5 \pm 11.2$ ,  $P<0.05$ ). FCSEMSs showed a significantly higher clinical success rate (96.2% vs. 81.5%,  $P=0.005$ ). Procedure-related adverse events occurred significantly less in the FCSEMSs group (3.8% vs. 6.7%,  $P=0.01$ ). Late adverse events also occurred significantly less in the FCSEMSs groups (3.8% in FCSEMSs group vs. 14.8% in DPPSs group,  $P=0.02$ ).

**Conclusions** Both EUS-guided drainage of PFC with DPPSs and FCSEMSs might be good methods for drainage. However, EUS-guided drainage of PFC with FCSEMSs might be more likely to achieve clinical success and reduce procedure-related and late adverse events.

### OP172 EUS-GUIDED, RFA ABLATION OF BENIGN AND MALIGNANT PANCREATIC NEOPLASMS AND EXTRA PANCREATIC METASTASIS IS FEASIBLE AND SAFE

**Authors** Dancour A<sup>1</sup>, Rottenstreich M<sup>1</sup>, Sheynkman G<sup>2</sup>, Tahover E<sup>3</sup>, Wengrower D<sup>1</sup>, Goldin E<sup>1</sup>, Golan T<sup>4</sup>, Livovsky D<sup>1</sup>

**Institute** 1 Digestive Diseases Institute, Shaare Zedek Medical Center, Jerusalem, Israel; 2 CT Institute, Shaare Zedek Medical Center, Jerusalem, Israel; 3 Oncology Institute, Shaare Zedek Medical Center, Jerusalem, Israel; 4 Pancreatic Cancer Center, Haim Sheba Medical Center, Tel Hashomer, Israel  
DOI 10.1055/s-0039-1681348

**Aims** New therapeutic alternatives are needed for patients with pancreatic tumors not suitable for surgery or in order to avoid surgical morbidity. We present our data on the use of a new, through-the-echoendoscope radiofrequency ablation (RFA) device.

**Methods** A 150 cm, 19gauge needle-electrode (EUSRA- Taewoong medical) with RF delivery in the distal 10 mm, connected to a RF generator (VIVA RF STARmed, Korea) settled to deliver 50w was used.

**Results** Since March 2017, 22 patients (median age 63 (28–87)) with 36 lesions were treated: seven pancreatic malignant lesions (5 adenocarcinoma), sixteen benign pancreatic lesions (15 neuroendocrine), eight liver metastases, 4 lymph nodes and 1 retroperitoneal metastasis. The pancreatic lesions were located in head, neck, body, tail and uncinate process in 6, 1, 3, 3 and 5 patients. Median size of main lesion was 22 (7–55) mm. RFA was performed close to blood vessel or MPD in 7 and 10 times respectively without linked

complication except for thrombosis of a small intrahepatic vein and mild delayed pancreatitis in 1 patient each. Other adverse events included: abdominal pain and intrahepatic bile duct stenosis in 2 patients each. Median ablation number per lesion was 5 (1–16). Imaging showed complete or partial ablation in 15 and 7 patients respectively. After a median follow up of 6 (1–21) months no additional related complications were detected.

**Conclusions** EUS-guided RFA of pancreatic tumors and in chosen cases of extrapancreatic metastases is feasible and safe. It represents a promising alternative when surgery is not possible. Larger and longer studies are necessary.

Friday, April 5, 2019 14:30 – 16:30  
GI bleeding Club C

### OP173 OPTIMAL TIMING OF RESUMPTION OF WARFARIN AND CLINICAL OUTCOMES AFTER GASTROINTESTINAL BLEEDING IN PATIENTS WITH ATRIAL FIBRILLATION

**Authors** Lee D<sup>1</sup>, Lim JU<sup>1</sup>, Kim BJ<sup>2</sup>, Kim SJ<sup>3</sup>, Kim JH<sup>4</sup>, Kim TH<sup>1</sup>

**Institute** 1 Department of Internal Medicine, Sejong General Hospital, Bu-Cheon, Korea, Republic of; 2 Department of Internal Medicine, Chung-Ang University College of Medicine, Seoul, Korea, Republic of; 3 Department of Gastroenterology Nabeul, Je-Saeng Hospital, Seong Nam, Korea, Republic of; 4 Department of Neurology, Ilsan Hospital, National Health Insurance Service, Goyang-shi, Korea, Republic of

DOI 10.1055/s-0039-1681349

**Aims** According to the 2018 official statement of the Asian Pacific Association of Gastroenterology about management of patients on warfarin, early resumption can be considered, once primary endoscopic hemostasis was done well.

**Methods** We reviewed charts of 250 consecutive AF patients with objectively verified GI bleeding (GIB) by endoscopy from 2011 to 2017 at 3 tertiary centers. We assessed the risk of thromboembolism, all-cause mortality, recurrent GIB in the 3 groups stratified by interruption periods of warfarin.

**Tab. 1** Hazard Ratios stratified by duration of interruption of warfarin for various outcomes

	≤ 3 days (n = 68)	4 – 6 days (n = 127)	≥ 7 days (n = 55)
recurrent GIB at 90 days events, incidence rates per 100 person-year (95% CI), HR (95% CI), p value	7, 44.61 (17.93 – 91.92), 1.98 (0.47 – 8.28), 0.35	5, 16.72 (5.41 – 39.07), 1.31 (0.36 – 4.82), 0.68	3, 22.92 (4.74 – 66.93), reference
thromboembolism at 1 year events, incidence rates per 100 person-year (95% CI), HR (95% CI), p value	2, 3.52 (0.43 – 12.81), 0.37 (0.08 – 1.43), 0.23	5, 4.14 (1.31 – 9.63), 0.43 (0.13 – 1.40), 0.16	6, 9.82 (3.63 – 21.31), reference
mortality at 1 year events, incidence rates per 100 person-year (95% CI), HR (95% CI), p value	5, 8.92 (2.88 – 20.69), 0.62 (0.06 – 7.0), 0.70	5, 4.10 (1.32 – 9.64), 0.58 (0.08 – 4.26), 0.59	3, 4.92 (1.01 – 14.30), reference

**Results** 250 patients resumed warfarin after warfarin related GIB with a median of 5 days (IQR 3–6). Table demonstrated the incidence rates and HRs of patients stratified by days of interruption of warfarin. The risk for recurrent GIB was not different significantly between the patients with restarting warfarin within 3 days versus after 3 days (HR 2.96, 95% confidence interval 0.60–14.58,  $p=0.18$ ). Restarting warfarin after 7 days increased the risk of thromboembolism by more than a factor of 3.61 (HR 3.61; 95% CI, 1.12–10.74;  $P=0.03$ ), whereas the risk of recurrent GIB event was reduced insignificantly by 44% (HR 0.56; 95% CI, 0.18–1.76 0.23–3.08;  $P=0.32$ ). Except for patients with a higher risk of thromboembolism which were defined as patients with valvular AF or patients who have scored 5 or more of CHADSVASC score ( $n=42$ ), restarting warfarin after 7 days increased the risk of thromboembolism by more than a factor of 3.35 (HR 3.35; 95% CI, 0.95–11.88;  $P=0.06$ ),

whereas the risk of recurrent GIB event was reduced insignificantly by 64% (HR 0.36; 95% CI, 0.09–1.49;  $P=0.16$ ).

**Conclusions** Late resumption of warfarin should be reconsidered in AF patients with GIB and high thromboembolic risk.

### OP174 THE NEW INTERNATIONAL BLEEDING RISK SCORE SYSTEM IS A USEFUL PREDICTOR OF MORTALITY IN PATIENTS WITH NON-VARICEAL UPPER GASTROINTESTINAL BLEEDING

**Authors** Moon HS<sup>1</sup>, Kim MS<sup>1</sup>, Park JH<sup>1</sup>, Kim JS<sup>1</sup>, Kang SH<sup>1</sup>, Sung JK<sup>1</sup>, Jeong HY<sup>1</sup>

**Institute** 1 Department of Internal Medicine, Division of Gastroenterology, Chungnam National University Hospital, Daejeon, Korea, Republic of  
DOI 10.1055/s-0039-1681350

**Aims** To validate the use of the new international bleeding score for prediction of mortality in patients with non-variceal upper gastrointestinal bleeding and to assess whether a high new score can predict re-bleeding or an extended hospital stay.

**Methods** This was a 5-year, single-center, retrospective study performed in Korea. Non-variceal upper gastrointestinal bleeding was assessed using the new international bleeding risk score, Rockall, AIMS65, GBS, and PNED scores. Scores for mortality were assessed by calculating the area under the receiver-operating characteristic curves (AUROC). Data regarding patients' characteristics, endoscopic evidence of bleeding, re-bleeding, duration of hospital stay, and mortality at day 30 were collected. The predictive value of factors for mortality at day 30 was identified using multivariate logistic regression analysis of variables identified by univariate logistic regression. A Chi-square test was used to further analyze the relationship between the high and the low new score group with reference to re-bleeding and duration of hospital stay.

**Results** Of 1000 hospital patients who presented with upper gastrointestinal bleeding, 905 patients with non-variceal bleeding were analyzed and 95 patients with variceal bleeding were excluded.

The new score is a weighted risk score based on the patients' ages, comorbidities and results of blood tests. The new score showed a higher discriminative ability compared to the other scores by AUROC (0.958,  $p<0.000$ ), when predicting mortality. A comparison of the high-risk new score and the low risk groups revealed significant differences in the duration of hospitalization ( $p=0.000$ ) and re-bleeding ( $p=0.000$ ).

**Conclusions** The new international bleeding score appears to be a better predictor of the 30-day mortality rate than the scores previously mentioned. Screening for high risk groups using the new score can predict mortality, long-term hospital admission and re-bleeding. Use of this scoring system can improve outcomes through appropriate management and intervention.

### OP175 IMPACT OF THE IMPLEMENTATION OF UPPER GASTROINTESTINAL BLEEDING-CODE IN PATIENTS AT EMERGENCY ROOM WITH UPPER GASTROINTESTINAL NON-VARICEAL BLEEDING

**Authors** Marquez I<sup>1</sup>, Ruiz L<sup>1</sup>, Andujar X<sup>1</sup>, Espinos JC<sup>1</sup>, Mayor V<sup>1</sup>, Fernandez-Bañares F<sup>1</sup>, Esteve M<sup>1</sup>, Loras C<sup>1</sup>

**Institute** 1 Hospital Universitari Mútua de Terrassa, Terrassa, Spain  
DOI 10.1055/s-0039-1681351

**Aims** Upper gastrointestinal bleeding (UGIB) is a common condition in the emergency room (ER), with high morbimortality. Nevertheless, there is no evidence about the impact of the implementation of an urgent intervention protocol (UGIB-CODE) for its management.

Our aims are: 1) Evaluate the impact of the UGIB-CODE implementation in patients with non-variceal upper bleeding (NV-UGIB) at the ER. 2) Identify the variables that are independently associated with the final success in patients with NV-UGIB. 3) Costs analysis.

**Methods** Observational cohort study including a retrospective cohort (RC) and a prospective cohort (PC), before and after the implementation of UGIB-CODE. We recruited adult patients attended at the ER with NV-UGIB during 2014 (RC) and 2016 (PC). Univariate and multivariate analysis were done to determine the impact of UGIB-CODE implementation and the variables associated with the final success (no mortality, no re-bleeding or re-bleeding controlled by endoscopy).

**Results** We included 66 patients in the RC (age  $68 \pm 1.87$ ; 30.3% women) and 89 patients in the PC (age  $69 \pm 1.65$ ; 42.7% women). The multivariate analysis showed a reduction of red blood cell concentrate (RBCC) administration (OR: 1.840; IC95% 1.066 – 3.175;  $p = 0.028$ ) and a decrease in hospital admission (OR: 4.729; IC95% 1.306 – 17.114;  $p = 0.018$ ). Regarding the final success no differences were found between the two cohorts (93.9% vs. 87.6%;  $p = 0.190$ ). Blatchford Score  $< 12$  (OR: 4.460; IC95% 1.366 – 14.568;  $p = 0.013$ ) and non-emergency endoscopy ( $> 6$  hours) (OR: 5.449; IC95% 1.133 – 26.209;  $p = 0.034$ ) were independently associated with the final success. The implementation of UGIB-CODE saved 24,780 € per 100 patients related to RBCC administration and hospital admission.

**Conclusions** The implementation of the UGIB-CODE is a cost-effective strategy, decreasing RBCC administration and hospital admission. We reaffirm that Blatchford Score is a useful tool for predicting the evolution of NV-UGIB. The finding that an emergency endoscopy was associated with a worse outcome should be confirmed in a prospective study that particularly assess this issue.

## OP176 BURNING DOWN THE HOUSE: DOES ENDOSCOPIC BAND LIGATION FOR THE TREATMENT OF GAVE RESULT IN BETTER OUTCOMES COMPARED TO ARGON PHOTO COAGULATION?

**Authors** O'Morain N<sup>1</sup>, O'Donovan H<sup>1</sup>, Conlon C<sup>1</sup>, Warner V<sup>1</sup>, Shannon E<sup>1</sup>, Slattery E<sup>1,2</sup>

**Institute** 1 Galway University Hospital, Saolta University Healthcare Group, Gastroenterology & Medical Endoscopy, Galway, Ireland; 2 National University of Ireland, Galway, Clinical Medicine, Galway, Ireland

DOI 10.1055/s-0039-1681352

**Aims** Gastric antral vascular ectasia (GAVE) is a rare vascular malformation located primarily in the antrum. While Argon Photo Coagulation (APC) is the current standard of care, Endoscopic Band Ligation (EBL) is increasingly used. There is currently no consensus regarding the optimal treatment modality, as current available evidence is limited to small case series. We aimed to compare outcomes following each treatment modality.

**Methods** A retrospective cohort study was performed of patients with an endoscopic diagnosis of GAVE recorded in our tertiary referral University hospital (04/2013-present). All patients receiving endoscopic therapy for GAVE were included in the study.

**Results** In total, 117 diagnoses of GAVE were made during the study period. Of these, 68 patients (58%) required treatment, with a female preponderance ( $n = 39$ , 57%) and a mean age of 74.1 (range 45 – 95). A total of 220 procedures were performed, with an average of 3.2 treatment sessions per patient (range 1 – 20). Iron deficiency anaemia ( $n = 40$ , 59%) was the most common indication with melena (19%), previously untreated GAVE follow up (15%), varices surveillance (4%) and haematemesis (3%) also reported. APC was the most common procedure performed ( $n = 167$ , 74%) compared with EBL ( $n = 59$ , 26%). Patients treated with EBL as the index treatment required a mean of 2.1 subsequent treatments, compared to a mean of 3.5 treatment sessions in the APC group. The pooled mean rise in haemoglobin one month post procedure was higher in the EBL group (1.1 g/dL vs. 0.6 g/dL).

**Conclusions** We report our experience in the largest cohort to date of patients treated with EBL for GAVE. Patients treated with EBL at the index treatment required fewer subsequent treatment sessions and had a greater mean rise in haemoglobin post treatment, suggesting EBL as the initial treatment may lead to better outcomes.

## OP177 HEMOSPRAY FOR GASTROINTESTINAL BLEEDING: EFFECTIVENESS, PREDICTORS OF FAILURE AND SURVIVAL IN A NATIONWIDE STUDY

**Authors** Rodríguez de Santiago E<sup>1,2</sup>, Burgos Santamaría D<sup>1</sup>, Pérez Carazo L<sup>3</sup>, Teran Lantaron A<sup>4</sup>, Brullet E<sup>5</sup>, Prados Leira S<sup>6</sup>, Riu Pons F<sup>7</sup>, Fernández-Urién Sainz I<sup>8</sup>, Becerro González I<sup>9</sup>, Angel de Jorge Turrión M<sup>10</sup>, Ferre Aracil C<sup>11</sup>, Rodríguez Escaja C<sup>12</sup>, Perez Corte D<sup>13</sup>, Volpato Machado N<sup>14</sup>, Martínez Moneo E<sup>15</sup>, García Alonso F<sup>16</sup>, Chavarría Herbozo CM<sup>17</sup>, Sevilla Ribota S<sup>18</sup>, Borobia Sanchez R<sup>3</sup>, Martínez Bauer E<sup>5</sup>, Ciriano Hernández L<sup>4</sup>, Barturen Barroso A<sup>15,19</sup>, Santander Vaquero C<sup>9</sup>, Guerrero García A<sup>1</sup>, Prieto HMM<sup>20</sup>, López Serrano A<sup>21</sup>, López Ibañez M<sup>3</sup>, Murcia Palomares O<sup>22</sup>, Pagano G<sup>7</sup>, Oyón Lara D<sup>8</sup>, Froilan Torres C<sup>14</sup>, Coto Ugarte D<sup>15</sup>, González-Haba Ruíz M<sup>11</sup>, de Benito Sanz M<sup>16</sup>, Carbonell Blanco C<sup>3</sup>, Nogales Rincón O<sup>3</sup>, Ortiz Polo I<sup>21</sup>, Juzgado de Lucas D<sup>18</sup>, Parejo Carbonell S<sup>1</sup>, Peñas García B<sup>1</sup>, Aranda Hernández J<sup>3</sup>, García Lledó J<sup>3</sup>, Ibañez Pinto A<sup>17</sup>, Vazquez Sequeiros E<sup>1</sup>, Albillos A<sup>1,2</sup>

**Institute** 1 Ramon y Cajal University Hospital, Madrid, Spain; 2 University of Alcalá. IRYCIS, Madrid, Spain; 3 Hospital Gregorio Marañón, Madrid, Spain; 4 Hospital Marques de Valdecilla, Santander, Spain; 5 Hospital Parc Tauli de Sabadell, Sabadell, Spain; 6 Hospital de Sanchinarro, Madrid, Spain; 7 Hospital del Mar, Barcelona, Spain; 8 Hospital Universitario de Navarra, Pamplona, Spain; 9 Hospital Universitario De La Princesa, Madrid, Spain; 10 Hospital Universitario de Cabueñes, Gijón, Spain; 11 Hospital Universitario Puerta de Hierro, Majadahonda, Spain; 12 Hospital Universitario Central de Asturias, Oviedo, Spain; 13 Hospital de Aviles, Aviles, Spain; 14 Hospital Universitario de la Paz, Madrid, Spain; 15 Hospital Universitario de Cruces, Bilbao, Spain; 16 Hospital Universitario Rio Hortega, Valladolid, Spain; 17 Hospital Universitario del Henares, Madrid, Spain; 18 Hospital Universitario Quirón Madrid, Madrid, Spain; 19 Hospital IMQ Zorrotzaurre, Bilbao, Spain; 20 Hospital Universitario de Salamanca, Salamanca, Spain; 21 Hospital Universitario Doctor Peset, Valencia, Spain; 22 Hospital de Motril, Motril, Spain

DOI 10.1055/s-0039-1681353

**Aims** This study aimed to assess the effectiveness, safety and predictors of Hemospray failure in a large real-life cohort.

**Methods** This was a retrospective study conducted at 21 Spanish academic and community centers. All patients receiving Hemospray until September 2018 were included. The primary outcome was treatment failure, defined as failed intraprocedural hemostasis or rebleeding during the first 30 days. Secondary outcomes included safety and survival. Cumulative incidence and predictors of failure were assessed via competing-risks models.

**Results** A total of 261 patients were included, 219 (83.9%) of whom presented with upper gastrointestinal bleeding (GIB). The most common etiologies were peptic ulcer (73, 28%), malignancy (48, 18.4%) and therapeutic endoscopy-related GIB (46, 17.6%). Hemospray was used as salvage therapy in 191 (73.2%) patients and as monotherapy in 96 (36.8%). The rate of intraprocedural hemostasis was 94.1% (95% confidence interval [CI]: 90.5 – 96.4). The risk of Hemospray failure at 3, 7 and 30 days were 21.1% (95% CI: 16.4 – 26.2), 24.6% (95% CI: 19.5 – 29.9), and 27.4% (95% CI: 22.1 – 32.9), respectively. On multivariable analysis, spurting bleeding ( $P = 0.004$ ), use of vasoactive drugs ( $P = 0.02$ ), and hypotension ( $P = 0.008$ ) were independent predictors of failure. Overall 30-day survival was 81.9% (95% CI: 76.5 – 86.1%) and intraprocedural hemostasis was associated with better prognosis (adjusted Hazard Rate: 0.27;  $P = 0.004$ ). Two potentially-related severe adverse events were noted.

**Conclusions** Hemospray was effective for achieving intraprocedural hemostasis regardless of the etiology, location, and its use as rescue therapy. However, 30-day failure rate was 27.4%. Intraprocedural hemostasis provided a significant benefit on 30-day survival.

## OP178 CLINICAL EFFECTIVENESS OF HEMOSPRAY IN UPPER GASTROINTESTINAL BLEEDING: EXPERIENCE FROM “REAL WORLD” CLINICAL PRACTICE IN A TERTIARY REFERRAL CENTRE

**Authors** Fraile-López M<sup>1,2</sup>, Fateen W<sup>2</sup>, Ortíz Fernández-Sordo J<sup>2</sup>, Ragunath K<sup>2</sup>

**Institute** 1 Gastroenterology, Hospital Universitario Central de Asturias (HUCA), Oviedo, Spain; 2 NIHR Nottingham Biomedical Research Centre, Nottingham University Hospitals NHS Trust and University of Nottingham, Nottingham, United Kingdom

**DOI** 10.1055/s-0039-1681354

**Aims** Hemospray is an useful endoscopic haemostatic powder for the management of gastrointestinal bleeding. Its role within the therapeutic algorithm of upper gastrointestinal bleeding (UGIB) is not well defined. Its usage is generally aimed at immediate but temporary control of UGIB to allow time for definitive therapy, spontaneous control or for palliation. We aimed to describe: 1) indications and effectiveness of endoscopic haemostasis in UGIB. 2) to describe adverse events and re-bleeding rates.

**Methods** We collected data of all patients treated with Hemospray at our Institution for the management of UGIB between August 2013 to October 2018. Technical success was defined as the correct assembly of device and application. Immediate success was defined as bleeding cessation within 5 minutes after application. Combination therapy was its use with standard hemostatic methods and rescue therapy when standard methods have failed.

**Results** A total of 85 patients were included for analysis (54.7% male), mean age 68.3 ± 16.73 years. Hemospray was used for control of bleeding duodenal ulcers in 37.7% (n = 32), bleeding malignancy in 16.5% (n = 14) and post procedure bleeding in 14.1% (n = 12; 8 post-EMR; 2 post-biliary sphincterotomy; 1 post-ESD; 1 post-ampullectomy). Overall immediate haemostasis success was 89.6%. Hemospray was used as a rescue therapy in 38.8% (n = 33), single modality in 37.6% (n = 32) and combination therapy in 23.5% (n = 20) achieving immediate haemostasis in 87.8%; 85.7%; 85% respectively with no statistical differences between the three groups (p = 0.57). Overall technical success was 97.7%, in 2 cases blockage of 10F catheter occurred. No patient related side effects were seen. Global re-bleeding rate was 12.8%, (3.5% < 24 h; 4.7% 24 – 72 h; 4.8% > 72 h), with no statistical differences related to treatment modalities (p = 0.86).

**Conclusions** In this “real world” clinical practice, Hemospray is an effective and safe treatment for upper bleeding regardless its use as a single, combination or rescue therapy.

## OP179 EFFICACY OF ENDOSCOPIC TREATMENTS FOR ACUTE ESOPHAGEAL VARICEAL BLEEDING IN CIRRHOTICS: SYSTEMATIC REVIEW AND META-ANALYSIS

**Authors** Onofrio F<sup>1</sup>, Pereira Lima J<sup>2</sup>, Azeredo A<sup>3</sup>, Valença F<sup>3</sup>, Stein A<sup>3</sup>, Pereira Lima G<sup>4</sup>, Cavalcanti F<sup>3</sup>, Oliveira dos Santos CE<sup>5</sup>

**Institute** 1 University of Toronto, Toronto, Canada; 2 Gastroenterology, UFCSA, Porto Alegre, Brazil; 3 UFCSA, Porto Alegre, Brazil; 4 ULBRA, Porto Alegre, Brazil; 5 Santa Casa, Bagé, Brazil

**DOI** 10.1055/s-0039-1681355

**Aims** Most guidelines recommend and consider the use of ligation and vasoactive drugs as the first line therapy and grade A evidence for acute variceal bleeding (AVB), although Western studies about this issue are lacking. We performed a systematic review and meta-analysis of randomized controlled trials (RCT) to evaluate the efficacy of endoscopic treatments for AVB.

**Methods** Systematic review and meta-analysis of RCT evaluating endoscopic treatments for AVB in adult patients with cirrhosis. Trials that included patients with hepatocellular carcinoma or other malignancies, use of portocaval shunts or esophageal resection, use of balloon tamponade as first bleeding

control measure, or that received placebo or elective treatment in one study arm were excluded.

**Results** 8382 publications were searched, and 36 RCT with 3593 patients included. Ligation was associated with a significant improvement in bleeding control [relative risk (RR) 1.08; 95% confidence interval (CI) 1.02 – 1.15] when compared to sclerotherapy. Sclerotherapy combined with vasoactive drugs showed higher efficacy in active bleeding control compared to sclerotherapy alone [RR 1.17; 95% CI 1.10 – 1.25]. The combination of ligation and vasoactive drugs was not superior to ligation alone in terms of overall rebleeding [RR 2.21; 95% CI 0.55 – 8.92] and in-hospital mortality [RR 1.97; 95% CI 0.78 – 4.97]. Other treatments did not generate meta-analysis.

**Conclusions** This study showed that ligation is superior to sclerotherapy, although with moderate heterogeneity. The combination of sclerotherapy and vasoactive drugs was more effective than sclerotherapy alone. Although current guidelines recommend the combined use of ligation with vasoactive drugs in the treatment of esophageal variceal bleeding, this study failed to demonstrate the superiority of this combined treatment.

## OP180 GLASGOW-BLACHFORD SCORE ACCURATELY PREDICTS THE NEED OF CLINICAL INTERVENTION IN ACUTE LOWER GASTROINTESTINAL BLEEDING. A DIAGNOSTIC ACCURACY EVALUATION STUDY

**Authors** Lira A<sup>1</sup>, Machlab S<sup>2</sup>, Garcia-Iglesias P<sup>1</sup>, Martinez-Bauer E<sup>2</sup>, Mármol C<sup>1</sup>, Llibre G<sup>1</sup>, Da Costa J<sup>1</sup>, Gallach M<sup>1</sup>, Melcarne L<sup>1</sup>, Puig-Diví V<sup>2</sup>, Junquera F<sup>2</sup>, Campo R<sup>2</sup>, Calvet X<sup>1</sup>, Brullet E<sup>2</sup>

**Institute** 1 Gastroenterology, Hospital Universitari Parc Tauli, Sabadell, Spain; 2 Endoscopy, Hospital Universitari Parc Tauli, Sabadell, Spain

**DOI** 10.1055/s-0039-1681356

**Aims** The aim of this study was to compare the accuracy of Glasgow-Blachford score (GBS) with three risk scores (State, Velayos and Newman) for predicting the need of clinical intervention (endoscopic therapy, vascular embolization and surgery or transfusion) in patients admitted for acute LGB.

**Methods** Retrospective study from January 2013 to December 2015 in a university tertiary care hospital. Patients with acute LGB were identified using the International Classification of Diseases (9th Revision) and Clinical Modification codes for admission diagnosis. Scores were retrospectively calculated according to the clinical reports data. Area under the receiver operating characteristic (AUROC) curve, sensitivity, specificity and predictive values were calculated. Also the best cut-off of each score was chosen from using the AUROC curve values.

**Results** A total of 298 consecutive patients were identified. Median age was 76.1 years (range 25.4 – 96.5), 201 (67.4%) of patients were older than 70 years, and 51% were men. Five patients (1.7%) died, 18 (6%) developed recurrent bleeding, 89 (29.9%) needed transfusion, 30 (12.1%) received endoscopic therapy, and 3 (1%) underwent transcatheter arterial embolization. GBS AUROC was 0.82 (95% CI: 0.76 – 0.87) for the need clinical intervention. GBS was significantly more accurate than Strate score and similar for Newman y Velayos for predicting the need of clinical intervention. Accuracy values for each score are shown in table 1.

**Tab. 1** CLINICAL INTERVENTION. Sensitivity, specificity and predictive values. \*Best cut-off.

SCORE	SENSIVITY (%)	ESPECIFICITY (%)	POSITIVE PREDICTIVE VALUE (%)	NEGATIVE PREDICTIVE VALUE (%)
GLASGOW-BLACHFORD ≥ 4 *	89	59	50	91
STRATE ≥ 2 *	66	58	86	78
VELAYOS ≥ 1 *	90	46	44	90
NEWMAN ≥ 2 *	89	40	32	88

**Conclusions** The GBS may be an useful tool for risk stratification in LGB. It can be useful as common score for predicting the need of clinical intervention in the upper and lower gastrointestinal bleeding.

## OP181 SAFETY AND EFFICACY OF THE THULIUM AND ERBIUM LASER SYSTEM ON BLEEDING VASCULAR LESIONS OF THE GI TRACT: A REAL-LIFE MULTI-CENTRE STUDY

**Authors** Tontini GE<sup>1</sup>, Dioscoridi L<sup>2</sup>, Rimondi A<sup>3</sup>, Cantù P<sup>1</sup>, Cavallaro F<sup>4</sup>, Elli L<sup>1</sup>, Pastorelli L<sup>3,4</sup>, Pugliese F<sup>2</sup>, Mutignani M<sup>2</sup>, Vecchi M<sup>1,3</sup>

**Institute** 1 Fondazione IRCCS Ca' Granda – Ospedale Maggiore Policlinico di Milano, Milan, Italy; 2 Ca Grande Niguarda Hospital, Milan, Italy; 3 Università degli Studi di Milano, Milan, Italy; 4 Policlinico San Donato, Milan, Italy  
DOI 10.1055/s-0039-1681357

**Aims** Recent pilot studies assessed the feasibility of the Thulium and Erbium laser system (TELS) for endoscopic haemostasis, ablation and resection. Herein, we investigated for the first time ever, the safety and efficacy of endoscopic treatment with TELS in patients with gastrointestinal bleeding due to vascular lesions.

**Methods** Consecutive patients treated with TELS for chronic gastrointestinal bleeding with moderate/severe anaemia due to vascular lesions were enrolled in two Italian centres between March 2016 and October 2018.

Technical success and safety as established by the ASGE Lexicon, were defined as primary endpoints.

As secondary endpoints, we assessed the biological success comparing the lowest haemoglobin values  $\pm$  1 month prior to and after treatment, along with the need of packed red blood cells (PRB) transfusions  $\pm$  6 month prior to and after treatment. For gastric antral vascular ectasia (GAVE), a new scoring system was proposed to evaluate pre/post-treatment endoscopic severity by assessing both mucosal involvement ( $<30\% = +1$ ,  $30-50\% = +2$ ,  $>50\% = +3$ ), and presence of bleeding (traces of blood  $= +3$ , active  $= +5$ ). For each procedure, image/video documentations and TELS technical parameters (i.e., lasing time, power output, energy employed) were digitally recorded. Student paired t-test was performed.

**Results** Twenty-six patients (20 men; range 48–91 years) underwent 32 endoscopic TELS sessions for the treatment of angioectasias (14/26), GAVE (9/26), and RP (3/26). All procedures resulted in a complication-free technical success, thereby reaching the primary study endpoints. Haemoglobin values showed a significant rise along with a decreased need of PRB transfusions (Table 1). The median value of GAVE endoscopic severity remarkably improved within a six-month follow-up.

**Conclusions** This multicentre study conducted in real-life setting suggests that TELS is a safe and effective tool for the endoscopic treatment of patients with gastrointestinal bleeding caused by various types of superficial vascular lesions.

## OP182 A MULTICENTRE VALIDATION STUDY OF A NOVEL LOWER GASTROINTESTINAL BLEEDING (LGIB) SCORE-THE BIRMINGHAM (BHAM) SCORE

**Authors** Smith S<sup>1</sup>, Bazarova A<sup>1</sup>, Ejenavi E<sup>2</sup>, Qurashi M<sup>2</sup>, Shivaji U<sup>1,3</sup>, Harvey P<sup>4</sup>, Slaney E<sup>4</sup>, McFarlane M<sup>5</sup>, Baker C<sup>6</sup>, Elnagar M<sup>6</sup>, Yuzari S<sup>6</sup>, George G<sup>1</sup>, Ghosh S<sup>1,3</sup>, Iacucci M<sup>1,3,7</sup>

**Institute** 1 Institute of Translational Medicine, Birmingham, United Kingdom; 2 University Hospital Birmingham NHS Trust, Birmingham, United Kingdom; 3 NIHR Biomedical Research Centre Birmingham, Birmingham, United Kingdom; 4 Sandwell and West Birmingham Hospitals NHS Trust, Birmingham, United Kingdom; 5 University Hospitals Coventry and Warwickshire NHS Trust, Coventry, United Kingdom; 6 The Royal Wolverhampton Hospitals NHS Trust, Wolverhampton, United Kingdom; 7 University of Calgary, Calgary, Canada  
DOI 10.1055/s-0039-1681358

**Aims** LGIB is common and its incidence is increasing. There have been attempts to create new risk stratification scores to predict major clinical adverse events in LGIB, however none of are widely used. We aimed to identify risk

factors associated with adverse outcomes from LGIB and develop and validate a novel scoring system.

**Methods** We retrospectively reviewed patients admitted with LGIB from three centres 2010–2017. Adverse outcomes recorded include blood transfusion, endoscopic intervention, CT angiography, surgery, re-bleeding and mortality. Regression analysis within a machine learning technique identified risk factors for adverse outcomes. Area Under the Receiver Operating Curve (AUROC) were calculated and The BHAM Score was developed.

Validation of the score was conducted by retrospectively reviewing LGIB admissions in a separate centre from the original dataset. Estimates of AUROC were calculated by applying the scores directly to the whole dataset against the BHAM score and the Glasgow Blatchford Score (GBS).

**Results** A total of 473 patients were included for the original dataset (table). The BHAM score consists of: Blood pressure  $<90$  mmHg (1 point), Haemoglobin ( $<72$  g/L 14 points,  $73-95$  g/L 10 points,  $96-117$  g/L 7 points,  $118-139$  g/L 4 points), Altered mental state (2 points) and Male (1 point). A total BHAM score gives probabilities of adverse outcomes:  $\geq 12$  points  $\geq 90\%$ , 11 points  $70\%$ ,  $9-10$  points  $45\%$ , 8 points  $30\%$ ,  $6-7$  points  $15\%$ , 5 points  $6\%$  and  $\leq 4$  points  $<3\%$ . 181 patients admitted with LGIB were included in validation (table). BHAM score gives AUROC of 0.80 (95% CI 0.72–0.87), whilst the GBS gives AUROC of 0.76 (95% CI 0.69–0.84) (Figure).

**Conclusions** This validation study has shown that the BHAM score performs well at predicting adverse outcomes of LGIB. It outperforms the GBS and has the advantage of being more simple. A prospective multi-centre study is required to validate the BHAM score further before application in clinical practice.

Friday, April 5, 2019

Video lower GI 1

14:30 – 16:30

South Hall 1A

## OP183V GEL IMMERSION ENDOSCOPY: INNOVATION IN SECURING THE VISUAL FIELD. CLINICAL EXPERIENCE OF 265 CONSECUTIVE CASES

**Authors** Yano T<sup>1</sup>, Takezawa T<sup>1</sup>, Hashimoto K<sup>1</sup>, Ohmori A<sup>1</sup>, Sakamoto H<sup>1</sup>, Sunada K<sup>1</sup>, Kawarai Lefor A<sup>2</sup>, Yamamoto H<sup>1</sup>

**Institute** 1 Department of Medicine, Division of Gastroenterology, Jichi Medical University, Shimotsuke, Japan; 2 Department of Surgery, Jichi Medical University, Shimotsuke, Japan

DOI 10.1055/s-0039-1681359

**Aims** During endoscopy, especially in patients with gastrointestinal bleeding, it is often difficult to secure the visual field using water, because the injected water is rapidly mixed with fresh blood or stool. Clear gel with an appropriate viscosity to prevent rapid mixing is injected through the accessory channel, instead of water. In the space occupied by the clear gel, it is easy to secure the visual field. We reported this method as “gel immersion endoscopy”. The safety and efficacy of this method were evaluated.

**Methods** From June 2012 until December 2017, 265 consecutive procedures were identified by searching the medical records. These records were retrospectively evaluated. After independent evaluation by 3 gastroenterologists, success in securing the visual field and occurrence of adverse events were judged.

**Results** Of 265 total procedures, the visual field was secured/not secured/undecided in 233/21/11, which included 11/2/0 of 13 in the esophagus, 35/5/4 of 44 in the stomach, 37/5/1 in the duodenum, 23/1/3 procedures in the jejunum, 10/0/0 procedures in the ileum, 106/7/2 procedures in the large intestine, 10/1/1 procedures in an afferent limb, and 1/0/0 procedures in the bile duct. Gel immersion endoscopy allowed the identification of bleeding lesions covered by clots, food debris and stool and achieving hemostasis. Of 265 procedures, adverse events occurred in four, including two with post-procedure abdominal pain, one with weight gain in a patient with chronic

renal failure and one extension of mediastinitis in a patient with hematemesis due to spontaneous esophageal rupture which occurred before the procedure. **Conclusions** Gel immersion endoscopy is safe and effective for securing the visual field in many locations in the gastrointestinal tract.

## OP184V A PILOT STUDY OF NOVEL ENDOSCOPIC HAND-SUTURING FOR DEFECT CLOSURE AFTER COLORECTAL ENDOSCOPIC SUBMUCOSAL DISSECTION

**Authors** Abe S<sup>1</sup>, Saito Y<sup>1</sup>, Tanaka Y<sup>1</sup>, Ego M<sup>1</sup>, Yanagisawa F<sup>1</sup>, Kawashima K<sup>1</sup>, Takamaru H<sup>1</sup>, Sekiguchi M<sup>1</sup>, Yamada M<sup>1</sup>, Sakamoto T<sup>1</sup>, Matsuda T<sup>1</sup>, Goto O<sup>2</sup>, Yahagi N<sup>3</sup>

**Institute** 1 Endoscopy Division, National Cancer Center Hospital, Tokyo, Japan; 2 Department of Gastroenterology, Nihon Medical School, Graduate School of Medicine, Tokyo, Japan; 3 Division of Research and Development for Minimally Invasive Treatment, Cancer Center, Keio University, Tokyo, Japan

**DOI** 10.1055/s-0039-1681360

**Aims** This study aimed to demonstrate the feasibility of endoscopic hand-suturing (EHS) and attainability of sustained closure after colorectal endoscopic submucosal dissection (ESD).

**Methods** EHS was defined as an uninterrupted endoscopic suturing of the mucosal defect after colorectal ESD using an absorbable barbed suture and a through-the-scope type needle-holder. Two experienced endoscopists performed EHS, and prior to this study they individually received EHS training in 10 mucosal defects using ex-vivo porcine colonic model. Second look colonoscopy was undertaken on the 3 or 4 days after ESD to observe the EHS site. Due to safety consideration, five patients with rectal neoplasm  $\geq 20$  mm were recruited for the first stage of the study. In the second stage, six more patients with colorectal neoplasm  $\geq 20$  mm in any location, inclusive of proximal colonic lesions, were enlisted.

**Results** A total of 11 lesions were included. Median size of the mucosa defect was 38 mm (25 – 55 mm) and the lesion characteristics were as follows: lower rectum/upper rectum/ascending colon/cecum = 3/3/2/3, and 0-IIa/0-Is+IIa/others = 5/4/2. One lesion in the cecum, and the other in the ascending colon were excluded from analysis because EHS was not attempted owing to difficulty in total colonoscopy after ESD and intraoperative perforation, respectively. EHS was performed for nine lesions, and complete closure was achieved in eight. Median procedure time for suturing was 56 min (30 – 120) and median number of stitches was 8 (6 – 12). Complete closure was maintained in all eight patients during second look endoscopy. Although delayed bleeding occurred in one patient in whom complete closure was not attainable, and another patient developed fever, they were successfully treated with endoscopic hemostasis and intravenous antibiotics respectively.

**Conclusions** EHS is a feasible procedure even in the proximal colon. It may facilitate safer and more refined colorectal ESD, allowing for the treatment to be executed in the outpatient setting.

## OP185V THE GREAT MISTAKE: A COMPLETELY COLONICAL CLOSURE WITH AN OTSC CLIP PLACED FOR A COLO-RECTAL ANASTOMOTIC FISTULA

**Authors** Mangiavillano B<sup>1</sup>, Auriemma F<sup>1</sup>, Bianchetti M<sup>1</sup>, Repici A<sup>2</sup>

**Institute** 1 Gastroenterology and Digestive Endoscopy Unit, Humanitas Mater Domini, Castellanza (VA), Italy; 2 Digestive Endoscopy Unit, Division of Gastroenterology, Humanitas Clinical and Research Center, Rozzano (Milan), Italy

**DOI** 10.1055/s-0039-1681361

**Aims** Colorectal postsurgical leaks and fistulas are severe complications that increase morbidity and mortality. The recent develop of the over-the-scope clip (OTSC) has dramatically decreased the number of surgical reinterventions.

**Methods** A 73 years-old man, with a history of anterior rectal resection for a T3N1 adenocarcinoma followed neoadjuvant chemotherapy, was referred to our unit because of a suspicion of a colo-rectal fistula, developed 30 days after

the surgical intervention. A lower GI endoscopy showed, at 5 cm from the anal verge, the presence of a colo-rectal anastomosis with a 9 mm diameter fistula. We decided to close the defect with an 11/6 t OTSC clip (Ovesco – Tübingen, Germany). With a gastroscope, suction technique and the aid of the anchor device, we placed an OTSC clip over the fistula but, after the clip release, we observed a completely colonic lumen closure, also justified from the absence of air coming from the bowel.

**Results** Because of the loss of memory of the nitinol under 4°C, we decided to irrigate the colonic lumen with cold water (<4°C) for 10 min, until the white change of the color of the mucosa. With tooth-rat forceps we removed the OTSC clip, without any complication. After the clip removal, in the same session, we placed another 11/6 t OTSC clip, with the aid of the anchor device, sealing the fistula.

**Conclusion** Endoscopic OTSC closure of colorectal postsurgical leaks and fistulas is a safe technique, with a high success rate in both acute and chronic cases but completely bowel closure is a rare adverse event that can be accidentally happen, especially in non-expert hands. The nitinol loss of memory at <4°C water allow OTSC deformation, helping us its removal.

## OP186V POLYP FINGERPRINT: AUTOMATIC RECOGNITION OF UNIQUE FEATURES TO UNIVOCALLY IDENTIFY COLORECTAL POLYPS

**Authors** García-Rodríguez A<sup>1</sup>, Bernal J<sup>1</sup>, Córdova H<sup>1</sup>, Rodríguez de Miguel C<sup>1</sup>, Garcés R<sup>1</sup>, Pellisé M<sup>1</sup>, Sánchez J<sup>1</sup>, Fernández-Esparrach G<sup>1</sup>

**Institute** 1 Hospital Clinic de Barcelona, Barcelona, Spain

**DOI** 10.1055/s-0039-1681362

**Aims** Following human recognition by fingerprints, we propose to study the potential of computer systems in the definition and recognition of unique characteristics for each colorectal polyp. Polyp fingerprint can be used in two types of applications: assistance in polyp detection to ensure that a polyp observed during insertion is recognized during withdrawal and assistance in the in-vivo prediction of the histology of those polyps sharing a similar appearance with one with known histology.

**Methods** Our system uses a color descriptor to characterize the image and applies Bag of Words technique to build a vocabulary univocally describing each image. To test the methodology, we used 225 images from 76 polyps acquired during routinely explorations at Hospital Clinic of Barcelona using high definition OLYMPUS endoscopes. At least two images showing different views from the same polyp were used in the experiment. The automatic system provides for each image the closest match within the dataset.

**Results** The distribution of polyps according to Paris classification was: 40 of type 0-Is (118 images), 31 of type 0-IIa (11 images) and 5 of type 0-Ip (96 images). Mean polyp size was of 11,60 mm. 61 out of 76 polyps were adenomas (80.26%, 173 images). In our experiment, 207 images (92%) matched another image of the same polyp. For those polyps with only two images, the system provided an accurate match in 31/33 cases (93.94%). In the subset of images where the polyp was represented with more than two images, the system provided an accurate match in 42/43 cases (97.67%). Furthermore, in this subset the system provided correct matches for all images of the same polyp in 31/43 cases (72.09%).

**Conclusions** A computational system can accurately recognize as a unique lesion a polyp observed in different views by describing the endoluminal scene using a color descriptor.

## OP187V MUSCLE-RETRACTING SIGN WITH CONVERGENT NEOVASCULARISATION: AN OMINOUS FINDING AT ENDOSCOPIC SUBMUCOSAL DISSECTION

**Authors** Despott EJ<sup>1</sup>, Murino A<sup>1</sup>, Lazaridis N<sup>1</sup>, Koukias N<sup>1</sup>, Telese A<sup>1</sup>, Hayashi Y<sup>1,2</sup>, Yamamoto H<sup>2</sup>

**Institute** 1 Royal Free Unit for Endoscopy, The Royal Free Hospital and University College London (UCL) Institute for Liver and Digestive Health,

London, United Kingdom; 2 Division of Gastroenterology, Department of Medicine, Jichi Medical University, Shimotsuke, Japan

DOI 10.1055/s-0039-1681363

Colorectal endoscopic submucosal dissection (ESD) is a well-established minimally invasive resection technique. When the so-called muscle-retracting (MR) sign is encountered during ESD, complete resection may not be feasible. The pocket creation method (PCM) allows easier recognition of the submucosal space in the context of fibrosis and MR sign. To date, both magnifying endoscopy and endoscopic ultrasound may not be able to show invasive cancer, especially for lateral spreading tumor (LST) with a large nodule. Therefore it may be difficult to predict if any MR sign is caused by fibrosis or deep submucosal invasion.

Our aim was to highlight the characteristics of deep submucosal invasion during PCM-ESD. A 74-year-old man had a colonoscopy due to haematochezia and a large granular, mixed-nodular LST was identified in the proximal rectum. Endoscopic assessment of the lesion with near focus, indigo carmine and narrow band imaging (NBI) did not reveal any sign of Kudo pit pattern Vn, JNET type 3 surface findings, or any other definitive sign of intramucosal or deeply invasive cancer. For this reason we proceeded with saline-immersion therapeutic endoscopy (SITE) facilitated PCM-ESD.

After dissection of the distal part of the lesion, the MR sign was encountered within the submucosal pocket, underneath a large nodule. Despite continuing dissecting this severely fibrotic submucosal area using the PCM technique, increasing severity of submucosal fibrosis and repeated bleeding from convergent, irregular submucosal neovascularisation around the MR site (with an appearance akin to 'solar flares'), impeded further resection. ESD was therefore discontinued due to high suspicion for submucosal invasion. Histopathological analysis of biopsies taken from the MR area confirmed deep submucosal invasion.

Our findings reinforce the suspicion that a flare of neovascularisation convergent onto the MR area is suggestive of deep submucosal invasion. In this scenario ESD could be discontinued and surgical options should be considered.

### OP188V MALIGNANT TRANSFORMATION OF SESSILE SERRATED ADENOMAS – NBI DIAGNOSIS AND ESD OF TWO CASES

**Authors** Lupu A<sup>1</sup>, Lippai D<sup>2</sup>, Rivory J<sup>1</sup>, Rostain F<sup>1</sup>, Saurin JC<sup>1</sup>, Ponchon T<sup>1</sup>, Pioche M<sup>1</sup>

**Institute** 1 Edouard Herriot Hospital, Lyon, France; 2 Semmelweis University, Budapest, Hungary

DOI 10.1055/s-0039-1681364

Sessile serrated adenomas (SSA) are potentially responsible for the apparition of interval colorectal cancer (CRC) [1]. Their malignant transformation does not follow the classical molecular pattern [2].

SSA are more difficult to detect in endoscopy. The endoscopic diagnosis is based on white light imaging (WLI) and narrow band imaging (NBI) with magnification, using the WASP criteria [3].

We report here 2 atypical nongranular LSTs that had both sessile serrated criteria (WASP) but also a classical adenoma/adenocarcinoma component. ESD was performed using the clip-traction strategy [4].

First patient had a 3 cm non-granular lateral spreading tumour (LST) in the left colon, Paris IIB, with Kudo Vi pit pattern but also crypts with dark spots (Figure 1,2). En bloc ESD was performed. We closed the large mucosal defect with clips and a rubber band [5]. Histology revealed complete resection of a de-generated SSA with in-situ carcinoma.

The second patient had a cm non-granular LST was found on the sigmoid, Paris 0-IIa + 0-IIc, Kudo Vn with nearly avascular capillaries (Sano IIIB) (Figure 3). ESD was performed because of comorbidities and high surgical risk. Histology revealed complete resection of a SSA with a focal moderately differentiated adenocarcinoma that was deeply invading (2200 µm) the submucosa,

tumoral budding but no vascular or lymphatic invasion. Complementary surgical intervention was recommended.

Both this lesions had 2 distinct components: a classical adenomatous and also a sessile serrated one with dark spots inside crypts, a clouded surface and irregular shape. There were no complications after ESD.

Malignant transformation has rarely been described within a SSA but appears as a conventional adenomatous malignancy. In those transformed lesions, two components are clearly identified. Endoscopic evaluation using NBI with dual focus magnification is very important, in order to decide for the best resection strategy based on the worst component after histology prediction.

### OP189V ENDOSCOPIC LINE-ASSISTED COMPLETE CLOSURE OF LARGE COLONIC PERFORATION DURING ENDOSCOPIC SUBMUCOSAL DISSECTION

**Authors** Agudo B<sup>1</sup>, De Frutos D<sup>1</sup>, Santiago J<sup>1</sup>, González I<sup>1</sup>, González-Haba M<sup>1</sup>, Garrido A<sup>1</sup>, Matallanos P<sup>1</sup>, Bote M<sup>1</sup>, Blazquez E<sup>1</sup>, Sol Delgado M<sup>1</sup>, Herreros de Tejada A<sup>1</sup>

**Institute** 1 Gastroenterology and Hepatology, Puerta de Hierro – Majadahonda University Hospital, Madrid, Spain

DOI 10.1055/s-0039-1681365

Complete closure of extra-large mucosal defects after endoscopic submucosal dissection (ESD) of wide colorectal lesions is a challenging procedure due to limited width-opening of the regular through-the-scope clips (TTSC). We report a case of successful management of a large perforation using the line-assisted complete closure (LACC) technique.

LACC technique, described by Kato et al, is performed introducing a TTSC with a long nylon line tied to one of its anchor blades and fixing it to about 5 mm from the distal edge of the perforation area. Subsequently another TTSC is inserted through the working channel and it grasps the line inside the lumen, close to the first clip, to be anchored to the proximal side of the perforation. Both sides of the wound are gathered by gently pulling the line from outside the patient. This allows applying complementary TTSC for the complete closure of the defect. The line is finally cut using scissor forceps.

A 78-year-old patient was found to have a 70 × 40 mm LST-NG (0-IIa + IIb) in transverse colon, pit pattern Kudo type IV. Along the final phase of ESD a spontaneous 5–6 cm disruption of the muscular layer within the mucosal defect was noted. Due to its large size, a LACC technique was executed to facilitate the approaching and further clipping of the mucosal edges with additional 31 regular TTSC. Abdominal-CT with rectal contrast administration after the procedure showed no sign of leaking at the perforation site. The patient remained asymptomatic and was discharged uneventfully six days later.

Compared with other endoscopic devices such as over-the-scope clip (OTSC), LACC only requires the use of regular TTSC, a nylon line and endoscopic scissors. It can be an effective alternative in the management of large iatrogenic perforations, even in proximal colon, avoiding surgical treatment.

### OP190V SUCCESSFUL REPAIR OF WIDE TRAUMATIC RECTAL PERFORATION USING OVER-THE-SCOPE CLIP (OTSC)

**Authors** Manno M<sup>1</sup>, Deiana S<sup>1</sup>, Gabbani T<sup>1</sup>, Mirante V<sup>1</sup>, Soriani P<sup>1</sup>

**Institute** 1 Digestive Endoscopy Modena Northern Area, Carpi and Mirandola Hospital, AUSL Modena, Carpi, Italy

DOI 10.1055/s-0039-1681366

The over-the-scope clip (OTSC, Ovesco Endoscopy GmbH, Tübingen, Germany), designed for tissue approximation, is already recommended as first-line endoscopic treatment for endoscopic acute iatrogenic perforation [1].

To the best of our knowledge, no data regarding gastrointestinal traumatic perforation are available.

A 16-year-old girl referred to emergency room for copious rectal bleeding and secondary syncope, due to violent trauma.

Computed tomography (CT) scan and subsequent colonoscopy revealed a voluminous pelvic hematoma and a 35 – 40 mm irregular full-thickness defect, located in the posterior rectal wall, about 30 mm from the dentate line.

Because of the lesion's features and the acute setting, an OTSC was placed (12/6 mm, traumatic type) using the OTSC twin grasper (Ovesco Endoscopy GmbH, Tübingen, Germany). This auxiliary device has two jaws which can be opened separately, allowing better gaping edges approximation.

The entire procedure was performed under deep sedation, using CO<sub>2</sub> insufflation.

The endoscopic treatment was effective, as confirmed after contrast medium injection and CT scan.

Few days later, second endoscopic look confirmed complete sealing of the defect and the patient was discharged home [video].

In conclusion, OTSC with twin grasper can successfully treat wide traumatic rectal perforation, avoiding major surgery with definitive or temporary stoma, especially in a young woman.

#### Reference

1. Paspatis G.A., Dumonceau J.M., Barthet M et al. Diagnosis and management of iatrogenic endoscopic perforations: European Society of Gastrointestinal Endoscopy (ESGE) Position Statement. *Endoscopy*. 2014;46:693 – 711.

Friday, April 5, 2019

14:30 – 16:30

Video Motility

South Hall 1B

### OP191V ENDOSCOPIC MANAGEMENT OF AN INTRAPARIETAL OESOPHAGEAL HEMATOMA, SECONDARY COMPLICATION OF POEM IN A TYPE 1 ACHALASIA, PREVIOUSLY TREATED BY HELLER MYOTOMY

**Authors** Rivory J<sup>1</sup>, Alexandru L<sup>1</sup>, Rostain F<sup>1</sup>, Ponchon T<sup>1,2</sup>, Oung B<sup>1</sup>, Jacques J<sup>3,4</sup>, Roman S<sup>1,2</sup>, Mion F<sup>1,2</sup>, Pioche M<sup>1,2</sup>

**Institute** 1 Hospices Civils de Lyon, Lyon, France; 2 Lyon University, Lyon, France; 3 Limoges, Limoges, France; 4 CHU Limoges, Limoges, France  
DOI 10.1055/s-0039-1681367

Achalasia is an idiopathic condition characterized by abnormally elevated pressure of the lower oesophageal sphincter (LES) and abnormal oesophageal peristalsis. Before per oral endoscopic myotomy (POEM) the treatment was either by drugs (nitrates, calcium blockers), endoscopic pneumatic dilatation or by surgical myotomy.

Endoscopic myotomy is more and more popular in expert endoscopic centers because of high efficacy (90%) and low complication rate (5%).

We report the case of a 56 years old patient with a type 1 Achalasia that was previously treated by Heller myotomy. He remained asymptomatic for 4 years after the procedure, but later restarted having dysphagia, odynophagia and alimentary regurgitations.

After pluridisciplinary concertation, it was decided to propose long posterior POEM.

We performed a long submucosal tunnel followed by a selective circular myotomy of 13 cm with a HookKnife 620LR (Olympus Tokyo, Japon). We had no particular hemorrhagic complications during endoscopic procedure.

Three hours after the procedure, the patient had post procedural severe retrosternal pain and nausea. The CT scan confirmed a 60 mm esophageal hematoma with possible active intraparietal bleeding.

We decided for immediate endoscopic intervention because of the high risk of mediastinitis and the active bleeding.

We removed the clips that closed the mucosal defect and after access in the submucosal tunnel we removed the blood clots with polypectomy snares. There was active bleeding from a perforating intramuscular vessel that was treated with coagulation, using a hot forceps (Cook Medical, Bloomington, USA). We closed the tunnel incision with 6 clips Resolution 360 (Boston Scien-

tific, USA). The patient felt immediately better and was finally discharged 5 days later. No other complication was reported after 4 months of follow up. POEM is possible even after previous surgical myotomy. We report the successful endoscopic treatment of a large intraparietal hematoma and active bleeding.

### OP192V ENDOSCOPIC TREATMENT OF INTRAMURAL FISTULA E MUCOSAL TEAR OCCURRED AFTER PERORAL ENDOSCOPIC MYOTOMY (POEM)

**Authors** Familiari P<sup>1</sup>, Landi R<sup>1</sup>, Mangiola F<sup>1</sup>, D'Aversa F<sup>1</sup>, Borrelli De Andreis F<sup>1</sup>, Costantini A<sup>1</sup>, Bove V<sup>1</sup>, Boskoski I<sup>1</sup>, Tringali A<sup>1</sup>, Perri V<sup>1</sup>, Costamagna G<sup>1</sup>

**Institute** 1 Università Cattolica del Sacro Cuore, Fondazione Policlinico Universitario A. Gemelli – IRCCS, Unità Operativa Complessa di Endoscopia Digestiva Chirurgica, Centre for Endoscopic Research Therapeutics and Training – CERTT, Rome, Italy  
DOI 10.1055/s-0039-1681368

**Aims** POEM is a safe procedure for the treatment of esophageal motility disorders. A correct closure of the esophageal mucosal incision (mucosotomy) and the integrity of the mucosal flap are crucial for the safety of the procedure, in order to prevent esophageal leakages and infections.

**Methods** We present the case of a POEM complicated by the dehiscence of the mucosotomy, multiple tears of the mucosal flap and the creation of intramural esophageal fistula.

A 72-year-old woman presented with severe dysphagia, regurgitation, pain and weight loss. A type III achalasia was diagnosed and a POEM was performed. Perioperative course was uncomplicated.

Two weeks later patient presented with chest pain and recurrent dysphagia for solids.

An EGD showed a dehiscence of the mucosotomy with multiple openings on the mucosal flap, putting in communication the real esophageal lumen with the submucosal tunnel created during the POEM. No full thickness perforations were seen.

CT-scan did not reveal any leakage or periesophageal collection.

In order to avoid the entrapment of food into this false lumen, we decided to entirely cut the mucosal flap.

A distal and a triangle-tip knife with Endocut mode was used for the mucosal incision.

**Results** The procedure was relatively easy, quick, and uncomplicated.

CT-scan and Gastrografin swallow showed no leakages or complications, and the patient started oral feeding since the second post-operative day.

One year later the patient is in relatively good conditions, without dysphagia.

**Conclusions** Dehiscence of mucosotomy rarely complicates POEM, but can be theoretically responsible of mediastinitis and infections.

The incision of the mucosal flap above the esophageal false lumen, a kind of fistulotomy, guaranteed a quick and easy solution for an unusual clinical problem.

### OP193V YEYUNAL PERFORATION WITH ACHALASIA BALLON IN A PATIENT WITH RING SLIPPAGE AND GASTRIC POUCH OUTLET STENOSIS AFTER BANDED GASTRIC BYPASS

**Authors** Baptista A<sup>1</sup>, Salinas A<sup>2</sup>, García W<sup>2</sup>, Guzman M<sup>2</sup>

**Institute** 1 Hospital de Clinicas Caracas, Say Bernardino, Caracas, Venezuela; 2 Hospital de Clinicas Caracas, Caracas, Venezuela  
DOI 10.1055/s-0039-1681369

**Aims** Banded gastric bypass (BGBP) has resulted in superior long-term weight loss compared with non-banded gastric bypass. Nevertheless occasional silastic ring slippage could result in gastric pouch outlet stenosis (GPOS). Conventional management has been ring removal through abdominal laparoscopic

surgery. However, peritoneal adhesions could make surgery challenging and increase the risk of complications.

Endoscopic dilatation of the slipped ring using achalasia balloon with high success and low morbidity has been described. We present a clinical case of 31-year-old female with previous BGBP in 2012 who experienced vomiting, abdominal pain and weight loss in 2016.

**Methods** Upper gastrointestinal endoscopy (UGE) showed retained food and GPOS. A 35-mm achalasia balloon was used to treat silastic ring slippage. Immediately after balloon deflation, active bleeding of the anastomosis occurred. It was controlled by epinephrine injection and electrocoagulation forceps. At the jejunal side of the anastomosis a wide perforation was seen. A 21-cm-length and 30 mm diameter fully covered self-expanding esophageal metallic stent (SEMS) was immediately placed. CT scan showed septated pneumoperitoneum and no evidence of liquid collections. The patient referred mild abdominal pain after the procedure. Oral feeding and hospital discharge was decided at 36 hours.

**Results** Clinical evolution was satisfactory. Three weeks later SEMS was removed over a plastic overtube retrieval system to avoid laceration of the previously injured area. Perforation was completely sealed. Contrast swallow confirmed absence of leakage. Furthermore silastic ring migrated to the reservoir lumen as result of SEMS local effect. Forceps removal of the ring was safely accomplished.

**Conclusions** The use of achalasia balloon to treat silastic ring slippage in gastric banded bypass could lead to jejunal perforation. Immediate placement of the stent is an efficient option to manage the perforation and the ring slippage.

#### OP194V PERORAL ENDOSCOPIC SEPTOTOMY (POES): A NOVEL ENDOSCOPIC APPROACH TO ZENKER'S DIVERTICULUM

**Authors** Maselli R<sup>1</sup>, Cappello A<sup>1</sup>, Spadaccini M<sup>1</sup>, Fugazza A<sup>1</sup>, Galtieri A<sup>1</sup>, Palma R<sup>1</sup>, Maria Ormando V<sup>1</sup>, Pellegatta G<sup>1</sup>, Craviotto V<sup>1</sup>, Lamonaca L<sup>1</sup>, D'Amico F<sup>1</sup>, Chiara Ferrara E<sup>1</sup>, Di Leo M<sup>1</sup>, Carrara S<sup>1</sup>, Anderloni A<sup>1</sup>, Repici A<sup>1</sup>  
**Institute** 1 Digestive Endoscopy Unit, Humanitas Research Hospital, Rozzano, Italy

DOI 10.1055/s-0039-1681370

**Aims** Zenker's diverticulum (ZD) arises as a result of an increased intraluminal pressure in the esophagus caused by the impaired relaxation of the cricopharyngeal muscle. Treatments aim to dissect the muscle in order to remove the underlying dysfunctional condition. Patients with short septum ( $\leq 2$  cm) diverticulum represent a difficult to be treated subgroup of patients because of the anatomical space limitations leading to reduced operation space either for rigid and flexible endoscopic treatments. The aim of this video is to report an alternative procedure, called Per-oral endoscopic septotomy (POES) proposed to treat short-septum symptomatic ZD.

**Methods** The POES technique consisted of a 15 mm mucosotomy performed at the top of the diverticular septum, after submucosal injection.

**Results** A 68 year-old man was referred to our center for a 20 mm ZD. The procedure was carried out using a 9.3 mm diameter gastroscope with cap (Video 1). After submucosal injection with saline and methylene blue, a 15 mm mucosal incision was performed at the top of the diverticular septum. The underlying submucosa was dissected to create an endoscopic window to visualize the muscular septum. The muscular septum was dissected along its entire length through the mucosal window, sparing the mucosa of both the luminal and the diverticular side. Finally, the mucosal incision was closed with clips. No intra nor post-procedural adverse events occurred. After the procedure, an esophagogram was performed showing no contrast stagnation or leak. No dysphagia nor regurgitation were referred at 1 months follow up.

**Conclusions** This approach may be considered an alternative for the treatment of short ZD.

#### OP195V A LARGE PERFORATION IN THE SINUS PIRIFORM DURING ZENKER DIVERTICULOTOMY EFFECTIVELY CLOSED WITH "CLIPS-AND-RUBBER BAND" TECHNIQUE

**Authors** Pioche M<sup>1</sup>, Rivory J<sup>2</sup>, Saurin JC<sup>3</sup>, Ponchon T<sup>4</sup>

**Institute** 1 Lyon University, Belmont d'Azergues, France; 2 Lyon University, Lyon, France; 3 Edouard Herriot University Hospital, Lyon, France; 4 Edouard Herriot Hospital, Lyon, France

DOI 10.1055/s-0039-1681371

Endoscopic treatment of Zenker diverticulum (ZD) by diverticulotomy consists in cutting the septum between the esophageal lumen and the diverticulum, thus restoring bolus transit. This technique is being increasingly preferred to surgical treatment as it is safe and minimizes the in-hospital stay, especially in patients with important comorbidities [1,2]. Nevertheless, endoscopic diverticulotomy carries a risk of perforation and delayed bleeding [1].

We report here the case of a 94-year-old woman referred for endoscopic treatment of a ZD causing dysphagia for solids and liquids. We first introduced the diverticuloscope (Cook, Ireland) but the progression was difficult and the patient experienced a cough during introduction. We removed the diverticuloscope and noticed a large transmural perforation of the sinus piriform. However, before closing the perforation, we decided to perform the diverticulotomy without the diverticuloscope using the window technique[3]. After this, we tried to close the perforation but usual clipping appeared impossible, since it was difficult to catch the two edges of the defect. Therefore, as already described to close resected area after EMR [4], we placed the first clip with attached a rubber band on the lower edge of the perforation by folding the not perforated mucosa. Then, a second clip grasped the rubber band and was attached on the upper edge of the perforation. Due to elastic force, the margins of the defect were stretched and approached each other and the entire defect was closed with two additional clips. After 3 days of diet, patient feed again and was discharged at day seven. At one month after the operation, she was asymptomatic for dysphagia and no sepsis occurred.

In conclusion, the "clip-and-rubber band" technique allows to approach closely the edges of large perforation also in difficult positions such as the sinus piriform, thus facilitating the complete closure.

#### OP196V "POSTERIOR-LIKE" ANTERIOR POEM

**Authors** Mavrogenis G<sup>1</sup>, Bazerbachi F<sup>2</sup>, Tsevgas I<sup>3</sup>, Karamanolis G<sup>4</sup>, Zachariadis D<sup>3</sup>

**Institute** 1 Endoscopy, Mediterraneo Hospital, Mytilene, Greece; 2 Mayo Clinic, Rochester, United States; 3 Mediterraneo Hospital, Athens, Greece; 4 Laiko Hospital, Athens, Greece

DOI 10.1055/s-0039-1681372

Per Oral Endoscopic Myotomy (POEM) can be performed via an anterior or posterior approach to the esophageal wall, depending on the operator's preference. Recent data, however, show that posterior POEM is faster in accomplishing myotomy and in mucosal closure time with less risk for inadvertent mucosal injury. These advantages are attributed to the axis of the dissection plane which naturally parallels to the endoscope working channel. Conversely, anterior POEM has been associated with less esophageal acid exposure post myotomy. Moreover, the gravity-dependent pooling of liquids occurs away from the dissection plane. Therefore, we have recently introduced a modified version of anterior POEM, named 'Posterior-Like' anterior POEM, in which the operator simulates the experience of posterior POEM while performing anterior POEM, by means of ergonomic shifts. This is done through anticlockwise rotation of the endoscope shaft, while simultaneously rotating the operator's body to face another monitor placed by the patient's feet. In this fashion, the tunnel and the myotomy axis are positioned at 6 o'clock, as in posterior POEM. The purpose of this video is to present step by step this technique in a case of type I Achalasia.

## OP197V GASTRIC POEM TO TREAT INCISURA ANGULARIS TORSION AFTER SLEEVE GASTRECTOMY

Authors Baptista A<sup>1</sup>, Dávila M<sup>1</sup>, Guzman M<sup>1</sup>

Institute 1 Hospital de Clinicas Caracas, Caracas, Venezuela

DOI 10.1055/s-0039-1681373

**Aims** Gastric torsion is and uncommon complication after sleeve gastrectomy leading to food intolerance and abdominal pain. The established treatment is surgical adhecents resolution. Achalasia baloon dilatation or stenting has been described. We present acalincinal case of a patient with gastric torsion after 6 months of sleeve gastrectomy unresponsive to endoscopic treatment.

**Methods** The proposed treatment was to perform a gastric POEM to cut the adhecents through a gastric submucosa tunnel. The critical area was incisura angularis. Submucosal long tunnel was confectioned from 8 cms above critical area. Total tunnel length was 14 cms. Suture gastric line scar tissue was liberated from submucosa and gastric muscle with a endoscopic knife entering peritoneal cavity.

**Results** Resolution of the restriction was immediatly achived. Mucosotomy was close with clips. Evolution was excelent. The patient was discharged from the hospital 1 day after with peroral clear liquids. Diet was advanced to solid after 5 days. No adverse event occurred. Follow up is 10 months and the patient remains asymptomatic.

**Conclusion** GPOEM could be considered as an alternative rescue therapy for gastric torsion after sleeve gastrectomy.

## OP198V PERORAL ENDOSCOPIC MYOTOMY AND SEPTOTOMY (POEM-S) FOR THE TREATMENT OF EPIPHRENIC ESOPHAGEAL DIVERTICULUM. A PILOT STUDY WITH VIDEO

Authors Gonzalez JM<sup>1</sup>, Basile P<sup>1</sup>, Barthet M<sup>1</sup>

Institute 1 Gastroenterology, Hôpital Nord, AP-HM, Aix Marseille Univ., Marseille, France

DOI 10.1055/s-0039-1681374

**Background and aims** Esophageal diverticula are rare, frequently associated with esophageal dysmotility, and usually managed surgically with high morbidity. We report a series of 6 patients treated by peroral endoscopic submucosal myotomy and septotomy (POEM-S). The objectives were to describe the technique, document its feasibility, safety and clinical efficacy.

**Patients and methods** Patients referred for endoscopic management of epiphrenic diverticulum by POEM-S were included. Procedures where performed in patients intubated with CO2 and regular scopes and using a Triangle knife (Olympus, Japan). The tunnel was started just above the diverticulum, on the posterior wall, passing nearby the diverticular septum and continued up to the stomach (if achalasia). Then an anterograde septotomy was performed continued by a myotomy. Finally the mucosal access was closed with clips. Patients were kept fasting during 12 hours and then resume oral intake (liquid then mixed) in absence of complication. The had a clinical assessment at 3 months with a esophagogram.

**Results** 6 patients were included (3 men and 3 women aged between 62 to 83 years). The main symptoms were dysphagia (n = 6), regurgitations (n = 4) and weight loss (n = 4), evolving for a mean of 15 years. Five of them had an achalasia and one a nutcracker esophagus at high resolution manometry. Two already benefited from a regular POEM with cardial myotomy, without success.

All the procedures were completed, without per or post-operative complications. Patients were discharged between 2 and 8 post-operative days. A t 3 months, 5 patients had a clinical resolution of symptoms and resumed a normal diet. All patients had improved their weight. All esophagograms showed a better esophageal clearance and a decreasing of the diverticula's size.

**Conclusion** The POEM-S for treating epiphrenic diverticulas with or without motility disorder is a safe and effective technique that should be considered instead of morbid surgery.

Friday, April 5, 2019

17:00 – 18:30

Colon cleansing 1

Club D

## OP199 IMPROVED LESION DETECTION WITH HIGH-QUALITY VERSUS ADEQUATE CLEANSING SUCCESS: A POST HOC ANALYSIS OF 1749 PATIENTS IN RANDOMISED CLINICAL TRIALS USING THE HAREFIELD CLEANSING SCALE

Authors Manning J<sup>1</sup>, Amlani B<sup>2</sup>, Hassan C<sup>3</sup>

Institute 1 Borders General Hospital, Berwickshire, United Kingdom;

2 Medical Affairs, Norgine, Harefield, United Kingdom; 3 Gastroenterology and Endoscopic Unit, Ospedale Nuovo Regina Margherita, Rome, Italy

DOI 10.1055/s-0039-1681375

**Aims** Lesion detection requires colon cleansing. On the Harefield Cleansing Scale (HCS), success equals a minimal segmental score of 2/4 in all five segments; cumulative 10/20. Benefits of high-quality cleansing are debated. This post hoc analysis of randomised clinical trials assessed lesion detection in cumulative segmental score groups permitting real-world segmental cleansing score variability in each patient.

**Methods** Three similar phase 3 trials assessed the colon cleansing efficacy and safety of 1L NER1006 (PLENVU) versus standard bowel preparations. Cleansing quality assessment was standardised with treatment-blinded central readers using the HCS. Our treatment-independent analysis included all patients with fully documented segmental cleansing scores and lesion counts. Three cumulative HCS score groups 0 – 10 (failed to adequate), 11 – 13 (adequate with some high-quality), and 14 – 20 (mostly high-quality) were stratified for maximal samples with a comparable size. Polyp detection rates (PDR), adenoma detection rates (ADR) and the mean number of polyps (MPP) or adenomas (MAP) per patient were analysed. One-sided t-tests were used to identify any differences in lesion detection versus the highest cleansing quality group HCS 14 – 20.

**Results** From 1985 randomised patients, 1749 were included (Table). The highest quality cleansing group HCS 14 – 20 (n = 551) was associated with a significantly higher ADR, MPP and MAP than the medium quality cleansing group HCS 11 – 13 (n = 581). HCS 14 – 20 was also associated with a significantly higher PDR, ADR, MPP and MAP than the failed to adequate group HCS 0 – 10 (n = 617).

Tab. 1 Cumulative HCS scores (0 – 20) versus lesion detection in the overall colon

Cumulative HCS segmental scores 0 – 20	Mostly high-quality 14 – 20	Adequate with some high-quality 11 – 13	Failed to adequate 0 – 10
PDR, n/N (%); P-value vs. HCS 14 – 20	263/551 (0.48)	250/581 (0.43) P = 0.056	261/617 (0.42) P = 0.031
ADR, n/N (%); P-value vs. HCS 14 – 20	189/551 (0.34)	156/581 (0.27) P = 0.003	164/617 (0.27) P = 0.002
MPP, mean (SD); P-value vs. HCS 14 – 20	1.28 (2.81)	0.99 (1.72) P = 0.017	1.14 (2.35) P = 0.171
MAP, mean (SD); P-value vs. HCS 14 – 20	0.75 (2.11)	0.54 (1.26) P = 0.022	0.52 (1.19) P = 0.010

**Conclusions** In large and well-balanced sample sizes of clinical practice relevance, high-quality colon cleansing improves lesion detection over lower cleansing qualities.

## OP200 EFFECTIVENESS AND TOLERABILITY OF VERY LOW VOLUME PREPARATION FOR COLONOSCOPY: A PROSPECTIVE, MULTICENTER STUDY

**Authors** Maida M<sup>1</sup>, Morreale G<sup>1</sup>, Sinagra E<sup>2</sup>, Manganaro M<sup>1</sup>, Schillaci D<sup>3</sup>, Cirrone Cipolla A<sup>3</sup>, Garufi S<sup>1</sup>, Camilleri S<sup>1</sup>

**Institute** 1 Gastroenterology Unit, S. Elia – Raimondi Hospital, Caltanissetta, Italy; 2 Gastroenterology and Endoscopy Unit, Fondazione Istituto San Raffaele Giglio, Cefalù, Italy; 3 Gastroenterology Unit, Ospedale Basarocco, Niscemi, Italy

DOI 10.1055/s-0039-1681376

**Aims** Effectiveness and tolerability of bowel cleansing is essential for a quality colonoscopy. The aims of this study were to assess the effectiveness and tolerability of novel 1L PEG preparation compared to 4L and 2L PEG solutions and to evaluate factors associated with a bowel cleansing success.

**Methods** 605 consecutive outpatients undergoing colonoscopy after an afternoon-only or afternoon-morning PEG-based bowel cleansing were prospectively enrolled at 4 Sicilian hospitals from July to October 2018. Bowel cleansing was assessed through the Boston-Bowel-Preparation-Scale (BBPS) and cleansing success was defined as a total BBPS  $\geq$  6 with a partial BBPS  $\geq$  2 in each colon segment. Tolerability was evaluated through a semi-quantitative scale with a score ranging from 0 to 10.

**Results** Overall, 229 patients performed a 4L-PEG preparation (Selgesse), 261 a 2L-PEG cleansing (Moviprep or Clensia) and 115 a 1L-PEG preparation (Plenvu). The 1L preparation was the most tolerated with an average rating score of  $7.5 \pm 1.9$ ,  $7.2 \pm 2.0$  and  $7.8 \pm 1.3$  ( $p < 0.04$ ) respectively for 4L, 2L and 1L-PEG solution in the absence of serious adverse events within any of the three groups. Overall, bowel cleansing by BBPS was  $6.1 \pm 1.6$ ,  $6.0 \pm 1.6$  and  $6.7 \pm 1.5$  ( $p = 0.007$ ). A successful preparation was achieved in 72% of patients. At multivariate analysis low-fiber diet for at least 3 days preceding colonoscopy (OR = 2.34, 95% CI = 1.29 – 4.22;  $P = 0.005$ ), colonoscopy within 5 hours after the end of the preparation (OR = 2.20, 95% CI = 1.1 – 4.85;  $P < 0.04$ ), absence of diabetes (OR = 1.68, 95% CI = 1.02 – 2.85;  $P = 0.05$ ), and tolerability rating (OR = 1.19, 95% CI = 1.08 – 1.32;  $P = 0.001$ ) were independently associated with a bowel cleansing success.

**Conclusions** The novel 1L PEG preparation presents a higher effectiveness compared to higher volume PEG preparation both in terms of overall and right colon cleansing, with the advantage of a better tolerability and a good safety profile. In the future, this new preparation will be useful to improve adherence to CRC screening and surveillance programs.

## OP201 COLON CLEANSING EFFICACY AND SAFETY OF 1L NER1006 IN PATIENTS WITH MILD TO MODERATE RENAL IMPAIRMENT: POST HOC ANALYSIS OF RANDOMISED PHASE 3 CLINICAL TRIALS

**Authors** Hassan C<sup>1</sup>, Thompson H<sup>2</sup>, Mokashi S<sup>2</sup>, Drenth J<sup>3</sup>

**Institute** 1 Gastroenterology and Endoscopic Unit, Ospedale Nuovo Regina Margherita, Roma, Italy; 2 Medical Affairs, Norgine, Harefield, United Kingdom; 3 Radboud University Medical Center, Nijmegen, Netherlands

DOI 10.1055/s-0039-1681377

**Aims** Only polyethylene glycol (PEG) bowel preparations are recommended for patients with renal failure. This post hoc analysis of randomised phase 3 clinical trials assessed the colon cleansing efficacy of the first 1L PEG, NER1006, in renally impaired versus non-renally impaired patients.

**Methods** Patients received split dosing regimens of NER1006, either day-before (PM/PM), overnight (PM/AM), or morning-only (AM/AM). Cleansing efficacy was assessed by treatment blinded central readers using the Harefield Cleansing Scale (HCS). The efficacy analysis included patients with a documented renal status and colonoscopy data. Patients were stratified into creatinine clearance rate (CrCl) groups: normal renal function ( $\geq 90$  mL/min), mild renal insufficiency ( $\geq 60$  to  $< 90$  mL/min), or moderate renal insufficiency ( $\geq 30$  to  $< 60$  mL/min). Patients with severe renal insufficiency were excluded.

**Results** Among 1134 randomised patients, 1016 were assessed for efficacy (renal status; 692 mild/moderate, 324 normal). No significant difference was observed in the overall cleansing success rates in mild and moderate versus normal (Table). Safety was assessed in 1028 patients. The types of TEAEs were generally consistent between mild and moderate and normal. The most common TEAEs in all patient groups were gastrointestinal i.e. nausea, vomiting and dehydration. There were numerically more TEAEs in patients with moderate renal insufficiency versus normal. However, this may reflect the patients' disease state.

**Tab. 1** Percentage of NER1006 patients with successful overall colon cleansing using the HCS in patients with renal-impairment vs. normal renal function

Successful overall colon cleansing using the HCS	Mild to moderate renal impairment: CrCl 30- <90 mL/min	Normal renal function: CrCl 90+ mL/min	P value
MORA PM/AM N = 262	96% (183/190)	97% (69/71)	0.63
MORA AM/AM N = 270	91% (182/200)	91% (62/68)	0.52
DAYB PM/PM N = 236	64% (91/142)	67% (61/91)	0.68
NOCT PM/AM N = 255	92% (147/160)	94% (88/94)	0.69

**Conclusions** The current efficacy and safety findings support the use of NER1006 (PLENVU) as a bowel preparation in patients with mild to moderate renal impairment.

## OP202 1L NER1006 IMPROVES HIGH-QUALITY COLON CLEANSING VERSUS STANDARD BOWEL PREPARATIONS: POST HOC ANALYSIS OF PHASE 3 CLINICAL TRIALS USING REAL-WORLD CLEANSING ASSESSMENT BY SITE ENDOSCOPISTS

**Authors** Gschossmann J<sup>1</sup>, Noble C<sup>2</sup>, Amlani B<sup>3</sup>, Repici A<sup>4</sup>

**Institute** 1 Klinik für Innere Medizin, Klinikum Forchheim, Forchheim, Germany; 2 Western General Hospital, Edinburgh, United Kingdom; 3 Medical Affairs, Norgine, Harefield, United Kingdom; 4 Humanitas Research Hospital & Humanitas University, Milano, Italy

DOI 10.1055/s-0039-1681378

**Aims** Colonoscopy requires bowel cleansing; high-quality cleansing facilitates lesion detection. NER1006 is a 1L polyethylene glycol (PEG) bowel preparation. This post hoc analysis of three randomised trials investigated cleansing efficacy assessed, as in clinical practice, by site endoscopists.

**Methods** Patients received either a 2-day evening/morning regimen of NER1006 (N2D), 2L PEG+ascorbate (2LPEG), or oral sulfate solution (OSS); or day-before NER1006 (NDB) or sodium picosulfate plus magnesium citrate (SPMC). Morning-only NER1006 (N1D) dosing was also evaluated. Cleansing was assessed by treatment-blinded site endoscopists using the Harefield Cleansing Scale (HCS). This analysis included only patients with self-reported 100% treatment adherence. Overall cleansing success (HCS grade A or B), overall high-quality cleansing success (HCS grade A), and the proportion of high-quality segments (HCS 3 – 4) per treatment population were analysed.

**Results** Among 1985 randomised patients, 1367 were included (Table). Overall cleansing success was higher with N2D than 2LPEG (97.5% vs. 93.0%) and more patients had overall high-quality cleansing with N2D and N1D than 2LPEG (72.1% and 68.4% vs. 56.0%). N2D delivered more overall high-quality cleansing than OSS (77.3% vs. 69.8%). Overall cleansing success was higher with NDB than SPMC (74.5% vs. 62.9%) and more patients achieved HCS Grade A with NDB than SPMC (29.0% vs. 12.0%). More high-quality segments were demonstrated with N2D and N1D versus 2LPEG (87.1% and 84.4% vs. 76.3%), with N2D versus OSS (89.5% vs. 84.4%) and with NDB than SPMC (60.3% vs. 47.0%).

**Tab. 1** High-quality colon cleansing as assessed by site endoscopists in patients with self-reported 100% treatment adherence

Cleansing success	N2D vs. 2LPEG	N1D vs. 2LPEG	N2D vs. OSS	NDB vs. SPMC
Sample size: NER1006 vs. comparator, N	204 vs. 200	193 vs. 200	225 vs. 225	145 vs. 175
Overall cleansing success HCS Grades A+B, n/N (%); P-value	199/204 (97.5) vs. 186/200 (93.0) P=0.016	180/193 (93.3) vs. 186/200 (93.0) P=0.459	211/225 (93.8) vs. 210/225 (93.3) P=0.424	108/145 (74.5) vs. 110/175 (62.9) P=0.012
Overall high-quality cleansing success HCS Grade A, n/N (%); P-value	147/204 (72.1) vs. 112/200 (56.0) P<0.001	132/193 (68.4) vs. 112/200 (56.0) P=0.006	174/225 (77.3) vs. 157/225 (69.8) P=0.035	42/145 (29.0) vs. 21/175 (12.0) P<0.001
High-quality segments HCS 3–4, n/N (%); P-value	888/1020 (87.1) vs. 763/1000 (76.3) P<0.001	814/965 (84.4) vs. 763/1000 (76.3) P<0.001	1007/1125 (89.5) vs. 950/1125 (84.4) P<0.001	437/725 (60.3) vs. 411/875 (47.0) P<0.001

**Conclusions** When assessed by site-endoscopists NER1006 (PLENVU) delivers greater high-quality, HCS grade A, cleansing than 2LPEG, OSS, or SPMC.

### OP203 EVALUATION OF A LOW VOLUME BOWEL CLEANSING PREPARATION (ORAL SULPHATE SOLUTION) VERSUS MACROGOL: A PHASE III, MULTICENTRE, RANDOMISED COMPARATIVE CLINICAL TRIAL

**Authors** Fedorov E<sup>1</sup>, Kashin S<sup>2</sup>, Veselov V<sup>3</sup>, Tikhomirova E<sup>4</sup>, Zavialov D<sup>2</sup>, Veselov A<sup>3</sup>, Kornowski A<sup>5</sup>, Gorskaya T<sup>6</sup>, Volteau M<sup>7</sup>, Ponchon T<sup>8</sup>

**Institute** 1 Department of Operative Endoscopy, Moscow State Healthcare Institution Clinical Hospital No. 31 of Moscow City Health Department, Moscow, Russian Federation; 2 State Healthcare Institution of Yaroslavl Region 'Regional Clinical Cancer Hospital', Yaroslavl, Russian Federation; 3 Federal State Budgetary Institution 'State Scientific Center of Coloproctology' at the Ministry of Health of Russian Federation, Moscow, Russian Federation; 4 Laboratory of Surgical Gastroenterology and Endoscopy NI Pirogov RNIMU, Moscow, Russian Federation; 5 Ipsen Pharma, Boulogne-Billancourt, France; 6 Ipsen, Moscow, Russian Federation; 7 Ipsen Pharma, Les Ulis, France; 8 Hôpital Edouard Herriot, Lyon, France

DOI 10.1055/s-0039-1681379

**Aims** This study aimed to demonstrate the non-inferiority of low-volume oral sulphate solution (OSS) to macrogol 4000+electrolytes for bowel preparation, and assess the efficacy, safety and acceptability of OSS.

**Methods** This prospective, randomised, investigator-blinded, parallel group, multicentre, non-inferiority phase III study (NCT02321462) was conducted at three centres in Russia between March and December 2015. Adults undergoing diagnostic colonoscopy were randomised to receive OSS or macrogol as a split dose. Anonymised videos of the examinations were centrally reviewed. The primary endpoint was the proportion of patients with successful overall bowel preparation, defined as Boston Bowel Preparation Scale (BBPS) global score  $\geq 6$ . Secondary endpoints included patient compliance and safety.

**Results** 296 patients were randomised (OSS: 147, macrogol: 149): 294 in the Intention-to-Treat (ITT) population, 274 in the Per-Protocol (PP) population. 22 OSS patients and 21 macrogol patients had inflammatory bowel disease (IBD). Bowel preparation success (BBPS  $\geq 6$ ) was high in both groups (OSS: 97.2% [95% CI: 89.5–99.3]; macrogol: 97.7% [95% CI: 90.7–99.4]; PP population). The adjusted difference between the groups was -0.5% (95% CI -4.2–3.3), demonstrating non-inferiority of OSS compared to macrogol (non-inferiority margin was -15%). Compliance was higher in the OSS group than the macrogol group (95.7% vs. 82.3%, respectively,  $p = 0.0011$ ; ITT population). Nausea was the most frequent adverse event (AE); more patients experienced nausea in the OSS group than in the macrogol group (25.2% vs. 10.2%, respectively [ $p = 0.0008$ ], after the first dose). Differences between treatment groups in the frequency of other preparation-related AEs (vomiting, abdominal distension, abdominal pain, abdominal discomfort) were not significant. AE intensity

was generally mild. The safety profile of patients with IBD not in active phase was similar to the overall population.

**Conclusions** This study demonstrated that split-dose OSS was non-inferior to macrogol. Despite a higher incidence of nausea in the OSS group, compliance was better with OSS.

### OP204 COMPLIANCE WITH INSTRUCTIONS OF USE FOR ORAL SULPHATE SOLUTION, TOLERABILITY AND SAFETY IN A REAL-LIFE SETTING: A EUROPEAN MULTICENTRE POST-AUTHORISATION SAFETY STUDY

**Authors** Regula<sup>1</sup>, Spaander MCW<sup>2</sup>, Suchanek S<sup>3</sup>, Kornowski A<sup>4</sup>, Perrot V<sup>4</sup>, Fischbach W<sup>5</sup>

**Institute** 1 Maria Skłodowska-Curie Memorial Cancer Centre, Warsaw, Poland; 2 Erasmus MC Cancer Institute, Rotterdam, Netherlands; 3 Department of Internal Medicine, 1st Faculty of Medicine, Charles University, Military University Hospital, Prague, Czech Republic; 4 Ipsen Pharma, Boulogne-Billancourt, France; 5 Klinikum Aschaffenburg-Alzenau, Aschaffenburg, Germany

DOI 10.1055/s-0039-1681380

**Aims** Oral Sulphate Solution (OSS) is a low-volume bowel cleansing solution administered as 2 doses of 500 ml saline sulphate solution each followed by 1000 ml water or clear liquids (for hydration). The aim of this study was to assess non-compliance with hydration guidelines and describe the safety profile of OSS in routine practice.

**Methods** Consecutive eligible patients were included in this prospective, non-interventional, multicentre, European Post Authorisation Safety Study of OSS use in routine clinical practice (NCT02630680). Patients recorded adverse events (AEs) and compliance to hydration. Compliance to hydration was calculated as a ratio of actual volume taken versus the prescribed 2000 ml. Non-compliance was defined as taking <75% of hydration. Missing volumes were imputed as not taken. Endpoints were also reported in predefined special populations (age  $\geq 65$  years, risk of electrolyte shifts).

**Results** 1281 patients were recruited in 16 centres in the Czech Republic, Germany, the Netherlands and Poland. 1206 patients took OSS and provided safety information (safety population); 1177 reported their compliance (registry population). 94.5% of patients were compliant to hydration guidelines. Subgroup analyses (age, gender, dosing regimen) revealed no differences in compliance. 329 patients (27.3%) experienced 758 related AEs, mostly gastrointestinal (82.9%). Most AEs were mild or moderate in intensity. AEs were similar in compliant versus non-compliant patients, and in elderly versus younger patients. Significantly more AEs occurred in female than male patients. No AEs suggestive of dehydration were noted in non-compliant patients. No acute AEs were observed in special populations. AEs did not differ from the known safety profile overall or in special populations.

**Conclusions** In this non-interventional study, treatment compliance to hydration guidelines was excellent or good in 94.5% of patients receiving OSS. The safety profile of OSS was similar to previous reports. This real-life study supports the benefit/risk profile seen in clinical trials.

### OP205 PLASMA ELECTROLYTE CONCENTRATIONS AFTER THE USE OF 1L POLYETHYLENE GLYCOL BOWEL PREPARATION NER1006: POST HOC ANALYSIS OF RANDOMISED CLINICAL TRIALS

**Authors** Alvarez-Gonzalez MA<sup>1</sup>, Repici A<sup>2</sup>, Thompson H<sup>3</sup>, Mokashi S<sup>3</sup>, Hassan C<sup>4</sup>

**Institute** 1 Hospital del Mar, Barcelona, Spain; 2 Humanitas Research Hospital & Humanitas University, Milano, Italy; 3 Medical Affairs, Norgine, Harefield, United Kingdom; 4 Gastroenterology and Endoscopic Unit, Ospedale Nuovo Regina Margherita, Roma, Italy

DOI 10.1055/s-0039-1681381

**Aims** Bowel preparations contain electrolytes to maintain electrolyte homeostasis after diarrhoea. This post-hoc analysis of randomised, Phase 3 clinical trials assessed plasma sodium concentrations following treatment with the LL NER1006.

**Methods** The safety of NER1006 was assessed in the studies NOCT, MORA and DAYB. This analysis included patients whose plasma sodium concentrations shifted from normal at baseline to above upper limit normal (ULN) at any subsequent visit. ULN was defined locally and ranged from 143 – 148mmol/L. Timing of blood sample collection was determined by the dosing schedule. Samples were collected at 4 visits: at baseline (1), day of colonoscopy (2), 1 – 4 days (3) and 8 – 10 days (4) post-colonoscopy.

**Results** Among 1134 randomised patients, 1028 had evaluable sodium data and 214 were included in this analysis (Table). A transient shift around 5mmol/L occurred predominantly at Visit 2, with 96.4 – 99.6% patients returning to normal levels by visit 3. More patients in NOCT compared to MORA and DAYB experienced elevated sodium levels. However, in NOCT the baseline value was high with >50% patients at >142mmol/L. For such patients, minor shifts of only 2 – 3mmol/L would exceed ULN. There were 4 reported cases of mild hyponatraemia across the studies, all of which were considered treatment-related by investigator. No hyponatraemia was observed with NER1006. Across all three studies the median changes in plasma electrolyte levels were transient and not considered clinically significant.

**Tab. 1** Mean sodium plasma levels in NER1006 patients who were normal at baseline but above ULN at subsequent visit (safety set).

Study % patients with shift Normal baseline to ULN	Baseline Mean mmol/L (SD)	Visit 2 Mean mmol/L (SD)	Visit 3 Mean mmol/L (SD)	Visit 4 Mean mmol/L (SD)
MORA (n = 92) 17% (92/531)	142 (2.08)	148 (2.05)	142 (2.83)	143 (2.56)
DAYB (n = 17) 7% (17/235)	141 (1.87)	146 (2.26)	144 (2.68)	143 (2.62)
NOCT (n = 105) 40% (105/262)	141 (1.82)	147 (1.61)	142 (2.23)	142 (2.06)
Overall (n = 214)	142 (1.96)	147 (1.92)	142 (2.57)	142 (2.35)

**Conclusions** Mild, transient increases in plasma electrolyte levels were observed with NER1006 (PLENVU) on visit 2, these were not clinically significant.

Friday, April 5, 2019

17:00 – 18:30

Education

Club C

## OP206 OUTCOMES OF ENDOSCOPIC SUBMUCOSAL DISSECTION (ESD) DURING LIVE ENDOSCOPY EVENTS – A 12- YEAR FOLLOW-UP

**Authors** Ebigbo A<sup>1</sup>, Freund S<sup>1</sup>, Probst A<sup>1</sup>, Römmele C<sup>1</sup>, Gölder S<sup>1</sup>, Messmann H<sup>1</sup>

**Institute** 1 Klinikum Augsburg, Augsburg, Germany

**DOI** 10.1055/s-0039-1681382

**Aims** Live endoscopy events (LEE) have increased considerably in the last 20 years. However, ethical and patient-related issues have been raised, especially concerning complications, patient outcome as well as success rate. There is no data showing the outcome of ESD during LEE. In this study, ESD procedures performed during the Augsburg Endo-Update LEE were compared with matched routine procedures.

**Methods** ESDs performed during the Augsburg Endo-Update LEE between 2006 and 2017 were reviewed. The control for each ESD was the next procedure performed outside of the LEE in the same endoscopy unit and matched according to age, location and lesion size. The histological R0 resection rate, procedure time and complication rates were assessed. Complications were defined as a perforation or a bleeding event which led to a re-intervention such as endoscopic therapy or surgery.

**Results** A total of 34 ESD procedures were performed during the Augsburg Endo-Update in the given time period, and were compared with 34 matched

routine ESDs. The histological R0 resection rate was significantly higher in the LEE group as compared with the control group (82% vs. 59%;  $p < 0,05$ ), the complication rate was significantly lower in the LEE group as compared with the control group (6% vs. 23%;  $p < 0,05$ ) while the procedure time was similar in both groups (133 minutes vs. 130 minutes). However, the difference between both groups leveled out in the second half of the study period (2012 – 2017; R0 94% vs. 72%; complications 5,5% vs. 5,5%) as compared with the first half of the study period (2006 – 2011; R0 69% vs. 44%; complications 2,9% vs. 43%).

**Conclusions** ESD can be performed safely during LEE. The better outcome in the LEE group was probably because most LEE-ESDs were performed by Japanese experts. However, the learning curve of the local European endoscopists improved considerably over time.

## OP207 PROSPECTIVE COMPARISON OF AN ADULT, AN INTERMEDIATE PEDIATRIC AND A LONG PEDIATRIC COLONOSCOPE IN THE TRAINING PROCESS OF GASTROINTESTINAL FELLOWS TO ACHIEVE HIGH-QUALITY COLONOSCOPIC PRACTICE

**Authors** Tribonias G<sup>1,2</sup>, Lyrakos G<sup>2</sup>, Penesis G<sup>2</sup>, Charisis D<sup>1</sup>, Daferera N<sup>1</sup>, Lykiardopoulos B<sup>1</sup>, Al-Shaheen K<sup>1</sup>, Hjortswang H<sup>1</sup>

**Institute** 1 Linköping University Hospital, Gastroenterology, Linköping, Sweden; 2 General Hospital of Nikaia 'Agius Panteleimon', Gastroenterology Department, Athens, Greece

**DOI** 10.1055/s-0039-1681383

**Aims** Few data are available on the influence of colonoscope length and diameter for trainees, which could affect both the training process and colonoscopy quality. We conducted this prospective observational cohort study to investigate which scope is more suitable for starting the colonoscopy training apropos technical competence, quality indicators and patient's comfort during diagnostic colonoscopy.

**Methods** A total of 126 consecutive patients were enrolled in the study and assigned into three groups: adult colonoscope (AC, n = 41), intermediate length pediatric colonoscope (IPC, n = 43) and long length pediatric colonoscope (LPC, n = 42). Primary outcomes recorded were completeness to the examination (cecum and terminal ileum intubation) and minutes to the cecum. Secondary outcomes included patient tolerance, position change, use of abdominal compression, loop formation, kind of loop and overall difficulty of the procedure.

**Results** Cecal intubation rates were not statistically different between the groups: adult colonoscope (87,8%), intermediate pediatric colonoscope (81,4%) and long pediatric colonoscope (92,8%). On the contrary terminal ileal intubation rate differed significantly among the three groups ( $p = 0,015$ ) with long pediatric colonoscope having the higher ileal intubation rate (66,7% vs. 60,9%/AC and 37,2%/IPC). There were significant differences in position change (fewer with LPC/1,36 vs. AC/2,15 and IPC/2,09 –  $p = 0,027$ ) and midazolam administered mg-dose (lower with LPC/0,52 vs. AC/1,07 and IPC/0,93 –  $p = 0,032$ ). Loop formation with subsequent resolution was confirmed to relate significantly with higher pain for the patient with all of the three colonoscope types.

**Conclusions** The long length pediatric colonoscope performs better in trainee hands than adult and intermediate length pediatric colonoscope in terms of reaching competency and quality indicators (ileal intubation) with lower discomfort for the patients during colonoscopic procedures (lower midazolam dose and fewer positional changes). It could be considered the most suitable scope for trainees to start a high-quality colonoscopy training.

## OP208 IMPACT OF TRAINEE INVOLVEMENT ON TECHNICAL OUTCOME OF ERCP PROCEDURES AND PATIENT SAFETY: RESULTS OF A PROSPECTIVE MULTICENTER TRIAL

**Authors** Voiosu T<sup>1,2</sup>, Ladic A<sup>3</sup>, Bengus A<sup>1</sup>, Boskoski I<sup>4</sup>, Busuic B<sup>5</sup>, Klarin I<sup>6</sup>, Voiosu A<sup>1</sup>, Bove V<sup>4</sup>, Jovanovic I<sup>7</sup>, Rimbas M<sup>1,8</sup>, Bogdan Mateescu R<sup>1,8</sup>, Rustemovic N<sup>3</sup>, Costamagna G<sup>4</sup>

**Institute** 1 Gastroenterology, Colentina Clinical Hospital, Bucharest, Romania; 2 Internal Medicine, UMF Carol Davila School of Medicine, Bucharest, Romania; 3 Department of Gastroenterology and Hepatology, UHC Zagreb, Zagreb, Croatia; 4 Endoscopia Digestiva Chirurgica, Fondazione Policlinico Agostino Gemelli IRCCS, Rome, Italy; 5 Endoscopy, Cantacuzino Clinical Hospital, Bucharest, Romania; 6 Gastroenterology, Zadar General Hospital, Zadar, Croatia; 7 Gastroenterology and Hepatology, University of Belgrade Medical School, Belgrade, Serbia; 8 Internal Medicine, Carol Davila Medical School, Bucharest, Romania

**DOI** 10.1055/s-0039-1681384

**Aims** Quality standards for the practice of ERCP have been recently updated; however there is limited data regarding the impact of trainee involvement on procedure-related outcomes and patient safety. We aimed to evaluate whether trainee involvement increases the risk of procedure failure or adverse events.

**Methods** We conducted a prospective, multicenter observational study of ERCP procedures. Participating endoscopists completed a standard form after each procedure, providing clinical data, technical aspects of the procedure, including the degree of involvement of trainees, technical success and procedure-related adverse events. Trainees were defined as endoscopists who had performed <200 ERCPs or were still working under supervision at the time of the study. Sample size was calculated to allow the detection with 90% power of a 5% increase in adverse event rates, from an estimated 10% in the control group to 15% in the trainee group.

**Results** Data from 1843 procedures performed by 18 independent operators and 22 endoscopists in training between October 2016 and October 2018 in 6 European centers were prospectively collected and analyzed. Common bile duct stones (46.8%) was the most frequent indication for ERCP. Trainees were involved in 822 (44.6%) procedures, including 543 native papilla cases, managing to complete their respective procedures without any assistance from their supervisor in 58.9% of the cases. The unassisted cannulation rate of a native papilla by trainees was 74.3%. Trainee involvement did not compromise cannulation rates (92.2% vs. 94.4%,  $p=0.14$ ), technical success rates (92.4% vs. 93.7%,  $p=0.3$ ) and did not increase the risk of procedure-related adverse events (14.8% vs. 13%,  $p=0.3$ ). On multivariate analysis, increased bilirubin levels and use of precut but not trainee involvement were identified as risk factors for procedure-related adverse events.

**Conclusions** Our study shows that trainee involvement in ERCP procedures does not compromise procedure outcome or patient safety.

## OP209 COLONOSCOPY WITH THE 3D NAVIGATION SYSTEM SCOPEPILOT VERSUS STANDARD COLONOSCOPY

**Authors** Tscherswinski N<sup>1</sup>, Straulino F<sup>1</sup>, Genthner A<sup>1</sup>, Kangalli S<sup>1</sup>, Eickhoff A<sup>1</sup>

**Institute** 1 Medizinische Klinik II, Klinikum Hanau, Hanau, Germany

**DOI** 10.1055/s-0039-1681385

**Aims** The successful coecal intubation is a challenge but also a quality indicator in colonoscopy. Loop formation can complicate the advancement of the endoscope or even prevent reaching the coecum. The 3D navigation system SCOPEPILOT by Pentax allows a real time position monitoring of the endoscope during colonoscopy and should facilitate the intubation of the coecum. The aim of this study was to compare the coecal intubation time with and without SCOPEPILOT.

**Methods** In 2017 we examined 204 patients with an indication for a colonoscopy and randomized them to either colonoscopy with SCOPEPILOT or standard colonoscopy. Five endoscopists (two learner and three experienced endoscopists) performed the examinations. The time until intubation of the coecum was measured, the quality of the bowel preparation rated and the subjective benefit for the endoscopist during the examination registered. In case of looping of the endoscope the type of loop was documented.

**Results** The average age was 61 years in both groups. The quality of bowel preparation was similar as well (2.49 vs. 2.76). The coecum was reached in all examinations. The time until successful intubation of the coecum was in the standard group 8.99 min ( $\pm 4.9$ ) whereas with the SCOPEPILOT the coecum was reached in 6.33 min ( $\pm 3.86$ ), which was significant faster ( $p<0.005$ ). Especially the two less experienced endoscopists reported an earlier recognition and easier characterization of looping. The sigma-N-loop was the most common loop followed by an alpha-loop.

**Conclusions** With the 3D navigation system SCOPEPILOT a significant faster intubation of the coecum is possible. An earlier recognition and characterization of looping which results in a more effective solving of the loop seems to be the reason. Especially for beginners and in technical difficult colonoscopy the SCOPEPILOT can be a useful tool and should be considered.

## OP210 IMPLEMENTATION OF A DIRECTLY OBSERVED POLYPECTOMY SKILLS (DOPYs) ASSESSMENT TOOL: A SURVEY STUDY FOR GLOBAL IMPLEMENTATION

**Authors** Rajendran A<sup>1,2</sup>, Thomas-Gibson S<sup>1,3</sup>, Haycock A<sup>1,3</sup>, Sevdalis N<sup>1,3</sup>

**Institute** 1 Wolfson Endoscopy Unit, St Mark's Hospital, London, United Kingdom; 2 Centre for Implementation Science, King's College, London, United Kingdom; 3 Imperial College, London, United Kingdom

**DOI** 10.1055/s-0039-1681386

**Aims** Polypectomy is one of the most common lower gastrointestinal therapeutic procedures performed worldwide. Directly Observed Polypectomy Tool (DOPYs) is a validated assessment tool for assessing polypectomy skills<sup>1,2</sup> used in the UK since 2009, but not globally implemented yet. The aim of the study was to evaluate the current experience of using DOPYs and barriers/drivers to its global implementation.

**Tab. 1** Barriers to implementing DOPYs

	Too time-consuming to use	Unappealing	Too complex to use	Others (missing features, confusing etc)
Trainer	29 (41%)	8 (11%)	5 (7%)	29 (41%)
Trainee	33 (35%)	23 (25%)	8 (9%)	29 (31%)
Total respondents (n=121)	62	31	13	58

**Methods** A web-based survey was designed based on eight standardized implementation outcome variables<sup>3</sup>. This included 26 questions (incl. free-text) screened by two senior endoscopists and an implementation science expert. The survey was distributed globally to gastroenterology trainees and trainers through national societies, conferences, social media platforms and emails. Data collection and analysis was performed using SurveyMonkey software.

**Results** 121 responses were collected (Trainers 59: Trainees 62) from 8 countries. 52% (63) rated DOPYs as a high-quality tool. 62% (76) were satisfied with DOPYs and most (45%) felt that DOPYs "meets their needs". Most respondents described it as "relevant to clinical practice" (64%) and a useful tool (59%). A large proportion (21%) felt it was "impractical". We explored this further to assess barriers in sustainability of DOPYs. The majority (51%) felt DOPYs was "too time-consuming to use" with a similar distribution between trainers and trainees. Trainees additionally felt it "unappealing".

**Conclusions** The study has identified barriers to implementation, explored ways to sustain UK implementation, increase implementability of DOPYs and ensure adoption of this educational tool for an international audience.

1. Gupta et al GIE 2011
2. Gupta et al GIE 2012
3. Proctor et al APMH 2011.

## OP211 EVALUATION OF OUR TRAINING PROGRAM OF ENDOSCOPIC SUBMUCOSAL DISSECTION FOR GASTRIC CANCER IN EUROPE; TEACHING BY JAPANESE MENTOR

**Authors** Hamanaka J<sup>1,2,3</sup>, Campanale M<sup>2</sup>, Barbaro F<sup>2</sup>, Costamagna G<sup>2</sup>, Maeda S<sup>3</sup>

**Institute** 1 Gastroenterology, Yokohama Minami Kyosai Hospital, Yokohama, Japan; 2 Digestive Endoscopy Unit, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy; 3 Gastroenterology, Yokohama City University Graduate School of Medicine, Yokohama, Japan

**DOI** 10.1055/s-0039-1681387

**Aims** Endoscopic submucosal dissection (ESD) has become established as a minimally invasive treatment for early gastric cancer (EGC) in Asian countries. Although training system has been reported in Asian countries, little was known about the training of European countries for ESD. The most important thing is to prevent a decline in clinical outcome during the introductory period. The aim of this study was to assess the learning curve for ESD of EGC in European countries.

**Methods** Between January 2017 to March 2018, a total of 30 gastric tumors in 30 patients underwent ESD by 2 European trainees over a period of 14 to 9 months. To evaluate the validity of our ESD training program, we analyzed the outcomes of gastric ESD performed by 2 Italian trainees who graduated from medical school 9 years ago. We have criteria which a trainee must meet before they are allowed to do gastric ESD.

**Results** Thirty cases treated with ESD from January 2017 to March 2018 were investigated. They consist of 13 lesions in the antrum; 9 lesions in the angle or the lesser curvature in the body; 8 lesions in other locations. The en-bloc resection rate was 100%, the mean diameter of the resected specimens was 25.1 mm ( $\pm 12.8$ SD), the mean size of the lesions was 37.4 mm ( $\pm 11.0$ SD), the mean procedure time was 102.0 minutes ( $\pm 55.6$ SD), and the late bleeding rate was 3.3% (1/30). Complication was controlled by endoscopic treatment. The trainees could complete the whole ESD procedures in all 30 cases (100%).

**Conclusions** Our ESD training program enabled ESD trainees to perform gastric ESD without decline the treatment outcome.

## OP212 TRAINING IN PERORAL ENDOSCOPIC MYOTOMY IN AN ANIMAL MODEL

**Authors** Miranda Garcia P<sup>1</sup>, Casals F<sup>1</sup>, Alvarez T<sup>1</sup>, Santander Vaquero C<sup>1</sup>

**Institute** 1 Gastroenterology, Hospital Universitario La Princesa, Madrid, Spain

**DOI** 10.1055/s-0039-1681388

**Aims** Per oral endoscopic myotomy (POEM) is an effective treatment for achalasia. It is technically challenging and some authors advocate for preclinical training. However, there is a lack of data regarding the type of training needed and the previous expertise required.

We aimed to evaluate if training in an animal model could provide the necessary skills to perform POEM safely and effectively.

**Tab. 1** ADVERSE EVENTS

RESULTS	TOTAL (N = 15)	GROUP A (N = 7)	GROUP B (N = 8)	
Bleeding (%)	33	57	12	P = 0,07
Mucosotomy (%)	13	14	12	P > 0,05
AIR RELATED (%)	40/53	57/71	25/37	P > 0,05
Pneumoperitoneum/Pneumomediastinum				
AND DEATH	33	57	12	P = 0,07

**Methods** A single endoscopist performed POEM in swine live models from March 2017 to June 2018 following the standard technique, except for the use of air instead of CO<sub>2</sub> to insufflate.

All total procedure time, creation of mucosal entry, creation of submucosal tunnel and myotomy were measured, as well as length of myotomy and length of mucosal entry. Adverse events (AE) rates were calculated: mucosotomy, pneumomediastin, pneumoperitoneum, bleeding or death.

We compared the results from a first subset of cases (group A, N = 7) with a second one (group B, N = 8) to assess our progression.

**Results** Table 1. Fifteen POEM were performed. We found no differences in procedural time and myotomy length between groups. Table 1 shows AE rates in global and in both groups.

**Conclusions** Swine live model allowed POEM training. AE during first cases are common. Bleeding in swine model is mild. Air related AE were the most common and severe complications, probably because CO<sub>2</sub> was not used. After the first seven cases, the AE tended to diminish.

**Friday, April 5, 2019**

**ERCP cannulation 1**

**17:00 – 18:30**

**Panorama Hall**

## OP213 ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY IN CHILDREN

**Authors** Åvitsland TL<sup>1,2</sup>, Aabakken L<sup>2</sup>

**Institute** 1 Gastroenterology, Vestre Viken Trust, Bærum Hospital, Gjøttum, Norway; 2 Gastroenterology, Oslo University Hospital, Rikshospitalet, Oslo, Norway

**DOI** 10.1055/s-0039-1681389

**Aims** We wanted to examine our results regarding safety and outcomes in our paediatric patients at Oslo University Hospital.

**Methods** Patients younger than 18 years who underwent ERCP between April 1999 and November 2017 were identified using procedure codes. Medical records were examined. Descriptive statistics were prepared.

**Results** 244 procedures in 158 patients were performed. 56 of these were in 53 infants (age  $\leq 1$  year). The remaining 188 procedures were in 102 children. Mean age was 8.8 years. The youngest patient was 8 days old. The smallest infant weighing 2.9 kg. In 19 (7.8%) procedures one failed to cannulate, in 6 infants and 13 children.

The main indication in infants was as part of the diagnostic work-up to confirm presence of biliary atresia (n = 38), and findings at ERCP suggested biliary atresia in 21 cases of which 17 underwent surgery with portoenterostomy, two underwent liver transplantation, one underwent laparoscopic exploration that excluded biliary atresia, and in one patient other liver disease were found. Six of the procedures (10.7%) were therapeutic.

In children the main indication was biliary stenosis (n = 46), investigation of primary sclerosing cholangitis (n = 32), choledocholithiasis (n = 20), and removal/replacement of biliary/pancreatic stent (n = 23), pancreatitis (n = 9). 116 (61.7%) of the procedures were therapeutic; sphincterotomy in 39, dilation in 34, stenting in 20, stent removal in 17, and placement of a nasobiliary drain in 6.

Complications were uncommon in infants (4%); two episodes of infection treated with antibiotics were registered. In children complications were seen in 22 (12.7%); post-ERCP pancreatitis in 18 (10.4%), cholangitis in two, sphincterotomy bleed in one, and perforation in one.

**Conclusions** Our series of ERCP procedures includes 56 procedures in infants, which is one of the largest series presented. Complications in infants are rare, only 4%, and none post-ERCP pancreatitis were seen. 10.4% of children experienced post-ERCP pancreatitis.

## OP214 GUIDE-WIRE AND CONTRAST INJECTION CANNULATION (MIXED TECHNIQUE) IS SUPERIOR TO EXCLUSIVE GUIDE-WIRE BILIARY CANNULATION FOR PREVENTION OF POST-ERCP PANCREATITIS (PEP): A DOUBLE-BLIND, CONTROLLED, RANDOMIZED TRIAL

**Authors** Pereira Lima J<sup>1</sup>, Arciniegas ID<sup>2</sup>, Contin I<sup>2</sup>, Pereira Lima G<sup>3</sup>, Oliveira dos Santos CE<sup>4</sup>, Onofrio F<sup>1</sup>

**Institute** 1 Gastroenterology, UFCSPA, Porto Alegre, Brazil; 2 UFCSPA, Porto Alegre, Brazil; 3 ULBRA, Porto Alegre, Brazil; 4 Gastroenterology, Santa Casa, Bagé, Brazil

**DOI** 10.1055/s-0039-1681390

**Aims** PEP is the most common complication of ERCP. In the last few years, some studies have demonstrated that the use of guide-wire cannulation (GW-C) instead of contrast injection reduces the rate of PEP. Thus, the GW-C technique has become gold standard and contrast injection an almost proscribed technique, although the majority of studies favouring the GW-C technique has shown exaggerated rates of PEP in the contrast cannulation group or do not allow cross-over between both techniques. In this study, we intend to compare GW-C with the mixed technique (GW and/or contrast injection at endoscopist's discretion).

**Methods** 727 consecutive patients referred to ERCP in our Department were prospectively evaluated. Of these, 588 naive papilla patients [232 (39.5%) were men, 356 (60.5%) women; mean age 60.3 yrs, ranging from 18 – 90 yrs] entered into the trial and were randomized to receive exclusive guide-wire cannulation (n=299) or the mixed technique (n=289) for selective bile duct cannulation.

**Results** Both groups were comparable in respect to sex, age, race (92% were white) and to diagnoses [75% had duct Stones, n=444; 18% had neoplasia (n=106) and 38 (7%) had other diagnoses]. There were 24 cases of PEP [15 (5%) in GW-C group and 9 (3.1%) in the mixed technique group, p<0.01]. Time to reach deep cannulation was also faster in the latter group (75% <5 min vs. 50.2% <5 min, p<0.001). More than 10 minutes until cannulation was observed in 21% vs. 10% (groups GW-C and mixed technique, respectively, p<0.001) of the ERCPs. Total ERCP time was also shorter in the mixed technique group (12 vs. 10 minutes; p<0.001).

**Conclusions** Compared to exclusive G-W- assisted biliary cannulation, the mixed technique reduces the risk of post-ERCP pancreatitis and promotes a faster cannulation time and, consequently, reduces the total procedure time.

## OP215 DOES THE MORPHOLOGY OF THE MAJOR PAPILLA INFLUENCE BILIARY CANNULATION? – A MULTICENTER PROSPECTIVE STUDY

**Authors** Fernandes J<sup>1,2</sup>, Moreira M<sup>1</sup>, Araújo T<sup>1</sup>, Costa I<sup>3</sup>, Fonseca J<sup>4</sup>, Giestas S<sup>1</sup>, Ribeiro H<sup>1</sup>, Lucas F<sup>5</sup>, Libânio D<sup>1,6</sup>, Martinez-Ares D<sup>1</sup>, Alexandrino G<sup>7</sup>, Lourenço L<sup>7</sup>, Horta D<sup>7</sup>, Reis J<sup>7</sup>, Ramada J<sup>1</sup>, Certo M<sup>8</sup>, Canena J<sup>7,9</sup>, Lopes L<sup>1,3,4</sup>

**Institute** 1 Gastroenterology, Hospital de Santa Luzia, Viana do Castelo, Portugal; 2 Gastroenterology, Centro Hospitalar Cova da Beira, Covilhã, Portugal; 3 Life and Health Sciences Research Institute (ICVS), School of Medicine, University of Minho, Braga, Portugal; 4 ICVS/3B's – PT Government Associate Laboratory, Braga/Guimarães, Portugal; 5 Serviço de Medicina do Hospital de Cascais, Cascais, Portugal; 6 Gastroenterology, Instituto Português de Oncologia do Porto, Porto, Portugal; 7 Gastroenterology, Hospital Amadora Sinta, Amadora, Portugal; 8 Hospital de Braga, Braga, Portugal; 9 Gastroenterology, Nova Medical School/FCML da UNL, Lisbon, Portugal

**DOI** 10.1055/s-0039-1681391

**Aims** Selective biliary duct cannulation is an essential prerequisite for biliary ERCP. Some authors suggest that the difficulty of biliary cannulation and the use of rescue techniques (rT) can be conditioned, among other factors, by the papillary morphology. We intend to evaluate if the duration of biliary cannula-

tion, the existence of a difficult cannulation and the use of rT are influenced by the papillary morphology.

**Methods** This was a multicenter (3) prospective cohort study, including consecutive patients referred for ERCP with naive papilla between August 2017 and January 2018, performed by experienced endoscopists. The papillae were classified into 4 types: non-prominent/prominent/bulging/distorted (Lee's classification). The transverse, longitudinal papilla diameters and the diameter of the distal bile duct were measured. Primary outcomes: duration of biliary cannulation (tbc), difficult cannulation and rT. The influence of papilla type/dimensions on outcomes was assessed by multiple linear and logistic regressions.

**Results** We included 106 patients, 43 men (40.57%), median age = 79 years (26 – 96). The main indication: suspected obstruction of the biliary tract in 83.02%. The success rate of biliary cannulation was 100%; 29.24% of the cannulations were considered difficult. Rescue access techniques were used in 28.3% of the non-prominent papillae, 41.18% of the prominent ones, 30.77% of the bulging and 16.67% of the distorted ones. In patients with non-prominent papillae (50%), tbc = 3.35 mins (iqr = 6.84); in the prominent papillae (32%), tbc = 5.08 mins (iqr = 8.53); in the bulging papillae (12.26%), the tbc = 2.25 mins (iqr = 5.66); in the distorted (5.66%), tbc = 2.025 mins (iqr = 7.51). In the multivariate analyzes the papilla type/dimensions did not show to be a predictor of the 3 outcomes evaluated.

**Conclusions** Contrary to what is stated in the literature, the type and dimensions of the papilla do not correlate with the difficulty of cannulation nor condition the techniques used.

## OP216 GRADING SUCCESS AND COMPLICATIONS IN ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY (ERCP): THE AUSTRIAN SUCCESS AND COMPLICATION SCORE IN ERCP (ASCE – SCORE) A NOVEL GRADING SYSTEM

**Authors** Maieron A<sup>1,2</sup>, Steiner E<sup>1</sup>, Duller C<sup>3</sup>, Schmidt M<sup>3</sup>, Püspöck A<sup>4</sup>, Kapral C<sup>2</sup>

**Institute** 1 University Hospital St. Pölten, St. Pölten, Austria; 2 Ordensklinikum Linz – Elisabethinen, Linz, Austria; 3 Institut für Angewandte Statistik, Johannes Kepler Universität, Linz, Austria; 4 Abteilungen für Innere Medizin 2, KH der Barmherzigen Brüder, Eisenstadt, Austria

**DOI** 10.1055/s-0039-1681392

**Aims** The need for standardized benchmarks in endoscopic retrograde cholangiopancreatography (ERCP) has become a pressing matter in quality control and training supervision. The aim of this study was to evaluate and adapt the grading system for ERCP proposed by the American Society for Gastrointestinal Endoscopy (ASGE) 2011 by using a large-scale multicentre data set.

**Methods** Data of over 10.000 ERCPs was collected between 2013 and 2016 for the benchmarking project of the Austrian society of Gastroenterology and Hepatology (web-based questionnaire). Interventions were ranked as suggested by the ASGE. Complications and success of the procedures were recorded. Multiple regression was applied to the ASGE classification in respect to success and complications. Further each procedure suggested by ASGE was tested.

**Results** 10917 ERCPs were documented in 28 different sites from primary to tertiary centres. ASGE grading of 1 – 4 were 14.5%; 51.3%; 28.0%; 6.2%. With overall success-/complication-rates of 83.1/6.8%; 89.3/10.9%; 86.2/8.5%; 73.4/11.5%. The multiple regression showed different results than predicted by the ASGE classification for most of the indications. Easy success did not necessarily stand for less complications. A score splitting success and complication with three levels of difficulty/risk was designed.

Tab. 1 Selected indications graded by ASGE and ASCE-score

	ASGE classification (Cotton)	Regression success, < 1: lower chance of success	Regression complication, > 1: higher chance of risk	ASCE-score: success/complication
biliary stent removal/exchange	Grade 1	0.6	2.55	Grade 1/1 (high success/low risk)
place prophylactic pancreatic stents	Grade 2	0.7	2.38	Grade 3/3 (low success/high risk)
manage suspected sphincter Oddi dysfunction	Grade 3	7.3	9.3	Grade 1/3 (high success/high risk)
intraductal image guided therapy (eg. PDT; electrohydraulic lithotripsy)	Grade 4	1.6	not significant	Grade 1/2 (high success/intermediate risk)

**Conclusions** This data set cannot support the ASGEs classification. We could reveal that for grading ERCP success and complications have to be taken into account independently. The Austrian Success and Complication score in ERCP (ASCE – score) was created to incorporate these findings (table 1). With this score a potent tool for planning ERCP and training in endoscopy could be available.

## OP217 INITIAL EXPERIENCES WITH TRANSPANCREATIC SPHINCTEROTOMY IN HUNGARIAN CENTERS BASED ON PROSPECTIVELY COLLECTED REGISTRY DATA

**Authors** Gódi S<sup>1</sup>, Pécsi D<sup>2</sup>, Hegyi P<sup>2</sup>, Czako L<sup>3</sup>, Gyökeres T<sup>4</sup>, Pakodi F<sup>1</sup>, Patai Á<sup>5</sup>, Szepes Z<sup>5</sup>, Vincze Á<sup>1</sup>

**Institute** 1 Division of Gastroenterology, First Department of Medicine, University of Pécs, Medical School, Pécs, Hungary; 2 Institute for Translational Medicine, University of Pécs, Medical School, Pécs, Hungary; 3 First Department of Medicine, University of Szeged, Szeged, Hungary; 4 Department of Gastroenterology, Medical Centre, Hungarian Defence Forces, Budapest, Hungary; 5 Department of Gastroenterology, Markusovszky Teaching Hospital, Szombathely, Hungary

DOI 10.1055/s-0039-1681393

**Aims** Transpancreatic sphincterotomy (TPS) might be an alternative in cases of inadvertent pancreatic duct (PD) cannulation. We evaluated the efficacy and safety of TPS in comparison to needle-knife precut (NKP) techniques from a prospective database with the analysis of post-ERCP pancreatitis (PEP) prophylaxis measures.

**Methods** The Hungarian ERCP Registry contains 1164 cases with native papilla from five tertiary centers. TPS was performed in 44 cases (3.8%) as a primary advanced cannulation and in 7 cases (0.6%) after NKP resulted pancreatic access, while NKP was used in 250 cases (21.5%).

**Results** Successful biliary cannulation was achieved in 97.7% (43/44,  $p=0.01$ ) of the cases after TPS, while only in 28.6% (2/7,  $p<0.001$ ) if NKP preceded TPS, and in 83.6% (209/250) after NKP. PEP occurred in 4.5% (2/44) of cases after TPS, in 14.3% (1/7) if precutting preceded TPS, while in 4.4% (11/250) after NKP. Prophylactic pancreatic stent (PPS) after TPS and postprocedural indomethacin suppository (IND) were applied in 41.2% (21/51), while PPS without IND in 17.6% (9/51) of cases. Only IND was given in 17.6% (9/51), while no PEP prophylaxis was applied in 22.7% (12/51) of cases. Moderately severe PEP occurred in a patient (8.3%, 1/12) without PEP prophylaxis, while one mild PEP after IND (11.1%, 1/9) and another mild PEP after PPS (11.1%, 1/9). Clinically significant bleeding was observed in 2 cases (3.9%) after TPS, while in 4 cases (1.6%) after NKP.

**Conclusions** TPS is a valuable technique to gain biliary access in cases of difficult biliary cannulation. The rate of biliary access with TPS is significantly higher in our cohort than with conventional precutting. A preceding precut before TPS however significantly decreases the chances of biliary access. Our data shows comparable safety of TPS to NKP methods, even with suboptimal PEP prophylaxis. Stricter adherence to PEP prophylaxis guidelines is warranted.

## OP218 THE ROLE OF THE JUXTAPAPILLARY DIVERTICULA IN ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY – BASED ON THE HUNGARIAN ERCP REGISTRY

**Authors** Bakucz T<sup>1</sup>, Orbán-Szilágyi Á<sup>1</sup>, Pécsi D<sup>2</sup>, Gódi S<sup>3</sup>, Pakodi F<sup>3</sup>, Altorjay I<sup>4</sup>, Kovács G<sup>4</sup>, Patai Á<sup>5</sup>, Czako L<sup>6</sup>, Szepes Z<sup>6</sup>, Hegyi P<sup>2</sup>, Vincze Á<sup>3</sup>, Gyökeres T<sup>1</sup>

**Institute** 1 Medical Centre Hungarian Defence Forces, Department of Gastroenterology, Budapest, Hungary; 2 University of Pécs, Institute for Translational Medicine, Medical School, Pécs, Hungary; 3 University of Pécs, Division of Gastroenterology, First Department of Medicine, Pécs, Hungary; 4 University of Debrecen, Division of Gastroenterology, Second Department of Medicine, Debrecen, Hungary; 5 Markusovszky University Teaching Hospital, Department of Gastroenterology and Medicine, Szombathely, Hungary; 6 University of Szeged, First Department of Medicine, Szeged, Hungary

DOI 10.1055/s-0039-1681394

**Aims** Contradictory data show that juxtapapillary diverticula could be frequently associated with bile duct stones, cannulation failure and higher rates of complications. In this study we compared success and complications of the ERCP's in patients with and without juxtapapillary diverticula based on our national ERCP registry.

**Methods** Data were collected prospectively from five Hungarian centers and contains the main information about the ERCP's and the 30-day follow-up periods.

**Results** In our cohort we found 1177 patients without (Group A) and 218 patients (Group B) with juxtapapillary diverticula. The mean age was 65 years vs. 72 years. The male-female ratio was 1:1.34 and 1:1.25. The main indications of ERCPs were almost the same in both groups (obstructive jaundice (29% vs. 23%), common bile duct stone (29% vs. 34%) and cholangitis (29% vs. 35%)). Cannulation failure was 4.74% vs. 5.22% in group A and B, which are acceptable based on the latest guidelines. There was only a minimal difference between the mean times of the whole ERCP procedures (18.64 min vs. 18.4 min). Surprisingly the mean cannulation time was shorter in the juxtapapillary group (3.16 min vs. 7.6 min). Intraprocedural bleeding that needed endoscopic intervention occurred in 4.74% vs. 3.36%, but only 0.87% vs. 0.75% required transfusion. The occurrence of perforation doesn't differ between two groups, 1.47% vs. 1.12%. The rate of post-ERCP pancreatitis was 1.73% vs. 1.12%, respectively. Cholangitis (2.07% vs. 3.73%) and cholecystitis (0.73% vs. 0.37%) were observed in both groups. Minor intraprocedural cardiovascular events occurred 3.07% vs. 4.85%. There was no significant difference in the rate of adverse events. The 30-day mortality was slightly high in both groups (5.87% vs. 3.36%), but only one case can be connected to the procedure in both groups.

**Conclusions** Based on these results the juxtapapillary diverticula can't be considered as a potential cause of cannulation failure or risk factor for complications.

## OP219 ANALYSIS OF BILIARY CANNULATION ALGORITHM IN HIGH-VOLUME HUNGARIAN ERCP CENTERS BASED ON PROSPECTIVELY COLLECTED REGISTRY DATA

**Authors** Pécsi D<sup>1</sup>, Gódi S<sup>2</sup>, Hegyi P<sup>1</sup>, Altorjay I<sup>3</sup>, Bakucz T<sup>4</sup>, Czako L<sup>5</sup>, Kovács G<sup>3</sup>, Orbán-Szilágyi Á<sup>4</sup>, Pakodi F<sup>2</sup>, Patai Á<sup>6</sup>, Szepes Z<sup>5</sup>, Gyökeres T<sup>4</sup>, Vincze Á<sup>2</sup>

**Institute** 1 University of Pécs, Medical School, Institute for Translational Medicine, Pécs, Hungary; 2 University of Pécs, Medical School, Division of Gastroenterology, First Department of Medicine, Pécs, Hungary; 3 University of Debrecen, Division of Gastroenterology, Second Department of Medicine, Debrecen, Hungary; 4 Medical Centre, Hungarian Defence Forces,

Department of Gastroenterology, Budapest, Hungary; 5 University of Szeged, First Department of Medicine, Szeged, Hungary; 6 Markusovszky Teaching Hospital, Department of Gastroenterology, Szombathely, Hungary  
DOI 10.1055/s-0039-1681395

**Aims** Selective biliary duct cannulation (BDC) was analysed in our current practice based on the data from five tertiary centers according to the recent evidence-based ESGE algorithm of biliary access.

**Methods** The prospectively collected ERCP Registry contained 1011 cases of intact papilla with biliary indications. The rate of difficult biliary access and the usage of advanced biliary cannulation methods were analysed.

**Results** *Simple cannulation* (659 cases, 65.2%): Deep BDC was achieved with guidewire in 305 cases (30.2%), with papillotome in 312 cases (30.9%), but failed in 39 cases (3.9%) due to anatomical obstacles. In 3 (0.3%) cases the BDC was not successful. The average cannulation time was 125 s, only 6.1% of the patient had longer than 300 s cannulation time. Twelve (1.9%) post-ERCP pancreatitis (PEP) occurred. *Pancreatic guidewire (PGW) assisted cannulation* (134 cases, 13.3%): BDC was achieved with double guidewire in 27, with papillotome in 3, while after prophylactic pancreas stent (PPS) insertion in 12 cases. Pre-cutting was used after PGW or PPS insertion in 12 and 33 cases, TPS was performed in 47 cases. The average cannulation time was 481 s. Biliary access failed in 18 patients (13.4%), while PEP rate was 2.2%. *Needle-knife precut (NKP)* (160 patients, 15.8%): BDC failed in 28 (17.5%), while PEP developed in 7 cases (4.4%). The average cannulation time was 514 s. *Needle-knife fistulotomy (NKF)* (58 patients, 5.7%): BDC failed in 4 (6.9%), PEP developed in 2 cases (3.4%). The average cannulation time was 466 s. The overall failure rate of BDC in our cohort was 5.2% (53/1011) excluding anatomical reasons. 42 out of 44 initially failed procedures were successfully completed later on.

**Conclusions** Advanced biliary cannulation methods were used in our tertiary centers in more than one third of the cases. NKF had the highest BDC rate and required the shortest cannulation time. The PEP rates were similar in the different groups.

Friday, April 5, 2019

17:00 – 18:30

ESD esophagus

Congress Hall

## OP220 ENDOSCOPIC SUBEPITHELIAL DISSECTION FOR SUPERFICIAL PHARYNGEAL CANCER: A CASE SERIES OF 44 SUPERFICIAL CANCERS

**Authors** Morita S<sup>1</sup>, Inoue T<sup>1</sup>, Shimeno N<sup>1</sup>, Inokuma T<sup>1</sup>, Takebayashi S<sup>2</sup>, Shinohara S<sup>2</sup>

**Institute** 1 Gastroenterology, Kobe City Medical Center General Hospital, Kobe, Japan; 2 Otolaryngology-Head and Neck Surgery, Kobe City Medical Center General Hospital, Kobe, Japan

DOI 10.1055/s-0039-1681396

**Aims** The pharyngeal space is the entrance to any endoscopic examination of the upper gastrointestinal tract. Narrow band imaging (NBI) makes it possible to detect superficial cancers in this region. As a minimally invasive treatment, endoscopic subepithelial dissection (ESD) technique could be indicated.

We investigated the feasibility and efficacy of ESD for superficial pharyngeal cancers and evaluated their clinical outcomes.

**Methods** Between October 2008 and December 2016, 44 superficial cancers were endoscopically removed from 32 consecutive patients (91% men, median age 70 years, range 58–83 years) under general anesthesia. Written informed consent was obtained from all patients. The endoscopic treatment involved both ESD, endoscopic mucosal resection (EMR) and endoscopic laryngeal-pharyngeal surgery (ELPS). ESD, EMR and ELPS were performed in collaboration with ear, nose, and throat docthead and neck surgeon.

**Results** Of the 32 patients, 8 (25%) had synchronous multiple cancers at pharyngeal mucosal sites. Eleven patients (34%) had a history of head and

neck cancer, and 16 (50%) had a history of esophageal cancer. Of the 44 lesions, 23 were histologically diagnosed as Tis, 21 were as microinvasive squamouscell carcinoma. Forty-two lesions were located in the hypopharynx, and 4 were in the oropharynx. There were 1 severe adverse events: this case was developed severe spondylitis. The median fasting period was only 1 days (range 1–2 days) after treatment. With a median follow-up period of 34 months (range 11–120 months), the cause-specific survival rates at two years was 100%. All the patients could retain both the pharynx and the functions of speaking, breathing, and swallowing.

**Conclusions** ESD for superficial pharyngeal cancer is a feasible and effective method. Early detection makes it possible to perform a minimally invasive treatment, allowing excellent short-term survival and the retention of the organs and functions.

## OP221 ENDOSCOPIC TREATMENT VS. SURGERY IN PATIENTS WITH HIGH-RISK EARLY ESOPHAGEAL CANCER

**Authors** Kollar M<sup>1</sup>, Krajciová J<sup>2</sup>, Malusková J<sup>2</sup>, Pazdro A<sup>3</sup>, Harustiak T<sup>3</sup>, Kodetová D<sup>3</sup>, Vacková Z<sup>2</sup>, Spicák J<sup>2</sup>, Martinek J<sup>2</sup>

**Institute** 1 Pathology, Institute for Clinical and Experimental Medicine, Prague, Czech Republic; 2 IKEM, Prague, Czech Republic; 3 University Hospital Motol, Prague, Czech Republic

DOI 10.1055/s-0039-1681397

**Aims** Esophagectomy is a standard treatment for patients with 'high-risk' early esophageal cancer (EEC) despite a growing evidence that endoscopic treatment could be a safe alternative even for these patients.

The aim was to prospectively assess results of endoscopic vs. surgical treatment in consecutive patients with 'high-risk' EEC. 'High-risk' cancer was defined as any cancer with sm invasion or mucosal cancer with at least one of the following: poor differentiation (G3/G4), invasion to blood (A+) or lymphatic vessels (L+) and high tumor cell dissociation (TCD3).

**Methods** Patients with EEC underwent endoscopic resection (ER) or submucosal dissection (ESD). Patients with 'high-risk' EEC without contraindications were referred for surgery. Remaining patients continued in endoscopic treatment, if necessary. After treatment, the patients have been followed up for a median of 52 months (range 2–168).

**Results** A total of 71 patients with 'high-risk' EEC underwent endoscopic treatment: 23 patients (32%) had T1a cancer with 'high-risk' features and 48 (68%) had T1b cancer with sm invasion; 53 had adenocarcinoma (EAC), 18 had squamous carcinoma (SCC); 24 patients (34%) were referred for surgery and 47 (66%) continued in endoscopic treatment.

**Endoscopy** Complete local remission (CLR) was achieved in 45/47 patients (95.7%). Two patients without CLR continued endoscopic therapy with a palliative intent. Tumor generalization occurred in 2 patients (both had sm3 invasion, A+, L+ and TCD3). All remaining patients with CLR (n=43) have not experienced either local relapse or generalization. Tumor-free survival was 84 months.

**Surgery** Among 24 patients who were referred for esophagectomy, one patient had tumor generalization. The remaining 23 patients underwent esophagectomy; local residua of malignancy were present in 6/23 patients (26%) Surgery related mortality was 4.4% (1/23).

**Conclusions** Endoscopic treatment provides long-term remission (or cure) in considerable number of patients with high risk EAC and it may represent a valid alternative to surgery.

## OP222 FIRST SUCCESSFUL TRANSPLANTATION OF SMALL INTESTINAL MUCOSA TO THE CERVICAL ESOPHAGUS AFTER CIRCUMFERENTIAL SCAR EXCISION AND VACUUM SPONGE NEO-VASCULARISATION OF THE TRANSPLANTATION BED

**Authors** Hochberger J<sup>1</sup>, Bernhardt J<sup>2</sup>, Koehler P<sup>3</sup>, Koop S<sup>4</sup>, Löss M<sup>5</sup>

**Institute** 1 Vivantes Klinikum im Friedrichshain, Gastroenterology, Berlin, Germany; 2 Südklinikum, Rostock, Germany; 3 Friedrich Loeffler Institut für Tiergenetik, Mariensee/Neustadt Rügenberge, Germany; 4 Vivantes Klinikum im Friedrichshain, Plastic Surgery, Berlin, Germany; 5 Vivantes Klinikum im Friedrichshain, Visceral Surgery, Berlin, Germany

**DOI** 10.1055/s-0039-1681398

**Aims** A 62 year old man had undergone curative circumferential tubular endoscopic submucosal dissection (ESD) from 20–27 cm aborally in July 2015 due to an early squamous cell cancer (SCC). Various measures to prevent stricture formation failed.

**Methods** One year later the patient had to return every 10 days to the hospital for dilatation. Due to again poor surgical alternatives an experimental concept was carried out after prior acute and chronic animal experiments in the pig. As the scar area was likely to be poorly vascularized the scar was first excised in a tubular fashion from the upper esophageal sphincter over 7 centimeters by ESD. Two polyurethane vacuum sponges were used and changed every 3–4 days over 20 days in order to stimulate neovascularization of the former scar area at -125 mm Hg. In a second intervention a 30 cm segment of small intestine was harvested surgically and the mucosa specially prepared and transplanted to pre-conditioned cervical esophagus. The specimen was temporarily fixed against the wall using a non-covered nitinol stent.

**Results** Two months after the second procedure several islands of histologically proven vital PAS positive small intestinal mucosa could be observed. In the meantime, small intestinal mucosa has completely spread out in the transplantation area. Clinically the patient has fully recovered from the intervention and works as engineer full time.

**Conclusions** This first case in man shows: Successful small intestinal mucosal transplantation to the esophagus is feasible after tubular ESD excision of a scar. Optimal local vascularization was induced by polyurethane vacuum sponge conditioning of the transplant area similar to plastic surgery. The case that may offer hope for patients with chronic refractory benign esophageal strictures.

## OP223 OUTCOMES OF ESOPHAGECTOMY FOR PATIENTS AFTER NON-CURATIVE ENDOSCOPIC RESECTION OF EARLY ESOPHAGEAL CANCER

**Authors** Barret M<sup>1</sup>, Dermine S<sup>1</sup>, Leconte M<sup>2</sup>, Leblanc S<sup>1</sup>, Berger A<sup>3</sup>, Rahmi G<sup>3</sup>, Pioche M<sup>4</sup>, Canard JM<sup>5</sup>, Lepilliez V<sup>6</sup>, Plomteux O<sup>7</sup>, Prat F<sup>1</sup>, Chaussade S<sup>1</sup>

**Institute** 1 Gastroenterology, Cochin Hospital, Paris, France; 2 Digestive Surgery, Cochin Hospital, Paris, France; 3 Gastroenterology, Georges Pompidou European Hospital, Paris, France; 4 Gastroenterology, Edouard Herriot University Hospital, Lyon, France; 5 Gastroenterology, Trocadero Private hospital, Paris, France; 6 Gastroenterology, Jean Mermoz Private Hospital, Lyon, France; 7 Gastroenterology, CHC Private Hospital, Liege, Belgium

**DOI** 10.1055/s-0039-1681399

**Aims** To analyze the oncological outcomes and the safety of esophagectomy after non curative endoscopic resection of a superficial esophageal cancer.

**Methods** A retrospective review from 2012 to 2018 was performed at four French tertiary referral centers. All patients had a non-curative endoscopic resection followed by esophagectomy after a multidisciplinary meeting decision. Outcomes measurements were the rates TON0 specimens, postoperative morbidity and mortality, and overall, disease-free, and cancer specific survival.

**Results** Thirty patients (13 with squamous cell carcinoma and 17 with adenocarcinoma) with a median age of 65 years were included. The reasons of non-curative endoscopic resection were: positive vertical margins (n = 12), squamous cell carcinoma invading the muscularis mucosae (m3) or the submucosal layer (n = 3 and 9 respectively), adenocarcinoma with a deep submucosal invasion (n = 10), poor differentiation (n = 6) and lymphovascular invasion (n = 6). Two patients had lymph node involvement, and 10 had residual cancer on the surgical resection specimen. Overall, 63% of the esophagi were TON0. Half of the patients had one or more severe post-operative complication according to the Clavien-Dindo classification: IIIa (n = 3), IIIb (n = 4), IVa (n = 6) and V (n = 2). We diagnosed 2 distant recurrences during a median follow-up of 24 months. At the end of the follow-up, overall, disease-free and cancer specific-survival were 83.3%, 75%, and 90% respectively.

**Conclusions** Esophagectomy after non-curative endoscopic resection of esophageal cancers allowed to resect residual cancer in 30% and lymph node metastases in 7% of cases, at the cost of 43% severe morbidity and 7% peri-operative mortality. Esophagectomy in this setting has comparable morbidity and mortality to that of esophagectomy for larger tumors. Therefore, the risk of lymph node involvement of early esophageal cancer, as well as the possibility of chemoradiation therapy or close follow-up needs to be assessed in multidisciplinary meetings before indicating esophagectomy after endoscopic resection.

## OP224 CLINICAL OUTCOME OF ENDOSCOPIC SUBMUCOSAL DISSECTION FOR EARLY ESOPHAGEAL NEOPLASMS IN THE WEST: CAN WE REPRODUCE JAPANESE RESULTS?

**Authors** Gardone R<sup>1</sup>, Salgado Pedrosa M<sup>1</sup>, Arantes V<sup>1</sup>

**Institute** 1 Federal University of Minas Gerais, Belo Horizonte, Brazil

**DOI** 10.1055/s-0039-1681400

**Aims** Endoscopic submucosal dissection (ESD) is considered more challenging in the esophagus due thin wall and narrow lumen. The aim of this study is to present the clinical outcome of a ten-year experience with esophageal ESD in a Western center.

**Methods** Single-center retrospective review of prospectively collected data investigating consecutive patients that underwent esophageal ESD between 2009 and 2018, at an Academic Institution. A trained operator performed ESD procedures. Flush Knife BT 1.5 (Fujifilm Co., Japan) was utilized for submucosal dissection. The following data were analyzed: clinical-pathological features, en-bloc, R0 and curative resection rates, and clinical outcome.

**Results** 70 esophageal ESD procedures were performed in 66 patients (Male: 79%/mean age 63.5 years). Tumors were located mainly in the thoracic esophagus (64%) and classified as macroscopic type 0-IIb (54%). En-bloc resection rate and R0 resection rate were 97% and 88.5% respectively. Mean tumor size was 44 mm (range 15 to 120 mm). Mean ESD duration was 101 minutes (range: 40–230 minutes). Histological assessment revealed low-grade or high-grade dysplasia (M1) in 34 patients (48.5%), intramucosal carcinoma (M2) in 9 patients (13%) and M3 in 15 (21.4%) patients. Superficial (SM1) invasion was noted in 4 patients (5.7%) and deep invasion (SM2) in 8 patients (11.4%). Curative resection rate was 80%. Minor adverse events occurred in 7 cases (10%), all managed conservatively. In 12 patients circumferential resection over 75% of circumference was performed and oral corticoid protocol was instituted. Two patients (2.8%) developed stricture managed with dilatation. During follow-up (mean: 35 months, range: 23–105), one patient, with positive vertical margins, developed local recurrence. No metastases were observed. Overall survival rate was 82%.

**Conclusions** Esophageal ESD is feasible and effective in the West, yielding favorable short and long-term outcomes, comparable to Japanese series.

## OP225 NON-CELLULAR MATRIX FROM PORCINE DERMIS IN PREVENTION OF ESOPHAGEAL STRICTURE AFTER CIRCUMFERENTIAL ENDOSCOPIC SUBMUCOSAL DISSECTION – AN EXPERIMENTAL STUDY

**Authors** Dolezel R<sup>1,2</sup>, Walterova B<sup>1,3</sup>, Vackova Z<sup>4</sup>, Juhas S<sup>1</sup>, Juhasova J<sup>1</sup>, Kollar M<sup>5</sup>, Klima J<sup>1</sup>, Martinek J<sup>1,4</sup>

**Institute** 1 Laboratory of Cell Regeneration and Plasticity, PIGMOD, Institute of Animal Physiology and Genetics CAS, v.v.i., Libechev, Czech Republic;

2 Department of Surgery, 2nd Faculty of Medicine, Charles University and Central Military Hospital, Prague, Czech Republic; 3 Third Faculty of Medicine, Charles University, Prague, Czech Republic; 4 Department of

Hepatogastroenterology, Institute for Clinical and Experimental Medicine, Prague, Czech Republic; 5 Department of Clinical and Transplant Pathology, Institute for Clinical and Experimental Medicine, Prague, Czech Republic

DOI 10.1055/s-0039-1681401

**Aims** To evaluate the effect of metallic or biodegradable (BD) stents covered with or without non-cellular matrix (Matrix, Xe-Derma) in preventing of esophageal stricture after circumferential endoscopic submucosal dissection (CESD) in experimental pigs.

**Methods** Pigs were randomized into 6 groups: A. control – CESD only (n = 6); B. CESD + systemic corticosteroids (SC) (n = 6); C. CESD + Self-Expandable Metal Stent (SEMS, WallFlex) + SC (n = 8); D. CESD + SEMS + Matrix + SC (n = 8); E. CESD + BD stent (ELLA-CS) + SC (n = 3); F. CESD + BD stent + Matrix + SC (n = 2).

**Results** A total of 33 pigs underwent CESD in the mid esophagus. All pigs with BD stent experienced macroscopic inflammation, massive hyper-granulation and food stagnation inside the stent while stent biodegradation did not occur. Except one animal from group B significant strictures developed in all pigs (groups A and B) in 12.9 ± 0.1 days after CESD and in 13.9 ± 1.4 days after SEMS extraction (groups C and D). The longest strictures were observed in the group A (2.7 ± 1.3 cm) and the shortest in SEMS groups (C, D) (1.5 ± 0.8 cm and 1.6 ± 1.1 cm). The narrowest strictures occurred in groups A and C (Ø = 2.71 ± 0.99 mm and 2.8 ± 1.18 mm) vs. groups B and D (Ø = 4.46 ± 1.31 mm and 4.33 ± 2.45 mm).

**Conclusions** None of the tested methods resulted in the effective prevention of post-CESD esophageal stricture. The SEMS coverage with non-cellular matrix from porcine dermis resulted in reduced severity of stenosis and improved healing quality. The BD stent is inappropriate in this indication.

**Acknowledgement** Supported by the Ministry of Health, Project Reg. No. 16 – 27653A, the National Sustainability Program I, project No. LO1609 (Czech Ministry of Education), and RVO: 67985904.

## OP226 ENDOSCOPIC SUBMUCOSAL DISSECTION FOR BARRETT'S ESOPHAGUS LARGE OR FIBROTIC VISIBLE LESIONS: A BICENTRIC WESTERN COUNTRY PROSPECTIVELY COLLECTED EXPERIENCE

**Authors** Bucalau AM<sup>1</sup>, Lemmers A<sup>1</sup>, Sidhu N<sup>2</sup>, Eisendrath P<sup>3</sup>, Deviere J<sup>1</sup>, Bourke M<sup>2</sup>

**Institute** 1 Erasme University Hospital ULB, Brussels, Belgium; 2 Westmead University Hospital, Sydney, Australia; 3 St Peter University Hospital, Brussels, Belgium

DOI 10.1055/s-0039-1681402

**Aims** Some suspected submucosal or fibrotic Barrett esophagus (BE) lesions, have been proposed by the ESGE to be treated by endoscopic submucosal dissection (ESD). The aim of this study is to review two tertiary centers experience in the endoscopic treatment of early BE cancer by ESD.

**Methods** Clinical and technical data from Erasme Hospital (Brussels) and Westmead Hospital (Sydney) were prospectively collected from November 2013 to November 2018. Complete resection (R0) was defined as lateral and

vertical margins clear of carcinoma while a curative resection was defined according to the ESGE guidelines.

**Results** Forty-nine patients, mostly women (58%), mean age of 73 years, presented a BE with a median circumference (C) of 1 (0 – 16) cm and maximal length (M) of 4.5 (0.5 – 18) cm. Each had a visible lesion of 30 (10 – 100) mm suitable for ESD. Median duration of the procedure was 90 minutes (IQR 60 – 122).

En-bloc resection was achieved in 100% of the patients and a complete endoscopic resection in 94% of cases. 29% had more than 50% circumference resected. Median specimen size was of 45 (2 – 110) mm.

Pathological examination showed the presence of carcinoma in 82% of lesions (63% pT1a) with an R0 achieved in 76% of carcinoma. Curative resection was obtained in 65% of cases. For non curative resection, 4 patients were treated surgically and the others followed endoscopically. This follow-up was available for 34 patients among who 29% received ablation therapy for remnant BE eradication. The only complications needing an intervention were strictures in 18% of patients occurring despite steroid preventive treatment for large resections.

A 6 months endoscopy follow-up was obtained in 22 patients, disclosing 72% of cases free of neoplasia and 45% free of intestinal metaplasia.

**Conclusions** ESD for large or fibrotic BE lesions is showing favorable results in term of safety and efficacy combined to ablation therapy.

Friday, April 5, 2019

17:00 – 18:30

IBD

Club A

## OP227 PERFORMANCE MEASURES IN IBD SURVEILLANCE COLONOSCOPY- IMPLEMENTING CHANGES TO PRACTICE IMPROVES PERFORMANCE

**Authors** Smith S<sup>1</sup>, Cannatelli R<sup>1</sup>, Sharma N<sup>1</sup>, McCulloch A<sup>2</sup>, Mak J<sup>2</sup>, Shivaji UN<sup>1,3</sup>, Iqbal T<sup>2</sup>, Kane K<sup>2</sup>, Ghosh S<sup>1,3</sup>, Cooney R<sup>2</sup>, Iacucci M<sup>1,3</sup>

**Institute** 1 Institute of Translational Medicine, University of Birmingham, Birmingham, United Kingdom; 2 University Hospital Birmingham NHS Trust, Birmingham, United Kingdom; 3 NIHR Biomedical Research Centre Birmingham, Birmingham, United Kingdom

DOI 10.1055/s-0039-1681403

**Aims** Currently dye-based chromoendoscopy (DCE) is recommended for Inflammatory Bowel Disease (IBD) surveillance. However DCE has not been widely adopted into clinical practice yet. We aimed to evaluate performance in IBD surveillance colonoscopy following introduction of structured changes in delivery of service.

**Methods** In August 2016 we introduced a number of changes in practice of surveillance colonoscopy in IBD. These included training/education using interactive videos and images in a structures module; DCE as standard; allocation of 45-minute procedure slot; targeted biopsies (except high risk patients); scoring of endoscopic disease activity; lesion detection and morphology characterisation. All IBD surveillance colonoscopies were allocated to a small team of experienced and expert endoscopists (n = 4 A-D).

We compared quality measures for surveillance procedures performed between 01/2014 – 07/2016 and 08/2016 – 10/2018.

The two groups were compared using Chi-square statistics.

**Results** A total of 598 IBD surveillance procedures (277 pre-August 2016 and 321 post-August 2016) were performed. DCE increased (54.2% vs. 76.0% p < 0.0005) whilst random biopsy surveillance reduced (12.3% vs. 3.1% p < 0.0005). Adenoma detection rate increased (7.2% vs. 10.0%) although did not reach statistical significance. Morphology assessments increased also with the use of Paris classification (26.1% vs. 57.0% p < 0.0005) and Kudo pit pattern (21.7% vs. 59.0% p < 0.0005). The total number of endoscopists performing IBD surveillance was reduced with the majority of procedures carried out by fewer endoscopists (81.9% by endoscopists A-D) which led to further

improvements when analysing the performance of these four endoscopists as well as an increased lesion detection rate (24.9% vs. 33.1%  $p < 0.05$ ).

**Conclusions** Implementation of extensive changes in practice of surveillance colonoscopy resulted in significant improvement in quality indicators within a short period. However, training, education and audit may continue to facilitate the adoption of DCE and improve quality of performance further in IBD surveillance.

## OP228 OUTCOME OF ENDOSCOPIC BALLOON DILATATION FOR SMALL BOWEL STRICTURES USING SINGLE-BALLOON ENTEROSCOPY IN PATIENTS WITH CROHN'S DISEASE

**Authors** Hong SN<sup>1</sup>, Goh MJ<sup>1</sup>, Kim ER<sup>1</sup>, Chang DK<sup>1</sup>, Kim YH<sup>1</sup>

**Institute** 1 Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea, Republic of

DOI 10.1055/s-0039-1681404

**Aims** Long standing and relapsing nature of CD, frequent surgeries should be avoided in order to reduce the risk of short bowel syndrome. Endoscopic balloon dilatation (EBD) in CD is minimally invasive bowel-length preserving method. Although most of strictures in CD were occurred in small bowels, a few small studies for the balloon-assisted enteroscopic balloon dilatation for small bowel strictures in patients with CD was reported. We evaluated the outcome of EBD for small bowel strictures using single-balloon enteroscopy (SBE) in patients with CD.

**Methods** This retrospective cohort study was performed on the patients who underwent EBD for small bowel strictures using SBE in patients with CD between 2013 and 2018 in the Samsung Medical Center, Seoul, Korea. A total of 30 consecutive patients with 66 procedures were included and analyzed. Retrograde approach was 54 procedures and antegrade approach was 12 procedures.

**Results** The median follow-up duration was 8.9 (IQR, 3.4 to 20.1) months. Of the enrolled patients, failure to dilate all identified stenosis occurred in 9 patients [failure to reach ( $n = 4$ ), stricture with deep ulceration ( $n = 3$ ), acute angulation and tight stenosis ( $n = 2$ )]. During follow-up, nine patients were undergone subsequent surgery for bowel obstruction (30%). Cumulative surgery-free rates at 6 months, 12 months, and 60 months were 81.3%, 64.4%, and 42.9%, respectively. Estimated median surgery-free duration was 46.2 (IQR, 36.2 – 56.2) months in patients with technically successful dilation of all identified stenosis and 16.3 (IQR, 3.2 – 29.3) months in patients with failure to dilate all identified stenosis. On the cox regression, length of stricture  $\geq 2$  cm was a factor contributing to the success of EBD (HR, 8.6, 95% CI, 1.7 – 43.2,  $p = 0.009$ ).

**Conclusions** EBD using SBE for small bowel CD strictures was effective in case with the length of stricture  $< 2$  cm.

## OP229 MAGNIFICATION ENDOSCOPY WITH OPTICAL CHROMOENDOSCOPY FOR THE *IN VIVO* ASSESSMENT OF HISTOLOGIC INFLAMMATION IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

**Authors** Klenske E<sup>1</sup>, Atreya R<sup>1</sup>, Hartmann A<sup>2</sup>, Fischer S<sup>1</sup>, Hirschmann S<sup>1</sup>, Zundler S<sup>1</sup>, Iacucci M<sup>3</sup>, Neurath M<sup>1</sup>, Rath T<sup>1</sup>

**Institute** 1 Department of Medicine 1, University Hospital of Erlangen, Erlangen, Germany; 2 Institute of Pathology, University Hospital of Erlangen, Erlangen, Germany; 3 Institute of Translational Medicine, University of Birmingham, Birmingham, United Kingdom

DOI 10.1055/s-0039-1681405

**Aims** Apart from mucosal healing as an established treatment goal in inflammatory bowel diseases (IBD), recent evidence suggests that histologic healing is another key prognostic parameter in IBD patients. Herein we aimed to

evaluate whether magnification endoscopy in combination with optical chromoendoscopy can accurately assess histologic inflammation in IBD patients.

**Methods** In this prospective study, 82 IBD patients (30 UC, 52 CD) were included. The *in vivo* histologic inflammation was made with magnification endoscopy in combination with optical chromoendoscopy by three independent endoscopists using a novel magnification score. Targeted biopsies of the imaged areas were obtained and results were compared against two histological scores in UC (Robarts Histopathology Index, RHI; Nancy Histology Index, NHI) and one score in CD (modified Riley index, mRI). Moreover, interobserver agreement was calculated.

**Results** Magnification endoscopy evaluating inflammatory activity based on the mucosal and vascular pattern showed strong correlation with histopathologic scoring in both UC (RHI:  $r = 0.83$ , NHI:  $r = 0.78$ , both  $p < 0.05$ ) and CD (mRI:  $r = 0.74$ ,  $p < 0.05$ ) with high accuracy, sensitivity and specificity for assessing the histologic inflammation. Further, 25% of patients with mucosal healing on standard endoscopy showed signs of microinflammation on magnification endoscopy in combination with optical chromoendoscopy while none of the patients with mucosal and vascular healing under magnification endoscopy in combination with optical chromoendoscopy exhibited microscopic inflammation. Interobserver agreement for grading intestinal inflammation by magnification endoscopy with optical chromoendoscopy was substantial ( $\kappa > 0.7$ ).

**Conclusions** Magnification endoscopy in combination with optical chromoendoscopy allows for a precise real-time assessment of histologic inflammation in IBD patients. Therefore, this approach holds the potential to reduce the need of physical biopsies for monitoring of inflammatory activity in patients with IBD during colonoscopy.

## OP230 AUTOMATED REAL TIME ENDOSCOPIC SCORING BASED ON MACHINE LEARNING IN ULCERATIVE COLITIS: RED DENSITY RELIABILITY AND RESPONSIVENESS STUDY

**Authors** Bossuyt P<sup>1,2</sup>, Vermeire S<sup>1</sup>, Ferrante M<sup>1</sup>, Makino T<sup>3</sup>, De hertogh G<sup>4</sup>, Bisschops R<sup>1</sup>

**Institute** 1 Department of Gastroenterology and Hepatology, University Hospitals Leuven, Leuven, Belgium; 2 Department of Gastroenterology, Imelda General Hospital, Bonheiden, Belgium; 3 Pentax Medical, Tokyo, Japan; 4 Department of Pathology, University Hospitals Leuven, Leuven, Belgium

DOI 10.1055/s-0039-1681406

**Aims** Histological remission predicts favourable long term outcome in ulcerative colitis (UC). Operator independent automated digital scoring of endoscopic and histological inflammation in UC could provide an objective and predictive evaluation tool of remission. The aim of this study was to test the operating properties of the Red Density (RD) score.

**Methods** Red Density uses machine learning to calculate a score based on automatic extraction of pixel data from endoscopic images. This algorithm incorporates colour data and vascular pattern recognition. In this prospective study, consecutive patients with UC with a flare were included. At baseline and 8 – 14 weeks after treatment escalation we recorded endoscopic (Red Density score, Ulcerative colitis endoscopic index of severity [UCEIS], Mayo endoscopic subscore [MES]), clinical (total Mayo, PRO-2) and histological data (Robarts histological index, Geboes score). Investigators were blinded for the RD score. Correlation was tested between RD and clinical, endoscopic and histological scores. Responsiveness was significant if standard effect size  $> 0.8$ .

**Results** Ten patients had 2 consecutive visits (M/F 4/6, median age 39y IQR 36 – 48). At baseline all patients had active endoscopic disease (median (IQR) UCEIS 4.5 (2.5 – 5); MES 2 (1.3 – 2)). Nine patients had a change in their endoscopic score compared to baseline. The median delta in UCEIS and MES was 3 (IQR 2 – 4) ( $p = 0.009$ ) and 1 (IQR 1 – 2) ( $p = 0.008$ ) respectively. A significant number of patients achieved clinical, endoscopic and histological remission after treatment (all  $p < 0.03$ ). Median RD score decreased signifi-

cantly from baseline (166 to 58;  $p = 0.01$ ). RD correlated moderate with clinical outcomes ( $r > 0.65$ ,  $p = 0.001$ ), and strong with both endoscopic ( $r > 0.75$ ,  $p < 0.0001$ ), and histological scores ( $r > 0.75$ ,  $p < 0.0001$ ). The standardized effect size for RD was 1.22.

**Conclusions** The automated digital endoscopic Red Density score demonstrates an excellent sensitivity to change after treatment escalation. Red Density is an ideal operator-independent digital tool for the evaluation of endoscopic and histological disease activity in UC.

## OP231 CONFOCAL LASER ENDOMICROSCOPY CAN PREDICT MAJOR CLINICAL EVENTS WITH VERY HIGH SENSITIVITY IN PATIENTS WITH INFLAMMATORY BOWEL DISEASES

**Authors** Klenske E<sup>1</sup>, Atreya R<sup>1</sup>, Zundler S<sup>1</sup>, Fischer S<sup>1</sup>, Neurath M<sup>1</sup>, Rath T<sup>1</sup>

**Institute** 1 Department of Medicine 1, University Hospital of Erlangen, Erlangen, Germany

**DOI** 10.1055/s-0039-1681407

**Aims** Probe-based confocal laser endomicroscopy (pCLE) enables *in vivo* microscopic imaging during ongoing endoscopy. Further, pCLE enables visualization of mucosal barrier dysfunction (MBD) in patients with inflammatory bowel diseases (IBD). With this, pCLE is the only technology allowing functional imaging within the GI tract in IBD patients. Here we evaluated whether assessment of MBD by pCLE can accurately predict major clinical events (MCE) in IBD patients.

**Methods** IBD patients in clinical and endoscopic remission were prospectively enrolled. pCLE was performed initially and subsequently patients were followed-up for at least 12 months. During follow-up, major clinical events (MCE: IBD-related hospitalization, need for surgery, need for initiation of systemic corticosteroids, immunosuppressants or biologics; escalation of existing biologic therapy) were recorded.

**Results** 60 patients were prospectively included (37 Crohn's disease [CD], 23 ulcerative colitis [UC]) with a median age of 38 years (range 19–68). CLE-scoring showed strong correlation with histopathology ( $r \geq 0.75$ ,  $p \leq 0.05$ ) with an almost perfect interobserver agreement of pCLE findings among different readers (Kappa  $> 0.8$ ). MBD as assessed with pCLE in the terminal ileum showed 100% sensitivity (95% CI, 77–100), 75% specificity (95% CI, 47–92) and 88% accuracy in CD patients and 83.3% sensitivity (95% CI, 50.8–97.1), 81.8% specificity (95% CI, 47.8–96.8) and 82.6% accuracy in UC patients for predicting MCEs during the 12 month follow-up. In those patients with MBD in the colon, sensitivity, specificity and accuracy for predicting MCEs with pCLE were 91.7% (95% CI, 59.8–99.6), 72.8% (95% CI, 39.3–92.7) and 82.6%, respectively.

**Conclusions** By assessing MBD *in vivo*, pCLE allows to predict MCE in IBD patients in clinical and endoscopic remission with very high sensitivity. Therefore, pCLE can be used to effectively time and personalize anti-inflammatory treatment in IBD patients.

## OP232 ENDOSCOPIC DIAGNOSIS OF NON-PEDUNCULATED DYSPLASIA DURING SURVEILLANCE IN THE ULCERATIVE COLITIS: A SURVEY-BASED, MULTINATIONAL STUDY

**Authors** Yang DH<sup>1</sup>, John S<sup>2</sup>, Mitsuhiro F<sup>3</sup>, Byeon JS<sup>1</sup>, Cha JM<sup>4</sup>, Kim HW<sup>5</sup>, Kim HC<sup>6</sup>, Friedland S<sup>7,8</sup>, Koh YX<sup>2</sup>, Yoon JY<sup>4</sup>, Kwak MS<sup>4</sup>, Ye BD<sup>9</sup>, Yang SK<sup>9</sup>, Kim J<sup>10</sup>

**Institute** 1 Department of Gastroenterology, University of Ulsan College of Medicine, Asan Medical Center, Seoul, Korea, Republic of; 2 Department of Gastroenterology, Gold Coast University Hospital, Southport, Australia; 3 Department of Gastroenterology, Graduate School of Medicine, Nagoya University, Nagoya, Japan; 4 Department of Internal Medicine, Kyung Hee University Hospital at Gangdong, Kyung Hee University School of Medicine,

Seoul, Korea, Republic of; 5 Department of Internal Medicine, Pusan National University School of Medicine and Medical Research Institute, Pusan National University Yangsan Hospital, Yangsan, Korea, Republic of; 6 Department of Gastroenterology, Soonchunhyang University College of Medicine, Seoul, Korea, Republic of; 7 Department of Gastroenterology and Hepatology, Stanford University School of Medicine, Stanford, United States; 8 Department of Gastroenterology, VA Palo Alto Health Care System, Palo Alto, United States; 9 Department of Gastroenterology, Inflammatory Bowel Disease Center, University of Ulsan College of Medicine, Asan Medical Center, Seoul, Korea, Republic of; 10 Department of Pathology, University of Ulsan College of Medicine, Asan Medical Center, Seoul, Korea, Republic of  
**DOI** 10.1055/s-0039-1681408

**Aims** We aimed to evaluate the accuracy of endoscopic diagnosis for “non-pedunculated” dysplasia or colitic cancer in the ulcerative colitis (UC) patients.

**Methods** Endoscopic images of 61 histologically confirmed dysplastic or non-dysplastic lesions were retrieved from UC registry database of Asan Medical Center. All lesions were detected during surveillance colonoscopy for the UC patients with 8 years or longer duration or with primary sclerosing cholangitis. The selected photos were distributed to the study participants (endoscopists) with 2 questionnaires: one for the endoscopist's experience and the other for endoscopic diagnosis of the photos.

**Results** Ten staff endoscopists in the academic centers of 4 countries (Australia, Korea, Japan, and US) participated in this survey. The interobserver agreement on the intention to take biopsy was poor, given that its Fleiss' generalized kappa was 0.169. The sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and accuracy of the endoscopist's intention to take biopsies for target lesions were 88.2%, 34.8%, 63.0%, 70.2%, and 64.6%, respectively. When limited to the high confident assessment, the sensitivity, specificity, PPV, NPV, and accuracy were 93.0%, 40.9%, 82.1%, 66.7%, and 79.7%, respectively. Experienced endoscopists were less specific in the endoscopic prediction for dysplasia than the less-experienced endoscopists. There was no difference in the sensitivity and specificity between Western and Asian endoscopists. Of three endoscopic characteristics of the target-biopsied lesions, including ulceration, distinctness of the borders, and pit patterns, neoplastic pit patterns (Kudo type III-V) were significantly predictive for dysplasia (Odds ratio = 3.710, 95% CI 2.001–6.881). The diagnostic sensitivity, specificity, and accuracy of neoplastic pit patterns were 68.2%, 63.3%, and 66.1%, respectively.

**Conclusions** The diagnostic performance of the endoscopist's intention to take biopsies for non-pedunculate dysplasia in UC was suboptimal according to this survey-based study.

## OP233 DEVELOPMENT OF A NEW CLASSIFICATION SYSTEM TO ASSESS MUCOSAL HEALING IN INFLAMMATORY BOWEL DISEASE (IBD) USING NARROW BAND IMAGING (NBI) WITHOUT OPTICAL MAGNIFICATION

**Authors** Wedi E<sup>1</sup>, Rahman KF<sup>2</sup>, Thieringer F<sup>2</sup>, Galle PR<sup>2</sup>, Neumann H<sup>2</sup>

**Institute** 1 University Medical Center Groningen, Department of Gastroenterology and Oncology, Germany; 2 Interdisciplinary Endoscopy, University Medical Center Mainz, Mainz, Germany

**DOI** 10.1055/s-0039-1681409

**Aims** NBI is based on optical filters narrowing the red light therefore highlighting the vascular pattern morphology of the luminal gastrointestinal tract. Assessment of vascular changes in IBD is of pivotal importance for prediction of mucosal healing and for guidance of pharmaceutical therapies. To date, only limited data is available on the use of NBI for assessment of mucosal healing in IBD.

Study objective was to develop a classification system allowing for *in vivo* assessment of mucosal healing in IBD by using NBI without optical magnification.

**Methods** Consecutive patients with IBD underwent colonoscopy with high-definition endoscopes and NBI without optical magnification. The mucosal vascular and surface pattern morphology was recorded followed by targeted biopsies for subsequent histopathological diagnosis. Based on these findings a simplified classification was developed allowing for histologic prediction of the disease.

**Results** A simple classification system for assessment of mucosal healing by using NBI was developed. The classification system consists of 2 different parameters for the surface pattern morphology and 2 different parameters for the vascular pattern morphology. Sensitivity and specificity of the new classification for prediction of mucosal healing were calculated as 90% and 93%, respectively. Accuracy was calculated as 93% with positive and negative predictive values of 93% and 90%, respectively.

**Conclusions** We have proposed a new and simple classification system for in vivo assessment of mucosal healing in IBD with the NBI technology. The classification system allowed for adequate in vivo assessment of mucosal healing and might therefore be used for guidance of disease specific outcomes.

Friday, April 5, 2019

17:00 – 18:30

Motility 1

Forum

### OP234 RISK OF MICROBIAL TRANSLOCATION IN PER-ORAL ENDOSCOPIC MYOTOMY (POEM) FOR ACHALASIA: ANTIBIOTIC PROPHYLAXIS OR SHORT-THERAPY? AN INTERIM ANALYSIS OF A PROSPECTIVE RANDOMIZED CLINICAL TRIAL

**Authors** Maselli R<sup>1</sup>, Oliva A<sup>2</sup>, Badalamenti M<sup>3</sup>, Attardo S<sup>1</sup>, Nicoletti R<sup>1</sup>, Finati E<sup>1</sup>, Vetrano S<sup>4</sup>, Corrales C<sup>4</sup>, Ferrara EC<sup>1</sup>, Galtieri AP<sup>1</sup>, Fugazza A<sup>1</sup>, Carrara S<sup>1</sup>, Anderloni A<sup>1</sup>, Repici A<sup>1,5</sup>

**Institute** 1 Digestive Endoscopy Unit, Department of Gastroenterology, Humanitas Research Hospital, Milan, Italy; 2 Department of Public Health and Infectious Diseases, Sapienza University of Rome, Rome, Italy; 3 Digestive Endoscopy Unit, Department of Gastroenterology, Humanitas Research Hospital & Humanitas University, Milan, Italy; 4 Humanitas Clinical and Research Center, Milan, Italy; 5 Humanitas University, Rozzano, Italy  
DOI 10.1055/s-0039-1681410

**Aims** Microbial translocation (MT) is the passage of viable/nonviable microbes across the GI-barrier. Presence of Lipopolysaccharide (LPS) of Gram-negatives and LPS-binding protein (LBP) in the plasma correlates to sepsis/septic shock through the activation of inflammation (IN) via soluble-CD14 (sCD14) and consequent cytokines production (IL-6, IL-1b, TNF- $\alpha$ ). Considering POEM a clean-contaminated procedure it should be assessed whether the post-POEM fever/inflammation is cytokine-mediated or infection-related. Aim of the study was to evaluate markers of MT, IN and bacteremia post POEM.

**Methods** Consecutive POEM patients since June 2016 were enrolled and randomized in two groups: Group-A (antibiotics only before procedure) and Group-B (antibiotics before POEM, continued for 24h and then orally for 3 days). At planned timing (T0, T1, T2: before, after and 24h after POEM, respectively) we evaluated plasma dosage of: IL-6, IL-1 $\beta$ , TNF- $\alpha$  (IN) and sCD14, LBP (MT). Blood cultures (BC) and body temperature (BT) were collected at T0-T1-T2, C-reactive Protein (CRP) was evaluated at T0 and T2.

**Results** The first 73 patients (age 56.15  $\pm$  16.2 years, M/F 37/36) did not experienced a significant post-operative fever, except for 4 patients, 2 in each groups. However both groups showed a significant increasing CRP, LBP, IL-6 and IL-1b at T2 compared to T0. At T2 Group-A subjects had higher values of LBP whereas the other markers did not show any difference between groups (Table1). A total of 6 patients had positive BCs, 4 at T0 of which only 1 also positive at T1, and 2 at T1, negative at T2. All BCs were negative at T2.

**Conclusions** In our preliminary results the increasing observed levels of inflammation as well as of markers of MT after POEM might suggest MT as a

possible mechanism of inflammation activation. The presence of post-operative IN and MT resulted to be independent from the type of administered antimicrobials.

### OP235 PERORAL ENDOSCOPIC MYOTOMY FOR ESOPHAGEAL ACHALASIA: OUTCOMES OF THE FIRST 500 PATIENTS WITH A MID- AND LONG-TERM FOLLOW-UP

**Authors** Mangiola F<sup>1</sup>, Familiari P<sup>1</sup>, Landi R<sup>1</sup>, Bove V<sup>1</sup>, Boskoski I<sup>1</sup>, Tringali A<sup>1</sup>, Costantini A<sup>1</sup>, Perri V<sup>1</sup>, Costamagna G<sup>1</sup>

**Institute** 1 Fondazione Policlinico Universitario A. Gemelli IRCSS, Digestive Endoscopy Unit, Rome, Italy

DOI 10.1055/s-0039-1681411

**Aims** Peroral endoscopic myotomy (POEM), which combines the efficacy of surgical myotomy with the benefits of an endoscopic, minimally invasive, procedure, is considered now an effective treatment for achalasia. We report on the mid- and long-term outcomes of a large series of patients treated in a single European center.

**Methods** The first 500 adult patients successfully treated between May 2011 and January 2018 were retrospectively identified from a prospective database, and included in this study. Demographics, clinical, procedural and follow-up data were collected and analysed.

**Results** Mean age of patients was 51 years (18–85); the 50.1% were male. Treatment naïve patients were 79.4%; 14.4% had undergone pneumatic dilatation, 2.6% botulin toxin injection, 3.6% Heller-Dor. The 16.6% of patients had a type-I achalasia, 57.2% type-II, 13.8% type-III, 1.2% Jackhammer esophagus, 0.8% distal esophageal spasm; in 10.4% of patients achalasia type was not adequately classified. Mean symptoms duration before POEM was 24  $\pm$  64.1 months. Mean operative time was 62.6' (19–180 minutes). Mild complications occurred in 5 patients (1%) and were managed conservatively.

A mean 23.7 months (3–60 months) follow-up was available for 96.7% of patients. Clinical success was documented in 98% of patients, and was 96%, 96%, and 86.4% after 6, 24 and 60 months respectively. Thirteen patients with failure underwent pneumodilation with success, 4 have persisting symptoms after pneumodilation, 3 underwent surgery.

Success was 97.5% in achalasia-patients and 81.8% in those with spastic motility disorders ( $p < 0.05$ ).

An altered esophageal pH-study was diagnosed in 31.2% of patients; esophagitis-rate was 27.7% (86.9% grade A/B; 13.1% grade C/D).

At the date of the last follow-up, 34.6% of patients receive daily PPI for GERD.

**Conclusions** Our results confirm the efficacy of POEM in a large cohort of patients, with an adequate follow-up. Benefits of POEM seem durable, with and acceptable incidence and severity of iatrogenic GERD.

### OP236 PERIPROCEDURAL SAFETY PROFILE OF PERORAL ENDOSCOPIC MYOTOMY (POEM)

**Authors** Drazilova D<sup>1</sup>, Vackova Z<sup>1</sup>, Hucl T<sup>1</sup>, Stirand P<sup>1</sup>, Kieslichová E<sup>2</sup>, Janousek R<sup>3</sup>, Spicak J<sup>1</sup>, Martinek J<sup>1</sup>

**Institute** 1 Department of Hepatogastroenterology, Institute for Clinical and Experimental Medicine (IKEM), Prague, Czech Republic; 2 Department of Anesthesiology and Intensive Care, Institute for Clinical and Experimental Medicine (IKEM), Prague, Czech Republic; 3 Radiodiagnostic and Interventional Radiology Department, Institute for Clinical and Experimental Medicine (IKEM), Prague, Czech Republic  
DOI 10.1055/s-0039-1681412

**Aims** POEM has become a standard treatment for achalasia due to its efficacy and safety. Nevertheless, POEM remains an invasive intervention carrying risk of complications. The aim was to assess the perioperative complications of patients undergoing POEM at our institution.

**Methods** We retrospectively reviewed the documentation of patients who underwent POEM 12/2012–5/2018 and searched for periprocedural compli-

cations. The Clavien-Dindo (C-D) classification was used to assess the severity of adverse events.

**Results** 243 POEM procedures in 231 patients were performed. 50/243 procedures (20.6%) passed uneventfully, in 193 procedures (79.4%) some adverse events occurred. The distribution in C-D categories was as follows: I-180 (180/193, 93.3%), II-2 (1%), IIIa-3 (1.6%), IVa-6 (3.1%), IVb-1 (0.5%) and V-1 (0.5%). The periprocedural adverse events were: subcutaneous emphysema 79/243 (32.5%), capnoperitoneum puncture 141/243 (58%), allergic reaction to antibiotics 2/243 (0.8%) and anaesthesia-related complications in 14/243 (5.8%) patients. Postoperatively, 158/243 patients (65%) experienced pain requiring analgesics, 20/243 patients (8.2%) had fever. In 5/243 patients (2%) the postoperative esophagogram revealed leakage. Severe adverse events (CD IV-V) occurred in 8/243 (3.3%) patients: 3x (1.2%) pneumonia, 2x (0.8%) pneumothorax, 1x (0.4%) fluidothorax, 1x (0.4%) lost of taste and smell, 1 periprocedural death (0.4%) due to sudden cardiac arrest. Prolonged ( $\geq 4$  days) hospitalization was required in 25 (17.4%) patients. In 172 patients ASA score was available: I-44/172 (25.6%), II-90 (52.3%), III-36 (21%), IV-2 (1.2%). From patients with ASA I, II, III no adverse events occurred in 18.2%, 17.8% and 16.7%. Serious complications occurred in patients with ASA I, II, III in 0%, 5.6% and 13.9%.

**Conclusions** Mild POEM-related adverse events (C-D I) are rather common. Although being rare, severe complications, and even fatal, may still occur. Risk of severe complications seems to rise with higher ASA score.

## OP237 A NOVEL EX VIVO PORCINE SIMULATOR FOR PERORAL ENDOSCOPIC MYOTOMY TRAINING (POMOD)

**Authors** Azzolini F<sup>1</sup>, Sassatelli R<sup>2</sup>, Cecinato P<sup>2</sup>, Bonura GF<sup>1</sup>, Esposito D<sup>1</sup>, Calabrese F<sup>1</sup>, Dell'Anna G<sup>1</sup>, Iori V<sup>2</sup>, Tomba R<sup>2</sup>, Sereni G<sup>2</sup>, Cavina M<sup>1</sup>, Fanti L<sup>1</sup>, Viale E<sup>1</sup>, Testoni PA<sup>1</sup>

**Institute** 1 Ospedale San Raffaele, Milan, Italy; 2 Arcispedale Santa Maria Nuova-IRCCS, Reggio Emilia, Italy

**DOI** 10.1055/s-0039-1681413

**Aims** POEM is a technically challenging procedure even for experienced endoscopists, thus special training is required.

We developed an ex-vivo porcine model called POMOD, which aims to simulate an in-vivo human esophagus. POMOD is a plastic cylindrical container, designed to accommodate and hold still a porcine esophagus. It is equipped with a cable connection to an electrical generator unipolar output.

Our study aims to demonstrate whether the use of POMOD improves training outcomes, in particular regarding safety and performance.

**Methods** A total of 15 POEM procedures were performed on porcine models. The timing of each step (creation of the tunnel, myotomy, mucosa closure), the length of the submucosal tunnel and the complication rates (mucosal burn or perforation) were recorded.

A simple linear correlation between the training cases performed and the data acquired was calculated with Spearman's rank correlation coefficient (*rs*). *P* values  $< 0.05$  were considered statistically significant.

After the training, 40 POEM procedures were performed on humans. Safety and short-term efficacy were analyzed.

**Results** POEM model training (POMOD) significantly decreased the length of time needed for each step. Spearman's test demonstrates that this expedited speed was related to the number of procedures previously performed by the operator with a 95% CI.

After the training period, 40 patients with esophageal motility disorder were treated with POEM. No mucosal perforation or mucosal burns were observed during the procedures on humans. Only minor complications occurred (pneumoperitoneum 7.5%, subcutaneous emphysema 10%, leakage 2.5%, pleuric effusion 2.5%, pneumonia 5%).

Median pre-operative Eckardt score was 6 (2-12). Three months after the procedure, the median Eckardt was 1 (0-3). Endoscopic follow-up at 6 months was available for 24 patients and revealed a 30% esophagitis rate.

**Conclusions** POMOD is an easy, inexpensive and reproducible animal model which is effective in training for the POEM procedure.

## OP238 ANTERIOR VERSUS POSTERIOR MYOTOMY DURING POEM FOR THE TREATMENT OF ACHALASIA: SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CLINICAL TRIALS

**Authors** Rodríguez de Santiago E<sup>1,2</sup>, Mohammed N<sup>2,3</sup>, Manolakis A<sup>2</sup>, Shimamura Y<sup>2</sup>, Onimaru M<sup>2</sup>, Inoue H<sup>2</sup>

**Institute** 1 Hospital Universitario Ramón y Cajal, Universidad de Alcalá, Gastroenterology and Hepatology, Madrid, Spain; 2 Digestive Disease Center, Showa University Koto Toyosu Hospital, Tokyo, Japan; 3 Leeds Teaching Hospitals NHS Trust, Leeds, United Kingdom

**DOI** 10.1055/s-0039-1681414

**Aims** The optimal orientation of the myotomy during peroral endoscopic myotomy (POEM) is unknown. This meta-analysis aims to compare anterior and posterior myotomy regarding clinical success and safety.

**Methods** Pubmed, Embase, the Cochrane Library, WOK, and clinicaltrials.gov were searched to identify randomized clinical trials (RCTs) comparing anterior and posterior myotomy during POEM for treatment of achalasia. The primary outcome was clinical success. Secondary outcomes included postprocedural gastroesophageal reflux disease (GERD), adverse events (AEs), manometric findings, and procedure-related parameters. Random-effects models were used for the primary analysis.

**Results** A total of four RCTs enrolling 488 patients were included. Overall clinical success 3-12 months after POEM was 97% (95% confidence interval [CI] 93-100%) and did not differ between anterior and posterior myotomy (Relative risk [RR] 0.98, 95% CI: 0.96-1.01; I<sup>2</sup>: 0%). Incidence of GERD after POEM based on 24-hour pH monitoring (RR 0.98, 95% CI: 0.75-1.28), endoscopy (RR 1.04, 95% CI: 0.78-1.38), and symptoms (RR 0.89, 95% CI: 0.55-1.42) was similar. Posterior myotomy was associated with fewer AEs (RR 0.63, 95% CI: 0.42-0.94), lower risk of mucosotomy (RR 0.42, 95% CI: 0.27-0.66) and shorter incision closure time (Mean difference: -2.28 minutes, 95% CI: -3.46 to -1.10). Anterior myotomy was associated with a shorter length of hospitalization (Mean difference: 0.31 days, 95% CI: 0.05-0.57), although the clinical relevance of this finding is negligible. No significant differences were found regarding manometric outcomes, total operation and myotomy time.

**Conclusions** Anterior and posterior myotomy are equally effective for the treatment of achalasia, without significant differences in postprocedural GERD. Posterior POEM was associated with fewer AEs and shorter incision closure time.

## OP239 PERORAL ENDOSCOPIC MYOTOMY (POEM) FOR ACHALASIA: A EUROPEAN MULTICENTER SURVEY ABOUT CLINICAL PRACTICE

**Authors** Gonzalez JM<sup>1</sup>, Pioche M<sup>2</sup>, Jacques J<sup>3</sup>, Vanbiervliet G<sup>4</sup>, Chabrun E<sup>5</sup>, Rivory J<sup>2</sup>, Privat J<sup>6</sup>, Wallenhorst T<sup>7</sup>, Branche J<sup>8</sup>, Rahmi G<sup>9</sup>, Lépilliez V<sup>10</sup>, Leblanc S<sup>11</sup>, Charachon A<sup>12</sup>, Guarner Aguilar C<sup>13</sup>, Fedorov E<sup>14</sup>, Albeniz E<sup>15</sup>, Smirnov A<sup>16</sup>, Devière J<sup>17</sup>, Seewald S<sup>18</sup>, Bhandari P<sup>19</sup>, Vitton V<sup>20</sup>, Barthet M<sup>1</sup>

**Institute** 1 Gastroenterology, Hôpital Nord, AP-HM, Aix-Marseille Université, Marseille, France; 2 Gastroenterology, Edouard Herriot University Hospital, Lyon, France; 3 Gastroenterology, CHU Limoges, Limoges, France;

4 Gastroenterology, CHU l'Archet II, Nice, France; 5 Gastroenterology, Hôpital Haut Lévéque, Bordeaux, France; 6 Gastroenterology, CH Vichy, Vichy, France; 7 Gastroenterology, CHU Rennes, Rennes, France; 8 Gastroenterology, CHU Lille, Lille, France; 9 Gastroenterology, Hôpital Georges Pompidou, Paris, France; 10 Gastroenterology, Hôpital Jean Mermoz, Lyon, France;

11 Gastroenterology, Hôpital Cochin, Paris, France; 12 Gastroenterology, CHPG, Monaco, Monaco; 13 Gastroenterology, Hôpital de Sant Pau, Barcelona, Spain; 14 Gastroenterology, Moscow University Hospital, Moscow, Russian Federation; 15 Gastroenterology, Navarra University Hospital, Pamplona, Spain; 16 Gastroenterology, Saint Petersburg University Hospital, Saint Petersburg, Russian Federation; 17 Gastroenterology, Erasmus MC University Medical Center, Brussels, Belgium; 18 Gastroenterology, GastroZentrum Hirslanden, Zürich, Switzerland; 19 Gastroenterology, University of Portsmouth, Portsmouth, United States; 20 Functional Diseases, Hôpital Nord, AP-HM, Aix-Marseille Université, Marseille, France  
DOI 10.1055/s-0039-1681415

**Aims** POEM is an established treatment for achalasia. However, the peri-operative management remain heterogeneous. Thus, we propose this survey was to assess the clinical practice in various European expert centers.

**Methods** French and European centers performing POEM routinely were proposed a 4 parts online survey (Google Forms) about their practice around POEM for achalasia: 1/Pre-procedure evaluation; 2/Indications; 3/Procedural technique; 4/Follow-up.

**Results** Twenty-one centers responded, with a mean of 28 POEM/operator/year [8–70]. The pre-operative assessment always includes Eckardt score, gastroscopy and high resolution manometry (HRM), and BMI in 62%. POEM is indicated in 1st intention in 100% of centers for type III achalasia, 81% for type I, and 76% for type II. It is performed in 95% after failure of Heller, 81% in high Eckardt score and young men. After previous dilation, 45% indicate POEM after one session of any diameter. The two main contra-indications are paraneoplastic achalasia (71%) and systemic diseases (52%).

All patients are hospitalized. Procedures are performed under anesthesia and intubation, in supine position (90%). Patients receive antibiotic prophylaxis in 86%. A regular endoscope is mostly used always with CO<sub>2</sub>. The most used knife is the Triangle (Olympus, Japan). The tunnel is likely posterior (86%) with a mean length of 13.6 cm [10–17]. The myotomy is antero-grade in 81% (mean length: 10 cm [6–15]). The mean procedure time is 55 min [25–100]. Post-operatively, patients resume liquids from POD 1 in 81%. The mean hospital stay is 2.2 days [1–5]. Patients always have oral PPI, resume antiplatelets and anticoagulants after 3 and 6 days, respectively. The median of reevaluation is 3 months (100% Eckardt score, 76% BMI). A HRM is performed in 52%. Patients are mostly followed annually (71%).

**Conclusions** Despite its place in the treatment of esophageal motor disorders, the policy of management differs among European expert centers.

## OP240 IMPACT OF ANTIBIOTIC PROPHYLAXIS AND CONDITIONING MODALITIES DURING THE REALIZATION OF ENDOSCOPIC ORAL MYOTOMY FOR ESOPHAGEAL MOTOR DISORDERS

**Authors** Hastier-De Chelle A<sup>1</sup>, Olivier R<sup>2</sup>, Bentellis I<sup>1</sup>, Pioche M<sup>3</sup>, Piche T<sup>1</sup>, Ponchon T<sup>3</sup>, Coron E<sup>2</sup>, Gonzalez JM<sup>4</sup>, Barthet M<sup>4</sup>, Vanbiervliet G<sup>1</sup>

**Institute** 1 CHU l'Archet II, Nice, France; 2 CHU Nantes, Nantes, France; 3 Hospices Civils de Lyon, Lyon, France; 4 Assistance Publique des Hôpitaux de Marseille, Marseille, France

DOI 10.1055/s-0039-1681416

**Aims** No guidelines regarding antibiotic prophylaxis, preparation and packaging are available in patients with esophageal motor disorders benefiting from per endoscopic oral myotomy (POEM). The main purpose of our study was to evaluate the impact of antibiotic prophylaxis on the POEM's safety.

**Methods** This is a comparative and multicentric retrospective analysis of a database collected prospectively. The data were collected from December 2013 to June 2018 in four French academic hospitals. Patients over 18 year's old with esophageal motor disorders confirmed by prior manometry, who underwent POEM were included. Patients were separated in two groups depending on the presence or absence of antibiotic prophylaxis. The primary

endpoint was the occurrence of postoperative complications, as classified by Cotton, based on whether or not antibiotic prophylaxis was administered.

**Results** A total of 226 patients (median age 52.7 ± 19.57 years [18–105]) were included. The both groups of patients were comparable in terms of age, sex, BMI, antibiotic therapy administration in the month prior to POEM, pre-treatment, disease severity (pre-POEM Eckardt score), procedure duration, myotomy length and number of clips placed. Intraoperative antibiotic prophylaxis was administered to 170 patients (75.2%) for an average duration of 3.93 ± 3.46 days [1–21]. The overall complication rate was 13.8% (n = 31; 5 severe complications according to Cotton's classification). No fatal issues were observed. The use of antibiotic prophylaxis had no impact on the per or postoperatively occurrence (p = 0.809) and severity of complications (p = 0.113). Antibiotic prophylaxis did not influence the effectiveness of the procedure (1,26 ± 1,54 [0–9] vs. 1,50 ± 2,06 [0–9], p = 0.519).

**Conclusions** The systematic antibiotic prophylaxis during POEM has no impact on the occurrence and severity of complications and the efficacy of the procedure.

Friday, April 5, 2019

17:00 – 18:30

PEG

Club B

## OP241 PERCUTANEOUS ENDOSCOPIC GASTROSTOMY (PEG) TUBE HOME REPLACEMENT – PROSPECTIVE EVALUATION OF A STANDARDIZED PROTOCOL

**Authors** Lisotti A<sup>1</sup>, Teci E<sup>1</sup>, Cali A<sup>1</sup>, Calvanese C<sup>1</sup>, D'Ercole MC<sup>1</sup>, Guglielmo S<sup>1</sup>, Serrani M<sup>1</sup>, Cominardi A<sup>2</sup>, Mangano G<sup>1</sup>, Fusaroli P<sup>2</sup>

**Institute** 1 Gastroenterology Unit, Hospital of Imola, Imola, Italy;

2 Gastroenterology Unit, University of Bologna, Hospital of Imola, Imola, Italy

DOI 10.1055/s-0039-1681417

**Aims** Percutaneous endoscopic gastrostomy (PEG) are the main route for enteral nutrition (EN) improving patients' survival and QoL. PEG tube exchange management is still debated. Since the introduction of a gastroenterological home-care service in our territory, our Unit drew and adopted a tube exchange protocol. We prospectively evaluated safety and efficacy of this protocol at patient domicile.

**Methods** A prospectively evaluation of all patients who underwent PEG tube exchange was performed; we recorded age, gender, indication for EN, time from PEG placement and last exchange, home visit duration, complications and need for endoscopy, radiology or hospital referral. The protocol was reviewed by local IRB. Tube replacement was planned 6 months after placement or last exchange; the team was composed by a gastroenterologist and a trained nurse. "Sky blue technique" was always adopted to exclude misplacements; EN was restarted the same day. In any case of doubt, the patient was referred to the hospital to complete the procedure or to exclude adverse events.

**Results** From July 2016 to November 2018, 234 tube exchanges have been performed in 99 patients (41 male; median age 83.5 [74–98] years). Main indications for EN were dementia (47.5%), stroke (28.3%), coma (15.2%) and neuro-degenerative disorders (9.1%). 31 procedures (13.2%) in 13 patients were urgently performed after tube dislocation and were excluded. Among 203 elective procedures, 197 (97.0%) have been performed at home (procedure time 27 [19–47] minutes). Six patients were referred to the hospital; 2 exchanges were routinely performed; one patient with stoma stenosis underwent endoscopic boogie-dilation; 3 patients required x-ray assessment to exclude misplacement. No adverse events were reported.

**Conclusions** Domiciliary tube replacement, following a standardized protocol, is a completely safe technique. The procedure could be performed at patient's home in most cases (>95%), leading to a significant reduction of costs (>300 euro/procedure) and burden for patients and caregivers.

## OP242 RADIOLOGICALLY VS ENDOSCOPICALLY-PLACED GASTROSTOMY FEEDING TUBES: AN AUDIT OF CURRENT PRACTICE AND CLINICAL OUTCOMES IN A LARGE, MULTI-SITE UK NHS TRUST

**Authors** Pannick S<sup>1</sup>, Hicks L<sup>1</sup>, Kim J<sup>1</sup>, Velji Z<sup>1</sup>, Colucci K<sup>1</sup>, Wright A<sup>1</sup>, Howson W<sup>1</sup>

**Institute** 1 Charing Cross Hospital, London, United Kingdom

**DOI** 10.1055/s-0039-1681418

**Aims** The optimum method for gastrostomy tube placement is unclear. A Cochrane review found insufficient evidence to promote either percutaneous endoscopic gastrostomy (PEG) or radiologically inserted gastrostomy (RIG). Here, we audit practice and clinical outcomes for gastrostomies across our three acute hospitals.

**Methods** We searched the electronic medical record for patients undergoing their first attempted PEG or RIG insertion between 01/01/17 and 31/12/17. Indications, procedure details and 30-day complications were identified retrospectively. Summary statistics, group comparisons (chi-squared test) and multivariate logistic regression were calculated in Stata 14.2.

**Results** 155 patients were identified; most had RIGs (85.2%). The median age was 64, and 5.8% had dementia; median pre-procedure CRP was 11.6 mg/l. The most common indications were unspecified dysphagia (45.2%), head or neck cancer (36.8%), and stroke (12.3%). 40.2% RIG patients had no documented contraindication to PEG. Patients seen by a nutrition specialist were significantly more likely to have a PEG (23.2% vs. 1.7%,  $p < 0.001$ ).

**Tab. 1** 30-day complications after gastrostomy insertion

Complication	Total cohort % (n)	PEG % (n)	RIG % (n)	P value (chi-square test)
Aspiration pneumonia	22.6% (35/155)	17.4% (4/23)	23.5% (31/132)	0.52
Tube blockage or displacement	10.3% (16/155)	4.4% (1/23)	11.4% (15/132)	0.31
Procedure-related readmission	5.2% (8/155)	4.4% (1/23)	5.3% (7/132)	0.85
Death	5.2% (8/155)	4.4% (1/23)	5.3% (7/132)	0.85

30-day complication rates are shown in Table 1. Peri-procedural hypoxia was more common with PEG (13.0% vs. 1.5%,  $p = 0.004$ ). In a multivariate model accounting for age and CRP, tube type was not significantly associated with any complication. Higher CRP was associated with an increased risk of post-procedure bleeding (OR 1.04,  $p = 0.02$ ).

**Conclusions** In this cohort, 30-day complications were very common. Peri-procedural hypoxia was more common with PEG, but aspiration pneumonia and tube displacement may have been more common with RIG. A randomised trial would better establish benchmark quality metrics, to be implemented by nutrition teams for optimal tube selection.

## OP243 BURIED BUMPER SYNDROME – MANAGEMENT BASED ON ACCURATE STAGING

**Authors** Cyraný J<sup>1</sup>, Repak R<sup>1</sup>, Douda T<sup>1</sup>, Fejfar T<sup>1</sup>, Tacheci I<sup>1</sup>, Rejchrt S<sup>1</sup>, Bures J<sup>1</sup>, Kopacova M<sup>1</sup>

**Institute** 1 2nd Department of Internal Medicine – Gastroenterology, Charles University Faculty of Medicine and University Hospital in Hradec Kralove, Hradec Kralove, Czech Republic

**DOI** 10.1055/s-0039-1681419

**Aims** evaluation of our previously published new classification of buried bumper syndrome (BBS) severity on large retrospective patient cohort.

**Methods** single tertiary centre retrospective cohort study.

**Results** 81 cases of BBS in 72 patients were identified out of 2,024 PEG procedures performed from 1<sup>st</sup> January 2002 until 31<sup>st</sup> October 2018 at our endoscopy unit. The cohort consisted of 52 males and 20 females, 12–91 years-old (median 65). Excluding 15 cases of PEG introduced elsewhere, incidence of BBS was 3.3% in our unit. Time from insertion until the diagnosis of

BBS varied from 2 weeks to more than 6 years (mean 17 months). Dominant symptoms of BBS were as follows: peristomal leakage (19), blocked tube (18), accidental finding during attempt to removal (16), endoscopy for other reasons (10), impossibility of tube rotation and movement (15), gastro-colocutaneous fistula (2). Distribution of severity according to the new classification was: Grade 1 (ulcer below the internal bumper and/or marginal overgrowth) 11 cases, Grade 2 (bumper overgrown, but still partially visible) 26 cases (32%), Grade 3 (completely covered bumper inside the stomach) 27 cases (33%), Grade 4 (completely covered bumper outside the stomach) 14 cases, Grade 5 (bumper at the level of skin) 3 cases. Therapeutic outcomes: Grade 1 was treated by simple repositioning and BBS preventive measures were enforced. Grade 2 and 3 were treated by endoscopy with dissection of the overgrowing tissue needed only for Grade 3. Endoscopic dissection using only a papillotome through the cannula was significantly faster ( $11 \pm 9$  min) than other dissection procedures ( $64 \pm 47$  min,  $p < 0.001$ ). Endotherapy was ineffective and seriously complicated by peritonitis in one case. Grade 4 needed surgical treatment under general anaesthesia.

**Conclusions** Endoscopic therapy of BBS based on the new classification is effective with a low complication rate.

**Reference** Cyraný et al. World J Gastroenterol 2016;22:618–27.

## OP244 THE UAB RAPTOR METHOD FACILITATES DIRECT PERCUTANEOUS ENDOSCOPIC GASTROSTOMY WITH JEJUNAL EXTENSION TUBE PLACEMENT (WITH VIDEO)

**Authors** Martínez-Alcalá A<sup>1</sup>, Kroener PT<sup>2</sup>, Peter S<sup>3</sup>, Díaz-Tobar C<sup>1</sup>, Mönkemüller K<sup>1</sup>

**Institute** 1 Gastroenterologie, Frankenwald Klinik, Kronach, Germany;

2 Mayo Clinic, Jacksonville, United States; 3 Gastroenterology, Basil Hirschowitz Endoscopic Center of Excellence, Birmingham, United States

**DOI** 10.1055/s-0039-1681420

**Aims** Direct percutaneous endoscopic gastrostomy with jejunal extension tube (PEG-J) is a useful method to provide nutrition to patients with a variety of gastrointestinal (GI) problems. The present study describes a novel and simple method of direct percutaneous endoscopic gastrostomy with jejunal extension tube placement.

**Methods** This observational, retrospective, single-arm, open label case study conducted at a tertiary care hospital during a 24-month period included 17 patients (9 females, 8 males, mean age 56 years, age range 28–79 years) with necrotizing pancreatitis,  $n = 5$ ; gastroparesis,  $n = 6$ , complex upper GI surgery,  $n = 3$ ; complex fistula,  $n = 3$ ; recurrent aspiration pneumonia,  $n = 1$ .

The direct percutaneous endoscopic gastrostomy with jejunal extension tube technique focuses on three key components: (i) insertion of the PEG, (ii) through-the-PEG jejunal extension tube, and (iii) use of an extra long foreign body extraction forceps (Raptor, US Endoscopy, Ohio, USA) to advance the jejunal extension into the jejunum, (iv) exchange technique of pulling the scope back into the stomach while pushing (i.e.) keeping the Raptor forceps holding the jejunal tube place in the jejunum, and (iv) once the scope is in the stomach removing the Raptor forceps. If during removal of the forceps there is a slight pull or misplacement of the jejunal tube, the wide grasping prongs of the forceps could be easily used to grab the body of the tube and push it deeper into the jejunum.

**Results** Technical success was 100%. Mean time of the procedure was 18 min (range 15 to 30 min). Clinical success was 100% (17/17); all PEG-J could be used for feeding purposes. There were no major adverse events.

**Conclusions** This novel method of inserting a PEG-J tube was safe and successful. Future comparative studies are now warranted.

## OP245 PERCUTANEOUS ENDOSCOPIC GASTROSTOMY IN HEAD AND NECK CANCER PATIENTS: PREDICTORS OF 30-DAY COMPLICATIONS AND MORTALITY

**Authors** Taveira F<sup>1</sup>, Areia M<sup>1</sup>, João M<sup>1</sup>, Elvas L<sup>1</sup>, Alves S<sup>1</sup>, Brito D<sup>1</sup>, Saraiva S<sup>1</sup>, Cadime AT<sup>1</sup>

**Institute** 1 Portuguese Oncology Institute of Coimbra, Coimbra, Portugal  
DOI 10.1055/s-0039-1681421

**Aims** Chemoradiotherapy is essential in the management of head and neck cancer (HNC) patients. Malnutrition during treatment is a major concern and maintaining an enteral feeding route is critical with percutaneous endoscopic gastrostomy (PEG) placement being an option. We intended to elucidate predictors of 30-day complications and mortality during follow-up of HNC patients undergoing PEG.

**Methods** Prospective cohort study of HNC patients with PEG placement, by pull method, in 2017 with a minimum 6-month follow-up. Evaluation of patients' characteristics, comorbidities, nutritional status over time, complications and death. Statistical analysis included descriptive statistics, Qui<sup>2</sup> test and multivariable regression.

**Results** Fifty patients, 90% male and mean age of 60 years ( $\pm 10$ ). Mean PEG time 7 months ( $\pm 0,6$ ). Mainly pharyngeal tumor 48% (n = 24) and advanced TNM stage in 80% (n = 40). ASA $\geq 4$  in 22% (n = 11). Initial medium IMC was 20 Kg/m<sup>2</sup> ( $\pm 3$ ), with 28% of patients presenting an IMC < 18. Registered leukocytosis (40%), anemia (36%) and low albumin (18%) as main analytical abnormalities. Most frequent comorbidity was active smoking (66%). PEG placement before starting oncological treatment in 42%.

Twelve complications (24%) at day 30, mostly respiratory infections (n = 6), with 4 fatalities (8%) but all unrelated to the PEG placement (disease progression).

Most patients managed to maintain weight during follow-up, although with a mean decrease in IMC of 0.42 Kg/m<sup>2</sup>.

Univariable analysis revealed leukocytosis (p < 0.01), ASA $\geq 4$  (p = 0.03) and high CRP (p = 0.05) as major risk factors for 30-day complications. On multivariable analysis leukocytosis as the only risk factor for complications (OR 6, IC95% 2 – 21); Mortality at day 30 only significant related with ASA $\geq 4$  (OR 13, IC95% 1,2 – 172).

**Conclusions** PEG placement is relatively safe and feasible in HNC patients with satisfactory results at day 30 and 6 months follow up. Leukocytosis and ASA $\geq 4$  are related with worst outcomes. Standardized follow up and multidisciplinary approach are needed in this group of patients.

## OP246 THE EFFICACY OF CARBON DIOXIDE INSUFFLATION FOR PERCUTANEOUS ENDOSCOPIC GASTROSTOMY PLACEMENT

**Authors** Kim S<sup>1</sup>, Lee HY<sup>1</sup>, Choi YI<sup>1</sup>, Chung JW<sup>1</sup>, Kim JH<sup>1</sup>, Kim EJ<sup>1</sup>, Kim YJ<sup>1</sup>, Kim KO<sup>1</sup>, Kwon KA<sup>1</sup>, Park DK<sup>1</sup>

**Institute** 1 Gastroenterology, Gachon University Gil Medical Center, Incheon, Korea, Republic of  
DOI 10.1055/s-0039-1681422

**Aims** We aimed to assess the effects of CO<sub>2</sub> insufflation with percutaneous endoscopic gastrostomy (PEG) insertion compared of room air.

**Methods** This study was a single center, prospective, randomized, double-blind study in Gachon University Gil Medical Center between June 2016 and November 2018. A total of 34 patients were enrolled. The primary outcome was pneumoperitoneum which was detected by the right decubitus X-ray. The secondary outcomes were abdominal distension and pain after PEG insertion, amount of sedatives and complication rates.

**Results** The baseline characteristics were similar between the two groups. The pneumoperitoneum was developed 0% (0/16) in CO<sub>2</sub> group and 16.7% (3/18) in room air group, which was not statistically different. (P value = 0.230) There were no significant differences in abdominal distension and pain after PEG insertion, and amount of sedative between two groups.

The complication such as oozing of PEG site and leakage of gastric juice not occur in CO<sub>2</sub> groups, but occurred 16.7%(3/18) and 5.6%(1/18) in room air group, which were not statically significant.

**Conclusions** CO<sub>2</sub> insufflation during PEG insertion has tendency to lower certain adverse events such as pneumoperitoneum, although not statistically significant. There were no significant differences in the clinical features and factors related procedure between CO<sub>2</sub> group and room air group. It might be related to the small patient number. Further large study would be needed to clarify this issue.

## OP247 BURIED BUMPER SYNDROME – RISK FACTORS AND TREATMENT

**Authors** Kohout P<sup>1</sup>, Antos Z<sup>1</sup>, Puskarova G<sup>1</sup>, Rozmahel M<sup>1</sup>, Cernik M<sup>1</sup>, Summerova S<sup>1</sup>

**Institute** 1 Internal Clinic, Thomayer's Hospital, Prague, Czech Republic  
DOI 10.1055/s-0039-1681423

**Aims** The aim of study was to evaluate risk factors for complications of PEG, resp. buried bumper syndrome, and methods of its treatment.

**Methods** The number of patients with buried bumpers syndrom (BBS) were count in Center for PEG Thomayer's Hospital Prague, that takes care of patients with PEG complications between 2002 and 2018. Buried bumper syndrome (BBS) is the late complication of PEG. Method of choice for treatment is opening of cavity with inner bumper using Flamingo knife introduced through PEG tube and extraction of PEG.

**Results** Since 2002 to 2018 there were introduced 1587 PEGs and PEJs in 1526 patients, in 54 of them there was found buried bumper syndrome (3,4%). Since 2002 to 2016 42 patients with BBS were examined, (31 men, 11 women, aver. age 69,3 y, 2 – 86 y), 35 were successfully resolved during gastroscopy (8 patients using needle knife or papilotomy devices, the average time for resolving 18 minutes), 7 patients were indicated for surgical treatment. Since end of 2016 we started to use Flamingo knife. Since 2016 to 2018 12 patients with BBS were examined (8 men, 4 women, aver. age 72.1 years 35 – 88 years). In 8 patients Flamingo knife was used, the average time for extraction of PEG was 8 minutes (5 – 38 minutes). No surgical treatment was needed in last 2 years.

The main risk factors are incorrect care after PEG, esp. irregular or missing introduction of PEG tube into the stomach (minimally once in the week) and high pressure on inner bumper.

**Conclusions** The buried bumper syndrome is the late complication of percutaneous endoscopic gastrostomy. The main risk factor is incorrect care after PEG tube. The treatment of choice in patients with complete buried bumper syndrome is treatment using Flamingo knife with decreasing of surgical extractions for this diagnose.

Friday, April 5, 2019  
Video ERCP 3

17:00 – 18:30  
South Hall 1B

## OP248V PERCUTANEOUS TRANSHEPATIC CHOLANGIOSCOPIC RESECTION OF AN DISTAL BILE DUCT ADENOMA IN ESD TECHNIQUE

**Authors** Hochberger J<sup>1</sup>

**Institute** 1 Gastroenterology, Vivantes Klinikum im Friedrichshain, Berlin, Germany  
DOI 10.1055/s-0039-1681424

An 80 year old patient was referred for acute cholangitis. A 2 × 1,5 cm lesion suspect of a distal bile duct stone was detected in US and ERCP. However, the lesion was fixed to the bile duct wall. EUS and biopsy revealed a distal biliary adenoma. The patient refused surgery but agreed to an experimental approach. A percutaneous stable fistula tract was created and dilated over 2 weeks until 20°. A sterilized therapeutic bronchoscope was used and the

tumor located at the level of the distal common bile duct. Successful keel knife excision and transpapillary expulsion of the tumor was achieved after prior EPT. A percutaneous tranhepatic drainage was temporarily placed. There was fortunately no acute bleeding or perforation but the tumor specimen was lost to the small intestine. The patient recovered completely but died three years later due to a local recurrence.

## OP249V AN UNEXPECTED CAUSE OF CHOLANGITIS

**Authors** [Venezia L](#)<sup>1</sup>, [Cortegoso Valdivia P](#)<sup>1</sup>, [Rizza S](#)<sup>1</sup>, [De Angelis CG](#)<sup>1</sup>

**Institute** 1 Digestive Endoscopy Unit, Gastroenterology Department, AOU Città della Salute e della Scienza, Torino, Italy

**DOI** 10.1055/s-0039-1681425

A 57-year-old man with unremarkable previous medical history presented with acute cholangitis (bilirubin T/D 4,5/3,8 mg/dL, ALP 805 U/l, GGT 203 U/l). CT abdomen showed liver cirrhosis along with hypodense irregular filling defects in a dilated common hepatic duct up to the confluence, with upstream dilation of the intrahepatic ducts. A subsequent ERCP with IDUS and direct peroral cholangioscopy was performed, and the findings supported the suspicion of biliary papillomatosis. Intraductal biopsies showed papillary proliferations with focal high grade dysplasia and no signs of stromal invasion, thus confirming the final diagnosis of intraductal papillary neoplasm (IPN) BillN-3. Biliary IPN is a very rare disease, characterized by the presence of intraluminal papillary tumors of the intra- and/or extra hepatic bile ducts, with a distinctive papillary proliferation of biliary epithelial cells around a slender fibrovascular stalk. It potentially affects any site of the biliary tree, including the gallbladder. It is more common in men (M: F 2: 1) in the 6–7th decade, with a slow progression but with a high rate of malignant transformation (approximately 41%). The most common clinical manifestations are recurrent abdominal pain or discomfort, repeated relapsing cholangitis and cholestasis. The therapy is mainly surgical, with resection in localized disease; diffuse or recurrent disease requires pancreatoduodenectomy or liver transplantation in selected cases.

After a multidisciplinary discussion, the patient has now been referred and selected for orthotopic liver transplantation (due to the concomitant findings of liver cirrhosis and biliary IPN) in our transplant center.

## OP250V ADVANCED CHOLANGIOSCOPY GUIDED LITHOTRIPSY IN 2 PATIENTS WITH COMPLEX BILIARY STONES

**Authors** [Fernandes J](#)<sup>1,2</sup>, [Lucas F](#)<sup>3</sup>, [Moreira M](#)<sup>1</sup>, [Ribeiro H](#)<sup>1</sup>, [Giestas S](#)<sup>1</sup>, [Araújo T](#)<sup>1</sup>, [Ramada J](#)<sup>1</sup>, [Certo M](#)<sup>4</sup>, [Canena J](#)<sup>5,6</sup>, [Lopes L](#)<sup>1,7,8</sup>

**Institute** 1 Gastroenterology, Hospital de Santa Luzia, Viana do Castelo, Portugal;

2 Gastroenterology, Centro Hospitalar Cova da Beira, Covilhã, Portugal;

3 Serviço de Medicina do Hospital de Cascais, Cascais, Portugal;

4 Serviço de Radiologia – Hospital de Braga, Braga, Portugal;

5 Gastroenterology, Hospital Amadora Sinta, Amadora, Portugal;

6 Gastroenterology, Nova Medical School/FCML da UNL, Lisbon, Portugal;

7 Life and Health Sciences Research Institute (ICVS), School of Medicine, University of Minho, Braga, Portugal; 8 ICVS/3B's – PT Government Associate Laboratory, Braga/Guimarães, Portugal

**DOI** 10.1055/s-0039-1681426

**Description** ERCP is the first-line technique for the treatment of biliary stones. Most stones are successfully removed using extraction balloons and/or Dormia baskets, and in more complex cases, using mechanical lithotripsy and/or balloon dilation of the ampulla after sphincterotomy. There are, however, a small group of patients with complicated stones, in which these techniques are not effective.

In this video, we present 2 patients with highly complex biliary stones referred for single operator peroral cholangioscopy (Spyglass DS)-guided lithotripsy.

The first case was a 91-year-old woman with multiple previous episodes of cholangitis, with 2 large stones in the bile duct, sizes 20 and 40 mm, with the

latter impacted at the common hepatic duct. The patient underwent a total of three ERCP sessions, the first with electrohydraulic lithotripsy (EHL), and the second with Holmium laser lithotripsy (LL). In the third and last session, the treatment was completed with the removal of the residual stones.

The second case corresponds to a 70-year-old male with an indeterminate stenosis of the common hepatic, in which SpyGlass DS allowed not only to achieve the correct diagnosis (Mirizzi syndrome), but also to perform laser holmium lithotripsy.

**Motivation** The introduction of Spyglass DS allowed the routine use of EHL and LL. These advanced lithotripsy techniques have demonstrated a high efficacy and safety in the fragmentation of complex biliary stones, as suggested by a few cohorts and case series recently published. With this video we intend to demonstrate the usefulness of EHL and LL, assisted by Spyglass DS, in 2 different clinical scenarios, highlighting details of the technical execution that increase the odds of success and safety of the procedure. The lithotripsy of the 40 mm stone, is the largest stone reported in video, using advanced lithotripsy techniques assisted by single operator per-oral cholangioscopy.

## OP251V ENDOSCOPIC RADIOFREQUENCY ABLATION FOR PALLIATIVE TREATMENT OF HILAR CHOLANGIOCARCINOMA

**Authors** [Morais R](#)<sup>1</sup>, [Vilas-Boas F](#)<sup>1</sup>, [Antunes J](#)<sup>1</sup>, [Pereira P](#)<sup>1</sup>, [Macedo G](#)<sup>1</sup>

**Institute** 1 Gastroenterology, Centro Hospitalar São João, Porto, Portugal

**DOI** 10.1055/s-0039-1681427

A 58-years-old woman, with priors of Parkinson disease, type 2 Diabetes Mellitus and arterial hypertension, was diagnosed with a perihilar cholangiocarcinoma (Bismuth Type 1). She initially underwent endoscopic retrograde cholangiopancreatography (ERCP) with brush cytology and stent placement in the right hepatic duct. She was proposed for resection surgery but due to imagiological evidence of portal vein and right hepatic artery invasion and disease progression with involvement of the right and left hepatic duct (Bismuth Type 4), after multidisciplinary discussion, she was proposed for palliative care. Due to progressive worsening jaundice and cholestasis, it was decided to repeat ERCP. After removal of the previously placed plastic stent, cholangioscopy (SpyGlass DS; Boston Scientific) was performed. This exam confirmed the presence of a hepatic confluence stenosis, with neovascularization and involvement of the right and left hepatic duct. The length of the stenosis was approximately 5 cm. Endobiliary radiofrequency ablation (RFA; Habib catheter, Boston Scientific) was performed on two levels, initially on a proximal level, for full-extent treatment of the lesion. Cholangioscopy was repeated for treatment evaluation and exclusion of complications. On the examination we observed an increase in the luminal diameter and apparent necrosis at the level of the lesion. An uncovered self-expandable metal stent (10 cm) was placed in the left hepatic duct. The procedure underwent without complications and the patient was discharged home. She was evaluated one month later in the outpatient clinic and is asymptomatic. Blood test revealed complete normalization of total bilirubin and cholestasis.

Some studies previously reported an improvement in stent patency and even survival after RFA of biliary tumors. This case highlights the role of this technique as a feasible and safe therapeutic option for the palliation of hilar cholangiocarcinoma.

## OP252V USEFULNESS OF DEDICATED FORCEPS FOR DIGITAL SINGLE-OPERATOR CHOLANGIOSCOPY FOR THE TREATMENT OF INFLAMMATORY BILIARY STRICTURE

**Authors** Soriani P<sup>1</sup>, Gabbani T<sup>1</sup>, Deiana S<sup>1</sup>, Mirante VG<sup>1</sup>, Manno M<sup>1</sup>

**Institute** 1 Digestive Endoscopy Unit, Azienda USL Modena, Carpi and Mirandola Hospitals, Carpi, Italy

**DOI** 10.1055/s-0039-1681428

Endoscopic treatment of biliary strictures is challenging; moreover, if stenosis is almost complete, dilation can fail for inability to pass over a guidewire dilation devices or stent [1].

Cholangioscopy can be useful in order to overcome these limits, thanks to direct visualization of the stricture.

A 52 year-old-woman affected by antiphospholipid syndrome underwent endoscopic retrograde cholangiography for recurrent cholangitis due to hepatolithiasis for secondary hemolytic anemia. For inability to pass the guidewire over the stenosis, digital single-operator cholangioscopy (SpyGlass DS, Boston Scientific) was performed for selective placement of guidewire.

An intrahepatic right biliary stricture was observed, with a residual lumen of about 2 mm. A fibrotic ring allowed the guidewire pass only (Dreamwire 0.035, Boston Scientific), but not devices for dilation, i.e. balloon or Soehendra dilators. So, it was excised with dedicated forceps (Spybite, Boston Scientific), allowing subsequent pneumatic dilation and spontaneous spillage of multiple micro-gallstones [video]. Plastic stent was placed for 2 months, obtaining stricture's resolution at cholangioscopic control. Histological biopsies confirmed the benign nature and elective cholecystectomy was performed.

The patient remained in good clinical condition with no more cholangitis episodes.

In conclusion, dedicated cholangioscopic forceps can be a useful tool to cutting out fibrotic ring in biliary strictures, allowing subsequent endoscopic treatment, avoiding major surgery (in this case right hepatectomy), especially in high-risk patients.

**Reference** [1] Bokemayer A., Gross D., Bruckner M. et al. Digital single-operator cholangioscopy: a useful tool for selective guidewire placement across complex biliary strictures. *Surg End* 2018 Jul 13. doi:10.1007/s00464-018-6334-6.

## OP253V SPYGLASS PANCREATOSCOPY FOR DIAGNOSIS, EVALUATION AND STAGING OF MAIN DUCT INTRADUCTAL PAPILLARY MUCINOUS NEOPLASM

**Authors** Morais R<sup>1</sup>, Vilas-Boas F<sup>1</sup>, Antunes J<sup>1</sup>, Moreira F<sup>2</sup>, Lopes J<sup>2</sup>, Pereira P<sup>1</sup>, Macedo G<sup>1</sup>

**Institute** 1 Gastroenterology, Centro Hospitalar São João, Porto, Portugal; 2 Pathology, Centro Hospitalar São João, Porto, Portugal

**DOI** 10.1055/s-0039-1681429

An 84 year-old man, with priors of arterial hypertension and aortic stenosis underwent an abdominal computed tomography due to occasional symptoms of abdominal pain. This exam revealed a hypodense non-enhanced lesion in the head and neck of the pancreas, with 65 × 37 × 46 mm. This lesion was in continuity with the ampulla of Vater and conditioned a diffuse main pancreatic duct (MPD) dilation (12 mm in the body), in probable relation with a main duct intraductal papillary mucinous neoplasm (MD-IPMN). An endoscopic ultrasonography was performed and confirmed the presence of a multiseptated predominantly cystic mass in the head/neck of the pancreas, with hyperechoic material in the center compatible with mucin. After multidisciplinary the patient was proposed for surgery with prior pancreatoscopy to evaluate directly the MPD to help guide the type of surgery. Pancreatoscopy was performed using a peroral digital single-operator pancreatoscopy system (SpyGlass DS; Boston Scientific, Marlborough, Massachusetts, USA). On inspection

a "fish mouth" ampulla was observed. After MPD cannulation with sphincterotome, contrast instillation revealed marked MPD dilation. Pancreatoscopy revealed a scarring appearance with friability in the pancreatic tail and body. In the neck and head we observed presence of mucin, papillary fronds and protusions with "fish-egg" appearance. Biopsies were performed in all MPD segments and revealed in the head and neck lesion with papillary architecture and intestinal phenotype, compatible with intraductal papillary mucinous neoplasm with low-grade dysplasia. No lesions were observed in the biopsies performed in the body and tail. The patient was submitted to a subtotal duodenopancreatectomy. Histopathological specimen examination confirmed the findings previously reported and the associated presence of ductal adenocarcinoma (pT1bN0R0).

This case demonstrates the role of pancreatoscopy to help delineate the extent of MD-IPMN and detect skip lesions in the presence of a diffusely dilated main PD, guiding the choice of surgical procedure.

Friday, April 5, 2019

Video lower GI 2

17:00 – 18:30

South Hall 1A

## OP254V SUCCESSFUL CLOSURE OF A RECTAL FISTULA OF CROHN'S DISEASE USING ENDOSCOPIC SUBMUCOSAL DISSECTION OF THE FISTULOUS TRACT COMBINED WITH AN OVER THE SCOPE CLIP

**Authors** Wallenhorst T<sup>1</sup>, Pioche M<sup>2</sup>, Jacques J<sup>3</sup>

**Institute** 1 Department of Endoscopy and Gastroenterology, CHU Rennes, Rennes, France; 2 Department of Endoscopy and Gastroenterology, Pavillon L, Edouard Herriot Hospital, Lyon, France; 3 Department of Endoscopy and Gastroenterology, Dupuytren Hospital, Limoges, France

**DOI** 10.1055/s-0039-1681430

**Aims** Luminal fistulas of Crohn's disease represent a therapeutic challenge, with frequent use of surgery despite the advent of biologics. There is no reported case of effective endoscopic treatment in the literature. Submucosal dissection of the fistulous orifice combined with clip closure has been described as effective for two cases of chronic oeso-tracheal fistulas and one case of fistula on rectal anastomosis. We report the first success of this technique, to treat a refractory rectal fistula of Crohn's disease.

**Methods** A 35-year-old woman was referred for Crohn's disease with ileal fistula, pre-sacral and left gluteal abscess and sacral osteitis. Initial management consisted of ileocecal resection with ileostomy, prolonged antibiotic therapy and percutaneous radiological drainage. After 4 months, colonoscopy showed a rectal fistulous orifice. MRI showed a 25 mm long fistulous tract, responsible for the persistence of pre-sacral infiltration. The rectal mucosa was otherwise non-inflammatory. Stoma reversal was contraindicated with little surgical solution because of the location of the fistula.

We performed endoscopic submucosal dissection (ESD) of a mucosal patch surrounding the fistulous orifice (10 mm in diameter), using Hybrid Knife T (ERBE, Germany). To allow deep dissection of the entire fistulous tract we used a clip + line system. The exposed area was closed using an over-the-scope clip (OTSC) system (Ovesco, Germany). The ciprofloxacin – metronidazole antibiotic treatment was continued for 21 days.

**Results** The CT scan with rectal opacification 2 months later showed a complete regression of the collection and the absence of residual fistula tract allowing stoma reversal. The last clinical follow-up after 6 months confirmed complete resolution of rectal fistula.

**Conclusions** ESD of the fistulous tract associated with OTSC system closure seems effective for small chronic fistulas and could possibly also be used in fistulizing Crohn's disease. Prospective studies are needed to confirm this strategy.

## OP255V ENDOSCOPIC SUBMUCOSAL DISSECTION WITH TRIANGULATED TRACTION WITH CLIP AND RUBBER BAND: THE “WALLET” STRATEGY

**Authors** Pioche M<sup>1</sup>, Lupu A<sup>2</sup>, Jacques J<sup>3</sup>, Rivory J<sup>2</sup>, Ponchon T<sup>2</sup>

**Institute** 1 Gastroenterology and Endoscopy, Edouard Herriot Hospital, Belmont d’Azergues, France; 2 Gastroenterology and Endoscopy, Edouard Herriot Hospital, Lyon, France; 3 Hepato-Gastro-Enterology, Dupuytren University Hospital, Limoges, France

**DOI** 10.1055/s-0039-1681431

ESD is the reference method to allow curative endoscopic resection of colorectal tumours.

Nevertheless, it is technically challenging and new strategies to facilitate procedure are requested. Counter traction strategies allows enlarging submucosal space like in the clip and rubber band approaches. In the rectum, line traction makes a tangential traction without triangulation and is not really adaptive as the dissection progresses.

We report a case of ESD for a colonic LST of a patient with ulcerative colitis. For this resection, we used the “improved wallet strategy” (video): first the two edges (oral and anal) of the lesion were incised, then, trimming was performed at both edges in direct and retroflexed approaches to have a deep access to the submucosa and to release both mucosal edges.

After this step, two elastic rubber bands were fixed to both proximal and distal mucosal margins of the lesion by way of catching it with metallic clips. By trapping both rubber bands with the third metallic clip we used a triangulation traction and fixed the clip to the opposite mucosal wall (wallet aspect). The submucosa was strongly stretched perpendicularly to the muscular layer plan facilitating dissection.

This strategy must be compared prospectively to other traction strategies but seems to offer a strong counter traction. Furthermore, this strategy is adaptive since rubber band traction is moving as the dissection progresses changing the axis of the traction strength.

## OP256V ESD OF LST-NG TYPE WITH UNDERLYING SUBMUCOSAL TUMOR

**Authors** Herreros de Tejada A<sup>1</sup>, De Frutos D<sup>1</sup>, Santiago J<sup>1</sup>, Vazquez G<sup>2</sup>, Gonzalez-Partida I<sup>1</sup>, Agudo B<sup>1</sup>, Gonzalez-Haba M<sup>1</sup>, Garrido A<sup>1</sup>, Matallanos P<sup>1</sup>, Blazquez E<sup>1</sup>, Bote M<sup>1</sup>, Sol Delgado M<sup>1</sup>, Pilar C<sup>1</sup>, Calleja JL<sup>1</sup>

**Institute** 1 Gastroenterology, Puerta de Hierro – Majadahonda University Hospital, Majadahonda, Spain; 2 Pathology, Puerta de Hierro – Majadahonda University Hospital, Majadahonda, Spain

**DOI** 10.1055/s-0039-1681432

**Introduction** Colonic lipomas are benign submucosal lesions which exceptionally may associate with colonic neoplasia or adenoma. LST-NG pseudo-depressed type over 2 cm commonly require en-bloc resection with ESD or other alternative techniques.

**Procedure** A 69 y/o woman was diagnosed with an 40 mm LST-NG PD in ascending colon with no apparent associated lesions, and thus scheduled for ESD. Initial approach to the lesion showed a sessile pseudo-depressed area in proximal section of the lesion. Colonic diverticulum was ruled out after submucosal injection, and ESD was initiated. A pediatric colonoscope (PCF-H190L; Olympus Co.) and Flush Knife<sup>®</sup> BT 1.5 mm (Fujifilm Co.) were used.

**Results** A complete en-bloc resection of the LST-NG lesion together with underlying submucosal yellowish tumor was achieved in a single specimen of 60 × 40 mm. Preventive closure of the mucosal defect was completed using TTS clips. The patient was discharged 48h later. Pathology examination showed 40 × 31 mm tubular adenoma with free lateral and deep margins (R0), including an underlying 20 × 15 mm lipoma.

**Conclusions** Underlying lipoma in LST lesions may not be noticed, or it can mimic a diverticulum. Although this circumstance makes ESD more demanding, this technique allows safe and successful en-bloc removal of such complex lesions.

## OP257V COUNTER TRACTION USING CLIPS AND RUBBER BANDING FOR ENDOSCOPIC SUBMUCOSAL DISSECTION OF A LATERALLY SPREADING TUMOR INVOLVING A DIVERTICULUM IN THE COLON

**Authors** Albouys J<sup>1</sup>, Legros R<sup>1</sup>, Charissoux A<sup>1</sup>, Dahan M<sup>1</sup>, Sautereau D<sup>1</sup>, Pioche M<sup>2</sup>, Jacques J<sup>1</sup>

**Institute** 1 CHU Dupuytren, Limoges, France; 2 Edouard Herriot University Hospital, Lyon, France

**DOI** 10.1055/s-0039-1681433

In addition to the possibility of en bloc resection without size limitations, endoscopic submucosal dissection (ESD) is also a novel option for endoscopic treatment of lesions involving a diverticulum in the colon or appendix. Generally, when employing EMR, these types of lesions have a high risk of perforation or incomplete resection.

Here, we report a case of a laterally spreading tumor (LST) involving a colonic diverticulum that underwent successful en bloc resection by ESD using counter traction with clips and rubber banding. A man in his 60s was referred for resection of a 40 mm LST in the ascending colon. The lesion was confirmed as a granular LST with a regular vascular and pit pattern in NBI but also involvement of a centrally located diverticulum, all of which were indications for ESD. After the initial needle injection, ESD was initiated from the anal side using the Dual Knife J dosed with glycerol. We used counter traction with clips and rubber bands to allow better exposure of the submucosal layer as described previously. Once the endoscope approached the diverticulum, a second traction using two clips and another rubber band was positioned to allow a maximal increase in the submucosal space on the side of the diverticulum.

Finally, en bloc resection was completed in 50 minutes, and the diverticulum was closed to prevent delayed perforation. Pathological analysis revealed a tubulovillous adenoma with high-grade dysplasia with free deep and lateral margins measuring 52 × 40 mm. Following the ESD procedure, the patient was discharged without complications 24 hours later.

## OP258V “CLIP-BAND CLOSURE” TECHNIQUE FOR COLORECTAL PERFORATION AND LARGE MUCOSAL DEFECTS AFTER COLORECTAL ENDOSCOPIC SUBMUCOSAL DISSECTION

**Authors** Agudo B<sup>1</sup>, De Frutos D<sup>1</sup>, Santiago J<sup>1</sup>, González I<sup>1</sup>, González-Haba M<sup>1</sup>, Garrido A<sup>1</sup>, Matallanos P<sup>1</sup>, Bote M<sup>1</sup>, Blazquez E<sup>1</sup>, Sol Delgado M<sup>1</sup>, Garcia P<sup>1</sup>, Herreros de Tejada A<sup>1</sup>

**Institute** 1 Puerta de Hierro – Majadahonda University Hospital, Gastroenterology and Hepatology, Majadahonda, Spain

**DOI** 10.1055/s-0039-1681434

**Introduction** We describe for the first time the clip-band closure (CBC) technique for successful management of extra-large mucosal defects and perforations associated with colorectal endoscopic submucosal dissection (CR-ESD).

**Procedure** CBC technique has been described for traction purposes and preventive closure of duodenal defects. It consists on the use of a regular orthodontic rubber band grasped with a through-the-scope clip (TTSC) that is applied to one of the mucosal defect margins. Afterwards, a second TTSC is inserted to grasp the free part of the band and pulling it to deploy the clip in the opposite edge of the mucosal defect, aiming to create tension to effectively approach the mucosal edges, thus facilitating the complete closure of the defect with extra TTSC.

**Results** We present CBC application to manage a large CR-ESD associated perforation. An 88-year-old patient presented with a 70 × 70 mm LST-G mixed type (0-Is + IIa) in ascending colon. ESD with en-bloc resection was completed and an extensive area of the muscular layer showed significant disruption. Because of the broad area resected it was not feasible to close it by conventional clipping. We performed four CBC “combos” to achieve apposition of both edges of the mucosal defect, followed by the deployment of extra 30 TTSCs until completing the full closure. The patient was discharged unevent-

fully 24 h after the procedure, with no delayed complications 3 months follow-up.

**Conclusions** CBC technique is a simple and useful method for complete closure of large mucosal defects after CR-ESD, even in proximal colon, without requiring special devices or repeated intubation like traction-line technique.

### OP259V PAEM COMBINED WITH ENDOSCOPIC SUBMUCOSAL HYDRO-DISSECTION AS A RESCUE THERAPY OF RECTAL FIBROTIC ADENOMA IN ILEORRECTAL ANASTOMOSIS. A CASE REPORT

**Authors** Rodríguez-Sánchez J<sup>1</sup>, Sánchez Alonso M<sup>1</sup>, Sánchez García C<sup>1</sup>, Olmedo Camacho J<sup>1</sup>

**Institute** 1 Hospital General Universitario Ciudad Real, Ciudad Real, Spain  
DOI 10.1055/s-0039-1681435

**Background** Subtotal colectomy with ileorrectal anastomosis (IRA) is currently the most common surgical option in young patients with familial adenomatous polyposis (FAP). However, this surgery does not stave off suffering the appearance of lesions in the rectal remnant. In these cases, the endoscopic submucosal dissection might be a feasible option. However, drawbacks such as: extreme fibrosis and difficult manoeuvrability in rectal remnant, become this technique rather challenging. We planned to carried out a PAEM combined by ESD with pocket creation method with the purpose of overcoming these handicaps.

**Case report** Following this approach, we successfully achieved en-bloc resection of a 30 mm recurrent adenoma located in rectal remnant of a 42 year-old woman with FAP. We performed a PCM to reach the anastomotic area in which we carried out a PAEM removing the suture staples. Thereafter we continued the ESD as usual to finally enrich the en bloc resection. After the resection, we showed the anastomosis opened which closed by second-intention with no adverse events. Two months follow up endoscopy showed no residual adenomatous tissue. All steps of the procedure were performed using Erbejet Hybrid-Knife type T (ERBE).

**Conclusion** In summary, PAEM combined by endoscopic submucosal dissection using pocket creation method allowed a safe and effective dissection, achieving en-bloc resection of this challenging polyp.

Saturday, April 6, 2019

08:30 – 10:30

Colonic polyps: characterization

Club D

### OP260 PROSPECTIVE EVALUATION OF CONECCCT CLASSIFICATION WITH 237 COLORECTAL ESD

**Authors** Albouys J<sup>1</sup>, Pioche M<sup>2</sup>, Fabritius M<sup>2</sup>, Legros R<sup>1</sup>, Rivory J<sup>2</sup>, Sautereauau D<sup>1</sup>, Ponchon T<sup>2</sup>, Jacques J<sup>1</sup>

**Institute** 1 CHU Dupuytren, Limoges, France; 2 Edouard Herriot University Hospital, Lyon, France

DOI 10.1055/s-0039-1681436

**Aims** Several classifications has been developed to predict the risk of submucosal invasion in case of superficial colorectal lesion. We developed the CONECCCT classification that merged all existing classification (Paris, SANO, KUDO, WASP, LST, NICE) in one table to simplify endoscopic characterization.

**Methods** Bicenter prospective study of all characterization data recorded before ESD for large superficial colorectal lesions. Sensibility (Se) Specificity (Sp) Positive predictive value (PPV) Negative predictive value (NPV) of presence of macronodule on a LST-G, SANO IIIA, Paris 0-IIC and CONECCCT IIC were calculated.

**Results** 400 colorectal ESD were performed between 01/2017 and 09/2018 at 2 experts centers. 237 lesions with a mean size of 60 mm that had all characterization data (Paris, SANO, KUDO, WASP, LST, NICE, CONECCCT) were included. 167 (70%) of lesions were LST-G, 45 (19%) LST-NG and 26

(11%) Polyp. 165 (69,6%) were CONECCCT IIC, 87 SANO IIIA (37%) and 35 (14,8%).

Histological analysis: LGD: 87 (37%); HGD: 72 (30,4%); IM carcinoma: 56 (23,6%); Sm < 1000: 14 (6%), sm > 1000: 7 (3%) T2: 1 (0,5%).

LST with macro nodule

- Intra mucosal cancer: Sen = 84.4%/Spe = 55.9%/VPP = 50.5%/VPN = 87.1%
- Submucosal cancer: Sen = 100%/Spe = 45.7%/VPP = 14.4%/VPN = 100%

Paris IIC

- Intra mucosal cancer: Sen = 20.5%/Spe = 88%/VPP = 45.7%/VPN = 69.3%
- Submucosal cancer: Sen = 36.3%/Spe = 87.4%/VPP = 22.8%/VPN = 93%

Sano IIIA

- Intra mucosal cancer (51.7%): Sen = 58.4%/Spe = 78.5%/VPP = 51.7%/VPN = 78.5%
- Submucosal cancer (19.5%): Sen = 80.9%/Spe = 67.4%/VPP = 19.5%/VPN = 97.3%

CONECCCT IIC

- Intra mucosal cancer: Sen = 93.5%/Spe = 42.1%/VPP = 44.2%/VPN = 93%
- Submucosal cancer: Sen = 100%/Spe = 33.4%/VPP = 13.3%/VPN = 100%

**Conclusions** The CONECCCT classification allows to predict with a 100% sensibility the risk of submucosal invasion, requiring an En-bloc resection.

### OP261 DIAGNOSE AND DISREGARD POLICY CAN BE IMPLEMENTED IN PATIENTS WITH LYNCH SYNDROME WHEN DONE BY EXPERT COLONOSCOPISTS

**Authors** Gavrić A<sup>1,2</sup>, Rivero Sanchez L<sup>1,3,4</sup>, Arnau C<sup>3</sup>, Herrero J<sup>5</sup>, Remedios D<sup>6</sup>, Alvarez V<sup>7</sup>, Albéniz E<sup>8</sup>, Calvo P<sup>9</sup>, Gordillo J<sup>10</sup>, Puig J<sup>11</sup>, López Vicente J<sup>12</sup>, Huerta A<sup>13</sup>, López-Cerón M<sup>14</sup>, Salces I<sup>14</sup>, Peñas B<sup>15</sup>, Parejo S<sup>16</sup>, Herraiz M<sup>17</sup>, Gimeno A<sup>18</sup>, Saperas E<sup>19</sup>, Alvarez C<sup>20</sup>, Moreno L<sup>3</sup>, Rodríguez de Miguel C<sup>3</sup>, Díaz M<sup>3</sup>, Ocaña T<sup>1</sup>, Moreira L<sup>1,3,4</sup>, Cuatrecasas M<sup>3,21</sup>, Carballal S<sup>1,3,4</sup>, Sánchez A<sup>1,3,4</sup>, Jung G<sup>1,3,4</sup>, Ortiz O<sup>1</sup>, Llach J<sup>1</sup>, Balaguer F<sup>1,3,4</sup>, Pellisé M<sup>1,3,4</sup>

**Institute** 1 Gastroenterology Department, Hospital Clínic de Barcelona, Barcelona, Spain; 2 Department of Gastroenterology and Hepatology, University Medical Center Ljubljana, Ljubljana, Slovenia; 3 Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS), Barcelona, Spain; 4 Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBEREHD), Barcelona, Spain; 5 Department of Gastroenterology, Complejo Hospitalario Universitario de Ourense, Ourense, Spain; 6 Department of Gastroenterology, Complejo Hospitalario Universitario de Ourense, Barcelona, Spain; 7 Department of Gastroenterology, Complejo Hospitalario de Pontevedra, Pontevedra, Spain; 8 Complejo Hospitalario de Navarra, Digestive System Service, Endoscopy Unit. Navarrabiomed, Universidad Pública de Navarra, IdiSNA, Pamplona, Spain; 9 Nurse High-Risk Clinic, Complejo Hospitalario de Navarra, Pamplona, Spain; 10 Gastroenterology Unit, Hospital de la Santa Creu i Sant Pau, Barcelona, Spain; 11 Digestive System Service, Xarxa Assistencial Universitària de Manresa, Manresa, Spain; 12 Digestive System Service, Hospital Universitario de Móstoles, Móstoles, Spain; 13 Department of Gastroenterology, Hospital Galdakao-Usansolo, Galdakao, Spain; 14 Digestive System Service, Hospital Universitario 12 de Octubre, Madrid, Spain; 15 Department of Gastroenterology, Hospital Ramón y Cajal, Madrid, Spain; 16 Hospital Ramón y Cajal, Department of Gastroenterology Nabeul, Madrid, Spain; 17 Digestive System Service, Clínica Universitaria de Navarra, Pamplona, Spain; 18 Digestive System Service, Hospital Universitario de Canarias, Santa Cruz de Tenerife, Spain; 19 Digestive System Service, Hospital General de Catalunya, Sant Cugat del Vallès, Spain; 20 Digestive System Service, Hospital del Mar, Barcelona, Spain; 21 Departamento de Anatomía Patológica, Hospital Clínic de Barcelona, Barcelona, Spain

DOI 10.1055/s-0039-1681437

**Aims** To evaluate the adequacy of a "diagnose and disregard" strategy for rectosigmoid (RS) diminutive polyps in Lynch syndrome patients.

**Methods** Secondary analysis of a prospective, multicentre, randomized, controlled and parallel study (EndoLynch study; NCT02951390) comparing panchromoendoscopy with white-light endoscopy for polyp detection in Lynch syndrome that involved 26 expert endoscopists in 14 centers. Optical diagnosis was performed in real time using NBI and/or chromoendoscopy in all detected polyps. Diagnostic categories were grouped into neoplastic (sessile serrated polyps (SSP) with dysplasia; traditional serrated adenoma (TSA), adenoma; carcinoma) and non-neoplastic (hyperplastic; SSP). Histology based in modified Vienna and WHO classification were used as gold standard.

**Results** 256 patients were included in the study (mean age 47 years ( $\pm$ SD 14), 60% were women. The frequency of mutations was *MLH1* (28,9%), *MSH2* (41,4%), *MSH6* (22,3%), *PMS2* (6,6%) and *EPCAM* (0,8%). A total of 277 polyps (143 adenomas, 18 SSP, 1 TSA and 115 hyperplastic) were detected which included 102 diminutive polyps ( $\leq$ 5 mm) in the RS (72 hyperplastic, 3 SSP, 1 TSA, 22 low-grade dysplasia tubular adenomas, 3 high grade-dysplasia tubular adenomas and 1 low-grade tubulovillous adenoma). High confidence optical diagnosis was performed in 82 cases (80,4%) (62 non neoplastic; 20 neoplastic). Overall accuracy was 96.3% [89.7–99.2%]; sensitivity 90% [68,3–98,8%]; and specificity 98,4% [91,4–99,7%]. Negative and positive predictive value were 96,8% [89,11–99,1%]; and 94,7% [71,9–99,2%] respectively.

**Tab. 1** Optical diagnosis with high confidence versus histology for diminutive RS polyps in Lynch Syndrome

	NO neoplastic histology	YES neoplastic histology	
NO optical diagnosis of neoplastic polyp	61	2	63
YES diagnosis of neoplastic polyp	1	18	19
Total	62	20	82

**Conclusions** In this large cohort of Lynch syndrome patients, despite over 25% of RS diminutive polyps were neoplastic, optical diagnosis was highly accurate. In expert hands, a diagnose and disregard strategy is safe and provides a decrease of the RS diminutive polyps resection by 70%.

## OP262 THE POLYP-BASED RESECT-AND-DISCARD STRATEGY: A PROSPECTIVE STUDY

**Authors** Hammar C<sup>1,2</sup>, Frenn M<sup>1,2</sup>, Pohl H<sup>3</sup>, Foucher J<sup>2</sup>, Bouin M<sup>2,4</sup>, Deslandres E<sup>2,4</sup>, Bouchard S<sup>2,4</sup>, Renteln D von<sup>2,4</sup>

**Institute** 1 University of Montreal, Montreal, Canada; 2 Montreal University Hospital Research Center, Montreal, Canada; 3 Department of Veterans Affairs Medical Center, Geisel School of Medicine and The Dartmouth Institute, New Hampshire, United States; 4 Division of Gastroenterology, Montreal University Hospital Center, Montreal, Canada

**DOI** 10.1055/s-0039-1681438

**Aims** Post-polypectomy surveillance intervals are determined taking pathology results into consideration. Study aim was to compare a novel polyp-based resect-and-discard strategy (PBRD) with optical polyp diagnosis and pathology based surveillance interval assignment.

**Methods** The PBRD strategy (Table 1) and optical polyp diagnosis, using the NICE classification with iScan or Optivista imaging, were applied in real time during colonoscopies for small polyps (<10 mm) in a prospective study. The primary outcome was the agreement in surveillance interval assignment between the polyp-based and the optical diagnosis based resect-and-discard strategies in reference to the pathology-based reference-standard. Secondary outcomes were the overall reduction in required pathology exams with the different strategies, and the proportion of patients that can be provided with surveillance recommendations immediately following the colonoscopy.

**Results** 553 patients (mean age 62, 48% male, 567 small polyps) were enrolled into the study. In applying the PBRD (Table 1), the surveillance interval agreement with pathology was of 90% (95% CI:87–92). When applied by the endoscopist immediately after colonoscopy, the agreement was of 81% (95% CI:69–76). The optical diagnosis strategy achieved a surveillance interval agreement of 91% (95% CI:89–94). With respect to histopathology, the

polyp-based approach would save 56% of all histopathology exams, while 69% could be omitted with the optical diagnosis strategy. The polyp-based strategy would provide 84% of patients with immediate surveillance recommendations, while 78% and 46% of patients could be provided with immediate recommendations following the optical and pathology based strategies, respectively.

**Conclusions** The PBRD reaches the 90% PIVI benchmark when applied according to the developed algorithm. However, when used in real time by clinicians, the surveillance interval agreement with pathology is less accurate, mainly because of shorter surveillance intervals deliberately chosen by clinicians. Optical diagnosis using NICE in combination with iScan and Optivista achieved similar results as the polyp-based strategy surpassing the 90% PIVI benchmark.

## OP263 PREDICTIVE RULES FOR OPTICAL DIAGNOSIS OF $\leq$ 10 MM COLORECTAL POLYP: BASIC VALIDATION

**Authors** Hassan C<sup>1</sup>, Bisschops R<sup>1</sup>, Bhandari P<sup>1</sup>, Coron E<sup>1</sup>, Neumann H<sup>1</sup>, Pech O<sup>1</sup>, Correale L<sup>1</sup>, Repici A<sup>1</sup>

**Institute** 1 ONRM Hospital, Rome, Italy

**DOI** 10.1055/s-0039-1681439

**Aims** To in vivo predict colorectal polyp histology, the BASIC classification incorporates both morphological and pit/vessel descriptors domains. To define the new BASIC classes for adenomatous and hyperplastic polyps, we analytically assessed the strength of predictions of these descriptors individually and in combination.

**Methods** A video-library consisting of 102  $\leq$  10 mm polyps with white-light (WLI) and blue-light imaging (BLI) still images/videos was reviewed by 7 expert-endoscopists by a user-friendly software application. Each polyp was rated according to the individual descriptors of the three (surface/pit/vessel) domains of the BASIC without (I phase) and with (II phase) a final diagnosis. Adjusted probability for adenomatous/hyperplastic histology and overall accuracy were calculated. By a modified Delphi agreement, the new BASIC classes for adenomatous and hyperplastic histologies were defined, and corresponding accuracies assessed.

**Results** By pooling 2,175 observations, strength of prediction for adenomatous histology of the two surface descriptors was poor-to-fair (AUC/OR 95% CI for mucus: 0.5/0.2, 0.14–0.26; AUC/OR 95% CI for irregular surface: 0.68/5.88, 4.55–7.69), while it was stronger for most of pit (AUC/OR 95% CI: featureless: 0.81/0.13, 0.10–0.16; AUC/OR 95% CI: not round pits: 0.87/10.1, 7.6–13.4) and vessel (AUC/OR 95% CI for pericryptal vessels 0.87/0.13, 0.01–0.19) descriptors. By combining the surface with pit/vessel domains in the multilevel model, a good-to-excellent prediction power was shown (AUC: 0.89; 95% CI: 0.81–0.96). After definition of BASIC classes for adenomatous (A) and hyperplastic (H) polyps, endoscopist-based accuracy for high-confidence BLI prediction was 90.3% (86.3%–93.2%), and it was superior to both high confidence WL predictions (OR: 1.88, 95% CI: 1.42–2.49) and low-confidence BLI (OR 2.33, 95% CI: 1.13–4.98) diagnosis.

**Conclusions** Based on analytical quantification in strength of prediction among morphological and pit/vessel descriptors, new BASIC classes for adenomatous and hyperplastic histologies were created with favourable effects on accuracy and confidence level.

## OP264 TRADITIONAL SERRATED ADENOMA – SIGNS OF SERRATED AND NONSERRATED TYPES OF COLON POLYPS

**Authors** Ageykina N<sup>1</sup>, Oleynikova N<sup>2</sup>, Malkov P<sup>2</sup>, Fedorov E<sup>2,3</sup>, Danilova N<sup>2</sup>, Kharlova O<sup>2</sup>

**Institute** 1 Medsi Clinic, Moscow, Russian Federation; 2 Lomonosov Moscow State University, Moscow, Russian Federation; 3 Pirogov Russian National Research Medical University, Moscow, Russian Federation

**DOI** 10.1055/s-0039-1681440

**Aims** To study the endoscopic and pathological features of traditional serrated adenoma (TSAs) of the colon.

**Methods** 14 TSA (2.8%) with different grade dysplasia and a single adenocarcinoma focus were identified among 500 polyps of 265 patient's colonoscopies. The key endoscopic and pathological features of the TSAs and IHC studies with CD44, Ki67, Msi-1 and 1-and 3 – claudins antibodies were evaluated.

**Results** Most of polyps were located in the left colon (9; 64.3%), endoscopic were red (13; 92.9%), had size 0.5–4.5 cm. Macroscopically, 35.7% polyps were flat-elevated 0-IIa, 64.3% polyps had protruding type 0-Is, 0-Isp, 0-Ip. 21.4% cases with pit pattern type II, difficult to differentiate from hyperplastic polyps (HP) and sessile serrated adenomas (SSA); 78.6% – pattern type IV, more typical for adenoma tubular-villous (ATV) and adenoma villous (AV). Immunohistochemically TSA is close to AT/ATV in its properties and fundamentally different from HP/SSA, despite the fact that in current classification they belong to the group of serrated polyps. Statistically significant differences:

- a similar distribution of CD44 (surface) of the AT, ATV, and TSA;
- similar levels of Msi-1 cytoplasmic response in AT, ATV and TSA;
- similar levels of Claudine-1 and -3 expression in ATV and TSA.

**Conclusions** Presently exact endoscopic and morphological criteria of TSA are not indicated. Often TSA corresponds to protruding type polyps, red in color, with microscopic pit pattern type IV. The presence of characteristic ectopic crypts is almost impossible to distinguish from the branching of crypts in any ATV or AV, and there is no consensus on the number of ectopic crypts required for TSA verification. Given the low incidence of TSA, the similarity of endoscopic features and the absence of immunohistochemical differences between TSA and AT/ATV, the feasibility of TSA allocation in a separate classification group is debated and requires further study.

## OP265 “RESECT AND DISCARD” STRATEGY FOR DIMINUTIVE COLORECTAL POLYPS

**Authors** Costa Santos MP<sup>1</sup>, Palmela C<sup>1</sup>, Gouveia C<sup>1</sup>, Gomes C<sup>1</sup>, Nunes J<sup>1</sup>, Barjas E<sup>1</sup>, Torres J<sup>1</sup>, Cravo M<sup>1</sup>, Ferreira A<sup>1</sup>

**Institute** 1 Hospital Beatriz Ângelo, Loures, Portugal

**DOI** 10.1055/s-0039-1681441

**Aims** “Resect and Discard” (RD) strategy is based on optic chromoendoscopy characterization of diminutive polyps ( $\leq 5$  mm) histology without pathology assessment allowing cost savings in screening colonoscopy. According to ASGE recommendations this strategy could be applied if there is a  $\geq 90\%$  agreement in assignment of postpolypectomy surveillance intervals compared with conventional strategy. Our aim was to assess this strategy feasibility in our centre.

**Methods** Prospective, observational study of patients submitted to colonoscopy with optic chromoendoscopy during 12 months in one centre. Endoscopic (location, size, NICE classification and degree of confidence in this assessment) and pathological characteristics of polyps were collected. Postpolypectomy surveillance intervals were defined according to ESGE and ASGE/ACG/AGA recommendations. The primary objective was to compare the concordance of surveillance intervals between RD strategy and standard of care. We also compared NICE classification using optic chromoendoscopy and histology for each polyp.

**Results** 203 colonoscopies with 595 polyps were included: 50% from the descending/sigmoid colon and rectum, with a mean size of  $5.2 \pm 3.7$  mm. According to NICE classification, 47% of polyps were type I and 53% type II. Pathology revealed that 30% were hyperplastic polyps, 64% were adenomas, 2% were sessile serrated lesions and 4% were inflammatory changes. The endoscopic diagnosis using NICE classification for adenomatous histology had an accuracy of 80%, sensibility of 76%, specificity of 87%, positive predictive value of 92% and negative predictive value of 66%. The concordance of surveillance intervals between RD and conventional strategies was 93% according to ESGE guidelines and 84% based on ASGE/ACG/AGA recommendations. The surveillance intervals were longer in 16% (32/203) with RD strategy (in 22 patients the difference was between 5–10 and 10 years) and shorter in 2%.

**Conclusions** The RD strategy reached the ASGE recommended cut-off of agreement in surveillance intervals based on ESGE guidelines for postpolypectomy surveillance.

## OP266 THE POLYP-BASED RESECT-AND-DISCARD STRATEGY

**Authors** Duong A<sup>1,2</sup>, Bouin M<sup>2,3</sup>, Deslandres E<sup>2,3</sup>, Leduc R<sup>2,3</sup>, Deshêtres A<sup>2,4</sup>, Weber A<sup>2,3</sup>, Pohl H<sup>5,6</sup>, Barkun A<sup>7</sup>, Renteln D von<sup>2,3</sup>

**Institute** 1 University of Montreal, Faculty of Medicine, Montreal, Canada;

2 University of Montreal Hospital Research Center, Montreal, Canada;

3 University of Montreal Hospital Center, Division of Gastroenterology,

Montreal, Canada; 4 University of Montreal, Division of Internal Medicine,

Montreal, Canada; 5 Department of Veterans Affairs Medical Center, White

River Junction, United States; 6 Geisel School of Medicine and The Dartmouth

Institute, Hanover, United States; 7 McGill University, Gastroenterology,

Montreal, Canada

**DOI** 10.1055/s-0039-1681442

**Aims** Current clinical practice assigns post-polypectomy surveillance intervals based on the number, size and histological aspects of polyps. Our goal was to test a novel polyp-based resect and discard model that assigns surveillance intervals for small polyps based only on size and number of polyps.

**Methods** A post-hoc analysis was performed on patients previously enrolled in a prospective colonoscopy trial. We created a model for polyp-based surveillance interval allocation based on clinical experience for what the most likely pathology-based surveillance interval would be according to certain scenarios. The primary outcome was the surveillance interval agreement of the polyp-based resect and discard strategy compared to histopathology and USMSTF based surveillance intervals. Secondary outcomes were the overall reduction in required pathology exams and the number of surveillance intervals that can be provided immediately to patients before leaving the endoscopy unit. In addition, we conducted a medical chart review to assess current clinical practice of surveillance interval guideline adherence at our institution.

**Results** 457 patients (mean-age 62.7, 514 small polyps) were enrolled in the study. When using the polyp-based resect and discard model, the assigned surveillance intervals were correct for 89.3% (95% CI: 0.86–92) of patients when compared to pathology-based surveillance interval assignment. When using the polyp-based model, 88.8% of patients can be provided with immediate surveillance interval recommendations compared to 47.7% when using the pathology-based surveillance interval allocation. When using the polyp-based model, 61.4% of pathology examinations can be omitted. Medical chart review showed that at our institution 43.8% of patients received surveillance interval recommendations.

**Conclusions** The polyp-based resect-and-discard strategy reaches an almost 90% agreement compared to pathology-based surveillance interval allocation. This alternative method largely reduces the need for pathology exams, increases the amount of patients that can be provided with immediate surveillance interval recommendations at the time of index colonoscopy and can increase guideline-conform surveillance intervals.

## OP267 ARE DIMINUTIVE AND SMALL POLYPS DANGEROUS?

**Authors** Ben Mohamed A<sup>1</sup>, Medhioub M<sup>2</sup>, Khsiba A<sup>2</sup>, Mahmoudi M<sup>2</sup>, Hamzaoui L<sup>2</sup>, Azzouz MM<sup>3</sup>

**Institute** 1 Department of Gastroenterology, Faculty of Medicine of Tunis, Tunis, Tunisia; 2 Department of Gastroenterology, Nabeul, Tunis, Tunisia; 3 Department of Gastroenterology, Nabeul, Faculty of Medicine of Tunis, Tunis, Tunisia

**DOI** 10.1055/s-0039-1681443

**Aims** Small colonic (6–9 mm) and diminutive (1–5 mm) polyps are frequently found at colonoscopy. Histology remains to this day the gold-standard for the evaluation of polyps despite important histo-pathological inter-observer differences in the distinction between adenomas and hyperplastic polyps. Due to the relatively high prevalence and clinical insignificance of small hyperplastic polyps on the left side of the colon, the cost associated with their removal and pathological study remains unjustified.

**Methods** The aim of this study was to identify the histological features of diminutive and small polyps in order to verify the safety of strategies proposing to resect only polyps of 10 mm or more. Patients who underwent polypectomy in 2017 were identified through our endoscopy database and those with polyps < 1 cm were enrolled.

**Results** Two hundred and four patients (117 men and 87 women, sex ratio M/W = 1.34) were identified. The mean age was 63.57 ± 12.14 years (31 to 90 years). There were 431 polyps of which 239 (55.45%) were diminutive. Sixty-three percent of all polyps were on the left colon and 30.3% (n = 131) were hyperplastic. Eighteen percent of the polyps on the right side were hyperplastic versus 37.26% on the left side. This histological difference was statistically significant (p < 0.0001). High grade dysplasia (HGD) was present in 14% of adenomatous polyps and serrated polyps were observed in 11.5% of cases. Adenocarcinoma was found in 3 small polyps on the left side (9 mm) causing a rate of degeneration at 0.69%.

**Conclusions** These data demonstrate that only a third of the polyps on the left side were hyperplastic, mainly represented by diminutive polyps (< 5 mm). However the pathological findings of small polyps (6–9 mm) are not reassuring proving that polypectomy remains well justified.

## OP268 A CRITICAL EVALUATION OF THE HAZEWINKEL CRITERIA FOR THE OPTICAL DIAGNOSIS OF SESSILE SERRATED LESIONS (SSL) AT THE BEGINNING OF A LEARNING PROCESS

**Authors** Bustamante-Balen M<sup>1,2</sup>, Satorres C<sup>1,2</sup>, García-Campos M<sup>1</sup>, García-Morales N<sup>1</sup>, Alonso N<sup>1,2</sup>, Ponce M<sup>1,2</sup>, Sanchez-Montes C<sup>1</sup>, Pons V<sup>1,2</sup>

**Institute** 1 La Fe Polytechnic University Hospital, Gastrointestinal Endoscopy Unit, Valencia, Spain; 2 La Fa Health Research Institute, Gastrointestinal Endoscopy Research Group, Valencia, Spain

**DOI** 10.1055/s-0039-1681444

**Aims:**

1. To describe how the main characteristics of the Hazewinkel criteria for SS are identified by a group of non-experienced endoscopists;
2. To identify which combination of characteristics identifies with more reliability a SSL in a learning background.

**Methods** Prospective study in the setting of a population-based CRC screening program. Six endoscopists attended a short session on optical diagnosis of SSL. For every lesion all endoscopists described the presence of the Hazewinkel criteria (cloud appearance, irregular shape, indistinct limits and black dots) and categorized lesions following the NICE classification. The presence of ≥ 2 criteria was considered diagnostic of SSL.

**Results** A total of 2505 lesions were included. Among them, 116 (4.6%) SSL were identified [median size (SD) 4 (6.2); proximal location 68 (58.6%)]. Accuracy of ≥ 2 criteria for the diagnosis of SSP was 0.93. Overall positive predictive value (PPV) was 0.25 without differences among endoscopists,

while the NICE PPV for adenoma was 0.84. The frequency of identification of each criterion in every SSLs was: cloud-like surface 45 (38.8%), irregular shape 27 (23.3%), indistinctive borders 30 (25.9%) and black dots 14 (12.1%). All criteria were more prevalent in SSL > 10 mm. The proportion of SSL diagnosed in lesions harboring each criteria combination is summarized in Tab. 1.

**Tab. 1** Proportion of SSL diagnosed in lesions harboring each criteria combination

	NICE1	NICE2	Size 1 – 10 mm	Size > 10 mm
Cloud-like +irregular shape	28.6	12.5	5.6	28.6
Cloud-like + indistinctive borders	50.0	-	36.4	100
Cloud-like+black dots	25.0	-	20.0	-
Cloud-like+irregular shape+indistinctive borders	35.3	25.0	22.9	57.1

**Conclusions:**

1. A great proportion of SSL does not have the optical diagnosis criteria;
2. The identification of the Hazewinkel criteria improves with size and NICE1 lesions.
3. Cloud-like surface is the most prevalent characteristic found in SSL.

## OP269 DIAGNOSTIC PERFORMANCE OF CRYSTAL VIOLET CHROMOENDOSCOPY – RESULTS FROM A GERMAN CENTER

**Authors** Ebigbo A<sup>1</sup>, Römmele C<sup>1</sup>, Probst A<sup>1</sup>, Braun G<sup>1</sup>, Gölder S<sup>1</sup>, Vollmer C<sup>1</sup>, Weber T<sup>1</sup>, Neuhaus L<sup>1</sup>, Messmann H<sup>1</sup>

**Institute** 1 Klinikum Augsburg, Augsburg, Germany

**DOI** 10.1055/s-0039-1681445

**Aims** The precise characterization of colorectal neoplasms is necessary because it influences the choice of treatment. Kudo's pit pattern classification has shown excellent diagnostic performance. In Germany, data on the use of crystal violet (CV) solution to describe the surface pattern of colorectal lesions is lacking. In this study, we describe the diagnostic outcomes of CV-chromoendoscopy on colorectal neoplasms.

**Methods** A 0,05% CV solution was used to stain the surface of 62 colorectal polyps. The surface pattern of each polyp was described. Polyps were categorized into Kudo types I, II, III, IIII, IV, VI and Vn. The pit pattern diagnosis was compared with the histology. Furthermore, a simplified pit pattern classification using one of three categories: regular surface, irregular surface and amorphous surface was used on the same polyps and also compared with histology.

**Results** 4 sessile serrated adenomas (SSA), 21 low-grade intramucosal neoplasia (LGIEN), 31 high-grade intramucosal neoplasia (HGIEN), 1 low-risk submucosal invasive carcinoma and 5 deeply invasive carcinoma were stained with crystal violet. Type III/IIII and IV showed LGIEN/HGIEN in 100% and 96% respectively. Type VI had a HGIEN histology in 89% while type Vn had a diagnostic accuracy of 86% for cancer. In the simplified pit pattern classification, a regular surface pattern showed LGIEN/HGIEN in 93%, an irregular surface showed HGIEN in 77% and an amorphous surface pattern had a diagnostic accuracy of 83% for cancer.

**Conclusions** With CV chromoendoscopy and Kudo's pit pattern, colorectal polyps can be classified correctly into adenomas and carcinomas with a high degree of accuracy. A simplified description of the surface pattern after CV staining also has a high degree of accuracy for the characterization of colorectal polyps.

Saturday, April 6, 2019  
EUS therapeutic bile

08:30 – 10:30  
South Hall 1B

### OP270 COMBINATION OF ERCP AND EUS-GUIDED BILIARY DRAINAGE (CERES) VERSUS PTBD FOR MALIGNANT HILAR BILIARY OBSTRUCTION: A MULTICENTER PROSPECTIVE COMPARATIVE COHORT STUDY (THE CERES STUDY)

**Authors** Orprayoon T<sup>1</sup>, Kongkam P<sup>1</sup>, Boonmee C<sup>2</sup>, Sodarat P<sup>3</sup>, Seabmuangsai O<sup>3</sup>, Romano R<sup>1</sup>, Jangsirikul S<sup>1</sup>, Ridditid W<sup>1</sup>, Angsuwatcharakon P<sup>1</sup>, Ratanachu-ek T<sup>4</sup>, Rerknimitr R<sup>1</sup>

**Institute** 1 Chulalongkorn University and King Chulalongkorn Memorial Hospital, Division of Gastroenterology, Department of Medicine, Faculty of Medicine, Bangkok, Thailand; 2 Thabo Crown Prince Hospital, Surgery, Nongkhai, Thailand; 3 Roi-Et Hospital, Surgery, Roi-Et, Thailand; 4 Rajavithi Hospital, Surgery, Bangkok, Thailand

DOI 10.1055/s-0039-1681446

**Aims** To prospectively compare efficacy of combination of ERCP and EUS-BD (CERES) including EUS-guided hepaticogastrostomy (EUS-HGS) and EUS-guided hepaticoduodenostomy (EUS-HDS) versus PTBD in malignant hilar biliary obstruction (MHBO).

**Methods** Patients with MHBO were recruited. Patients presented to endoscopy and interventional radiology service received CERES (group A) and PTBD (group B) as primary biliary drainage method, respectively. Technical and clinical success rate (TSR and CSR) and time to RBO (T-RBO = time from last successful biliary drainage to biliary reintervention procedure) were recorded. The study was conducted during March 2016 until October 2018 as a multicenter study of 3 Thai hospitals (King Chulalongkorn Memorial Hospital of Thai Red Cross Society, Tha-Bor Hospital, and Roi-Et Hospital) under the Thai Association for Gastrointestinal Endoscopy (TAGE) guidance.

**Results** 45 patients (23 M, 22 F) were recruited into group A (n = 23) and group B (n = 22). One patient from group A was withdrawn due to loss to follow up. Overall TSR, CSR, and complication rate (CR) of group A versus B were 90.9% (20/22) vs. 100% (22/22) (p = not significant (NS)), 81.8% (18/22) vs. 86.4% (19/22) (p = NS), and 18.2% (4/22) vs. 9.1% (2/22) (p = NS), respectively. Group A had significantly longer mean T-RBO than group B (168.4 ± 135.0 vs. 51.8 ± 27.7 days, respectively; p = 0.045). At 6-month interval, median number of biliary reintervention procedures in group A was significantly lower than group B (0; IQR 0 – 1 vs. 2.5; IQR 2 – 5), respectively; p = 0.001. Death rate at 2-year interval of group A and B were 100% (16/16) and 93.8% (15/16) (p = NS), respectively.

**Conclusions** For biliary drainage in MHBO, based on results of this study, CERES provided longer patency with less frequent of RBO at 6-month interval.

### OP271 EUS GUIDED CHOLEDOCODUODENOSTOMY WITH HOT AXIOS: FRENCH MULTICENTRIC STUDY AFTER LEARNING CURVE

**Authors** Jacques J<sup>1</sup>, Privat J<sup>2</sup>, Fumex F<sup>3</sup>, Pinard F<sup>4</sup>, Valats JC<sup>5</sup>, Cholet F<sup>6</sup>, Grandval P<sup>7</sup>, Lepetit H<sup>1</sup>, Legros R<sup>1</sup>, Napoléon B<sup>3</sup>

**Institute** 1 CHU Dupuytren, Limoges, France; 2 CH Jacques Lacarin, Vichy, France; 3 Hôpital Jean Mermoz, Lyon, France; 4 Hôpital de Courmouaille, Quimper, France; 5 CHU Saint-Eloi, Montpellier, France; 6 CHU Brest, Brest, France; 7 Hôpital La Timone, Marseille, France

DOI 10.1055/s-0039-1681447

**Aims** Eus guided biliary drainage is indicated in case of impossibility or failure of classic biliary drainage by ERCP. Recently we reported a good efficiency of EUS guided choledocoduodenostomy using the HOT AXIOS in a retrospective multicentric study. However in this study, technical success was 88.5%. Utilization of the recommended technique (direct ponction of the common bile

duct with the HOT AXIOS + using a 6 mm Stent + fistulotomy with a pure section current) was the only predicting factor of clinical success.

We decide to reevaluate this procedure one year after in the same centers.

**Methods** French retrospective multicentric study including all cases of EUS guided CDS with HOT AXIOS device in the 7 centers that participate to the first study.

**Primary ENDPOINT:** technical success rate defined as the ability to correctly deploy the Hot Axios stent between the common bile duct and the duodenal bulb with visualization of bile flow.

**Secondary endpoints:** decrease in bilirubin of at least 50% at day 7 or normalization at day 30.

and clinical success rate, per procedural complication rate, short-term complications (all complications occurring between the procedure and discharge from the hospital).

**Results** 61 consecutive patients were included in this study between 01/09/2017 and 22/09/2018 by 11 operators in 9 centers.

**Primary Endpoint:** Technical success rate was 98.5% with only one failure.

**Secondary Endpoints:**

Clinical success rate: 98.4%.

Per procedural complication: 1.6%: one bleeding during the fistulotomy stopped by the stent itself.

Short term complications: 0%.

Recurrence of biliary obstruction: 7 cases (11.5%) (median follow up: 151 days).

**Conclusions** EUS-CDS with the HOT AXIOS is efficacious and safe in distal malignant obstruction of the common bile duct in cases of ERCP failure with impressive results once the expertise is acquired and the recommended technique is followed.

### OP272 EUS-GUIDED TRANSMURAL BILIARY DRAINAGE SHOULD BE THE FIRST CHOICE THERAPY IN PATIENTS WITH UNFEASIBLE PAPILLARY CANNULATION

**Authors** Vila JJ<sup>1</sup>, González G<sup>1</sup>, Aburruza L<sup>1</sup>, Costa J<sup>2</sup>, Carvalho J<sup>3</sup>, Prieto C<sup>1</sup>, Fernández-Urién I<sup>1</sup>, Carrascosa J<sup>1</sup>, Juanmartiñena JF<sup>1</sup>, Gómez M<sup>1</sup>

**Institute** 1 Endoscopy Unit, Gastroenterology Dpt., Complejo Hospitalario de Navarra, Pamplona, Spain; 2 Gastroenterology Dpt., Hospital de Braga, Braga, Portugal; 3 Gastroenterology Dpt., Hospital Lisboa Norte, Lisboa, Portugal  
DOI 10.1055/s-0039-1681448

**Aims** To compare the outcomes of EUS-guided rendezvous technique (RVT) versus EUS-guided transmural technique (TMT) for biliary drainage after ERCP failure.

**Methods** Outcomes of RVT vs. TMT performed in consecutive patients with unfeasible papillary cannulation were analyzed retrospectively from January 2014 until June 2017, and prospectively since the latter until June 2018. Inclusion criteria: patients with benign or malignant biliary disease with impossible biliary cannulation in whom EUS-guided biliary drainage was accomplished. Variables studied: age, sex, technique performed, type of disease, access point, technical success and adverse events classified according to ASGE lexicon. EUS-guided technique was decided individually according to patients characteristics. Fisher test and logistic regression analysis were used.

**Results** 73 patients were included: 42 RVT and 31 TMT (28 hepaticogastrostomies, 3 choledochoduodenostomies). Mean age: 74.26 ± 13.25 (range: 30 – 94), 27 women. 70% of patients had malignant disease and 78% had biliary stenosis. An ERCP was attempted in the same session of EUS-guided technique more frequently in RVT group (22% vs. 60%, p = 0.002). Technical success was higher with TMT (90.3% vs. 62%, p = 0.007) and adverse events were higher with RVT (9.7% vs. 31%, p = 0.04). Adverse events: pancreatitis (6), bleeding (3), infection (2), biliary peritonitis (4) and pulmonary thromboembolism (1). Adverse events were classified: 6 moderate, 5 severe and 5 fatal. Severe and fatal adverse events happened more frequently with RVT (3.2% vs. 21.4%, p = 0.03). In patients with malignant stenosis, TMT had also a higher

technical success (89.7% vs. 63.6%,  $p=0.03$ ) and lower adverse event rate (10.3% vs. 31.8%,  $p=0.07$ ). With multivariate analysis, technical success and adverse event rates were only influenced by the technique performed favouring TMT: ( $p=0.02$ , OR = 5.2, IC95% = 1.2 – 22.3) and ( $p=0.05$ , OR = 4.87; IC95% = 0.9 – 24.8) respectively.

**Conclusions** EUS-guided biliary drainage by means of TMT offers a higher technical success and lower adverse events which are also less severe than with RVT. Thus, in patients with malignant biliary stenosis and unfeasible ERCP, TMT should be the first choice therapy for biliary drainage.

### OP273 TEMPORARY EUS-GUIDED ANASTOMOSES (TEA) AS THERAPEUTIC ACCESS FISTULAS (TAF) IN BENIGN BILIARY OBSTRUCTION (BBO) NOT AMENABLE TO ERCP: EMERGING APPLICATION OF EUS-GUIDED BILIARY DRAINAGE (EUS-BD)

**Authors** De Benito M<sup>1</sup>, Yaiza Carbajo A<sup>1</sup>, Bazaga S<sup>1</sup>, Garcia-Alonso FJ<sup>1</sup>, Sanchez-Ocaña R<sup>1</sup>, Peñas-Herrero I<sup>1</sup>, Garcia-Pajares F<sup>1</sup>, De la Serna Higuera C<sup>1</sup>, Perez-Miranda M<sup>1</sup>

**Institute** 1 Hospital Universitario Rio Hortega, Valladolid, Spain

**DOI** 10.1055/s-0039-1681449

**Aims** Transpapillary EUS-BD is gaining acceptance in BBO. The potential of transmural EUS-BD in complex BBO warrants study. To assess feasibility and efficacy of TEA using transmural covered self-expandable metal-stents (cSEMS) to provide interval biliary drainage and create TAF for biliary endotherapy under cholangioscopy/fluoroscopy in BBO not amenable to ERCP.

**Methods** 402 EUS-BD among 12,355 consecutive ERCPs databased at single Unit over 12-years were queried for: BBO + Transmural cSEMS placement ± removal. Lack of dilation precluded EUSBD attempts in 14/108 BBO. Transmural EUS-BD succeeded in 91/94 (96.8%). 9 BBO with plastic stents TEAs and 8 subsequently proved malignant were excluded. 87 patients (40.7% female; 71.5 [IQR 62.5 – 79.5] years old) were reviewed for indications, technique, interventions, technical success, AEs and final therapeutic success.

**Results** Indications: strictures (40.7%), CBD stones (23.3%), transections (19.1%), hepatoolithiasis (15.1%). SAA in 59.5% (Roux-en-Y 33.7%, Whipple 12.3%, Bariatric 6%). ERCP attempted in 93.2%, with failed access/cannulation in 61.3% and incomplete/impossible therapy in 38.5%. In 93% TEA, 10 × 60 mm cSEMS with anchoring flaps and/or additional clips/coaxial pigtailed were used. TEA were predominantly transhepatic (78.7%). Over a median (IQR) cSEMS indwell time of 81.5 (21 – 188) days a median (IQR) of 3 (2 – 4) treatment sessions guided by antegrade cholangiography/cholangioscopy through the cSEMS and/or through the naked TAF were performed for antegrade balloon-dilation, stent insertion/removal, stone removal ± lithotripsy, rendezvous, magnetic compression anastomoses, needle-knife incision. cSEMS removal was successful in all 79.2% in whom attempted (20.8% treatment drop-outs or follow-up losses). Final clinical success achieved in 77.4% of patients with cSEMS removed. 26.3% experienced AEs (7.8% severe).

**Conclusions** Select BBO patients (refractory stones/strictures ± SAA) not amenable to ERCP can be treated using TEA as TAF for serial endotherapy. This shift from percutaneous to transmural endoscopy replicates prior experience in malignancy. Surgery and PTBD can be avoided in 80%.

### OP274 EUS GUIDED VERSUS ERCP GUIDED BILIARY DRAINAGE FOR PRIMARY PALLIATION OF MALIGNANT BILIARY STRICTURES: A SYSTEMATIC REVIEW AND META-ANALYSIS

**Authors** Tringali A<sup>1</sup>, Stasi E<sup>2</sup>, Cintolo M<sup>1</sup>, Pugliese F<sup>1</sup>, Dioscoridi L<sup>1</sup>, Forti E<sup>1</sup>, Mutignani M<sup>1</sup>, Adler DG<sup>3</sup>

**Institute** 1 Endoscopy, ASST Grande Ospedale Niguarda, Milano, Italy;

2 Gastroenterology and Endoscopy, IRCCS De Bellis, Castellana Grotte, Italy;

3 Gastroenterology and Hepatology, University of Utah, Salt Lake City, United States

**DOI** 10.1055/s-0039-1681450

**Aims** EUS guided biliary drainage (EU-BD) has emerged as an alternative treatment for Percutaneous transhepatic biliary drainage (PTH-BD) when ERCP fails. EUS-BD has some theoretical advantages over ERCP-BD because it avoids the traumatism of the papilla and allows drainage when the papilla is not reachable. We performed a meta-analysis to assess the role of EUS-BD compared to ERCP-BD in patients with malignant biliary strictures.

**Methods** a literature search using PUBMED and EMBASE was performed to identify article comparing EUS-BD vs. ERCP-BD in patients with distal malignant biliary strictures. Outcome measures were technical and clinical success, overall adverse events, PEP, bleeding, perforation, cholangitis and migration rate, re-intervention rate, procedure time, and patients survival. Results were reported as mean differences or pooled odds ratios (OR) with 95% confidence intervals (95% CI). Fixed and random models were used as appropriate. Heterogeneity was assessed by measuring I<sup>2</sup>.

**Results** We identified 4 studies for a total of 446 patients (208 EUS-BD, 235 ERCP-BD). No difference emerged in rates of technical (OR 0.75 95% CI 0.26 – 2.16) and clinical success (OR 0.63 95% CI 0.30 – 1.34), need for reintervention (OR 0.61 95% CI 0.09 – 3.90), overall AE (OR 0.60 95% CI 0.33 – 1.09) and cholangitis (OR 0.59 95% CI 0.09 – 3.81). PEP rate was higher in the ERCP-BD group (OR 0.07 95% CI 0.01 – 0.36). There was a trend in the procedure time favoring the EUS-BD group but not reaching statistical significance (MD -5.44 95% CI -11.64 – 0.75). Stent survival was higher in the ERCP-BD group (HR 1.90 95% CI 1.13 – 3.22) while there was not a statistically significant difference in patients survival (HR 0.97 95% CI 0.25 – 3.86).

**Conclusions** EUS-BD was equal to ERCP-BD in efficacy and safety although EUS-BD appears to be associated with a lower rate of PEP and a trend in lower procedure time while ERCP-BD had higher stent survival rates. Further RCTs are needed before a firm conclusion can be made.

### OP275 MANAGEMENT OF COMPLEX BILIARY LEAK BY ENDOSCOPIC DRAINAGE WITH TRANSMURAL OR TRANSPAPILLARY-TRANSFISTULARY ACCESS

**Authors** Bromberg L<sup>1</sup>, Lemmers A<sup>1</sup>, Fernandez M<sup>1</sup>, Bucalau AM<sup>1</sup>, Lucidi V<sup>1</sup>, Blero D<sup>1</sup>, Lemoine O<sup>1</sup>, Devière J<sup>1</sup>

**Institute** 1 Erasme University Hospital ULB, Brussels, Belgium

**DOI** 10.1055/s-0039-1681451

**Aims** Biliary leak (BL) occurs often after hepatobiliary surgery. ERCP with biliary sphincterotomy and/or placement of a biliary stent or nasobiliary catheter represents the first therapeutic option. Some complex cases might resist to conventional treatment.

We report our experience of biloma drainage with transpapillary/transfistulary (TP/TF) or EUS assisted-transmural (TM) access.

**Methods** This is a retrospective analysis from January 2007 to December 2016. BL diagnosis was based on imaging or bile outflow from surgical drain. Patients who responded to conventional ERCP treatment were excluded. Baseline characteristics, radiologic, procedural and follow-up data were collected. TP/TF was performed by the placement of double pigtail stent during ERCP. For TM, plastic DPT stents were placed under EUS control.

**Results** We identified 30 patients (males 57%, median 55 years) with BL treated by TF/TP or TM drainage. BL resulted from hepatectomy (50%) and cholecystectomy (26,7%) in the majority of cases. Pain and sepsis were the common symptoms at presentation in 66% and 70% respectively. The drain, present in 90% of patients had a mean daily bile flow before endoscopy of 300 cc (40 – 1600). The median between the date of surgery and endoscopic treatment was 54 (10 – 1144) days. TM drainage was performed in 14 patients by transgastric (8) or transduodenal (6) route. 86% required a unique session with one stent (10) or 2 stents (4). TP/TF drainage was performed in 16 patients, needing one, two or more interventions in 75, 25 and 31%. Fol-

low-up was available for 21 patients at three months. In those patients, collection regression occurred in 52% of cases (TM: 6; TF: 5) and 57%(TM: 6; TF: 6) were free of sepsis and weaned from percutaneous drain. Redo surgery was necessary for 2 patients. Two patients died due to early complications related to endoscopic treatment (vascular/pericardial erosion).

**Conclusions** Transfistular/transpapillary or transmural drainage is technically feasible in experienced centers and might avoid redo-biliary surgery.

### OP276 EUS-GUIDED VS PERCUTANEOUS DRAINAGE FOR ACUTE CHOLECYSTITIS IN HIGH-RISK PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

**Authors** [Tringali A](#)<sup>1</sup>, [Stasi E](#)<sup>2</sup>, [Cintolo M](#)<sup>1</sup>, [Dioscoridi L](#)<sup>1</sup>, [Pugliese F](#)<sup>1</sup>, [Forti E](#)<sup>1</sup>, [Adler DG](#)<sup>3</sup>, [Mutignani M](#)<sup>1</sup>

**Institute** 1 Endoscopy, ASST Grande Ospedale Niguarda, Milano, Italy;

2 Gastroenterology and Endoscopy, IRCCS De Bellis, Castellana Grotte, Italy;

3 Gastroenterology and Hepatology, University of Utah, Salt Lake City, United States

DOI 10.1055/s-0039-1681452

**Aims** EUS-guided gallbladder drainage (EUS-GBD) is an alternative treatment for acute cholecystitis in patients unfit for surgery when transpapillary drainage fails. Percutaneous cholecystostomy (PT-GBD) offers an alternative temporary measure with clinical success rates over 95% in acute cholecystitis; however, it is associated with high morbidity. A meta-analysis was performed to compare the clinical outcome of EUS-GBD and PT-GBD for acute cholecystitis in high-risk patients.

**Methods** a medical literature search using Embase, Pubmed and Cochrane was performed, aimed at identifying studies comparing EUS-GBD and PT-GBD in patients with acute cholecystitis at high surgical risk. Outcome measures were clinical and technical success, overall AE and type of AE, re-admission, recurrence and re-intervention rate, mortality and pain score. Results were reported as mean differences or pooled odds ratios (OR) with 95% confidence intervals (95% CI). Heterogeneity was assessed by measuring I<sup>2</sup>.

**Results** We identified 7 studies (6 observational and 1 RCT) for a total of 805 patients.

EUS-GBD had a greater technical success (OR 0.39 95% CI 0.16–0.97), and lower pain score (MD -2.95 95% CI -2.60; -2.30), re-intervention rate (OR 0.24 95% CI 0.11–0.51) and re-admission to hospital rate (OR 0.21 95% CI 0.12–0.37) compared to PT-GBD. No difference emerged in clinical success (OR 0.68 95% CI 0.38–1.21) adverse events (OR 0.69 95% CI 0.28–1.70) and mortality (OR 1.04, 95% CI 0.35–3.11).

**Conclusions** EUS-GBD is a safe and effective procedure that reduces the need for re-intervention.

In patients who are poor surgical candidates it should become the first choice treatment in tertiary care centres with expert endoscopists.

### OP277 EUS-GUIDED BILIARY DRAINAGE AFTER ERCP FAILURE IN ONCOLOGY PATIENTS

**Authors** [Casamali C](#)<sup>1</sup>, [Costa Martins B](#)<sup>1</sup>, [Corsato Scomarparim R](#)<sup>1</sup>, [Azeredo Coutinho LM](#)<sup>1</sup>, [Okazaki O](#)<sup>1</sup>, [Andrade de Paulo G](#)<sup>1</sup>, [Lenz L](#)<sup>1</sup>, [Eiji Matuguma S](#)<sup>1</sup>, [Coronel M](#)<sup>1</sup>, [Cavalcante Franco M](#)<sup>1</sup>, [Vaz Safatle-Ribeiro A](#)<sup>1</sup>, [Pennacchi CMP](#)<sup>1</sup>, [Maluf-Filho F](#)<sup>1</sup>

**Institute** 1 Endoscopy, Instituto do Cancer do Estado de São Paulo, Sao Paulo, Brazil

DOI 10.1055/s-0039-1681453

**Aims** Evaluate the technical and clinical success, survival, patency time of the stents and complications related to the procedure.

**Methods** A retrospective analysis of consecutive procedures performed between January 2010 and October 2018 in a tertiary oncology hospital. Patients included had unresectable malignant biliary neoplasia and had undergone ERCP without success. Patients submitted to percutaneous transhepatic or surgical drainage were excluded.

**Results** During the study period, we performed 1,230 ERCP's. Among the failure cases, 23 (1.9%) patients underwent EUS-BD. The proportion of female/male patients was 13/10. Median age was 65 years (IQR 56–73). Regarding performance status, 11 (48%) were ECOG 0–1 and 12 (52%) ECOG 2–3. All had advanced neoplasms, stages III (26%) or IV (74%). Regarding the indications of EUS-BD, 17 had inaccessible papilla, 5 cannulation failure and 2 complete common bile duct stenosis. In relation to the drainage route, 18 had choledochoduodenostomy, 2 hepaticogastrostomy 2 rendezvous and 1 hepaticojejunal. We used biliary self-expanding metal stents, 11 (48%) partially covered, 8 (35%) fully covered and 4 (17%) uncovered. Technical success was 100% and clinical success was 74% (N = 17). There were 10 adverse events within 2 weeks: 4 bleedings (2 required transfusion – no deaths); 3 perihepatic fluid collections (1 required surgery; 2 died) and 3 cholangitis (2 deaths). 30-day mortality was 35% (8/23 patients). Median survival was 40 days (IQR 19–73). Three (13%) required reintervention due to cholangitis, two of which were submitted to ERCP and one to transhepatic drainage.

**Conclusions** Considering the advanced cancer context and the factors that may interfere in the outcome of these patients, EUS-biliary drainage is feasible when ERCP fails. It is rarely needed (1.9%) in centers with expertise in ERCP. The clinical success rate and adverse events probably reflects the severity of the patients included.

### OP278 EUS-GUIDED GALLBLADDER DRAINAGE (EUS-GBD) WITH LUMEN-APPPOSING METAL-STENT – BEYOND BILIARY ISSUES. SEDATION AND AIRWAYS MANAGEMENT, ICU ADMISSION AND GENERAL OUTCOMES

**Authors** [Lisotti A](#)<sup>1</sup>, [Calvanese C](#)<sup>1</sup>, [Cominardi A](#)<sup>2</sup>, [Serrani M](#)<sup>1</sup>, [Linguerrì R](#)<sup>1</sup>, [Bacchilega I](#)<sup>1</sup>, [Jovine E](#)<sup>1</sup>, [Fusaroli P](#)<sup>2</sup>

**Institute** 1 Gastroenterology Unit, Hospital of Imola, Imola, Italy;

2 Gastroenterology Unit, University of Bologna, Hospital of Imola, Imola, Italy

DOI 10.1055/s-0039-1681454

**Aims** EUS-guided gallbladder drainage (EUS-GBD) in high-risk surgical patients with acute cholecystitis is a safe procedure, with a high success rate. Several studies have been published dealing with technical, clinical outcomes, procedural adverse events; moreover, comparison with surgery, percutaneous drainage, trans-papillary endoscopic drainage have been performed.

To our knowledge, no data on procedural issues have been clearly stated, in terms of type of sedation administered, airways management, need for ICU admission, length of stay and long-term survival.

**Methods** We enrolled patients with clinical, biochemical and radiological diagnosis of severe acute cholecystitis, who underwent EUS after being considered contraindicated for surgery at multidisciplinary evaluation. All procedures have been conducted with the supervision of an anesthesiologist.

**Results** 20 patients were considered but in 6 case EUS-GBD was not indicated because of no signs of cholecystitis (no.3), obstructive cholangitis (no.2), no signs of biliary stones or inflammation (no.1). In 14 patients (8 male; 78-year-old [69–91]) EUS-GBD was considered indicated; in 1 case, no EUS operative window was identified and the drainage was not performed. Trans-duodenale drainage was performed in 10 out of 13 cases (76.9%). Clinical success was achieved in 11/13 cases (84.6%). 2 patients (14.3%) required ICU admission, before the procedure, because of biliary septic shock. 2 (14.3%) patients required general anesthesia with airways intubation, 9 (64.3%) required deep sedation with propofol while, in 3 cases (21.4%) were managed with fentanyl and midazolam. ICU length of stay was 8 [2–14] days; length of stay was 9 [7–32] days; in-hospital mortality was 7.1%; 1-month survival was 92.9%; 6-month survival was (6/7) 85.7%. Elective cholecystectomy was performed in 1 patient because of recurrent cholecystitis due stent occlusion.

**Conclusions** EUS-GBD was a safe and effective technique; the procedure could be performed without general anesthesia and airways intubation in

most cases (>85%) leading to very low anesthesiological complications and mortality.

## OP279 ENDOSCOPIC ULTRASOUND-GUIDED RENDEZVOUS IN BENIGN BILIARY OR PANCREATIC DISORDERS WITH A 22-GAUGE NEEDLE AND A 0.018-INCH NOVAGOLD GUIDEWIRE

**Authors** Martínez B<sup>1</sup>, Martínez J<sup>2</sup>, Mangas-San Juan C<sup>2</sup>, Bozhychko M<sup>2</sup>, Casellas JA<sup>2</sup>, Ramón Aparicio J<sup>3</sup>

**Institute** 1 Hospital Universitario del Vinalopó, Elche, Spain; 2 Hospital General Universitario de Alicante, Alicante, Spain; 3 Unidad de Endoscopia, Servicio de Medicina Digestiva, Hospital General Universitario de Alicante, Alicante, Spain

**DOI** 10.1055/s-0039-1681455

**Aims** To assess the efficacy and safety of endoscopic ultrasound-guided rendezvous (EUS-RV) for benign biliary or pancreatic disorders with a 22-gauge needle and a 0.018-inch guidewire.

**Methods** Retrospective study of patients who underwent EUS-RV after failed biliary or pancreatic cannulation for benign disorder. For EUS-RV, a 22-gauge needle and a 0.018-inch Novagold guidewire were used. The primary outcome was the technical success rate and the secondary outcome was the rate of adverse events.

**Results** Thirty-one patients were included (18 men and 13 women, average age (SD) of 71.8 (13.1) years. In 27 cases, the EUS-RV was biliary, and in 4 cases, it was pancreatic. Initial ERCP was performed for bile duct stones (n=20), benign stenosis (n=5), biliary leak (n=2), pancreatic stenosis (n=1), pancreatic fistula (n=1), and the treatment of intraductal lithiasis in chronic pancreatitis (n=2). Twenty-five (80.6%) patients underwent EUS-RV in the same session after failed ERCP. The reasons for applying EUS-RV were undetectable papilla (n=3), intradiverticular papilla (n=9), and failed cannulation (n=19).

Duct puncture and contrast injection were achieved with the 22-gauge needle in all cases. However, the guidewire could be placed only in the duodenum in 25/31 (80.6%), completing the procedure in all cases in which the guide was passed, which represents a technical and clinical success rate of 80.6%. In pancreatic EUS-RV, the technical success rate was 75% (3/4), and in biliary, it was 81.5% (22/27), p=0.76. The overall adverse event rate was 12.9% (4 adverse events in 3 patients), all of which were in biliary EUS-RV.

**Conclusions** EUS-RV may be a safe and feasible salvage method for unsuccessful cannulation for benign disorders. The use of a 22-gauge needle with a 0.018-inch guidewire may be the first option for benign pathology.

Saturday, April 6, 2019

08:30 – 10:30

Video ERCP 1

South Hall 1A

## OP280V ENDOSCOPIC DESTRUCTION OF A LARGE INTRAJEJUNAL BILIARY STONE USING THE POLYPECTOMY SNARE AND HIGH AUTOCUT MODE

**Authors** Rivory J<sup>1</sup>, Rostain F<sup>1</sup>, Saurin JC<sup>1,2</sup>, Ponchon T<sup>1,2</sup>, Lupu A<sup>1</sup>, Pioche M<sup>1,2</sup>

**Institute** 1 Hospices Civils de Lyon, Lyon, France; 2 Lyon University, Lyon, France

**DOI** 10.1055/s-0039-1681456

Biliary stones are usually found in the gallbladder or in the biliary ducts and are sometimes challenging to destroyed with mechanical, electrohydraulic or laser lithotripsy. Collection of gallstones in the jejunal limb after duodenopancreatectomy was rarely reported in the literature.

We report here the case of a 66 years-old woman followed up since 1998 after an Imanaga's procedure of pancreatoduodenectomy for an endocrine tumor. In 2014, she was referred for an angiocholitis and a percutaneous radiologic drainage was performed. Biliary stones were removed and a one-year drainage

was maintained to calibrate the biliojejunal anastomosis. In 2017, she repeated angiocholitis with acute pain of the hepatic region. An abdominal CT scan revealed a 4 cm radiopaque stone in the afferent jejunal loop responsible of bile duct dilation.

Endoscopy showed a stenosis of the gastrojejunal anastomosis not passable initially with a scope. After a 12 mm balloon dilatation we explored the afferent loop and found immediately an enormous yellow stone. The capture of the stone was impossible with a 40 mm snare and we thus decided to destroy the stone. We first tried argon plasma coagulation and electromechanical lithotripsy but without any effectiveness on the stone. Finally, the tip of a 10 mm snare (Olympus, Tokyo, Japan) was used to damage the stone using the Autocut mode 180W (Erbe, Tuebingen, Germany) to drill and fragment this stone.

After 2 hours of procedure, 80% of the stone were destroyed and we decided to schedule a second endoscopic session. Pain disappeared immediately after the first session and 1 month later, a 1 cm stone remained which was easily fragmented with the same technique.

In conclusion, we report an extremely rare complication after Imanaga's procedure treated by endoscopy. Autocut mode 180 watt applied with tip of the snare is a possible technique to split stones to avoid difficult surgery approach.

## OP281V ERCP IN BILIARY PARASITOSIS – FROM DIAGNOSIS TO TREATMENT

**Authors** Fernandes J<sup>1,2</sup>, Moreira M<sup>1</sup>, Araújo T<sup>1</sup>, Ribeiro H<sup>1</sup>, Giestas S<sup>1</sup>, Lucas F<sup>3</sup>, Ramada J<sup>1</sup>, Certo M<sup>4</sup>, Canena J<sup>5</sup>, Lopes L<sup>1,6,7</sup>

**Institute** 1 Gastroenterology, Hospital de Santa Luzia, Viana do Castelo, Portugal; 2 Gastroenterology, Centro Hospitalar Cova da Beira, Covilhã, Portugal; 3 Serviço de Medicina do Hospital de Cascais, Cascais, Portugal; 4 Hospital de Braga, Braga, Portugal; 5 Gastroenterology, Hospital Amadora Sinta, Amadora, Portugal; 6 Life and Health Sciences Research Institute (ICVS), School of Medicine, University of Minho, Braga, Portugal; 7 ICVS/3B's – PT Government Associate Laboratory, Braga/Guimarães, Portugal

**DOI** 10.1055/s-0039-1681457

**Description** We present the video of 4 patients with biliary parasitosis, diagnosed and treated by endoscopic retrograde cholangiopancreatography (ERCP), in a series of more than 3000 CPREs performed in a gastroenterology department (prevalence <0.14%).

Three of the cases correspond to biliary tree colonization by *Fasciola hepatica*, and the forms of presentation were recurrent anicteric cholestasis, biliary pancreatitis and obstructive jaundice respectively. In 2 patients, the parasite was removed from the bile duct still alive. Endoscopic treatment was complemented with triclabendazole.

The last case corresponds to a patient with cholangitis. During ERCP, cholangiography showed a long linear opacity suggestive of *Ascaris lumbricoides* (AL) in the biliary tract. After performing the sphincterotomy, the bile duct was explored with a Dormia basket and a balloon extractor, removing multiple AL already without motility. Endoscopic treatment was supplemented with albendazole.

**Motivation** In Portugal, as in other developed countries, biliary parasitosis are rare diseases. However, the incidence of these infestations appears to be increasing in line with the increase in tourism and immigration. The diagnosis of parasites in the biliary tree is usually performed by ultrasound, computerized tomography, magnetic resonance imaging or even echoendoscopy. ERCP, an essentially therapeutic technique, is used for the removal of these parasites from the bile duct. There are, however, very rare cases in which the diagnosis is made only during ERCP.

With this video we intend to illustrate the typical findings of these parasitosis, in cholangiography and duodenoscopy, as well as to demonstrate the usefulness of this technique in the treatment of biliary obstructions by this etiology.

## OP282V CLIPS + RUBBER BAND COUNTERTRACTION: A NEW SIMPLE METHOD TO ALLOW INTRADIVERTICULAR PAPILLA CANNULATION

**Authors** Schaefer M<sup>1</sup>, Belle A<sup>1,2</sup>, Dirrenberger B<sup>1</sup>, Morin M<sup>1</sup>, Lamoureux A<sup>1</sup>, Jacques J<sup>3</sup>, Chevaux JB<sup>1</sup>

**Institute** 1 Hépatogastroentérologie, Centre Hospitalier Universitaire de Nancy, Vandoeuvre les Nancy, France; 2 Hépatogastroentérologie, Hôpital Cochin, Paris, France; 3 Hépatogastroentérologie, CHU Dupuytren, Limoges, France

DOI 10.1055/s-0039-1681458

The prevalence of lithiasis biliary pathologies is high in patients with periampullary diverticula.

We report the case of a patient with main bile duct stones, confirmed after EUS examination. The endoscopic view of the duodenal tract showed an intradiverticular papilla. In order to facilitate the exposure of the papilla, we proceed to a counter traction by clip and rubber band. A first Boston Resolution 360 clip, on which was hung a dental rubber band (Ormco Ostrich 19.1 mm) was set up in para-papillary position by the operating channel of the duodenoscope (Olympus). A second clip was introduced into the operator channel to tract the elastic on the outer edge of the duodenum. The papillary exposure was improved and cannulation of the main bile duct was achieved in 3 minutes and 10 seconds with a Boston Jagwire guide wire and a Boston sphincterotome 4.4. After performing a sphincterotomy, the stones were extracted with a balloon and hemostatic compression was performed due to post-sphincterotomy bleeding. The haemostasis was completed by the placement of a covered SEMS Cook Evolution 40 × 10 mm, then by the injection of saline and adrenaline 1/1000.

The use of a pediatric biopsy forceps in the same working channel as the sphincterotome has been described to pull the infundibulum and facilitate its catheterization. This technique is not easy and the movements of the erector and sphincterotome are limited by the presence of the pediatric forceps throughout the cannulation tentatives. The use of a counter-traction facilitates the exposure of an intra-diverticular papilla and the bile duct cannulation and it allows a higher maneuverability of the erector and the sphincterotome during the procedure.

The use of a counter-traction by two clips and an elastic can be useful for ERCP in the case of intra-diverticular papilla.

## OP283V DEGENERATED TODANI IA CHOLECOCHAL CYST

**Authors** Sánchez Melgarejo JF<sup>1</sup>, Rubio Mateos JM<sup>2</sup>, Sánchez Fernández MJ<sup>1</sup>, Pérez Fernandez A<sup>1</sup>, López Martín A<sup>1</sup>, Pérez-Cuadrado Robles E<sup>3</sup>, Pérez-Cuadrado Martínez E<sup>1</sup>

**Institute** 1 Digestive, Endoscopy Unit, Morales Meseguer Hospital, Murcia, Spain; 2 Morales Meseguer Hospital, Murcia, Spain; 3 H Saint Luc, Brussels, Belgium

DOI 10.1055/s-0039-1681459

**Introduction** Choledochal cysts are a very rare pathology and malignant transformation is the most serious complication (1).

**Case report** In a 72-year-old patient with acute cholangitis a Cholangio-NMR (Fig. 1) and abdominal-CT revealed a mass at the choledochal-pancreas-duodenum crossroads, dilation of the bile duct up to 38 mm and pancreas divisum.

Gastroscopy showed an infiltrated duodenal bulb (biopsies: adenocarcinoma), and an extrinsic luminal bulging.

EUS described a cystic dilation of the common bile duct with solid echogenic content inside it. The EUS-guided puncture was non-specific.

ERCP confirmed an adenomatous papilla (Fig. 2) and a great saccular cyst dilation of the extrahepatic bile duct (Todani Ia). Deep cannulation of the proximal bile duct was possible after a fistulotomy. Stood out that polypoid formations extruded through fistulotomy (Fig. 3); the histopathology was ade-

noma with dysplasia. A 10 Fr plastic prosthesis was placed to ensure biliary drainage.

Our patient was diagnosed of advanced adenocarcinoma of choledochal cyst and a chemotherapeutic treatment was initiated.

**Comments** We present this case due to the unusual aggressiveness of tumor infiltration and endoscopic expression.

After fistulotomy in bulging papillae output of lithiasis or intraampullary ampuloma are observed in some cases, but the extrusion of neoplastic formations is exceptional.

Choledochal cysts are associated to an anomalous arrangement of the pancreaticobiliary duct. Pancreas divisum results from a fusion failure of the pancreatic buds. The coexistence of pancreas divisum and choledochal cyst in adults has been reported in less than 10 well documented cases (2).

1. Jiménez-Ballester MA, Soria-Aledo V, Martín-Lorenzo JG et al. Type II intra-pancreatic choledochal malignant cyst in adults: Duodenopancreatectomy. *Rev Esp Enferm Dig.* 2014;106:223–6.

2. Ransom-Rodríguez A, Blachman-Braun R, Sánchez-García Ramos E et al. A rare case of choledochal cyst with pancreas divisum: case presentation and literature review. *Ann Hepato-Biliary-Pancreatic Surg* 2017;21:52.

## OP284V ENDOSCOPIC MANAGEMENT OF DIFFICULT BENIGN BILIARY AND PANCREATIC STRICTURES USING A WIRE-GUIDED CYSTOTOME

**Authors** Mangas-Sanjuan C<sup>1,2</sup>, Bozhychko M<sup>1,2</sup>, Compañy L<sup>1,2</sup>, Ruiz FA<sup>1,2</sup>, Martínez Sempere J<sup>1,2</sup>, Casellas JA<sup>1,2</sup>, Ramón Aparicio J<sup>1,2</sup>

**Institute** 1 Endoscopy Unit, Hospital General Universitario de Alicante, Alicante, Spain; 2 Instituto de Investigación Sanitaria y Biomédica de Alicante, ISABIAL, Alicante, Spain

DOI 10.1055/s-0039-1681460

**Aim** Endoscopic management using standard accessories is the preferred modality for treating benign biliary/pancreatic strictures. However, if there're difficult and severe strictures, the passage of accessories over a guidewire across the stricture isn't feasible. Hence, our aim is to report our experience regarding the use of a standard diathermic dilator (cystotome) to aid in stricture dilation and stent placement in patients with difficult strictures.

**Methods** We report 4 patients with biliary/pancreatic severe strictures treated with a 6-Fr cystotome with diathermic metal tip (CystoGastro-set; Endoflex, Germany). In all cases the cystotome was passed over the guidewire under fluoroscopic guidance and the current was applied until the tip of the cystotome crossed the stricture. Efficacy of stricture dilation was considered when stent placement was achieved with adequate ductal drainage after standard endoscopic therapy failure; safety was considered the absence of complications during 30-day follow-up.

**Results** In 1 patient with liver transplant (LT) and 1 patient with prior cholecystectomy, a guidewire was passed across the stricture using SpyGlassDS; however, biliary balloon catheter couldn't pass across the stricture so a wire-guided 6Fr-cystotome was used.

In another patient with LT, a guidewire was passed across the papilla by EUS-assisted biliary rendezvous technique. Then, a 6Fr-cystotome was used after a biliary balloon catheter couldn't pass.

About pancreatic stricture in a patient with chronic pancreatitis, retrograde cannulation failed, hence EUS-assisted pancreatic rendezvous technique was performed. Once the guidewire passed across the papilla, a pancreatic balloon dilator couldn't pass across the stricture. Then, a wire-guided 6Fr-cystotome was successfully used.

In all cases, after using 6Fr-cystotome, stent placement and duct drainage were successfully achieved; there weren't complications during follow-up.

**Conclusion** The cystotome can be an effective and safety tool in the management of difficult benign biliary and pancreatic strictures, whereas conventional methods to negotiate stricture have failed.

## OP285V ENDOSCOPIC RENDEZVOUS FOR AN ANASTOMOTIC STRICTURE AFTER HEPATOJEJUNOSTOMY

**Authors** Gerges C<sup>1</sup>, Weber P<sup>1</sup>, Siersema PD<sup>2</sup>, Neuhaus H<sup>1</sup>, van Geenen EJM<sup>2</sup>, Beyna T<sup>1</sup>

**Institute** 1 Department of General Internal Medicine and Gastroenterology, Evangelisches Krankenhaus Düsseldorf, Düsseldorf, Germany; 2 Department of Gastroenterology and Hepatology, Radboud University Medical Center, Nijmegen, Netherlands

**DOI** 10.1055/s-0039-1681461

**Aims** Anastomotic stenosis of the hepatojejunostomy (HJS) remain a common complication and a major cause of morbidity. (Balloon assisted)-ERCP is the golden standard to treat HJS. In 38% BE-ERCP is not successful because of the inability to reach and/or cannulate the anastomosis. An alternative is surgical treatment, which is associated with significant morbidity and mortality. Surgery can be contraindicated by ASA3 plus patients. For those patients long term trans hepatic biliary drainage might be a therapeutic option. In this case we show a trans hepatic, cholangioscopy guided reopening of a bilioenteric anastomosis stricture.

**Methods** We report the case of a 71-year-old female with adenocarcinoma of the papilla, who received a pylorus-sparing pancreaticoduodenectomy and developed a HJS with recurrent cholangitis. Former two surgical revisions and ERCPs failed.

At our center ERCPs with small, long colonoscope and duodenoscope were performed. The HJS were identified at the expected place of the neo-papilla, but biliary cannulation was impossible. In order to obtain biliary drainage a PTCD-Series with a dilation of the bile duct was performed. A cholangioscope was inserted through the PTCD up to the hepatojejunostomy, which showed a complete stricture of the anastomosis. In a rendezvous maneuver diaphany was achieved with the colonoscope while the stricture could be re-opened with a needle knife under cholangioscopic control.

**Results** After a large incision the cholangioscope was able to pass into the small bowel. A transhepatic drainage catheter was placed through the opened HJS. Three months later the re-opened HJS was stabilized and the catheter could be extracted, with a passage of bile through the treated HJS.

**Conclusions** In certain cases, cholangioscopic incision of the bilioenteric anastomosis in a rendezvous maneuver can be an alternative to long term PTCD. For the safely success of the procedure diaphany established with a second endoscope was found to be essential.

## OP286V ENDOSCOPIC DEPLOYMENT OF MULTIPLE (≥ 3) METAL STENTS FOR UNRESECTABLE MALIGNANT HILAR BILIARY STRICTURES: A COMBINATION OF SIDE-BY-SIDE AND STENT-IN-STENT METHODS (WITH VIDEO)

**Authors** Koshitani T<sup>1</sup>, Konaka Y<sup>1</sup>, Ohishi T<sup>1</sup>, Yasuda T<sup>1</sup>, Morinushi T<sup>1</sup>, Katsura A<sup>1</sup>, Nakano K<sup>1</sup>, Mita M<sup>1</sup>, Nakagawa S<sup>1,2</sup>

**Institute** 1 Kobe Central Hospital, Kobe, Japan; 2 Nakagawa Naika Clinic, Kobe, Japan

**DOI** 10.1055/s-0039-1681462

**Aim** The endoscopic deployment of multiple (≥3) self-expandable metal stents (SEMS) for high-grade unresectable malignant hilar biliary strictures (UMHBS) is technically challenging. We evaluated the efficacy of endoscopic deployment of multiple SEMS using a combination of side-by-side (SBS) and stent-in-stent (SIS) methods.

**Methods** Eleven consecutive patients with high-grade UMHBS (mean age: 76 years, male/female: 5/6, Bismuth-Corlette classification IIIa/IV: 7/4) underwent the endoscopic deployment of multiple SEMS using the combination technique. After the initial drainage with endoscopic biliary stenting and/or endoscopic nasobiliary drainage, SEMS were typically deployed as follows.

After selective cannulation using a 0.025-inch guide wire, the SEMS were deployed in the right posterior sectoral duct and the left hepatic duct using the SBS method. Next, a 0.025-inch guide wire was introduced into the right anterior sectoral duct through the mesh of the SEMS on the right side. Then, the mesh of the stent was dilated with a 6-mm balloon, the guide wire was exchanged for a 0.035-inch stiff guide wire, and the delivery system was introduced. Finally, another SEMS was deployed in the right anterior sectoral duct using the SIS method.

**Results** The technical and clinical success rates were 11/11. More than three SEMS were successfully deployed, and obstructive jaundice was fully improved in all cases. Stent occlusion was recognized in 4 of 11 patients (mean: 134 days, range: 28 – 232). Reinterventions for both liver lobes were feasible by passing the guide wire inside the previously placed stents in 3 of 4 patients. The median stent patency was 150 days during a mean follow-up period of 184 days (range: 37 – 558). Three patients developed self-limiting cholangitis without definite stent occlusion as late (> 30 days) adverse events.

**Conclusion** Employing the combination of SBS and SIS methods may facilitate the endoscopic deployment of multiple SEMS to treat high-grade UMHBS.

## OP287V 'CLIP WITH LINE' TECHNIQUE FOR SUCCESSFUL LUXATION OF THE PAPILLARY ORIFICE FROM A DUODENAL DIVERTICULUM AND SUCCESSFUL CANNULATION

**Authors** Horn A<sup>1</sup>, Meves V<sup>1</sup>, Hochberger J<sup>1</sup>

**Institute** 1 Gastroenterology, Vivantes Klinikum Berlin Friedrichshain, Berlin, Germany

**DOI** 10.1055/s-0039-1681463

Duodenal diverticula (DD) are a frequent condition (approximately 10 – 20% of all patients). An endoscopic retrograde cholangioscopy (ERC) of those patients can be challenging. We report a patient with a large DD. The papilla vateri (PV) is located completely in the diverticulum. The initial cannulation of the bile duct orifice (BDO) was difficult. This video shows a possibility to make the cannulation and the sphincterotomy feasible in cases with a DD. Transferred from Endoscopic Submucosa Dissection, we used the 'Clip with Line' technique for the first time in an ERC to cannulate the intra-diverticular site of the papillary orifice.

**Description** A 88-year-old woman was admitted for jaundice. Ultrasonography showed a dilated bile duct. An ERC revealed a large DD with the inability to detect the PV. BDO could be hardly visualized by lifting the top of the diverticulum with a catheter. We attached dental floss to a haemoclip to exert traction to the diverticulum and to facilitate the cannulation of the BDO. Outside the patient, a haemoclip was advanced through the working channel and was pushed out of the scope. We opened the clip and we linked the dental floss (about 2.25 m) to one arm of the clip. The endoscope was then re-inserted to the patient. Subsequently, the clip was attached to the mucosa of the papillary roof. Hence, traction was externally exerted by pulling the dental floss. With this movement the cannulation of the PV was facilitated. X-ray showed bile duct stones. A sphincterotomy was performed. Because complete extraction of bile duct stones was not confirmed, a bile duct stent was placed.

**Conclusion** In some cases DD impede the cannulation of the common BDO. Therefore, the clip with line technique is an easy and affordable option to enable the exploration and if necessary a treatment in the common bile duct.

Saturday, April 6, 2019  
Colonic polyps: detection

11:00 – 13:00  
Club D

### OP288 INSPECTION OF THE COLON IN RETROFLECTION USING A RETROGRADE VIEWING ENDOSCOPE INCREASES ADENOMA DETECTION RATE

**Authors** Rath T<sup>1</sup>, Vitali F<sup>1</sup>, Klenske E<sup>1</sup>, Siebler J<sup>1</sup>, Neurath M<sup>1</sup>, Zopf S<sup>1</sup>

**Institute** 1 University Hospital Erlangen, Department of Gastroenterology, Ludwig Demling Endoscopy Center of Excellence, Erlangen, Germany  
**DOI** 10.1055/s-0039-1681464

**Aims** Adenoma detection rate (ADR) is inversely related to the incidence of interval colorectal cancers and therefore serves as a benchmark criterion for quality assessment during screening or surveillance colonoscopies. Within this study, we evaluated whether additional retrograde inspection of the colon can increase ADR and the number of adenomas per patient.

**Methods** Patients undergoing screening or surveillance colonoscopies were prospectively enrolled. During colonoscopy, each segment of the colon (Cecum and ascending colon, transverse colon, descending and sigmoid colon) were inspected first with HD standard forward view (SFV) followed by inspection of the same segment in retroflected view (RFV) using a dedicated endoscope with a 210° retroflex angulation (Pentax RetroView). Number of adenomas in each segment detected with SFV and RFV as well as withdrawal times with SFV and RFV were recorded.

**Results** At the time of abstract submission, 44 patients (mean age 58 years, 28 male) were prospectively included. Inspection of the whole colon in retroflexion was possible in all patients. Polyp detection rate (PDR) with SFV was 34% and increased to 45% when additional RFV was performed in each segment. Likewise, ADR increased by 9% when RFV was performed (ADR SFV: 30%, ADR RFV: 39%). Adenoma per patient rate was 1.6 with SFV and increased to 2.3 with additional RFV. Size of the additional adenomas found with RFV ranged from 3 to 10 mm. Withdrawal times were not significantly different between SFV and RFV.

**Conclusions** Additional retroflexion of the colon using a dedicated endoscope can significantly increase ADR and the number of adenomas found per patient. This approach should be considered during standard colonoscopy to increase ADR and to improve the quality of colonoscopy.

### OP289 ADENOMA DETECTION RATE AND COLONOSCOPY INDICATION: BEYOND SCREENING PROCEDURES

**Authors** Mangas-Sanjuan C<sup>1,2</sup>, Santana E<sup>1,2</sup>, Cubiella J<sup>3</sup>, Seoane A<sup>4</sup>, Suárez A<sup>5</sup>, Quintero E<sup>6</sup>, Ferrández Á<sup>7</sup>, Hernández V<sup>8</sup>, Ponce M<sup>9</sup>, Portillo I<sup>10</sup>, Pellisé M<sup>11</sup>, Díez-Redondo P<sup>12</sup>, Herráiz M<sup>13</sup>, Ono A<sup>14</sup>, Pizarro Á<sup>15</sup>, Zapater P<sup>2,16</sup>, Jover R<sup>1,2</sup>, QUALISCOPIA Study Group

**Institute** 1 Department of Gastroenterology, Hospital General Universitario de Alicante, Alicante, Spain; 2 Instituto de Investigación Sanitaria y Biomédica de Alicante, ISABIAL, Alicante, Spain; 3 Department of Gastroenterology, Complejo Hospitalario Universitario de Ourense, Ourense, Spain; 4 Department of Gastroenterology, Parc de Salut Mar, Barcelona, Spain; 5 Department of Gastroenterology, Hospital Universitario Central de Asturias, Oviedo, Spain; 6 Department of Gastroenterology, Hospital Universitario de Canarias, Santa Cruz de Tenerife, Spain; 7 Department of Gastroenterology, Hospital Clínico Universitario Lozano Blesa, Zaragoza, Spain; 8 Department of Gastroenterology, Complejo Hospitalario Universitario de Vigo, Vigo, Spain; 9 Endoscopy Unit, La Fe Polytechnic University Hospital, Valencia, Spain; 10 BioCruces Health Research Institute, Barakaldo, Spain; 11 Endoscopy Unit, Hospital Clínic de Barcelona, Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBERehd), Institut d'Investigacions Biomediques August Pi i Sunyer (IDIBAPS), Universitat de Barcelona, Barcelona, Spain; 12 Endoscopy Unit, Hospital Universitario Rio Hortega, Valladolid,

Spain; 13 Endoscopy Unit, Clínica Universitaria de Navarra, Pamplona, Spain; 14 Hospital Universitario Virgen de la Arrixaca, Murcia, Spain; 15 Department of Gastroenterology, Hospital Universitario Virgen del Rocío, Sevilla, Spain; 16 Unit of Clinical Pharmacology, Hospital General Universitario de Alicante, Alicante, Spain

**DOI** 10.1055/s-0039-1681465

**Aims** Adenoma detection rate (ADR) is the most important quality measure in screening colonoscopies because it's inversely related to the development of interval cancer and mortality. Minimum standard ADR recommended according to ESGE Guidelines is  $\geq 25\%$ ; however, this recommendation's made for primary screening colonoscopies and it remains unknown whether this cut-off must be the same for other colonoscopy indications. Hence, the aim of this study was to describe the ADR based on procedure indication and to predict the ADR recommended for other indications.

**Methods** An observational, multicenter and cross-sectional study was conducted between February 2016 and December 2017 across 14 Spanish centers. Four colonoscopy indications have been considered: primary screening colonoscopies, positive fecal immunochemical test (+FIT) (OC-SensorTM; cut-off level 20  $\mu\text{g/g}$ ), post-polypectomy surveillance and gastrointestinal symptoms. The ADR was calculated by age group and sex. The ESGE Guideline published in 2017 by Kaminski MF et al has been considered as a reference for ADR recommendations. Logistic regression analysis was used and population proportions and its confidence intervals (95% CI) were calculated using the exact Clopper-Pearson method.

**Results** A total of 14867 patients were included and the ADR was 38%. According to procedure indications and adjusted by sex and age, statistically significant differences between ADRs were found ( $p$ -value  $< 0.001$ ). The ADR in gastrointestinal symptoms was 28.1% (OR 0.76, 95% CI 0.66–0.87), 46.4% (OR 1.50, 95% CI 1.31–1.72) in FIT-based procedures, 48.2% (OR 1.51, 95% CI 1.30–1.76) in endoscopic surveillance compared to 30.8% in primary screening colonoscopies. 95% CI calculated for ADR population proportions were 26.9–29.3% in symptoms, 45.1–47.8% in +FIT endoscopies, 46.1–50.3% in post-polypectomy surveillance and 28.2–33.5% in colonoscopy screening group.

**Conclusions** ADR significantly differs between colonoscopy indications. According to population proportions, we suggest new minimum standard ADR recommendations when procedure indication differs from primary screening colonoscopy:  $\geq 27\%$  in gastrointestinal symptoms,  $\geq 45\%$  in FIT-based screening and  $\geq 46\%$  in endoscopic surveillance.

### OP290 SECOND FRONTAL VIEW VERSUS PROXIMAL RETROFLEXION IN RIGTH COLON IN COLO-RECTAL CANCER SCREENING: MULTICENTRE RANDOMIZED TRIAL

**Authors** Núñez-Rodríguez MH<sup>1</sup>, Díez-Redondo P<sup>1</sup>, Riu F<sup>2</sup>, Cimavilla M<sup>3</sup>, Loza A<sup>4</sup>, Hernandez Villalba L<sup>4</sup>, Pérez-Miranda M<sup>1</sup>

**Institute** 1 Gastroenterology, Hospital Universitario Rio Hortega, Valladolid, Spain; 2 Hospital del Mar, Digestive System Service, Barcelona, Spain; 3 Gastroenterology, Hospital Rio Carrion, Palencia, Spain; 4 Hospital Santos Reyes, Aranda de Duero, Spain

**DOI** 10.1055/s-0039-1681466

**Aims** Colonoscopy, the gold standard for the detection of colorectal cancer, fails to detect 22–28% of polyps, resulting in interval cancer (IC). IC are more frequent in right colon. The aim of this study was to compare second view of right colon with proximal retroflexion to second forward viewing in the detection of colorectal neoplasm in colorectal cancer screening programme. (NCT03041532).

**Methods** Multicenter Prospective Randomized study of 691 patients referred from the colorectal screening program with a positive fecal occult blood test (FOBT) (October 2016 and October 2018). Patients were randomized to sec-

ond view of right colon with proximal retroflexion (PRF) or standard forward-viewing colonoscopy (SFV).

**Results** 691 patients were included, 43 were excluded due to inadequate preparation in the right colon and/or incomplete colonoscopy. 55.2% are males. The average total withdrawal time is 9.16 min (SD 4.5). The average time of assessment of the 1st pass is 2.04 min (DS: 1.3 min) and the second pass 1.61 min (DS 0.96).

Proximal Retroflexion was succeeded in 83%. At right colon 595 lesions were detected. First exploration detected 79,1% vs. 20,9% lesions at second view. Maneuver at second view did not produce a significantly: 18,3% (PRF) vs. 22,8% (SFV)  $p < 0,18$ . Lesion size did not produce a significantly ( $1^\circ$  exploration: 6,5 mm DS:6,6 vs.  $2^\circ$  exploration: 5 mm DS 2,7).

**Tab. 1** Polyp detection rate in right colon (PDR)

	GLOBAL	$1^\circ$ view	$2^\circ$ View
Polyp Detection Rate (PDR)	583/649 = 0.89	461/649 = 0.71	122/649 = 0.18

**Conclusions** Proximal retroflexion is a secure maneuver. A second view of right colon increases lesion rate detection (20%), regardless of method used.

## OP291 CAN WE USE POLYP DETECTION RATE (PDR) ALONE TO DESCRIBE ADEQUATE INSPECTION OF BOWEL MUCOSA?

**Authors** Vojtěchová G<sup>1</sup>, Ngo O<sup>2</sup>, Buckova B<sup>2</sup>, Grega T<sup>1</sup>, Voska M<sup>1</sup>, Majek O<sup>2</sup>, Zavoral M<sup>1</sup>, Suchanek S<sup>1</sup>

**Institute** 1 First Faculty of Medicine Charles University and Military University Hospital Prague, Department of Medicine, Prague, Czech Republic; 2 Faculty of Medicine, Masaryk University, Institute of Biostatistics and Analyses, Brno, Czech Republic

**DOI** 10.1055/s-0039-1681467

**Aims** The aim of our study was to assess whether polyp detection rate (PDR) correlates with adenoma detection rate (ADR) and with mean adenoma per colonoscopy (APC). Our effort was to determine minimal marginal value for APC.

**Methods** Prospective multicenter study included asymptomatic individuals aged 45 – 75 who underwent preventive colonoscopy in 2012 – 2016 as part of Czech study monitoring metabolic risk factors of colorectal cancer. Individuals with incomplete colonoscopy and endoscopists with less than 30 colonoscopies and/or no detected adenoma in the observed group were excluded from the study. Spearman's correlation coefficient was used to assess the relation between individual PDR/ADR and PDR/APC resp. The resulting conversion factors to predict ADR (APC) from PDR were obtained by linear regression.

**Results** In total, the study included 1,614 preventive colonoscopies performed by 16 endoscopists. Correlation between PDR and both indicators in all preventive colonoscopies was strong and statistically significant (PDR/ADR:  $R_s$  0.82;  $p < 0.001$ ; PDR/APC:  $R_s$  0.70;  $p = 0.0027$ ). We used the same methodology to determine gender-specific and indication-specific PDR/ADR and PDR/APC correlations. In all cases, we demonstrated a strong and statistically significant correlation between PDR and ADR (APC resp). We obtained conversion factors for both quality indicators: PDR to ADR 0.7185, resp. PDR to APC 0.0123.

**Conclusions** There is a strong correlation between PDR/ADR as well as between PDR/APC. Because of better availability, PDR may replace ADR and APC in colonoscopy quality assessment. Using our conversion factor we obtained minimal marginal value of APC 0.5 based on 40% minimal marginal value of PDR as recommended by ESGE.

PDR has the potential to increase compliance of endoscopists to quality control, at least until data processing is fully automated.

Supported by grants MO1012, Progres Q28/LF1 and 17 – 31909A.

## OP292 COLONOSCOPY WITH THE SINGLE USE ENDOSCOPE INVENDOSCOPE SC210 IN ROUTINE CLINICAL PRACTICE

**Authors** Straulino F<sup>1</sup>, Genthner A<sup>1</sup>, Ralf K<sup>2</sup>, Eickhoff A<sup>1</sup>

**Institute** 1 Medizinische Klinik II, Klinikum Hanau, Hanau, Germany; 2 Innere Medizin II, Helios Dr. Horst Schmidt Kliniken, Wiesbaden, Germany

**DOI** 10.1055/s-0039-1681468

**Aims** Healthcare-associated infections linked to re-useable endoscopes was a matter of controversy in the past. In 2008 Invendo Medical presented the first single use endoscope for colonoscopy. With the Invendoscope SC210 there is now a further development with high definition available. Instead of the classic „wheel and wire“ mechanism this 170 cm colonoscope works with an electro-hydraulic controlled deflecting tip which allows a  $180^\circ$  bending in all directions. A joystick-like handheld control plate is used to navigate the tip. Standard endoscopic devices for interventions can be used over the 3.1 mm working channel. This multicenter study assessed the safety and efficacy of this new endoscope in routine clinical practice.

**Methods** A total of 40 patients with indication for a colonoscopy were examined with the Invendoscope SC210 using carbon dioxide insufflation and water instillation on demand. The rate of successful intubation of the caecum and the required time was documented. For the registration of potential periinterventional complications an interview four weeks after colonoscopy took place.

**Results** 23 men and 17 women were examined with an average age of 65 ( $\pm 5.4$ ) years. 35 patients received a sedation with propofol. The caecum was reached in 38 patients (coecal intubation rate of 95%), despite looping of the endoscope in 28 patients. The median time to reach the caecum was 14,23 min ( $\pm 7.2$  min). The withdrawal time was 10,2 min. In 12 patients (30%) polyps were resected by snare or biopsy forceps. 3 patients (7,5%) complained about abdominal pain after the examination and in one patient a self limiting hemorrhage from the sigma occurred. No major complication occurred.

**Conclusions** The sterile single use endoscope Invendoscope SC210 showed a good coecal intubation rate in routine clinical practice with safe resection of polyps as well. For a further evaluation of the effectivity comparative studies with standard colonoscopy are warranted.

## OP293 ENDOCUFF-ASSISTED COLONOSCOPY INCREASES ADENOMA DETECTION RATE: A SYSTEMATIC REVIEW AND META-ANALYSIS

**Authors** Gkolfakis P<sup>1</sup>, Tziatzios G<sup>1</sup>, Triantafyllou K<sup>1</sup>

**Institute** 1 Hepatogastroenterology Unit, Second Department of Internal Medicine – Propaedeutic, Research Institute and Diabetes Center, Medical School, National and Kapodistrian University of Athens, "Attikon" University General Hospital, Athens, Greece

**DOI** 10.1055/s-0039-1681469

**Aims** Endocuff -a plastic device with flexible projections- mounted on the distal tip of the colonoscope, promises improved colonic mucosa inspection. Since data from individual studies are controversial, we aimed to elucidate the effect of Endocuff on adenoma detection rate (ADR), advanced ADR (AADR) and mean adenomas per colonoscopy (MAC).

**Methods** We performed literature searches in MEDLINE and Cochrane Library for randomized-controlled trials (RCTs) published as full papers in English language evaluating Endocuff-assisted (EAC) versus conventional colonoscopy (CC) in terms of ADR, AADR and MAC. The effect size on study outcomes was calculated using fixed or random effect model, as appropriate, and it is shown as RR (95% CI) or MD (95% CI).

**Results** We identified 9 studies enrolling 6038 patients. All studies included mixed population (screening, surveillance and diagnostic examinations). In three of them patients with a FOBT/FIT-positive were also included. Seven studies evaluated the first generation device; Endocuff Vision -the second

generation device- was used in 2 studies. All studies reported on ADR and EAC was associated with increased ADR compared to CC [RR (95% CI)=1.19 (1.07 – 1.33);  $I^2=71\%$ ] and EAC benefits more endoscopists with ADR  $\leq 35\%$  compared to those with ADR  $> 35\%$  [RR (95% CI)=1.37 (1.11 – 1.69);  $I^2=51\%$  versus 1.12 (0.99 – 1.26);  $I^2=74\%$ ]. Data from 7 studies did not detect any difference in terms of AADR and MAC between EAC and CC [RR (95% CI) = 1.01 (0.84 – 1.20);  $I^2=8\%$  and MD (95% CI)=0.30 (-0.17 – 0.78);  $I^2=99\%$ ]. Sub group analysis did not show any difference between the two device generations for any of the three endpoints.

**Conclusions** Endocuff-assisted colonoscopy increases adenoma detection rate compared to conventional colonoscopy. Endoscopists with lower ADR benefit more from Endocuff use.

## OP294 ENDORINGS ASSISTED COLONOSCOPY VERSUS STANDARD COLONOSCOPY FOR POLYP DETECTION IN SYMPTOMATIC AND ASYMPTOMATIC PATIENTS: A RANDOMISED CONTROLLED TRIAL

**Authors** Thayalasekaran S<sup>1</sup>, Bhattacharyya R<sup>1</sup>, Chedgy F<sup>2</sup>, Basford P<sup>3</sup>, Al-Kandari A<sup>1</sup>, Subramaniam S<sup>1</sup>, Kandiah K<sup>1</sup>, Thursby-Pelham F<sup>1</sup>, Ellis R<sup>1</sup>, Coda S<sup>1</sup>, Goggin P<sup>1</sup>, Longcroft-Wheaton G<sup>1</sup>, Pradeep B<sup>1</sup>

**Institute** 1 Gastroenterology, Queen Alexandra Hospital, Portsmouth, United Kingdom; 2 Gastroenterology, Brighton and Sussex University Hospitals, Brighton, United Kingdom; 3 Gastroenterology, St Richard's Hospital, Chichester, United Kingdom

DOI 10.1055/s-0039-1681470

**Aims** The Endorings is a distal attachment consisting of two layers of circular flexible rings that evert mucosal folds. Aims; to investigate if Endorings Colonoscopy (ER) improves polyp and adenoma detection compared to standard colonoscopy (SC).

**Methods** This multi-centre, parallel group, randomized controlled trial included screening, surveillance and symptomatic patients. Primary outcome; number of polyps per patient. Secondary outcomes; number of adenomas per patient, adenoma/polyp detection rates and withdrawal times.

**Results** Total of 556 patients (214 females, 342 males) randomized to ER (275) or SC (281). Mean age 67. Colonoscopy completed 532/556 (96%) cases. EndoRings removed in 74/275 (27%) patients. In 66/74 (89%) cases removal was performed due to difficulties with sigmoid intubation. Remainder removed to facilitate retroflexion or polyp removal/retrieval. Total number of polyps in ER limb 571 vs. 444 in SC limb. Total number of adenomas in ER limb 361 vs. 343 for SC limb. Our study showed a statistically significant difference in the mean number of polyps per patient in both the Intention To Treat (ITT) (1.8 SC vs. 2.1 ER, p-value 0.02) and Per Protocol (PP) (1.8 SC vs. 2.25 ER, p-value 0.009).

Tab. 1 Intention to Treat Analysis

	Standard Colonoscopy (SC)	Endoring-Assisted Colonoscopy (ER)	P value
Mean polyps per patient	1.8	2.1	0.02
Mean adenomas per patient	1.2	1.3	0.38
Polyp detection rate	67.5%	75.2%	0.05
Adenoma detection rate	57%	61.4%	0.28

There was a trend towards a greater polyp detection rate in the ER colonoscopy (67.5% SC vs. 75.2% ER, p-value 0.05).

**Conclusions** Despite the high removal rate of Endorings, there was a statistically significant increase in the mean number of polyps in the ER limb compared to the SC limb. Our study shows promise for the EndoRings device to improve polyp detection.

## OP295 RETROFLEXION IN THE ASCENDING COLON IS A COSTLESS ENDOSCOPIC MANEUVER INCREASING ADENOMA DETECTION RATE

**Authors** Michopoulos S<sup>1</sup>, Axiaris G<sup>1</sup>, Baxevanis P<sup>1</sup>, Stoupaki M<sup>1</sup>, Gagari V<sup>1</sup>, Leonidakis G<sup>1</sup>, Karlaftis A<sup>1</sup>, Zampeli E<sup>1</sup>, Sotiropoulou M<sup>2</sup>, Petraki K<sup>3</sup>

**Institute** 1 GI, Alexandra Hospital, Athens, Greece; 2 Pathology, Alexandra Hospital, Athens, Greece; 3 Pathology, Metropolitan Hospital, Athens, Greece  
DOI 10.1055/s-0039-1681471

**Aims** Missing polyps during colonoscopy is an important factor for the appearance of interval cancers especially in the ascending colon (AscCol). Study aim: Evaluate the contribution of retroflexion to polyp/adenoma detection.

**Methods** Consecutive patients with complete colonoscopy were prospectively evaluated for polyp detection in the AscCol. Protocol of AscCol examination for polyp detection: 1<sup>st</sup> Phase (Forward view – FrwV)= Insertion from the right flexure (Rfx) to the caecum followed by withdrawal till the Rfx and reinsertion to the caecum. 2<sup>nd</sup> Phase (Retroflexion): U-turn of the colonoscope in the caecum till the Rfx, redressing to the FrwV and reinsertion to the caecum.

**Statistics** McNemar's test, logistic regression model to identify factors associated with per-patient adenoma miss rate.

**Results** 628 out of 655 patients with successful Rfx (95.9%) were analyzed, mean age 62.5 years, 49.52% males, indication for colonoscopy: screening 33.6%, follow-up 35.67%, diagnostic assessment 30.73%, with poor preparation <1%. Adenoma detection rate (ADR) for the entire colon was 54.14% [Screening (42.2%), Follow-up (62.0%) Diagnostic (58.0%),  $p<0.01$ ]. In total 269 polyps and 205 adenomas were detected in the AscCol. FrwV identified 148 polyps and 119 adenomas yielding a polyp and ADR in the AscCol of 16.72% (95% C.I.:13.8 – 19.64) and 13.38% (95% C.I.:10.7 – 16.0) respectively. Retroflexion identified 121 more polyps and 86 adenomas improving the polyp detection and ADR in the AscCol to 28.66% (95% C.I.:25.13 – 32.2) and 22.29% (95% C.I.:19.04 – 25.5) respectively, ( $p<0.01$ ). Adenoma miss rate was 42% (86/205) and per patient adenoma miss rate was 11.62%. Retroflexion improves ADR mainly in the upper third of the AscCol ( $p<0.01$ ). Multivariate analysis showed that age >60 years, adenoma detection in FrwV, indication "Follow-up" and previous surgery influenced ADR with retroflexion.  
**Conclusions** Retroflexion in the ascending colon is a simple and safe maneuver that substantially increases the ADR in the ascending colon, especially towards the right flexure.

## OP296 ONLY LINKED COLOR IMAGING INCREASES COLOR CONTRAST BETWEEN COLON POLYPS AND SURROUNDING MUCOSA

**Authors** Weigt J<sup>1</sup>, Arciniegas DI<sup>1</sup>, Canbay A<sup>1</sup>

**Institute** 1 Klinik für Gastroenterologie, Hepatologie und Infektiologie, Universität Magdeburg, Magdeburg, Germany

DOI 10.1055/s-0039-1681472

**Aims** Evaluation of color difference between colon adenoma and surrounding mucosa as a potential explanation of higher detection rate.

HD-white light endoscopy (WLE) is the gold standard in the detection of colon adenoma. Virtual chromoendoscopy cannot improve adenoma detection. Recently linked color imaging (LCI) was developed which is combining special light and a post processing in one imaging modality. First study results show a better visibility and a higher adenoma detection rate using LCI.

**Methods** Prospective acquisition of images from adenoma in the three light modes WLE, Blue Light Imaging (BLI) and LCI.

Transformation of the images into L\*a\*b\* color space. Measurement of color at areas of 31×31 pixels, two inside the polyp and 2 in the surrounding mucosa each. Calculation of the color difference according to the Delta E (Lab) Method.

We used paired t-test for statistical analysis.

**Results** In total 90 polyps were evaluated. Delta-E in WLE was lowest (12.34 ± 6.73). The highest Delta-E value was calculated for LCI (16.83 ± 10.85). The

Delta-E using BLI was  $14.38 \pm 11.42$ . The difference between LIC vs. BLI and BLI vs. WLE was not significant. The difference between WLE and LCI was highly significant ( $p = 0.002$ ).

**Conclusions** Only linked color imaging leads to a significant increase of the color contrast of colon adenoma. This is a useful explanation for the reported increased adenoma detection rate using LCI.

## OP297 USE OF HIGH-DEFINITION EQUIPMENT IMPROVES POLYP DETECTION RATE: OBSERVATIONS FROM THE EUROPEAN COLONOSCOPY QUALITY INVESTIGATION (ECQI) QUESTIONNAIRE

**Authors** Ono A<sup>1</sup>, Agrawal A<sup>2</sup>, Amaro P<sup>3</sup>, Brink L<sup>4</sup>, Fischbach W<sup>5</sup>, Hüngrer M<sup>6</sup>, Jover R<sup>7</sup>, Kinnunen U<sup>8</sup>, Koulaouzidis A<sup>9</sup>, Patai Á<sup>10</sup>, Pecere S<sup>11,12</sup>, Petruzzello L<sup>11,12</sup>, Toth E<sup>13</sup>, Riemann JF<sup>14</sup>, Amlani B<sup>15</sup>, Spada C<sup>16</sup>

**Institute** 1 Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain; 2 Doncaster Royal Infirmary, Doncaster, United Kingdom; 3 Coimbra University Hospital, Coimbra, Portugal; 4 Herlev Hospital, Herlev, Denmark; 5 Gastroenterologie und Innere Medizin, Aschaffenburg, Germany; 6 Private Practice for Internal Medicine, Würzburg, Germany; 7 Hospital General Universitario de Alicante, Alicante, Spain; 8 Tampere University Hospital, Tampere, Finland; 9 The Royal Infirmary of Edinburgh, Edinburgh, United Kingdom; 10 Markusovszky University Teaching Hospital, Szombathely, Hungary; 11 Fondazione Policlinico Universitario A. Gemelli IRCCS, Digestive Endoscopy Unit, Rome, Italy; 12 Università Cattolica del Sacro Cuore, Centre for Endoscopic Research Therapeutics and Training – CERTT, Rome, Italy; 13 Skåne University Hospital, Lund University, Malmö, Sweden; 14 Direktor em. Klinikum Ludwigshafen, Chairman, LebensBlicke Foundation for the Prevention of Colorectal Cancer, Ludwigshafen, Germany; 15 Norgine, Harefield, Middlesex, United Kingdom; 16 Fondazione Poliambulanza, Brescia, Italy

DOI 10.1055/s-0039-1681473

**Aims** To assess the influence of the use of high-definition (HD) equipment on polyp detection rate (PDR) using questionnaire responses from across Europe.

**Methods** The development of the procedure questionnaire, by the European Colonoscopy Quality Investigation (ECQI) Group, has been previously described in posters presented at UEGW, 2015 and 2016. Data collection is an ongoing process: we analysed data collected between 2/6/16 and 30/4/18. The ESGE definition of PDR was used: all screening and diagnostic colonoscopies in patients aged  $\geq 50$  years were identified in our dataset. A polyp was considered detected if there was a positive answer to 'Polyp detected' in any colon segment, or a polypectomy was reported under 'Endoscopic intervention'.

A univariate binary logistic regression model was used to determine the effect of use of HD equipment on PDR.

**Results** 3335 of 6445 procedures met the criteria for PDR analysis, 2975 of which provided information upon their use (or not) of HD equipment. PDR was higher in procedures where HD equipment was used: 44.2% (957/2166) vs. 30.9% (250/809); odds ratio 1.77, 95% CI 1.49, 2.10,  $p < 0.001$ . Of the 2157 providing information on the type of HD equipment used, the majority, 1804 (83.6%) used both HD scope and monitor/screen, while 256 (11.9%) reported using scope only and 97 (4.5%) monitor/screen only: the effect on PDR approached significance ( $p = 0.054$ , see table).

**Tab. 1** Effect of type of high-definition equipment used on polyp detection rate

HD equipment used	PDR (n/N)	Odds ratio (95% CI)	P value
Scope and monitor/screen	44.6% (804/1804)	Reference	
Monitor/screen only	51.5% (50/97)	1.32 (0.88, 1.99)	0.180
Scope only	38.3% (98/256)	0.77 (0.59, 1.01)	0.058

**Conclusions** The use of HD equipment is associated with an improved PDR. The reported use of HD scope alone appears to produce a worse PDR than HD monitor/screen either with or without HD scope.

## OP298 FEASIBILITY AND LONG-TERM EFFICACY OF ENDOSCOPIC TREATMENT OF GASTROINTESTINAL STROMAL TUMORS IN UPPER GASTROINTESTINAL TRACT

**Authors** Park JJ<sup>1</sup>, Koh JS<sup>1</sup>, Joo MK<sup>1</sup>, Lee BJ<sup>1</sup>, Chun HJ<sup>2</sup>, Lee SW<sup>3</sup>, Yang CH<sup>4</sup>, Kim EY<sup>5</sup>

**Institute** 1 Gastroenterology, Korea University Guro Hospital, Seoul, Korea, Republic of; 2 Gastroenterology, Korea University Anam Hospital, Seoul, Korea, Republic of; 3 Gastroenterology, Korea University Ansan Hospitals, Ansan, Korea, Republic of; 4 Internal Medicine, Dongguk University Gyeongju Hospital, Gyeongju, Korea, Republic of; 5 Internal Medicine, Catholic University of Daegu School of Medicine, Daegu, Korea, Republic of

DOI 10.1055/s-0039-1681474

**Aims** Endoscopic resection has been introduced for the treatment of subepithelial tumors (SETs) in the upper gastrointestinal tract (UGIT). We aimed in this study to investigate the feasibility and long-term efficacy of endoscopic resection of gastrointestinal stromal tumor (GIST) in UGIT.

**Methods** Between March 2005 and February 2018, 126 cases of GIST in UGIT were resected. We retrospectively analyzed clinicopathologic parameters and recurrence rate.

**Results** Mean age was  $57.6 \pm 12.4$  years, and male: female ratio was 50:76. Fifty-one tumors (40.5%) were located in the 40.5% on body of stomach, followed by 34 (27.0%) on fundus, 24 (19.0%) on cardia, and 16 (12.7%) on antrum. One hundred four cases (82.5%) was resected by endoscopic submucosal dissection, followed by endoscopic mucosal resection in 10 (7.9%), and endoscopic submucosal tunnel dissection in eight (6.3%). Endoscopic full thickness resection was performed in three cases (2.4%). In terms of complication, eight macroperforation (6.3%), eight microperforation (6.3%), and seven major bleeding (5.6%) were noted. According to the National Institutes of Health classification, 64 patients (50.8%) were corresponding to very low risk, followed by low risk 42 (33.3%), intermediate risk 14 (11.1%) and high risk six (4.8%). En bloc resection rate was 72.2% (91/126), and R0 resection rate was 22.2% (28/126). R1 resection rate was 68.3% (86/126) and R2 resection rate was 7.1% (9/126). Among 68 patients who were followed-up longer than 12 months, two patients (2.9%) showed recurrence during 31.7 months of follow-up period.

**Conclusions** Endoscopic resection of GIST appears to be a feasible procedure with relatively low rate of recurrence, even low R0 resection rate.

## OP299 TUNNEL DISSECTION AS A TREATMENT OPTION IN PATIENTS WITH GASTROINTESTINAL STROMAL TUMORS

**Authors** Nedoluzhko I<sup>1</sup>, Khvorova I<sup>1</sup>, Shishin K<sup>1</sup>, Shumkina L<sup>1</sup>

**Institute** 1 Operative Endoscopy, Moscow Clinical Scientific Center n.a. A.S. Loginov, Moscow, Russian Federation

DOI 10.1055/s-0039-1681475

**Aims** To evaluate the effectiveness of submucosal tunnel dissection in treating patients with gastrointestinal stromal tumors.

**Methods** Since March 2014 twenty four patients with gastrointestinal stromal tumors were operated using a tunneling method. There were three men and twenty one women. Twenty seven tumors were removed in total. The average age of patients was 62.8 years. We operated patients with primary tumors, as well as patients who were under follow-up for a long time. The indication for surgery for the latter was a negative dynamics according to endosonography including increasing in size and changes in structure of the tumor. The average size of tumor was nineteen mm. The main point of surgery is the formation of tunnel in submucosal space through mucosal incision and enucleation of

tumor preserving the integrity of capsule. Patients were maintained in the supine position, and general anesthesia was administered using mechanical ventilation.

**Results** Intraoperative carboxyperitoneum occurred in four cases, it was resolved by abdominal decompression with the help of Verres needle. No other intraoperative or postoperative complications were observed. Patients were discharged the next day after surgery. Immunohistochemistry assay demonstrated sixteen gastrointestinal stromal tumors (nine specimens of low risk, seven of intermediate risk). In eight patients immunohistochemistry confirmed leiomyomas.

**Conclusions** Endoscopic tunnel operations are technically feasible and can be used as a surgical treatment of subepithelial tumors of myogenic origin. Moreover, a minimal access significantly reduces the number of complications and a period of patients' rehabilitation after operation.

### OP300 IMPLEMENTATION OF ENDOSCOPIC SUBMUCOSAL DISSECTION (ESD) IN EUROPE – SURVEY AFTER ESD EXPERT TRAINING WORKSHOPS 2009 – 2018

**Authors** Oyama T<sup>1</sup>, Yahagi N<sup>2</sup>, Berr F<sup>3</sup>, Kiesslich T<sup>3,4</sup>, Ponchon T<sup>5</sup>, Toyonaga T<sup>6</sup>, Uraoka T<sup>7</sup>, Ziachehabi A<sup>8</sup>, Schachinger F<sup>9</sup>, Seifert H<sup>10</sup>, Kaehler G<sup>11</sup>, Wagner A<sup>3</sup>, Messmann H<sup>12</sup>, Hochberger J<sup>13</sup>, Kantsevov SV<sup>14</sup>, Mitrakov A<sup>15</sup>, ESD WORKSHOP Training Study Group

**Institute** 1 Dept of Endoscopy, Central Hospital Advanced Care Center, Saku, Japan; 2 Div. of Research & Development for Minimally Invasive Treatment, Cancer Center, Keio University, Tokyo, Japan; 3 Dept. Medicine I, Paracelsus Medical University Salzburg, Salzburg, Austria; 4 Institute of Physiology, Salzburg, Austria; 5 Hôpital Edouard Herriot, Lyon, France; 6 Dept of Endoscopy, Kobe University Hospital, Kobe, Japan; 7 Dept of Gastroenterology and Hepatology, Gunma University Hospital, Maebashi, Japan; 8 Ordensklinikum Linz – Elisabethinen, Linz, Austria; 9 Veterinary Office, Altheim, Austria; 10 Dept of Medicine, Gastroenterology, University Hospital, Oldenburg, Germany; 11 Endoscopy Div., Dept. of Surgery, Mannheim Campus, University of Heidelberg, Mannheim, Germany; 12 Klinikum Augsburg, Augsburg, Germany; 13 Dept of Gastroenterology, Vivantes Klinikum Berlin Friedrichshain, Berlin, Germany; 14 Mercy Medical Center, Univ. of Maryland School of Medicine, Baltimore, United States; 15 Endoscopy Div., Dept. of Surgery, Nizhniy Novgorod Cancer Hospital, Nizhniy Novgorod, Russian Federation

DOI 10.1055/s-0039-1681476

**Aims** To obtain information on implementation of ESD in participating centres of ten experimental ESD Training Workshops in Salzburg [Dig Endosc 2011;23:282 – 89].

**Methods** ESD WORKSHOPS lasted 3.3 days under instruction by international experts, 177 trainees from 135 referral centers had participated once or twice. A brief questionnaire was mailed to participants of all 135 centres and reported data (n, %) analyzed.

**Results** Completed data from 77 of 135 centers (57%), information on zero ESD from 32 (24%), no information from 26 (19%). ESD had been implemented without supervision by expert during initial learning. Nineteen (17%) of 109 centres had performed > 150 ESD (professional level), 27 (25%) had 31 – 150 ESD (competent level), and 32 (29%) each had ≤ 30 ESD (initial learning) and zero ESD, resp.. Outcome (% as median, range) of centres on initial learning (n = 425 ESD) is compared to centers with > 30 ESD (n = 5439): ESD en-bloc was 75 [40 – 80]% vs. 85 [49 – 100]%, conversion to hybrid-ESD 20 [0 – 100]% vs. 11 [0 – 51]% and to piecemeal-EMR 5 [0 – 45]% vs. 4 [0 – 15]%. Majority (65 – 70%) of ESD were in colorectum (35% malignant lesions) with low risk and satisfactory oncological outcome – even during initial learning (s. table). Overall, 30 day morbidity was 0.6 ± 2.2% (stenoses), and mortality 0.04% (2 cases).

Tab. 1 Outcome of implementation of ESD (median, [range])

Percent ESD-ITT	Colorectal ESD	Emergency surgery	Onco-surgery	CA recurrence
Initial ESD (≤ 30) (31 centres)	65 [0 – 100]	0 (mean 1.3) [0 – 11]	4 [0 – 25]	0 (mean 0.9) [0 – 10]
Competent ESD (> 30) (46 centres)	70 [0 – 92]	0.9 (mean 1.6) [0 – 10]	5 [0 – 18]	0 [0 – 0.1]

**Conclusions** ESD has been implemented at least in 46 centres across Europe on competent or professional level, with low risk during unsupervised learning. The majority (65 – 70%) are colorectal ESD, even during initial learning.

### OP301 COMPARISON OF NON-EXPOSURE SIMPLE SUTURING ENDOSCOPIC FULL-THICKNESS RESECTION (NESS-EFTR) AND LECS FOR GASTRIC SUBEPITHELIAL TUMORS

**Authors** Kim CG<sup>1</sup>, Choi DI<sup>1</sup>, Yoon HM<sup>1</sup>, Eom BW<sup>1</sup>, Ryu KW<sup>1</sup>, Kim YW<sup>1</sup>, Kim Yi<sup>1</sup>, Lee JY<sup>1</sup>, Choi IJ<sup>1</sup>

**Institute** 1 National Cancer Center, Center for Gastric Cancer, Goyang, Korea, Republic of

DOI 10.1055/s-0039-1681477

**Aims** Laparoscopy and endoscopic cooperative surgery (LECS) has the limitation of tumor exposure to peritoneal cavity. Recently, endoscopic full-thickness resection (EFTR) method which does not expose the tumor to peritoneal cavity (NESS-EFTR) was developed. We evaluated the NESS-EFTR technique with LECS.

**Methods** We compared the outcomes of two prospective trials (with LECS or NESS-EFTR) for the resection of gastric subepithelial tumor. NESS-EFTR procedure including steps of laparoscopic seromuscular suturing which results in inversion of the stomach wall, EFTR of the inverted stomach wall, and finally, endoscopic mucosal suturing with endoloops and clips. Fifteen patients were prospectively enrolled in both studies, respectively. Primary outcome was the rates of complete resection. Follow-up endoscopy was performed 3 months after EFTR.

**Results** A total of 11 (NESS-EFTR) and 14 patients (LECS) could be analyzed. The tumors were located at cardia in 64% (7/11) and 35.7% (5/14) of each group (p = 0.24). The tumor sizes (median) were not different between two groups (2.2 in NESS-EFTR and 2.6 cm in LECS, p = 0.12). The rate of complete resection was 100% in both groups. Total operation time (mean ± SD) is longer in NESS-EFTR group than that of LECS (198 ± 62 vs. 119 ± 36 minutes, p = 0.001). There is no complication except a transient fever in NESS-EFTR group. Peritoneal recurrence of GIST was occurred in a patient of LECS group after 17 months after operation.

**Conclusions** NESS-EFTR and LECS were successful in all patients. NESS-EFTR has the longer operation time, but has an advantage of non-exposure of tumor to peritoneal cavity. Further large-scale long-term follow-up study is needed.

### OP302 LONG-TERM CLINICAL OUTCOMES OF ENDOSCOPIC SUBMUCOSAL DISSECTION (ESD) IN GASTRIC EPITHELIAL LESIONS: A SPANISH SINGLE-CENTER COHORT

**Authors** Cañete Ruiz Á<sup>1</sup>, Arribas Anta J<sup>1</sup>, Álvarez-Nava Torregro T<sup>1</sup>, Piedracoba Cadahía C<sup>1</sup>, Romero Romero E<sup>1</sup>, de la Cruz DR<sup>1</sup>, Rodríguez Carrasco M<sup>1</sup>, del Pozo García A<sup>1</sup>, Díaz Tasende J<sup>1</sup>, Marín Gabriel JC<sup>1</sup>

**Institute** 1 Hospital 12 de Octubre, Gastroenterology, Madrid, Spain

DOI 10.1055/s-0039-1681478

**Aims** To analyze recurrence rates at 5-year follow-up after gastric ESD in a cohort of patients, according to different variables.

**Methods** Patients with gastric epithelial lesions who underwent ESD were included from a Spanish single referral center. Prospective data (from 2008 to 2015) were collected about patients and lesions characteristics. Kaplan-

Meier curves were used to analyze the 5-year-recurrence rate and results were compared according to different factors (bloc vs. piecemeal resection, R0 resections, lateral margins (LM) involvement, histology) using log-rank test.

**Results** 49 patients with gastric ESD were initially included. 14 cases were excluded: 2 cases with positive vertical margin (VM+) because need of surgery; 3 cases with no epithelial lesions and 9 cases lost follow-up. Finally, data from 35 patients were analyzed. Most frequent location was lower third (62.9%) and morphology Type 0-IIa+IIc (34.3%). Median size lesion was 26 mm. The main histology was Vienna 4 (48.5%) and Vienna 5 (34.3%). Median follow-up was 33.62 months (range 6–60). R0 resection rate was 80% and bloc resection rate was 85.7%. Two cases had LM+ and 5 cases LM unknown (20%). Local recurrence rate at 5-years was 11.4% (4 patients). A second ESD was performed in two of these cases. Recurrence rate was higher in LM+ and piecemeal resection groups, without statistical significance ( $p=0.057$  and  $p=0.48$  respectively). Disease-free-survival rate was 88.6%. No patient required surgery and no cancer gastric related death was reported. **Conclusions** In our study the disease-free-survival rate at 5 years was 88.6%. Lateral margins involvement and piecemeal resection were associated with higher recurrence rate ( $p=0.057$  and  $p=0.48$ ) ESD can achieve high rates of long-term curative treatment in our cohort.

### OP303 FEASIBILITY OF ENDOSCOPIC SUBMUCOSAL DISSECTION USING DETACHABLE ROBOTIC ASSISTIVE DEVICE

**Authors** Jang SH<sup>1</sup>, Choi HS<sup>1</sup>, Kim SH<sup>1</sup>, Jeon HJ<sup>1</sup>, Choi SJ<sup>1</sup>, Kim SH<sup>1</sup>, Lee JM<sup>1</sup>, Kim ES<sup>1</sup>, Keum B<sup>1</sup>, Jeon YT<sup>1</sup>, Chun HJ<sup>1</sup>, Lee HS<sup>1</sup>, Kim CD<sup>1</sup>

**Institute** 1 Department of Internal Medicine, Korea University College of Medicine, Seoul, Korea, Republic of

**DOI** 10.1055/s-0039-1681479

**Aims** Endoscopic submucosal dissection (ESD) is a standard treatment treatment of early gastric cancer without lymph node dissection. However, ESD still takes long procedure time and ESD related complications still exist. One of those reason is that there is no proper counter-traction during procedure. Many ways have been tried to overcome these limitations. Recently, our research team developed Endoscopic Assistive Robot (EAR). In this study, we improved previous Endoscopic assistive robot and conducted an in vivo test to evaluate the efficacy and safety of our device.

**Methods** We perform ESD was performed to imaginary gastric lesions in nonsurvival porcine models using our novel robotic assistive device. EAR can be mounted on GIF-Q260 endoscope and can be passed through overtube to porcine stomach, making it possible for clinical use. We divided two groups, conducted by experts and novice. We measured the time required to complete the ESD and complications involving perforation and significant bleeding in each group.

**Results** Total 12 cases of ESD were done. 2 cases were conventional ESD, each 5 cases were ESD with EAR by expert and novice. There was no significant difference in total procedure time per width, but dissection time was faster than robot ESD. There was no significant time difference between experts and novice. No perioperative complications occurred during the procedure.

**Conclusions** Our endoscopic assistive robot reduced dissection time and show its safety. Our robotic device could be helpful, especially in novice endoscopist.

### OP304 CLINICAL OUTCOMES AND POST-PROCEDURAL COMPLICATIONS OF ENDOSCOPIC SUBMUCOSAL DISSECTION OF GASTRIC NEOPLASIA INVOLVING THE PYLORIC CHANNEL

**Authors** Koh JS<sup>1</sup>, Park JJ<sup>1</sup>, Joo MK<sup>1</sup>, Lee BJ<sup>1</sup>, Chun HJ<sup>2</sup>, Lee SW<sup>3</sup>, Yang CH<sup>4</sup>, Kim EY<sup>5</sup>

**Institute** 1 Gastroenterology, Korea University Guro Hospital, Seoul, Korea, Republic of; 2 Gastroenterology, Korea University Anam Hospital, Seoul,

Korea, Republic of; 3 Gastroenterology, Korea University Ansan Hospitals, Ansan, Korea, Republic of; 4 Internal Medicine, Dongguk University Gyeongju Hospital, Gyeongju, Korea, Republic of; 5 Catholic University of Daegu School of Medicine, Daegu, Korea, Republic of

**DOI** 10.1055/s-0039-1681480

**Aims** Gastric neoplasia involving pyloric channel (GNPC) is technically difficult and post-procedural stenosis is concerned. We evaluated the feasibility and effectiveness of the endoscopic submucosal dissection (ESD) for GNPC, and predictive factors for stenosis during follow-up.

**Methods** Ninety-seven patients with GNPC underwent ESD from January 2007 to October 2017. We retrospectively analyzed the short-term clinical outcomes and post-procedural stenosis.

**Results** Among 97 patients, male were 59 (60.8%), and mean age was 63.1 years.

Fifty-eight cases (59.8%) were tubular adenoma (42 low grade dysplasia, 16 high grade dysplasia) and 34 (35.1%) were early gastric cancer. In 46 cases (47.4%), conventional anterograde ESD without retroflexion in the duodenum was performed, and 51 cases (52.6%) were resected by the retroflexion method. Seventy-seven lesions (79.4%) were located at pyloric channel and either antral or bulb side, and 20 cases (20.6%) were located throughout antrum and bulb. En bloc resection rate and R0 resection rate were 87.6% (85/97) respectively. Post-procedural stenosis was observed in 16 cases (16.5%). By multivariate analysis, resected circumference of pyloric channel  $\geq 75\%$  was the only predictive factor for stenosis (odds ratio; 8.15, 95% confidence interval; 1.97–33.74,  $p=0.004$ ). However, all the stenosis was managed with conservative method such as balloon dilatation. Compared with anterograde resection, retroflexion method was performed in tumors located throughout antrum and bulb (17/51, 33.3% vs. 9/46, 6.5%,  $p=0.001$ ), and larger tumors (17.1 mm vs. 11.8 mm,  $p=0.004$ ).

**Conclusions** ESD is a feasible method for treatment of GNPC. Retroflexion method may be effective for larger tumor located throughout antrum and bulb. However, if resected circumference of pyloric channel is over 75%, post-procedural stenosis is expected.

### OP305 LONG TERM SURVIVAL OF EARLY GASTRIC CANCER WITH SUBMUCOSAL INVASION AFTER ESD

**Authors** Takagi Y<sup>1</sup>, Yamamoto K<sup>1</sup>, Michida T<sup>2</sup>, Sato Y<sup>1</sup>, Tokuda Y<sup>1</sup>, Tatsumi N<sup>1</sup>, Ito T<sup>1</sup>

**Institute** 1 Japan Community Healthcare Organization Osaka Hospital, Department of Gastroenterology, Osaka, Japan; 2 Saitama Medical Center, Department of Gastroenterology, Saitama, Japan

**DOI** 10.1055/s-0039-1681481

**Aims** Clinical outcome of early gastric cancer (EGC) with submucosal (SM) invasion after endoscopic submucosal dissection (ESD) is not fully elucidated. Additional surgery may decrease the mortality by lymph node metastasis, but can be an overtreatment for some patients with SM invasion gastric cancer. We investigated the clinical outcome for SM invasion gastric cancer after ESD.

**Methods** ESD was performed for 1559 lesions of EGC at our hospital between July 2006 to August 2018. 145 lesions were histopathologically diagnosed as tubular adenocarcinoma with submucosal invasion. Based on the Japanese guideline, we recommended the patients to undergo radical surgery or be followed up without additional treatment. Concretely, the patients whose histopathological findings revealed SM invasion depth were shallower than 500  $\mu\text{m}$ , lymphatic and vascular invasion were negative, and horizontal and vertical margin were negative were followed up without additional treatment. Other patients were recommended to undergo radical surgery. Patients were divided into radical surgery group ( $n=76$ ) and no additional treatment group ( $n=70$ ). We retrospectively analyzed the disease-specific survival (DSS) and disease-free survival (DFS) in both groups.

**Results** 3 year and 5 year DSS are 98.4% and 98.4% in radical surgery group, and 100% and 100% in no additional treatment group. 3 year and 5 year DFS

were 97.4% and 97.4% in radical surgery group, and 98.1% and 98.1% in no additional treatment group, respectively. There are no statistically significant differences between the radical surgery group and no additional treatment group in DSS and DFS. Local recurrence rate was 2.6% in the radical surgery group and 1.4% in no additional treatment group.

**Conclusions** This study demonstrates that the patients of SM invasion gastric cancer after ESD revealed high long term survival. The decision of treatment strategy based on the Japanese guideline seemed to be appropriate for SM invasion gastric cancer.

### OP306 HOW ENDOSCOPIC SUBMUCOSAL DISSECTION FOR GASTROINTESTINAL LESIONS IS BEING IMPLEMENTED? RESULTS OF AN INTERNATIONAL SURVEY

**Authors** Araújo-Martins M<sup>1</sup>, Pimentel-Nunes P<sup>1,2,3</sup>, Libânio D<sup>2,3</sup>, Borges-Canha M<sup>1</sup>, Dinis-Ribeiro M<sup>2,3</sup>

**Institute** 1 Department of Surgery and Physiology, Faculty of Medicine, University of Porto, Porto, Portugal; 2 Gastroenterology Department, Oncology Portuguese Institute of Porto, University of Porto, Porto, Portugal; 3 Center for Research in Health Technologies and Information Systems (CINTESIS), Faculty of Medicine, University of Porto, Porto, Portugal  
DOI 10.1055/s-0039-1681482

**Aims** Superficial gastrointestinal (GI) neoplasms can be treated with endoscopic mucosal resection (EMR) and/or endoscopic submucosal dissection (ESD). These techniques are widely used in Eastern countries but experience is more limited in West. In 2010, our group found that ESD was performed only at few centers, with most endoscopists performing a low number of procedures. The aim of this study was to evaluate the current implementation of ESD in Western countries.

**Methods** Western endoscopists (n = 279) publishing between 2005 and 2017 papers related to EMR/ESD were asked to complete an online survey from December 2017 to February 2018.

**Results** A total of 58 endoscopists (21%) completed the survey. Thirty performed ESD in the esophagus (52%), 45 in the stomach (78%), 36 in the colorectum (62%), and 6 in the duodenum (10%). The median total number of lesions ever resected was >200, with a median number per endoscopist in 2016 of 41 (7, 6 and 28 in esophagus, in the stomach and in the colon and rectum, respectively). En-bloc resection rates were 97% in the esophagus, 95% in the stomach and 84% in the colorectum. Complete resection (R0) was achieved in 88%, 91%, and 81%, respectively. Curative rates were 69%, 70% and 67%, respectively. Major complications (perforation or delayed bleeding) occurred more often in colorectal ESD (12% vs. 6% in the esophagus and 7% in the stomach). In the upper GI tract, the majority of resected lesions were intramucosal adenocarcinoma (59% in the esophagus; 47% in the stomach), while in the colorectum the majority were adenomas (59%).

**Conclusions** ESD seems to be performed by a great number of centers and endoscopists. Our results suggest that ESD is being successfully implemented in Western countries, achieving a good rate of efficacy and safety according to European guidelines.

### OP307 ENDOSCOPIC SUBMUCOSAL DISSECTION FOR GASTROINTESTINAL NEUROENDOCRINE TUMORS: A BICENTRIC PROSPECTIVELY COLLECTED WESTERN PRELIMINARY EXPERIENCE

**Authors** Bucalau AM<sup>1</sup>, Murino A<sup>2</sup>, Costa D<sup>2</sup>, Verset L<sup>3</sup>, Huberty V<sup>1</sup>, Telese A<sup>2</sup>, Lazaridis N<sup>2</sup>, Luong T<sup>2</sup>, Toumpanakis C<sup>2</sup>, Martyn C<sup>2</sup>, Deviere J<sup>1</sup>, Lemmers A<sup>1</sup>, Despott E<sup>2</sup>

**Institute** 1 Erasme University Hospital ULB, Brussels, Belgium; 2 Royal Free Hospital, London, United Kingdom; 3 Bordet Institute, Brussels, Belgium  
DOI 10.1055/s-0039-1681483

**Aims** Selected gastrointestinal (GI) neuroendocrine tumors (NETs) are suitable for endoscopic submucosal dissection (ESD) but its efficacy and safety in western countries are limited. The aim of this study is to review two European centers experience of endoscopic treatment of superficial GI NET by ESD.

**Methods** Clinical and technical data of patients treated by ESD from two tertiary European centers were prospectively collected from October 2014 to November 2018. Complete resection (R0) was defined as clear lateral and vertical margins.

**Results** Twenty-three ESDs of NET were performed in 21 patients (males 38%, mean age of 56 years. The majority of the lesions were located in the stomach (68%) followed by the rectum (26%), esophagus (4%) and duodenum (4%). For gastric NETs, 87% were associated to atrophic gastritis and 53% to previous history of multiples NETs. Complete endoscopic resection by en-bloc resection was achieved in all patients (100%). R0 resection rate was 71% (91% clear lateral and 73% clear vertical margins).

Median ESD duration time was of 60 min (20–240). Two cases presented small perforations, treated conservatively by antibiotics and clip closure. The median specimen size was of 25 (12–50) mm. Pathological examination showed 56% grade 1 NETs, 36% grade 2 and 4% grade 3. Fifteen lesions were characterized as pT1 (75%). Three patients were candidates for additional treatment: one received EMR for additional known lesions, one underwent surgery with oncological lymph node resection (finally pT2N1) and the one refused systemic therapy. Two cases of recurrence were identified at the end of a median follow-up of 18 months: one was managed endoscopically while the second refused treatment.

**Conclusions** Our series of ESD for selected GI NETs showed favorable results in term of efficacy and safety. However, further studies are needed to determine the role of ESD compared to other resection modalities.

Saturday, April 6, 2019

11:00 – 13:00

Esophagus diagnosis and ablation

South Hall 1B

### OP308 MOLECULAR ENDOSCOPIC IMAGING FOR DETECTION OF BARRETT'S ESOPHAGUS (BE) USING NANOPARTICLES

**Authors** Ahmed S<sup>1</sup>, Hoque Chowdhury E<sup>2</sup>, Galle PR<sup>1</sup>, Neumann H<sup>1</sup>

**Institute** 1 Interdisciplinary Endoscopy, University Medical Center Mainz, Mainz, Germany; 2 Jeffrey Cheah School of Medicine and Health Sciences, Monash University Malaysia, Monash, Malaysia  
DOI 10.1055/s-0039-1681484

**Aims** Early detection of BE may allow for more effective surveillance. Molecular endoscopic imaging (MEI) permits visualization of disease-specific molecular alterations. Past studies on MEI have used antibodies for detection of disease-specific targets. In contrast, nanoparticles can be coated with stronger fluorophores and can also be loaded with ligands to multiple biomarkers. To date, no data is available on the use of nanoparticles for MEI.

We aimed to assess the diagnostic applicability of MEI with nanoparticles for diagnosis of Barrett's metaplasia. In addition, we aimed to compare the results with traditional MEI using specific labeled Muc-2 antibodies and histology.

**Methods** Consecutive patients undergoing surveillance of known BE were included. Following careful inspection of the Barrett's segment, biopsies were obtained and rinsed in PBS. Afterwards, biopsies were incubated with FITC labeled Muc-2 antibodies or biodegradable, pH sensitive nanoparticles coupled with FITC conjugated Muc-2. Afterwards, MEI was performed using the probe-based confocal imaging system. Esophageal squamous epithelium and gastric tissue samples were considered as controls. Fluorescence intensities were compared, followed by immunohistochemistry and final histopathological workout.

**Results** 22 specimens were analyzed. No fluorescence signals were noted on samples from the squamous epithelium or from the stomach demonstrating the high specificity of the technique. Fluorescence signals were noted for traditional MEI using Muc-2 antibodies in intestinal type Barrett's metaplasia corresponding to goblet cells in the histopathological examination. Of note, significantly stronger fluorescence signals were achieved with nanoparticles coupled with FITC conjugated Muc-2. MEI with nanoparticles for prediction of Barrett's metaplasia corresponded in all cases to final histopathological examination.

**Conclusions** This is the first study showing the applicability of nanoparticles for molecular endoscopic imaging. The use of highly-specific nanoparticles allow for targeted imaging of Barrett's metaplasia. With the potential of nanoparticles allowing ligation to multiple biomarkers, future research is now focusing on identifying different grades of dysplasia.

### OP309 CLINICAL CONSEQUENCES OF NON-ADHERENCE IN SURVEILLANCE OF BARRETT'S ESOPHAGUS: A MULTICENTER PROSPECTIVE COHORT STUDY

**Authors** Roumans CAM<sup>1,2</sup>, van der Bogt RD<sup>1</sup>, Nieboer D<sup>2</sup>, Steyerberg EW<sup>2,3</sup>, Rizopoulos D<sup>4</sup>, Lansdorp-Vogelaar I<sup>2</sup>, Biermann K<sup>5</sup>, Bruno MJ<sup>1</sup>, Spaander MCW<sup>1</sup>

**Institute** 1 Department of Gastroenterology & Hepatology, Erasmus MC University Medical Center, Rotterdam, Netherlands; 2 Department of Public Health, Erasmus MC University Medical Center, Rotterdam, Netherlands; 3 Department of Medical Statistics and Bioinformatics, Leiden University Medical Center, Leiden, Netherlands; 4 Department of Biostatistics, Erasmus MC University Medical Center, Rotterdam, Netherlands; 5 Department of Pathology, Erasmus MC University Medical Center, Rotterdam, Netherlands  
**DOI** 10.1055/s-0039-1681485

**Aims** Guideline recommendations for surveillance of Barrett's esophagus (BE) aim to reduce heterogeneity and to improve quality of care. We aimed to estimate the clinical consequences of non-adherence on (1) the endoscopic resectability of esophageal adenocarcinoma (EAC), (2) mortality due to EAC, and (3) the risk of misdiagnosis of grade of dysplasia.

**Methods** In this multicenter prospective cohort study, data from BE patients were collected in 13 hospitals. We assessed the proportion of (non-)adherent endoscopies for both surveillance interval and Seattle protocol (1) in patients with EAC at stage  $\leq T1a$  or  $>T1a$ , and (2) in patients with mortality due to EAC. Also, (3) the probability of misdiagnosis of grade of dysplasia due to non-adherence to the Seattle protocol was estimated with a multistate Markov model.

**Results** 3815 endoscopies were performed in 726 BE patients; in 18 patients EAC was detected. Adherence to the recommended surveillance interval or the Seattle protocol did not influence endoscopic resectability of EAC ( $p = 0.68$  &  $p = 0.34$ , respectively). Six patients died due to EAC. Two deceased during surveillance. The surveillance interval was among these patients, if non-adherent, shorter than recommended; the Seattle protocol was followed appropriately particularly in their last endoscopies. In the remaining four patients neoplastic progression was detected at surveillance endoscopies and they deceased after drop-out due to therapy complications or EAC recurrence.

The risk of misdiagnosis of grade of dysplasia was reduced by 23% if biopsied according to the Seattle protocol (OR 0.77, 95% CI 0.60 – 0.98).

**Conclusions** The disadvantageous effect of non-adherence to guideline recommendations may be limited with respect to endoscopic resectability of EAC and mortality. These results are in line with the lack of evidence underpinning the guideline. Despite the proven effectiveness of the Seattle protocol, it is time-consuming and error-prone due to non-adherence. Other strategies should be evaluated to estimate the neoplastic progression risk.

### OP310 FEASIBILITY, SAFETY, TOLERABILITY AND DOSE-RELATED EFFICACY OF A NOVEL CRYOBALLOON SWIPE ABLATION (CBSAS<sup>90</sup>) DEVICE IN DYSPLASTIC BARRETT'S ESOPHAGUS

**Authors** van Munster SN<sup>1,2</sup>, Overwater A<sup>1,3</sup>, Raicu GM<sup>4</sup>, Seldenrijk CA<sup>4</sup>, Nagengast WB<sup>5</sup>, Schoon EJ<sup>6</sup>, Bergman JJGHM<sup>2</sup>, Weusten BLAM<sup>1,3</sup>

**Institute** 1 Dept. of Gastroenterology and Hepatology, St. Antonius Hospital, Nieuwegein, Netherlands; 2 Dept. of Gastroenterology and Hepatology, Amsterdam University Medical Centers, Amsterdam, Netherlands; 3 Dept. of Gastroenterology and Hepatology, University Medical Center Utrecht, Utrecht, Netherlands; 4 Pathology DNA, St. Antonius Hospital, Nieuwegein, Netherlands; 5 Dept. of Gastroenterology and Hepatology, University Medical Center Groningen, Groningen, Netherlands; 6 Dept. of Gastroenterology and Hepatology, Catharina Hospital, Eindhoven, Netherlands  
**DOI** 10.1055/s-0039-1681486

**Aims** Cryoballoon ablation is endoscopic cryotherapy for Barrett's esophagus (BE), which offers potential advantages over heat-based ablation. Focal CBA has been promising for limited BE, whereas the novel 90°-swipe CBA (CbSAS<sup>90</sup>) ablates larger areas (90° over 3 cm) in a single-step. The controller software allows for dose adjustment (rate at which the diffuser traverses the 3 cm long catheter axis while emitting cryogen). CbSAS<sup>90</sup> has been feasible and safe in animal and pre-esophagectomy studies. This is the first clinical study to assess feasibility, safety and efficacy of CbSAS<sup>90</sup> for dysplastic BE.

**Methods** Patients with flat BE ( $\leq 3$  cm) and low/high-grade dysplasia (LGD/HGD) or residual BE after endoscopic resection (ER) were enrolled. We started dose-finding with semi-circumferential treatment at dose 1 (0.8 mm/s). This was escalated with 0.1 mm/s (N = 6 per dose) until the dose resulted in BE regression  $\geq 80\%$  without dose-related SAEs (DR-SAEs). This effective dose (ED) was confirmed with circumferential treatment (N = 12). DR-SAEs included severe pain  $\geq 7$  days or stenosis. Pain (VAS 0–10) and dysphagia (0–4) were evaluated at days 0, 1, 7 & 30. Outcomes were technical success, DR-SAEs and efficacy (BE regression at 8-weeks follow-up).

**Results** Twenty-five patients were included (median Prague C0M3, 20% prior ER). Technical success was 92% (23/25pts). Device malfunctions occurred in 8%, all resolved with replacement. BE regression was 78% (IQR 68–86) for dose 1 (0.8 mm/s) and 85% (IQR 75–95) for dose 2 (0.7 mm/s), which was in turn defined as ED. Circumferential treatment with the ED resulted in 94% (IQR 89–97) BE regression. However, 2 patients (17%) developed a stenosis after circumferential treatment (1 & 3 dilatations). Median pain scores were 3 (IQR 1–5), 1 (0–2), 0 (0–0) and 0 (0–0) at days 0, 1, 7 & 30 respectively. Median dysphagia scores were 0 at all days.

**Conclusions** CbSAS<sup>90</sup> is feasible and a promising tool for ablating larger areas of dysplastic BE. However, because of concerns with respect to strictures, the dose that optimally balances efficacy and safety needs further evaluation in larger studies with direct circumferential treatment.

### OP311 EVALUATION OF THE INTEROBSERVER CONCORDANCE OF THE ENDOSCOPIC CLASSIFICATION OF INTRAPAPILLARY CAPILLARY LOOPS FOR ESOPHAGEAL SQUAMOUS CELLS CARCINOMA OF THE JAPAN ESOPHAGEAL SOCIETY

**Authors** Okazaki O<sup>1</sup>, Meireles de Azeredo Coutinho L<sup>1</sup>, Casamali C<sup>1</sup>, Ferreira Ayala Farias G<sup>1,2</sup>, Coutinho Madruga Neto A<sup>2</sup>, Arantes de Carvalho Visconti T<sup>2</sup>, Shiguehisa Kawaguti F<sup>1</sup>, Da Costa Martins B<sup>1</sup>, Henrique Lenz L<sup>1</sup>, Vaz Safatle-Ribeiro A<sup>1</sup>, Ribeiro U<sup>1</sup>, Maluf-Filho F<sup>1</sup>

**Institute** 1 ICESP – HCFMUSP, Sao Paulo, Brazil; 2 HCFMUSP, Sao Paulo, Brazil  
**DOI** 10.1055/s-0039-1681487

**Aims** Endoscopic evaluation of superficial esophageal squamous cancer (ESCC) is crucial to estimate the invasion depth and decide the most appropriate therapeutic strategy. Recently, the JES published a new magnifying endoscopic (ME) classification to predict the invasion depth of SESCC based on microvessel morphology, with a reported accuracy of up to 90%. The objective of this study was to evaluate the inter and intra-observer agreement of the JES classification in a Western oncological center.

**Methods** Images from 30 lesions with suspected ESCC were accessed by ten endoscopists according to the JES classification. Five observers were familiar with the new JES classification and had performed over 100 ME-BLI examinations, and five observers had limited experience with ME-BLI and/or JES classification.

**Results** Overall interobserver agreement of JES classification was substantial (0.61). Kappa level was 0.46 (moderate agreement) among Experienced endoscopists, and 0.51 (moderate agreement) among non-experienced. Agreement was poorer in B1/B2 lesions and there was a trend towards overstaging the lesions.

**Conclusions** Our study was the first to evaluate the interobserver concordance of the endoscopic classification of intrapapillary capillary loops for esophageal cells carcinoma of Japan Esophageal Society in a Western center. We demonstrated only a moderate interobserver agreement in both experienced and inexperienced endoscopist. Our results differ from what was observed in eastern studies and may reflect the learning curve in the interpretation of IPCL images.

### OP312 INDIVIDUALS' PREFERENCES FOR ESOPHAGEAL CANCER SCREENING STRATEGIES: A DISCRETE CHOICE EXPERIMENT

**Authors** Peters Y<sup>1</sup>, van Grinsven E<sup>1</sup>, van de Haterd M<sup>1</sup>, van Lankveld D<sup>1</sup>, Verbakel J<sup>1</sup>, Siersema PD<sup>1</sup>

**Institute** 1 Department of Gastroenterology and Hepatology, Radboudumc, Nijmegen, Netherlands

**DOI** 10.1055/s-0039-1681488

**Aims** Screening for esophageal adenocarcinoma (EAC) and its precursor Barrett's esophagus could possibly reverse the increasing incidence of EAC. Our objective was to determine individuals' preferences for EAC screening and to assess to what extent procedural characteristics of screening tests predict willingness for screening participation.

**Methods** A discrete choice experiment questionnaire was sent by mail to 1000 individuals aged 50 to 75 years who were randomly selected from the municipal registry of Nijmegen. Each subject answered 12 discrete choice questions of two screening tests comprised of five attributes: EAC-related mortality risk reduction, procedure-related pain and discomfort, location, test specificity, and costs. A multinomial logit model was used to estimate preferences for each attribute level and to calculate relative importance scores of each attribute and expected uptake rates.

**Results** In total, 375 patients (37.5%) completed the questionnaire. Test specificity had the highest impact on respondents' preferences, accounting for 27.2%, followed by pain and discomfort (26.8%), and mortality reduction

(24.6%). The average expected uptake of EAC screening was 62.8% (95% CI:61.1 – 64.5). Heavy pain and discomfort had the largest impact on screening uptake (-22.8%;95% CI:-26.8 – 18.7)(Table 1). Male gender (OR:1.86; P=.005), health status (OR:0.18;P=.03), endoscopy experience (OR:2.07; P=.02), and upper gastrointestinal symptoms (OR:1.13;P=.001) were significantly associated with screening participation.

**Tab. 1** Effects of changing the screening program characteristics on the probability of participation in esophageal cancer screening

Attributes	Impact of attribute levels on probability of screening participation (%) (* indicates p<.05)			
Mortality reduction (per 1000 screened individuals)	2 per 1000 Reference	3 per 1000 +5.8%*	4 per 1000 +14.0%*	5 per 1000 +17.8%*
Pain and discomfort	No pain/discomfort Reference	Mild pain/discomfort -1.5%	Moderate pain/discomfort -2.0%	Heavy pain/discomfort -22.8%*
Out-of-pocket costs (€)	Costs: € 0 Reference	Costs: € 25 -6.2%*	Costs: € 50 -10.3%*	Costs: € 75 -16.7%*
Specificity (%)	Specificity: 50% Reference	Specificity: 70% -3.2%	Specificity: 90% +12.7%*	Specificity: 100% +17.1%*

**Conclusions** Understanding individuals' preferences for EAC screening tests helps to further design the optimal screening modality by selecting the attributes that maximize attendance. Based on our results, an optimal screening test should have a high specificity, cause no or low to moderate pain or discomfort and result in a decrease in EAC-related mortality.

### OP313 ENDOSCOPIC CRYOBALLOON ABLATION IS SAFE, WELL-TOLERATED AND HIGHLY EFFECTIVE IN THE ERADICATION OF ESOPHAGEAL SQUAMOUS CELL NEOPLASIA

**Authors** van Munster S<sup>1</sup>, Ke Y<sup>2</sup>, He S<sup>2</sup>, Zhang Y<sup>2</sup>, Xue L<sup>2</sup>, Lv N<sup>2</sup>, Dawsey S<sup>3</sup>, Weusten B<sup>4,5</sup>, Bergman J<sup>6</sup>, Wang G<sup>2</sup>

**Institute** 1 Gastroenterology and Hepatology, Academic Medical Center Amsterdam, Amsterdam, Netherlands; 2 Dpt. of Endoscopy, Cancer Institute and Hospital, Chinese Academy of Medical Sciences, Beijing, China; 3 Division of Cancer Epidemiology and Genetics, National Cancer Institute, Bethesda, United States; 4 Department of Gastroenterology and Hepatology, Sint Antonius Hospital, Nieuwegein, Netherlands; 5 Department of Gastroenterology and Hepatology, University Medical Center Utrecht, Utrecht, Netherlands; 6 Gastroenterology and hepatology, Academic Medical Center Amsterdam, Amsterdam, Netherlands

**DOI** 10.1055/s-0039-1681489

**Aims** Globally, 80% of all esophageal cancers are squamous cell cancer (ESCC), arising from squamous cell neoplasia (ESCN). Although patients with ESCC have poor prognosis, curative endoscopic treatment can be performed for ESCN. ESCN mainly occurs in developing countries, with limited endoscopic expertise and resources. Hence, an easy-to-use, low-cost treatment would be of great value. The cryoballoon focal ablation system (CbFAS) is a novel endoscopic ablation therapy that comprises a portable handle with a through-the-scope catheter containing a conformable balloon. The balloon is simultaneously inflated and cooled, resulting in ice patches of ± 2 cm<sup>2</sup>. CbFAS is easy to use and requires no capital equipment. We aimed to assess the safety, tolerability and efficacy of CbFAS for eradicating ESCN.

**Methods** In this prospective trial, patients with one flat-type unstained lesion (USL) on Lugol's chromoscopy, <6 cm and <50% of the circumference with moderate/high-grade intraepithelial neoplasia (MGIN/HGIN) were enrolled. At baseline, the lesion was treated with side-by-side ablations of 10 seconds. Safety phone calls were performed at days 2, 7 and 30. Follow-up endoscopies with biopsies and retreatment for persisting lesions were performed at 3 month intervals. All patients underwent a 12-months endoscopy.

**Results** We enrolled 80 patients (59 MGIN, 21 HGIN) with a USL of median 3 (IQR 3 – 4) cm. Median 5 (4 – 7) side-by-side ablations were performed per patient, over a median ablation time of 8 (5 – 10) minutes. After a single

treatment, 70/78 patients (90%) exhibited CR and 8/78 (10%) had residual USL and were retreated; all had CR 3 months later. At 12 months, 76/78 patients (97%) exhibited CR whereas 2 patients had a recurrent MGIN. No strictures or serious adverse events occurred. Post-procedure median VAS was 1/0/0 at days 2/7/30.

**Conclusions** Results of our prospective cohort study in China suggest that CbFAS of ESCN is safe, well-tolerated, and highly effective in inducing endoscopic and histological remission.

## OP314 ENDOROTOR ABLATION OF BARRETT'S ESOPHAGUS; A SAFETY AND FEASIBILITY STUDY

**Authors** Gotink AW<sup>1</sup>, Peters Y<sup>2</sup>, Bruno MJ<sup>1</sup>, Siersema PD<sup>2</sup>, Koch AD<sup>1</sup>

**Institute** 1 Erasmus MC University Medical Center, Department of Gastroenterology and Hepatology, Rotterdam, Netherlands; 2 Radboud University Medical Center, Department of Gastroenterology and Hepatology, Nijmegen, Netherlands

**DOI** 10.1055/s-0039-1681490

**Aims** The aim of this study was to assess the safety and efficacy of a novel, non-thermal resection device (EndoRotor) for the ablation of Barrett's esophagus (BE).

**Methods** Between January 2017 and September 2018, patients with BE were included from 2 tertiary referral centers. Inclusion criteria: BE 2–5 cm, with low-grade dysplasia (LGD), high-grade dysplasia (HGD) or residual BE after endoscopic resection (ER) of a lesion containing HGD or early esophageal adenocarcinoma. Exclusion criteria: previous ER of >50% circumference, or previous ablation therapy. During the procedure, we aimed to ablate at least 50–100% of the BE. Follow-up endoscopy was performed 3 months after treatment. Primary outcome: percentage of endoscopically visible surface regression at 3-months FU, and complications. Secondary outcome: procedure time.

**Results** Thirty patients (median BE C0 (IQR 0–1) M3 (IQR 3–3.3)) were included. Eighteen patients had undergone ER prior to ablation. The median % BE ablated was 100% (IQR 94–100) with a median circumferential extent of 95% (IQR 50–100). Median procedure time was 42 minutes (IQR 33–60) and median ablation time was 28 minutes (IQR 20–45). Median BE surface regression at 3-months FU was 90% (IQR 80–99). Multiple residual Barrett's islands were commonly seen. Serious complications occurred in 2/30 patients (7%): 1 perforation and 1 post-procedural bleed, both requiring intervention and hospitalization. 8/30 patients (27%) complained of dysphagia; 4 patients had a stricture requiring intervention. Non-circumferential scarring was seen in 10/27 patients (37%). 18/30 patients (60%) had post-procedural pain or odynophagia, during a median of 5 days (IQR 3–10).

**Conclusions** For ablation of Barrett's esophagus, the EndoRotor seems non-inferior to established ablative techniques. However, complication rates seem higher and procedure time longer. Additionally, the difficulty level in operating the device is high, with a high potential for complications in inexperienced hands. For patients with therapy-naïve BE, we advise against the use of the EndoRotor.

## OP315 CHARACTERIZATION OF ESOPHAGEAL MICROBIOTA IN PATIENTS WITH BARRETT'S ESOPHAGUS AND ESOPHAGEAL ADENOCARCINOMA

**Authors** Lopetuso LR<sup>1</sup>, Ianiro G<sup>1</sup>, Pecere S<sup>2</sup>, Severgnini M<sup>3</sup>, Quaranta G<sup>4</sup>, Boskoski I<sup>5</sup>, Camboni T<sup>6</sup>, Scaldaferrri F<sup>1</sup>, Riccioni M<sup>1</sup>, Masucci L<sup>7</sup>, Consolandi C<sup>8</sup>, Gasbarrini A<sup>1</sup>, Costamagna G<sup>1</sup>, Cammarota G<sup>1</sup>

**Institute** 1 Dipartimento di Scienze Gastroenterologiche, Endocrino-Metaboliche e Nefro-Urologiche, Fondazione Policlinico Universitario A. Gemelli IRCCS, Roma, Italy; 2 Dipartimento di Scienze Gastroenterologiche, Endocrino-Metaboliche e Nefro-Urologiche, Fondazione Policlinico Universitario A. Gemelli IRCCS, Roma, Italy; 3 Institute of Biomedical Technologies, Italian National Research Council, Milan, Italy; 4 Dipartimento di

Microbiologia, Fondazione Policlinico Universitario A. Gemelli, Roma, Italia – IRCCS, Università Cattolica del Sacro Cuore, Roma, Italy; 5 UOC Medicina interna e Gastroenterologia, Area Gastroenterologia ed Oncologia Medica, Dipartimento di Scienze Gastroenterologiche, Endocrino-Metaboliche e Nefro-Urologiche, Fondazione Policlinico Universitario A. Gemelli IRCCS, Roma, Italy; 6 Institute of Biomedical Technologies, Italian National Research Council, Milan, Italy; 7 Dipartimento di Microbiologia, Fondazione Policlinico Universitario A. Gemelli IRCCS, Roma, Italy; 8 Institute of Biomedical Technologies, Italian National Research Council, Milan, Italy  
**DOI** 10.1055/s-0039-1681491

**Aims** The aim of our study was to characterize esophageal microbiota composition in patients with BE and EAC.

**Methods** 26 patients were enrolled: 10 healthy patients as control group; 10 with a diagnosis of BE and 6 with a new diagnosis of EAC. Genomic DNA was extracted from distal esophagus biopsies and V3-V4 regions of the 16S rRNA gene were sequenced by MiSeq Illumina platform. In patients with BE, biopsies were obtained from both metaplastic (BEM) and normal mucosa (BEU).

**Results** BE and EAC patients showed an overall higher level of biodiversity which was statistically significant between BE and control patients (Wilcoxon test for Phylogenetic Diversity Whole Tree metric  $p < 0.05$ ). When evaluating  $\beta$ -diversity, a separation on the first axis was observed for unweighted Unifrac, in which control samples were significantly separated from both BE ( $p < 0.005$ ) and EAC ( $p < 0.05$ ), as well as BE were substantially diverging from EAC ( $p < 0.05$ ). BEU samples showed significant higher values of  $\alpha$ -diversity (PD whole tree) when compared with control patients ( $p < 0.05$ ), while BEM shared similar values with EAC, being lower than BEU and higher than control patients. A substantial divergence on the first axis was registered for unweighted Unifrac with control patients significantly separated from BEU ( $p < 0.005$ ) and EAC samples ( $p < 0.05$ ). Among phyla, relative abundance analysis revealed a lower level of Firmicutes and a significantly higher percentage of Bacteroidetes in BEU and EAC compared with control subjects. BEU and BEM exhibited a significantly higher presence of Fusobacteria compared with control samples. At genus level, Streptococcus relative abundance showed a reduction in EAC when compared with BEM and control samples.

**Conclusions** These data describe a specific microbial signature for both BE and EAC and open new horizons towards the identification of potential risk factors for the progression.

## OP316 EFFECTIVENESS OF IRREVERSIBLE ELECTROPORATION USING NEWLY DEVELOPED ENDOSCOPIC ABLATIVE CATHETERS IN GASTROINTESTINAL TRACT: AN IN VIVO ANIMAL STUDY

**Authors** Jeon HJ<sup>1</sup>, Kim ES<sup>1</sup>, Jang SH<sup>1</sup>, Kim SH<sup>1</sup>, Kim JH<sup>1</sup>, Choi SJ<sup>1</sup>, Kim SH<sup>1</sup>, Lee JM<sup>1</sup>, Choi HS<sup>1</sup>, Jeon YT<sup>1</sup>, Keum B<sup>1</sup>, Lee HS<sup>1</sup>, Chun HJ<sup>1</sup>, Kim CD<sup>1</sup>

**Institute** 1 Korea University Anam Hospital, Seoul, Korea, Republic of

**DOI** 10.1055/s-0039-1681492

**Aims** Irreversible Electroporation (IRE) is an ablation technique that induces apoptosis by applying an electric field. IRE has several advantages over other ablation techniques. For this reason, the IRE has already been used as an adjunctive treatment in many areas of tumor therapy and has confirmed its possibility. The purpose of this study was to investigate the possibility of applying IRE therapy to gastrointestinal tract using newly designed endoscopic ablative catheters.

**Methods** The IRE was performed in the esophagus, stomach, and duodenum to six general anesthetized pigs. Two types of endoscopic IRE catheters were used. The gap between the electrodes was about 1.0 cm. One, A basket-shaped catheter was used for the esophagus and duodenum. The other is two electrode catheter used for stomach. The voltage was applied from 500V to 2000V, and the number of pulses was fixed to 60. The pigs were euthanized after 24hr from experiment day. After the IRE ablation on tissue, histological

evaluation of ablation site was performed through H & E staining of the tissues.

**Results** Endoscopic IRE in the esophagus, stomach, and duodenum confirmed cell necrosis around the stimulation site. No damage was done to 500V in all tissues. The stomach caused necrosis of mucosa at 1000V, inflammation of submucosa at 1500V, and inflammation and vessel injury of all submucosa at 2000V. In the esophagus, separation of the layer was observed at 1000V, desquamation of layer and erosion of mucosa were seen at 1500V, and inflammation of submucosa was induced at 2000V. In duodenum, erosion and necrosis were seen in mucosa at 500V, inflammation in submucosa at 1000V, and perforation at 2000V.

**Conclusions** Our newly designed catheters can be used to effectively ablate the esophagus, stomach, and duodenum. Further studies will be needed for the protocol about IRE ablation suited for esophagus, stomach and duodenum.

### OP317 EVALUATION OF BARRETT'S ESOPHAGUS (BE) USING BLUE LIGHT IMAGING (BLI) AND LINKED COLOR IMAGING (LCI): EXPERIENCE OF 2 UNIVERSITY HOSPITALS

**Authors** Asmar N<sup>1</sup>, Etchepare N<sup>2</sup>, Rahmi G<sup>1</sup>, Coron E<sup>2</sup>, Perrod G<sup>1</sup>, Le Rhun M<sup>2</sup>, Musquer N<sup>2</sup>, Khater S<sup>1</sup>, Samaha E<sup>1</sup>, Benosman H<sup>1</sup>, Vienne A<sup>1</sup>, Cellier C<sup>1</sup>

**Institute** 1 Department of Gastroenterology and Digestive Endoscopy, Hôpital Européen Georges Pompidou, Paris, France; 2 Institute of Digestive Diseases, Department of Gastroenterology and Digestive Endoscopy, Nantes University Hospital, Nantes, France

DOI 10.1055/s-0039-1681493

**Aims** Endoscopic surveillance is mainstream to diagnose BE and its complications. BLI/LCI of ELUXEO system (Fujifilm, Tokyo, Japan) has emerged as powerful image enhancement diagnostic tool for neoplastic lesions. The aim of our study was to evaluate the performance of this system to characterize BE and its complications.

**Methods** We conducted a 6-month prospective study in 2 university hospitals. Patients with known BE were included. A thorough analysis was done by an expert endoscopist during gastroscopy: 1 or 2 areas of interest (Aoi) were selected in every patient then studied in white light, BLI and LCI and photos were taken in every modality at 3 zoom levels. Mucosal pattern (villous, circular or tubular glands; absent or enlarged glands) and vascular pattern (regular vessels; enlarged, tortuous or absent vessels) were evaluated. Each Aoi was biopsied separately.

**Results** 25 patients were included (median age 65 +/- 9.5 years, 68% males) and 31 Aoi were analyzed. Histology showed that 21 (67.7%) Aoi were non-dysplastic BE (NDBE), 8 (25.8%) were High-grade dysplasia (HGD) or adenocarcinoma (ADC) and 2 were gastric metaplasia.

Prediction of histology was 91.3% for NDBE and 100% for HGD/ADC. Regarding mucosal pattern, NDBE showed 100% regular glands with 71.4% circular pattern. For HGD/ADC analysis, the sensitivity for enlarged glands and absence of glands was respectively 50% and 70%, with 100% specificity, leading to a NPV of 83% and 91% and a PPV of 100%. Concerning vascular pattern, the vessels were regular in 100% of NDBE. For HDG/ADC the sensitivity for enlarged vessels, tortuous vessels and absence of vessels was respectively 100%, 87.5% and 37.5%, corresponding to a NPV of 100%, 95.2% and 80%.

**Conclusions** In this preliminary study, ELUXEO associated to BLI/LCI has high sensitivity to detect NDBE and high specificity for HGD/ADC. Further prospective large scale trials are needed to validate our findings.

Saturday, April 6, 2019  
Video ERCP 2

11:00 – 13:00  
South Hall 1A

### OP318V LUMEN-APPOSING METAL STENT (LAMS) DISLODGMET DURING POST-BARIATRIC ERCP: ENDOSCOPIC BRIDGING WITH A DOUBLE-CHANNEL ENDOSCOPE

**Authors** Bazaga S<sup>1</sup>, Sánchez-Ocaña R<sup>1</sup>, Yaiza Carbajo A<sup>1</sup>, García-Alonso FJ<sup>1</sup>, de Benito M<sup>1</sup>, de la Serna Higuera C<sup>1</sup>, Pérez-Miranda M<sup>1</sup>

**Institute** 1 Hospital Universitario Rio Hortega, Valladolid, Spain

DOI 10.1055/s-0039-1681494

**Introduction** EUS directed trans-gastric ERCP allows access to the excluded stomach through a gastro-gastrostomy in Roux-en-Y gastric bypass. We similarly fashioned a jejuno-jejunal EUS-guided LAMS anastomosis to allow through-the-stent (TTS) ERCP in a patient with recurrent pancreatitis and duodenal switch (DS), a bariatrically altered anatomy distinctly precluding peroral ERCP. We present techniques for localizing the biliary limb in DS and for managing LAMS dislodgment.

**Procedure** We successfully performed ERCP in DS as a three-stage procedure. Firstly, a EUS-guided hepaticogastrostomy (HG) was performed with a SEMS. Secondly, we placed a nasobiliary drain (NBD) through the HG across the ampulla into the biliary limb. After advancing the EUS scope into the alimentary limb, contrast was injected through the NBD to identify the biliary limb under EUS and fluoroscopic guidance. A 20-mm cautery-enabled LAMS was deployed to create a jejuno-jejunosomy bypass from the alimentary into the biliary limb. After balloon dilation of the LAMS, the papilla was reached through it with a pediatric colonoscope. Needle-knife sphincterotomy over the NBD and sphincteroplasty were performed. During colonoscope withdrawal, the LAMS proximal flange dislodged distally into the biliary limb. Attempts to reposition the LAMS with forceps failed. A second overlapping LAMS was deployed to bridge the peritoneal gap, but failed to hold in place the distally dislodged LAMS. Both LAMS ended up lying across the peritoneal gap. A double-channel endoscope was used to successfully pull with dual traction the proximal flange of the first LAMS back into the second LAMS. Seven weeks later, we removed all stents and sutured the fistula endoscopically.

**Conclusion** EUS allows tailoring entero-anastomoses for ERCP access to the individual bariatric patient anatomy. The risk of LAMS dislodgment during TTS-ERCP is not eliminated by the novel larger diameter LAMS. Dual forceps traction with double-channel endoscope seems simple and effective to manage LAMS dislodgment.

### OP319V SUCCESSFUL RETRIEVAL OF A PROXIMALLY MIGRATED PANCREATIC STENT BY DIGITAL PANCREATOSCOPY

**Authors** Araya Arce V<sup>1</sup>, Vargas J<sup>1</sup>, Rezvani F<sup>1</sup>, Vargas J<sup>1</sup>

**Institute** 1 CCSS, San Jose, Costa Rica

DOI 10.1055/s-0039-1681495

With the increasing use of pancreatic duct stenting, its complications have also been recognized. Proximal stent migration has been described in 5.2% of patients and it represents a challenging situation. Although there is no consensus for the best strategy for retrieval, several endoscopic techniques have been described. These techniques have a success rate of 87%, but not infrequently distal pancreatectomy is needed. More recently, the use of digital pancreatoscopy for this matter has been described.

We present 45 year-old male patient, with a bile leak after laparoscopic cholecystectomy. An ERCP was performed and a biliary stent was placed to manage the bile leak. The procedure was complicated by a proximally migrated pancreatic stent placed to assist cannulation. After multiple failed removal attempts, a prophylactic stent for prevention of pancreatitis was placed and a decision for surgical retrieval by distal pancreatectomy was taken. During

open surgery, the surgeon found “changes of acute pancreatitis”, decided to abort the procedure and placed a retroperitoneal drain. The patient was referred to our unit for another attempt of retrieval.

After two failed attempts using a biliary extraction balloon and an over the wire forceps, we decided to use digital pancreatoscopy, with which successful retrieval using a slim scope biopsy forceps was achieved. Afterwards, during a control pancreatography, a pancreatic leak was revealed, so a second digital pancreatoscopy was undertaken where we visualized the site of impaction of the PS and the previously located retroperitoneal drain. We decided to manage the leak with a new PS, without further complications. Patient evolved well and was discharge without the retroperitoneal drain 10 days after the procedure.

In this case we successfully retrieved a proximally migrated PS by digital pancreatoscopy and through the slim scope biopsy forceps. This way further complications and need for surgery were avoided.

## OP320V ENDOSCOPIC DRAINAGE OF A GIANT NON-RESECTABLE IPMN AFTER PANCREATOSCOPY-GUIDED DIAGNOSTIC

**Authors** [Lupu A](#)<sup>1,2</sup>, [Mallard C](#)<sup>1</sup>, [Rivory J](#)<sup>1</sup>, [Rostain F](#)<sup>1</sup>, [Adham M](#)<sup>1</sup>, [Walter T](#)<sup>1</sup>, [Pioche M](#)<sup>1</sup>

**Institute** 1 Edouard Herriot Hospital, Lyon, France; 2 Fundeni Hospital, Bucharest, Romania

**DOI** 10.1055/s-0039-1681496

A 73 years-old male presented with a giant cystic lesion developed in the pancreatic lodge. The MRI confirmed a 180/70 mm collection, with T2 enhancement, developed from the main pancreatic duct. Patient had always been asymptomatic and we suspected a giant mucinous tumour or a large walled off necrosis after a misdiagnosed acute pancreatitis.

Intraductal papillary mucinous neoplasms of the pancreas (IPMN) are precancerous cystic lesions of the pancreas involving the main duct or its secondary branches [1]. This cystic tumour had a high risk of malignant transformation because of size and the communication with the main pancreatic duct [2–4] so we decided that surgical resection was the best strategy. However, the tumour was in close contact with the gastric wall and surrounded the retroperitoneal vessels so complete surgical resection was impossible.

Then, we performed trans-papillary drainage using a 40/10 mm metallic stent and then endoscopic biopsies by passing a transnasal endoscope through the stent (**Video**). The biopsies showed non characteristic fibrotic tissue. However, due to the thick walls of the cyst we decided to attempt a second pancreatoscopy using the dedicated usable scope SpyGlass (Boston scientific, Boston, USA). Endoscopic aspect was typical with large papillas (**Video**) and biopsies with dedicated forceps confirmed a IPMN with low grade dysplasia.

Six months later the patient was still asymptomatic, the tumour dramatically decreased in size, and MRI showed a 60/40 mm cyst. After multidisciplinary team discussion, second attempt of surgery was proposed to resect this IPMN.

## OP321V TEMPORARY BILIARY METAL STENT PLACEMENT IN THE CYSTIC DUCT AS AN AID TO CHOLANGIOSCOPY-GUIDED LASER LITHOTRIPSY OF MIRIZZI SYNDROME (MS)

**Authors** [Sanchez-Ocaña R](#)<sup>1</sup>, [Yaiza Carbajo A](#)<sup>1</sup>, [Garcia-Alonso FJ](#)<sup>1</sup>, [De Benito M](#)<sup>1</sup>, [Bazaga S](#)<sup>1</sup>, [Tejedor J](#)<sup>1</sup>, [De la Serna Higuera C](#)<sup>1</sup>, [Perez-Miranda M](#)<sup>1</sup>

**Institute** 1 Hospital Universitario Rio Hortega, Valladolid, Spain

**DOI** 10.1055/s-0039-1681497

**Introduction** Cholangioscopy-guided lithotripsy is a minimally invasive alternative to surgical treatment of Mirizzi Syndrome (MS).

**Procedure** we present A 54 year-old man with type I MS. Endoscopic therapy was carried out in three sessions. At baseline ERCP, a 16-mm stone pressing on the CBD was noted and urgent decompression of the CBD was achieved with a 10F plastic stent. Two weeks later, elective single-operator cholangioscopy

with successful Holmium laser lithotripsy (LL) fragmentation of the stone was performed. Larger stone fragments were individually removed under cholangioscopy using a tripod forceps. However, complete clearance using balloon catheters or Dormia baskets under fluoroscopy could not be achieved, because stone fragments became impacted into the narrow cystic duct. Eventually a 10 × 80 mm fully covered self-expandable metal stent (FC-SEMS) was placed into the cystic duct past stone fragments. A double pig-tail stent was placed through it in order to drain the gallbladder, and a standard plastic biliary stent was placed in the CBD. At follow-up 8-weeks later, the cystic duct stents were removed. Stone fragments could be cleared easily from the cystic duct, which had become enlarged by the FC-SEMS. The patient was scheduled for cholecystectomy.

**Conclusion** Cholangioscopic lithotripsy and cystic duct clearance is usually labor intensive and may require several treatment sessions. As an alternative to a repeat session of cholangioscopy-guided LL, FC-SEMS insertion into the cystic duct past the stone fragments was technically easy and proved eventually effective. According to this novel strategy, temporary expansion of the cystic duct using a FC-SEMS might be considered as an adjunct to LL in selected difficult cases of MS, similarly to what has been shown for CBD stones impacted above a biliary stricture.

## OP322V ENDOSCOPIC REMOVAL OF TUBULOVILLOUS ADENOMA WITH HIGH-GRADE FOCAL DYSPLASIA IN THE DISTAL COMMON BILE DUCT

**Authors** [Alvaro Bendezu Garcia R](#)<sup>1,2</sup>, [Andujar Murcia X](#)<sup>1</sup>, [Loras Alastruey C](#)<sup>1</sup>

**Institute** 1 Hospital Universitario Mutua de Terrassa, Gastroenterology, Terrassa, Spain; 2 Hospital General de Catalunya, Digestive System Service, Gastroenterology, Barcelona, Spain

**DOI** 10.1055/s-0039-1681498

**Introduction** A pluripathology 80-year-old female was admitted for cholangitis. A dilatation of the common bile duct (CBD) and a possible distal choledocholithiasis was shown in CT scan. An ERCP was performed and the duct was swept with a balloon, showing a polypoid lesion of adenomatous appearance through the papilla. The pathology confirmed a tubulo-villous adenoma with high-grade focal dysplasia. An EUS revealed the presence of a polyp of 10 × 8 mm in the CBD. In accordance with a multidisciplinary committee and being a high risk surgical patient, an endoscopic treatment was indicated.

**Description of the technique** The papilla is achieved with the duodenoscope and a papiloplasty is performed with a 12 mm pneumatic balloon. With the help of the Fogarty balloon and a biopsy forcep, the polyp is tractioned towards the duodenum and then the polypectomy is done with a pediatric hot snare. Later, a fulguration with soft coagulation is done and a fully covered self-expanding metallic biliary stent is placed. Follow-up at 2 months, no macroscopic lesion is observed with a baby scope cholangioscopy, after removing the stent. In addition, fulguration with Argon-Beam (30W) is applied in the site of polypectomy. In next follow-up at 6 months no remains of polyp is seen with a baby scope cholangioscopy. Pathology confirmed the absence of adenoma at 2 and 6 months. No complications detected during the follow-up.

**Conclusions** Adenomas of the extrahepatic bile duct are uncommon benign neoplasms with an unknown malignant potential. Surgery is the current treatment, and there are only 5 published cases of endoscopic treatment, with good results in non-surgical patients. In our case, the keys to achieve a technical success were to have a good visualization through the papilla (papiloplasty + stent) and the use of a pediatric polypectomy snare with the help of the balloon.

## OP323V ERCP PERFORMED IN A PATIENT WITH TOTAL SITUS INVERSUS VISCERUM

**Authors** Rocha M<sup>1</sup>, Capela T<sup>1</sup>, Loureiro R<sup>1</sup>, Silva MJ<sup>1</sup>, Ramos G<sup>1</sup>, Pato R<sup>2</sup>, Baptista T<sup>2</sup>, Dias AM<sup>1</sup>, Canena J<sup>1</sup>, Coimbra J<sup>1</sup>

**Institute** 1 Gastroenterologia, Centro Hospitalar Universitário de Lisboa Central, Lisboa, Portugal; 2 Anestesiologia, Centro Hospitalar Universitário de Lisboa Central, Lisboa, Portugal

DOI 10.1055/s-0039-1681499

Situs inversus viscerum is a rare congenital condition characterized by complete transposition of all viscera. Endoscopic exams are often challenging in these patients, namely ERCP.

We present a case of a 63-year-old patient with total situs inversus viscerum that presented with complains of intermittent upper left abdominal pain. Abdominal CT scan showed gallstones in the common bile duct and gallbladder. An ERCP was performed with the patient in a supine position and the endoscopist at the left side of the patient. A side-viewing endoscope was used (Olympus TJF-Q 180V). Because of the altered anatomy, papilla was in the right upper quadrant of the image and bile duct cannulation was made toward the direction of "1 o'clock". Cannulation was performed with a standard sphincterotome and guidewire. Cholangiography showed multiple stones in the gallbladder and filling defects in the distal portion of the common bile duct. Sphincterotomy was performed towards the "1 o'clock" reference. Several infracentimetric stones were removed with a Dormia basket and a Fogarty balloon. The patient was referred for a surgical consult for cholecistectomy. This is a case of successfully treated choledocholithiasis in a patient with total situs inversus viscerum. We present figures and video of imagiological exams and ERCP procedure.

## OP324V ELECTROHYDRAULIC LITHOTRIPSY IN CASE OF SEVERE BILE DUCT STONES AFTER BILROTH-II

**Authors** Filin A<sup>1</sup>

**Institute** 1 Endoscopy, Leningrad Regional Clinical Hospital, Saint-Petersburg, Russian Federation

DOI 10.1055/s-0039-1681500

Patient, male, 76 years old, admitted to our hospital with diagnosis: bile stone disease, obstructive jaundice with bilirubin 21 mg/dl, bile duct stones with biliary hypertension. Bilroth-II stomach resection due to ulcer bleeding 30 years ago. Common bile duct – 20 mm, common hepatic duct – 15 mm, cystic duct – 8 mm. Multiple bile duct stones of barrel and cubic shape, 25\*20 mm in size. According to our experience, side-viewing duodenoscope is not a best choice in Bilroth-II cases. We performed duodenoscopy with forward-viewing HD-scope, cannulated papilla, initiated cholangiography. We performed sphincterotomy with a sphincterotome, developed for reverse EST in Bilroth-II cases. Barrel-shaped triangular and cubic stones are the most challenging for endoscopic extraction. So, we failed to treat patient in routine way. Further methods of treatment offered: extracorporeal distant shockwave lithotripsy, percutaneous transhepatic drainage, surgery and endoscopic choledochoscopy with direct lithotripsy. Endoscopy seemed to be the most balanced between risks and benefits of treatment. We repeated duodenoscopy with standart forward-looking 9 mm diameter HD-scope with instrumental channel 2.8 mm. As EST was already performed we could easily enter the bile duct with the scope. Cholangioscopy was performed with water filling and without gas inflation. We visualised bile duct stones and crushed them with direct contact electrohydraulic lithotripsy with WALZ system. The procedure took one hour and 20 minutes. The procedure was performed with propofol sedation in our ERCP room.

Patient was discharged from hospital after 5 days with significant condition improvement. No signs of residual bile duct stones and no postoperative complications.

Direct contact electrohydraulic lithotripsy is effective and safe method in treatment of severe bile duct stones, especially in difficult anatomical and

clinical situations. In Bilroth-II cases this technic can replace cholangioscopy with a very special devices.

## OP325V DON'T SKIP THE GIP

**Authors** Leclercq P<sup>1,2</sup>, Jadot V<sup>1</sup>, Bisschops R<sup>2</sup>

**Institute** 1 CHU Liège, Liège, Belgium; 2 Maag-, Darm- en Leverziekten, UZ Leuven, Leuven, Belgium

DOI 10.1055/s-0039-1681501

**Aim** We report the case of a 59-year-old patient with intramucosal adenocarcinoma of the cervical esophagus, found within an esophageal inlet patch, successfully treated with endoscopic mucosal resection.

**Methods** A 59-year-old asymptomatic man with nondysplastic COM2 Barrett's esophagus history was referred to our institution for a surveillance upper esophagogastroduodenoscopy (EGD). EGD showed a cervical esophageal 5 mm Paris Is lesion, arising from an esophageal gastric inlet patch (GIP). Biopsies showed high grade intra-epithelial neoplasia within the polypoid lesion and confirmed gastric-type mucosa in the surrounding esophageal inlet tissue patch. Endoscopic ultrasonography showed no evidence of submucosal invasion or lymph node invasion. After multidisciplinary review, the patient was referred for endoscopic mucosal resection (EMR). En-bloc cap-assisted EMR of the suspicious nodule was realized under general anesthesia (see video). Final histology EMR specimen showed radically resected (R0) well-differentiated intramucosal adenocarcinoma pT1m3 with no lympho-vascular invasion. No immediate or delayed complications were encountered. A 3 and 6 months surveillance endoscopy showed no local recurrence.

**Results** Esophageal Gastric Inlet Patches (GIP) are composed of islands of heterotopic gastric columnar epithelium in the cervical esophagus. They are usually incidentally found at endoscopy and have a reported prevalence of 0,18 to 14,5%. The most frequently accepted theory concerning the origin of an esophageal GIP is the sequestration of gastric mucosa in the developing esophagus. Esophageal adenocarcinoma rarely occurs in the cervical esophagus and is most often linked to inlet patches. About fifty cases of adenocarcinoma arising from GIP have been reported in the literature. GIP may contain normal gastric mucosa but also intestinal metaplasia. Significant association between GIP and Barrett's esophagus have also been described.

**Conclusion** Esophageal GIP is a common underestimated and overlooked endoscopic finding. Even if regular GIP biopsies are not recommended, systematic careful endoscopic inspection should be advised to detect early malignancies.

Saturday, April 6, 2019

Best abstract awards

11:00 – 13:00

Congress Hall

## OP326 ANTIBIOTIC PROPHYLAXIS FOR EUS GUIDED FNA OF PANCREATIC CYSTIC LESIONS: A MULTICENTER, RANDOMIZED AND DOUBLE BLINDED CLINICAL TRIAL

**Authors** Colan Hernandez J<sup>1</sup>, Sendino O<sup>2</sup>, Loras C<sup>3</sup>, Andujar X<sup>3</sup>, Pardo A<sup>4</sup>, Gornals J<sup>5</sup>, Concepcion M<sup>1</sup>, Sanchez Montes C<sup>2</sup>, Murzi M<sup>1</sup>, Fernandez Esparrach G<sup>2</sup>, Gines A<sup>2</sup>, Guarner Argente C<sup>1</sup>

**Institute** 1 Hospital de la Santa Creu i Sant Pau, Barcelona, Spain; 2 Hospital Clinic de Barcelona, Barcelona, Spain; 3 Hospital Mutua Terrassa, Terrassa, Spain; 4 Hospital Joan XIII, Tarragona, Spain; 5 Hospital de Belvitge, Barcelona, Spain

DOI 10.1055/s-0039-1681502

**Aims** Routine antibiotic prophylaxis for EUS-FNA of pancreatic cysts is suggested in guidelines, but evidence is conflicting. The aim of the study was to investigate whether the procedure without antimicrobial prophylaxis does not increase the incidence of infection.

**Methods** We conducted a multicenter, randomized, non-inferiority clinical trial controlled with parallel treatment from September 2014 to June 2018.

Patients were randomized to the prophylaxis group with ciprofloxacin (ATB) or the non-prophylaxis group (placebo). Patient demographic data, lesion characteristics, and procedure data and 21 days follow-up were collected. For primary outcome analysis, cyst infection proportion, a non-inferiority study was performed ( $\delta=3\%$ ; unilateral  $\alpha$ -error 0.05; power 20%). Secondary outcomes (incidence of fever, procedure complications, and other adverse events AEs) are reported as proportions and analyzed with the  $\chi^2$  and Fisher exact test.

**Results** We included 226 patients, 112 in ATB and 114 in placebo group. 208 completed trial medications (92%). Demographics, baseline and procedure characteristic were similar in both groups. There were no cases of pancreatic cyst infection. As a surrogate marker of the primary endpoint we evaluated other FNA related infections. No events occurred in the ATB group, but one patient presented acute pancreatitis with bacteremia in the placebo group (0.87%) without signs of pancreatic cyst infection. In the intention to treat analysis, the placebo group was not inferior for prevention of infection with a difference between proportions of 0.87% (CI 95% -0.84 – 2.59%). For secondary outcomes, fever occurred in 2 patients in each group (1.76 vs. 1.78%;  $p=1.00$ ); other adverse events did not differ between groups. Per protocol analysis reported similar results.

**Conclusions** EUS-FNA of pancreatic cystic lesion without prophylaxis is not inferior to Ciprofloxacin prophylaxis to prevent the risk of infection.

### OP327 DETECTION OF BARRETT'S ESOPHAGUS THROUGH EXHALED BREATH USING A NON-INVASIVE SCREENING TOOL

**Authors** Peters Y<sup>1</sup>, Schrauwen RWM<sup>2</sup>, Tan AC<sup>3</sup>, Bogers SK<sup>2</sup>, de Jong B<sup>1</sup>, Siersema PD<sup>1</sup>

**Institute** 1 Radboudumc, Department of Gastroenterology and Hepatology, Nijmegen, Netherlands; 2 Bernhoven Hospital, Department of Gastroenterology and Hepatology, Uden, Netherlands; 3 Canisius Wilhelmina Hospital, Department of Gastroenterology and Hepatology, Nijmegen, Netherlands

DOI 10.1055/s-0039-1681503

**Aims** Timely detection of esophageal adenocarcinoma and its precursor Barrett's esophagus (BE) may decrease both cancer mortality and incidence. Currently, an accurate, minimally-invasive screening method for BE for widespread use not available. Our objective was to establish the accuracy with which breath analysis could discriminate patients with BE from controls without BE.

**Methods** In this multicenter cross-sectional proof-of-principle study, patients undergoing a clinically indicated upper endoscopy were invited to provide a 5-minute breath sample prior to scheduled endoscopy. Patients were allocated in three subgroups: BE (defined as  $\geq 1$  cm of columnar mucosa with histopathologic confirmation of intestinal metaplasia), gastroesophageal reflux disease (GERD) (defined as GerdQ-score  $\geq 8$  or presence of reflux esophagitis), and controls without BE or GERD.

The Aeonose is an olfactory system that analyses volatile organic compounds (VOC). Three metal-oxide sensors interact with VOCs in breath samples to create a digital breath print specific to the VOCs. Data was analyzed by an artificial neural network to identify data classifiers to extract breath-print differences between of patients with BE and GERD or controls. Optimal models were cross-validated using a leave-10%-out approach. Main outcomes were sensitivity and specificity for detecting BE compared with upper endoscopy as reference standard.

**Results** Breath samples were obtained from 153 individuals (60 BE, 53 GERD, 40 controls). Recruitment rates were 97%. Diagnostic accuracy was high for discrimination of BE from GERD and controls (area under the curve [AUC] 0.91, sensitivity 90%[95% CI:79%-96%], specificity 81%[95% CI:71%-88%]). Similarly, breath prints of BE patients could be differentiated from GERD

patients (AUC 0.85, sensitivity 72%[95% CI:58%-82%], specificity 89%[95% CI:76%-95%]).

**Conclusions** This portable electronic nose is able to detect the presence or absence of BE in patients with and without GERD. Given the high tolerability, high acceptability and low costs, breath testing may be a promising approach to be used for non-invasive BE screening in a primary care setting.

### OP328 A RANDOMIZED CONTROLLED TRIAL ON THE CONTRAST ENHANCED GUIDED EUS-FNA AGAINST STANDARD EUS-FNA IN DIAGNOSING THE SOLID PANCREATIC LESIONS

**Authors** Seicean A<sup>1</sup>, Samarghitan A<sup>2</sup>, Pojoga C<sup>3</sup>, Rusu I<sup>3</sup>, Gheorghiu M<sup>3</sup>, Sparchez Z<sup>1</sup>, Al Hajjar N<sup>1</sup>, Seicean R<sup>1</sup>

**Institute** 1 University of Medicine and Pharmacy Iuliu Hatieganu Cluj-Napoca, Cluj-Napoca, Romania; 2 Medlife Hospital, Cluj-Napoca, Romania; 3 Regional Institute of Gastroenterology and Hepatology, Cluj-Napoca, Romania

DOI 10.1055/s-0039-1681504

**Aims** To assess the efficiency of the contrast enhanced guided endoscopic ultrasound fine needle aspiration (CH-EUS-FNA) in comparison to standard endoscopic ultrasound fine needle aspiration (EUS-FNA) in diagnosing the solid pancreatic masses.

**Methods** This randomized controlled study included patients with the suspicion of pancreatic solid masses on transabdominal ultrasound or CT scan admitted in one academic medical center. There were excluded patients with cystic component more than 20% or patients with previous biliary or duodenal stenting. Two passes with 22G standard FNA needle were done in random order (established by computer at the start of the study) by using EUS-FNA or CH-EUS-FNA. For contrast assessment the contrast substance used was 2.4 ml Sonovue for each patient and the low mechanical index was 0.20. The diagnosis of EUS-FNA was based on the pathology analysis of visible core. The final diagnosis was based on EUS-FNA or surgical specimen results and on following up data every three month by imaging methods for at least six months.

**Results** There were included 150 patients and two of them were lost during follow-up. There were 99 adenocarcinoma, 13 neuroendocrine tumors, 3 schwannoma, 3 cholangiocarcinoma, 11 metastases, 19 benign lesions. The EUS-FNA pass and the CH-EUS FNA pass had the accuracy of diagnosis of 86.48% and 89.18%, respectively ( $p=NS$ ), and the global accuracy of the two passes was 93.2%. All the false negative cases on CH-EUS-FNA were hypo-enhanced. No difference between the two FNA passes was seen regardless the location, size or tumor stage.

**Conclusions** The diagnostic rate of core obtained by using 22G FNA needles with standard EUS-FNA and guided CH-EUS-FNA did not differ statistically.

### OP329 HIGH DEFINITION WHITE-LIGHT COLONOSCOPY VERSUS CHROMOENDOSCOPY FOR SURVEILLANCE OF LYNCH SYNDROME. A MULTICENTER, RANDOMIZED, PARALLEL, AND NON-INFERIORITY STUDY (ENDOLYNCH STUDY)

**Authors** Rivero-Sánchez L<sup>1</sup>, Arnau-Collell C<sup>2</sup>, Herrero J<sup>3</sup>, Remedios D<sup>3</sup>, Alvarez V<sup>4</sup>, Albéniz E<sup>5</sup>, Calvo P<sup>6</sup>, Gordillo J<sup>7</sup>, Puig I<sup>8</sup>, López-Vicente J<sup>9</sup>, Huerta A<sup>10</sup>, López-Cerón M<sup>11</sup>, Salces I<sup>11</sup>, Peñas B<sup>12</sup>, Parejo S<sup>12</sup>, Herraiz M<sup>13</sup>, Gimeno A<sup>14</sup>, Saperas E<sup>15</sup>, Álvarez C<sup>16</sup>, Moreno L<sup>2</sup>, Rodríguez de Miguel C<sup>2</sup>, Díaz M<sup>2</sup>, Ocaña T<sup>17</sup>, Moreira L<sup>1</sup>, Cuatrecasas M<sup>18</sup>, Carballal S<sup>1</sup>, Sánchez A<sup>1</sup>, Jung G<sup>1</sup>, Ortiz O<sup>17</sup>, Gavric A<sup>17,19</sup>, Llach J<sup>17</sup>, Balaguer F<sup>20</sup>, Pellisé M<sup>20</sup>, . On behalf of the EndoCAR group from the Spanish Gastroenterology Association (AEG) and the Spanish Society of Digestive Endoscopy (SEED)

**Institute** 1 Hospital Clinic de Barcelona. Department of Gastroenterology. Institut d'Investigacions Biomediques August Pi i Sunyer (IDIBAPS). Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBEREHD), Barcelona, Spain; 2 Institut d'Investigacions Biomediques August

Pi i Sunyer (IDIBAPS), Barcelona, Spain; 3 Complejo Hospitalario Universitario de Ourense, Department of Gastroenterology, Ourense, Spain; 4 Complejo Hospitalario de Pontevedra, Department of Gastroenterology, Pontevedra, Spain; 5 Complejo Hospitalario de Navarra, Digestive System Service, Endoscopy Unit, Navarrabiomed, Universidad Pública de Navarra, IdiSNA, Pamplona, Spain; 6 Complejo Hospitalario de Navarra, Nurse High-Risk Clinic, Pamplona, Spain; 7 Hospital de la Santa Creu i Sant Pau, Gastroenterology Unit, Barcelona, Spain; 8 Althaia, Xarxa Assistencial Universitària de Manresa, Digestive System Service, Manresa, Spain; 9 Hospital Universitario de Móstoles, Digestive System Service, Móstoles, Spain; 10 Hospital Galdakao-Usansolo, Department of Gastroenterology, Galdakao, Spain; 11 Hospital Universitario 12 de Octubre, Digestive System Service, Madrid, Spain; 12 Hospital Ramón y Cajal, Department of Gastroenterology, Madrid, Spain; 13 Clínica Universitaria de Navarra, Digestive System Service, Pamplona, Spain; 14 Hospital Universitario de Canarias, Digestive System Service, Santa Cruz de Tenerife, Spain; 15 Hospital General de Catalunya, Digestive System Service, Sant Cugat del Vallès, Spain; 16 Hospital del Mar, Digestive System Service, Barcelona, Spain; 17 Hospital Clínic de Barcelona. Department of Gastroenterology, Barcelona, Spain; 18 Departamento de Anatomía Patológica. Hospital Clínic de Barcelona. Institut d'Investigacions Biomediques August Pi i Sunyer (IDIBAPS), Barcelona, Spain; 19 University Medical Center Ljubljana. Department of Gastroenterology and Hepatology, Ljubljana, Slovenia; 20 Hospital Clínic de Barcelona, Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBERehd), Institut d'Investigacions Biomediques August Pi i Sunyer (IDIBAPS), Universitat de Barcelona, Barcelona, Spain

DOI 10.1055/s-0039-1681505

**Aims** Adenomas in Lynch syndrome (LS) have an accelerated progression to colorectal cancer. Despite low evidence, clinical guidelines recommend using high-definition and pan-chromoendoscopy (CE) for surveillance in LS. We aimed to compare the adenoma detection rate (ADR) between high-definition white-light endoscopy (WLE) and CE in individuals with LS.

**Methods** Multicenter, randomized and parallel study with high-level detector endoscopists, devoted to high-risk conditions of colorectal cancer. Adults with confirmed mutation (MLH1, MSH2, MSH6, PMS2 and Epcam) were randomized 1:1 to WLE or CE. 244 individuals were required to demonstrate non-inferiority of WLE versus CE (non-inferiority margin of 15%; power 80%; dropout 10%; significance of 0.025).

**Results** 256 subjects were included by 14 Spanish centers. Baseline characteristics (demographic, medical history, genotype) were similar between groups. The ADR for WLE versus CE were 28.1% (95% confidence interval 21.1%-36.4%) versus 34.4% (26.4%-43.3%) respectively ( $p=0.281$ ). The detection rate of lesions in WLE versus CE group were as follow: polyps 50.0% versus 57.7% ( $p=0.004$ ), serrated lesions 23.4% versus 37.5% ( $p=0.015$ ), proximal serrated lesions 10.2% versus 11.7% ( $p=0.689$ ), sessile serrated lesions 5.5% versus 3.9% ( $p=0.554$ ) and advanced adenomas 7.8% versus 3.9% ( $p=0.183$ ) respectively. The mean ( $\pm$  standard deviation) of lesions per patient for WLE versus CE were as follow: adenomas 1.04 (1.37) versus 0.86 (1.04) ( $p=0.670$ ), polyps 2.36 (1.77) versus 2.67 (2.29) ( $p=0.004$ ), serrated lesions 0.67 (0.89) versus 1.04 (1.38) ( $p=0.004$ ), proximal serrated lesions 0.25 (0.56) versus 0.25 (0.61) ( $p=0.426$ ), sessile serrated lesions 0.10 (0.31) versus 0.11 (0.67) ( $p=0.660$ ) respectively. The total procedural time and withdrawal time (mean  $\pm$  standard deviation; in minutes) with WLE versus CE were as follow: 22.42  $\pm$  8.72 versus 30.67  $\pm$  12.84 ( $p<0.001$ ) and 13.5  $\pm$  5.63 versus 18.37  $\pm$  7.57 ( $p<0.001$ ) respectively.

**Conclusions** In a scenario with high-level detector endoscopists, high-definition WLE is an optimal and efficient endoscopic technique for surveillance of LS. CE prolonged the procedural time without increasing detection of relevant lesions.

## OP330 METHYLENE BLUE-MMX FOR SCREENING COLONOSCOPY

**Authors** Repici A<sup>1</sup>, Hassan C<sup>2</sup>, Bisschops R<sup>3</sup>, Bhandari P<sup>4</sup>, Dekker E<sup>5</sup>, Rutter M<sup>6</sup>, East J<sup>7</sup>, Kiesslich R<sup>8</sup>, Siersema P<sup>9</sup>, Spaander M<sup>10</sup>, Radaelli F<sup>11</sup>

**Institute** 1 Humanitas University, Milan, Italy; 2 ONRM Hospital, Rome, Italy; 3 Leuven University, Leuven, Belgium; 4 Solent Center, Portsmouth, United Kingdom; 5 Academic Medical Center Amsterdam, Amsterdam, Netherlands; 6 North Tees University Hospital, Stockton-on-Tees, United Kingdom; 7 John Radcliffe Hospital, Oxford, United Kingdom; 8 St. Marienkrankenhaus, Frankfurt, Germany; 9 Radboudumc University, Nijmegen, Netherlands; 10 Erasmus Medical Center, Rotterdam, Netherlands; 11 Valduce Hospital, Como, Italy

DOI 10.1055/s-0039-1681506

**Aims** Typically applied methylene blue dye chromoendoscopy is effective in improving detection of colorectal neoplasia. When combined with a pH- and time-dependent multimatrix structure, a per-oral formulation methylene blue formulation (MB-MMX) is directly delivered to colorectal mucosa.

**Methods** In a Phase III study, 50-to75-year-old patients scheduled for colorectal cancer screening or surveillance colonoscopy were randomized between 200 mg MB-MMX, placebo, or 100 mg MB-MMX in a ratio of 2:2:1. The 100 mg MB-MMX arm was only for masking purposes. MB-MMX and placebo tablets were administered with a 4 liters polyethylene glycol-based bowel preparation. The primary endpoint was the proportion of patients with one adenoma or carcinoma (adenoma detection rate [ADR]) expressed as odds ratio (OR) with 95% CI between the 200 mg MB-MMX and placebo groups, while false-positive (resection rate for non-neoplastic polyps) and adverse event rates were secondary endpoints.

**Results** Across 1,205 randomized patients, ADR was higher with MB-MMX (273/485[56.29%]) than the placebo (229/479[47.81%]; OR: 1.46[1.09, 1.96]). The proportion of patients with nonpolypoid lesion was higher with MB-MMX than the placebo (213/485[43.92%] vs. 168/479 [35.07%]; OR: 1.66[1.21, 2.26]), as was that for  $\leq 5$  mm adenomas (180/485[37.11%] vs. 148/479 [30.90%]; OR: 1.36[1.01, 1.83]), while no difference for those with polypoid or larger lesions was observed. The false-positive rate was similar across the study arms (MB-MMX:83/356[23.31%] vs. placebo: 97/326 [29.75%]). Overall, 0.7% of patients had severe adverse events with no difference between the two arms.

**Conclusions** MB-MMX led to an absolute 8.5% ADR improvement without increasing the removal of non-neoplastic lesions.

## OP331 ENDOSCOPIC FULL-THICKNESS RESECTION OF COLORECTAL LESIONS – A DUTCH NATIONWIDE PROSPECTIVE COHORT STUDY

**Authors** Zwager LW<sup>1</sup>, Bronzwaer MES<sup>1</sup>, van der Spek BW<sup>2</sup>, Heine GDN<sup>2</sup>, Haasnoot KJC<sup>2</sup>, van der Sluis H<sup>3</sup>, Perk LE<sup>4</sup>, Boonstra JJ<sup>5</sup>, Rietdijk ST<sup>6</sup>, Wolters HJ<sup>7</sup>, Weusten BLAM<sup>8</sup>, Gilissen LPL<sup>9</sup>, ten Hove WR<sup>10</sup>, Nagengast WB<sup>11</sup>, Bekkering FC<sup>12</sup>, Schwartz MP<sup>13</sup>, Fockens P<sup>1</sup>, Bastiaansen BAJ<sup>1</sup>, , on behalf of the Dutch eFTR Group

**Institute** 1 Department of Gastroenterology and Hepatology, Amsterdam University Medical Centers, Amsterdam, Netherlands; 2 Department of Gastroenterology and Hepatology, Noordwest Hospital Group, Alkmaar, Netherlands; 3 Department of Gastroenterology and Hepatology, Isala Clinics, Zwolle, Netherlands; 4 Department of Gastroenterology and Hepatology, Haaglanden Medical Center, Den Haag, Netherlands; 5 Department of Gastroenterology and Hepatology, Leiden University Medical Center, Leiden, Netherlands; 6 Department of Gastroenterology and Hepatology, OLVG, Amsterdam, Netherlands; 7 Department of Gastroenterology and Hepatology, Martini Hospital, Groningen, Netherlands; 8 Department of Gastroenterology and Hepatology, St. Antonius Hospital, Nieuwegein, Netherlands; 9 Department of Gastroenterology and Hepatology, Catharina Hospital, Eindhoven, Netherlands; 10 Department of Gastroenterology and Hepatology,

Alrijne Medical Group, Leiden, Netherlands; **11** Department of Gastroenterology and Hepatology, University Medical Center Groningen, Groningen, Netherlands; **12** Department of Gastroenterology and Hepatology, IJsselland Hospital, Capelle aan den IJssel, Netherlands; **13** Department of Gastroenterology and Hepatology, Meander Medical Center, Amersfoort, Netherlands

DOI 10.1055/s-0039-1681507

**Aims** A subset of colorectal lesions is not suitable for conventional endoscopic resection because of increased risk for incomplete resection or perforation. Recently, endoscopic full-thickness resection (eFTR) was introduced to allow definite diagnosis and radical treatment of lesions that otherwise might have required surgical resection. We prospectively evaluated all eFTR procedures performed in the Netherlands with the full-thickness resection device (FTRD, Ovesco Endoscopy, Tübingen, Germany).

**Methods** All patients undergoing eFTR between September 2015 and October 2018 in 22 hospitals were included. To determine the technical success, we studied the number of macroscopic complete *en bloc* resections. Secondary outcomes were: histologically confirmed radical (R0) resections, full-thickness resections and adverse events. Standard descriptive statistics were used.

**Results** This prospective multicenter study included 401 procedures. The mean age was 69 ± 8.6 years and 62.6% of the patients was male. eFTR was performed for primary resection of T1 CRCs (n = 79), re-resection after previous (potentially) incomplete resection for T1 CRCs (n = 159), difficult adenomas (n = 146), submucosal tumors (n = 15) and for suspected motility disorders (n = 2). Technical success of all initiated procedures was achieved in 83.5% (n = 335/401). In 5.5% (n = 22/401) no histology could be obtained because the lesion either could not be reached or could not be retracted into the cap. R0 resection in the 379 cases amenable to eFTR was 79.7% (n = 302/379) and full-thickness resection was confirmed in 82.8% (n = 314/379). The median diameter of the resected specimen was 23.4 mm (range 5 – 45). Overall adverse event rate was 9.2% (n = 37/401) of which 2.7% (n = 11/401) required emergency surgery for 2 immediate perforations, 5 delayed perforations and 4 cases of appendicitis.

**Conclusions** Endoscopic full-thickness resection was technically successful in over 80% of procedures with an acceptable complication rate. The issue of delayed perforations needs further assessment as well as the risk for secondary appendicitis in appendiceal polyp cases.

### OP332 ENDOSCOPIC PYLOROMYOTOMY (G-POEM), EFFICACY EVALUATION AFTER ONE YEAR, IN REFRACTORY GASTROPARESIS: A FRENCH MULTICENTRIC STUDY

**Authors** Ragi O<sup>1</sup>, Jacques J<sup>1</sup>, Branche J<sup>2</sup>, Leblanc S<sup>3</sup>, Vanbiervliet G<sup>4</sup>, Legros R<sup>1</sup>, Pioche M<sup>5</sup>, Rivory J<sup>5</sup>, Chaussade S<sup>3</sup>, Vitton V<sup>6</sup>, Barthet M<sup>6</sup>, Gonzalez JM<sup>6</sup>

**Institute** **1** Hôpital Dupuytren, Limoges, France; **2** Hôpital Claude Huriez, Lille, France; **3** Hôpital Cochin, Paris, France; **4** Hôpital de l'Archet 2, Nice, France; **5** Hôpital Edouard Herriot, Lyon, France; **6** Hôpital Nord, Marseille, France

DOI 10.1055/s-0039-1681508

**Aims** Long term results of G-POEM for refractory gastroparesis are lacking. Here we report the results of the largest multicenter study with long term follow up about G-POEM for refractory gastroparesis.

**Methods** Retrospective, multicentric study of all G-POEM cases, performed in six French expert centers, for refractory gastroparesis, within at least one year of follow up.

**Primary Endpoint:** One year clinical success defined by improvement of GCSI by at least one point.

**Secondary Endpoints:** complications rate, identification of predictors of clinical success, clinical success at two years.

**Results** *Description of the population:* 93 patients were included in 6 French expert centers. 65% were women, the medium age was 52 years old. About aetiologies: 31% diabetes, 25% post-surgery, 34% idiopathic and 8,5% systemic disease. The medium evolution duration of the symptoms was 73,5 months. The mean 4h% remaining in stomach before G-POEM, was 44,6%. The mean GCSI average before G-POEM was 3,6.

Technical success was achieved in 96,1%.

**Primary Endpoint:** Clinical success was achieved in 71% at 6 month, and 69% at one year, with an average decreasing GCSI score of 1,6 point.

**Secondary Endpoints:** In multivariate analysis, only an high fullness underscore was significantly associated with an efficacy of the G-POEM (OR = 2,3 (1,35 – 3,88) p = 0,002). 18,3% of the patients declared pain after the therapeutic, controlled by paracetamol and PPI. 4,1% of the patients had complications, with a positive evolution under medical treatment. At two years clinical success was 69% (n = 39).

**Conclusions** This study confirms the efficiency and safety of G-POEM in the treatment of refractory gastroparesis. The clinical success after one year is achieved for 69% of the patients. Only a high fullness subscale of the GCSI predicts efficiency. G-POEM should be the first treatment in case of refractory gastroparesis.

### OP333 INCORPORATION OF TEMPORAL INFORMATION IN A DEEP NEURAL NETWORK IMPROVES PERFORMANCE LEVEL FOR AUTOMATED POLYP DETECTION AND DELINEATION

**Authors** Eelbode T<sup>1</sup>, Demedts I<sup>2</sup>, Roelandt P<sup>2</sup>, Hassan C<sup>3</sup>, Coron E<sup>4</sup>, Bhandari P<sup>5</sup>, Neumann H<sup>6</sup>, Pech O<sup>7</sup>, Repici A<sup>8</sup>, Maes F<sup>1</sup>, Bisschops R<sup>2</sup>

**Institute** **1** Medical Imaging Research Center, PSI, KU Leuven, Leuven, Belgium; **2** Department of Gastroenterology and Hepatology, KU Leuven, Leuven, Belgium; **3** Gastroenterology, Nuovo Regina Margherita Hospital, Rome, Italy; **4** Hepatogastroenterology, Centre Hospitalier Universitaire Hotel Dieu, Nantes, France; **5** Solent Centre for Digestive Diseases, Portsmouth University Hospital, Portsmouth, United Kingdom; **6** First Medical Department, University Medical Center Mainz, Mainz, Germany; **7** Department of Gastroenterology and Interventional Endoscopy, Krankenhaus Barmherzige Brüder Regensburg, Regensburg, Germany; **8** Digestive Endoscopy Unit, Humanitas University, Milan, Italy

DOI 10.1055/s-0039-1681509

**Aims** As opposed to current automated polyp detection techniques, endoscopists will use information from previous video-frames to indicate the presence of a polyp. We aim to exploit this type of temporal information by introducing memory cells into an artificial intelligence (AI) system.

**Methods** Colonoscopy videos from 104 patients are included with 258 polyps. Shorter video-clips of each polyp are extracted and only a few frames were annotated by experts. These manual annotations are automatically propagated over the entire clip. The resulting, much larger annotated dataset is then used to train a convolutional neural network (CNN). This network is extended with a recurrent module, resulting in an AI system that uses knowledge from previous timesteps.

Frame-level sensitivity and specificity describe detection power. For delineation accuracy, the soft Dice score quantifies the amount of overlap between a delineation map and its ground truth considering the confidence of the network (a number between 0 and 1 where the latter means perfect overlap with 100% confidence).

**Results** Two different networks are trained for evaluation. A first CNN is trained solely on the expert annotated frames and a second CNN includes the temporal module and is trained on all the auto-generated annotations (called EXP and REC respectively). The results are shown in table 1. The incorporation of temporal information improves the network for each metric and especially increases specificity since it makes the network less sensitive to

confusing frames. Pairwise t-tests show that all differences are significant with  $p < 0,00001$  (significance level of 0,05).

**Tab. 1** Sensitivity, specificity and soft Dice score for both networks evaluated on an independent test set. N = number of images used for training.

	N	Sensitivity	Specificity	Soft Dice score
CNN1 – EXP	758	0,83	0,54	0,38
CNN2 – REC	40887	0,91	0,74	0,56

**Conclusions** The inclusion of temporal information provides more accurate and confident results for polyp detection and delineation on endoscopic videos.

Saturday, April 6, 2019  
CRC screening

14:30 – 16:00  
South Hall 1B

### OP334 INTERVAL COLORECTAL CANCERS AFTER NEGATIVE FECAL IMMUNOCHEMICAL TEST IN A 13-YEAR SCREENING PROGRAM

**Authors** Zorzi M<sup>1</sup>, Hassan C<sup>2</sup>, Senore C<sup>1</sup>, Capodaglio G<sup>1</sup>, Turrin A<sup>1</sup>, Narne E<sup>1</sup>, Mussato A<sup>1</sup>, Rugge M<sup>1</sup>

**Institute** 1 Veneto Tumour Registry, Azienda Zero, Padua, Italy; 2 ONRM Hospital, Rome, Italy

**DOI** 10.1055/s-0039-1681510

**Aims** Interval cancers (IC) were considered in order to judge the round-specific sensitivity of fecal immunochemical tests (FIT) within a colorectal cancer screening program in Italy.

**Methods** This study concerns ICs diagnosed in a cohort of 50- to 69-year-olds screened with FIT repeatedly (up to 6 times) between 2002 and 2015. The test's sensitivity was calculated using both the Proportional Interval Cancer Rate and the Interval Cancer Proportion method.

**Results** Among 441,647 FITs performed for 123,347 individuals, 150 ICs were detected after a negative FIT.

The overall incidence rate of IC was  $1.87 \times 10,000$  person-years (95% CI 1.60 – 2.20), and was higher during the second interval year (OR 1.78; 95% CI 1.28 – 2.47), for proximal locations (OR 3.00; 95% CI 1.92 – 4.68), and among 60- to 71-year-olds (OR 2.37; 95% CI 1.61 – 3.50), with no significant differences regarding sex and stage at diagnosis.

The Proportional Interval Cancer Rate was 13.1%, with an overall sensitivity of 86.9% (95% CI 84.7 – 89.0). Sensitivity was lowest at the first screening round (81.5%; 95% CI 75.6 – 86.2), and increased up to 91.9% (95% CI 83.9 – 96.5) for subsequent rounds. Applying the Interval Cancer Proportion method, sensitivity was 83.9% (95% CI 81.1 – 86.3), and was highest at the first round (89.0%; 95% CI 85.5 – 91.6), ranging between 73% and 83.1% at subsequent rounds.

**Conclusions** A FIT sensitivity for cancer higher than 80% resulted in a low overall incidence of ICs. Due to intrinsic biases, the Proportional Interval Cancer Rate and the Interval Cancer Proportion method generated different trends in FIT sensitivity by screening round. IC incidence rates may provide an accurate picture of the harmful effects associated with false-negative test results.

### OP335 POST-POLYPECTOMY SURVEILLANCE IN THE ENGLISH BOWEL CANCER SCREENING PROGRAMME: RESULTS OF FIRST SURVEILLANCE

**Authors** Bonnington SN<sup>1</sup>, Sharp L<sup>1</sup>, Rutter MD<sup>1,2</sup>

**Institute** 1 Newcastle University, Newcastle upon Tyne, United Kingdom; 2 University Hospital of North Tees, Stockton on Tees, United Kingdom

**DOI** 10.1055/s-0039-1681511

**Aims** The English Bowel Cancer Screening Programme (BCSP) offers biennial g-FOBT from 60 – 74 years. Post-polypectomy surveillance is offered within BCSP during the screening age range for those at “high risk” ( $\geq 5$  adenomas

or  $\geq 3$  at least one  $\geq 10$  mm) and “intermediate risk” (3 – 4 small adenomas or at least one  $\geq 10$  mm).

CRC screening reduces mortality. To date, robust evidence to support post-polypectomy surveillance is lacking.

**Methods** Details were extracted from the BSCP database for individuals who attended surveillance from the start of the BCSP in 2006 until January 2017. Data were analysed using Stata 14. Advanced adenoma (AA) was defined as size  $\geq 10$  mm,  $\geq 25\%$  villous architecture, or HGD.

**Results** Results of first surveillance were available for 43088 individuals, of whom 51.9% were IR and 48.1% HR at baseline. The most advanced neoplasia detected at first surveillance is presented in the table. First surveillance was performed at the intended time interval (12 months for HR adenomas, 3 years for IR adenomas) in  $\geq 89\%$  of cases.

**Tab. 1** NAA = non-advanced adenoma

Most advanced histology at first surveillance	High risk at baseline (n = 20722)	Intermediate risk at baseline (n = 22366)	Difference between HR/IR
No adenoma	39.1% (n = 8112)	56.1% (n = 12567)	p 0.000
NAA	48.0% (n = 9963)	35.3% (n = 7904)	p 0.000
AA	12.3% (n = 2545)	8.0% (n = 1798)	p 0.000
CRC	0.5% (n = 102)	0.4% (n = 97)	p 0.120

**Subgroups:** The subgroup with the lowest AA rate at first surveillance was those with one adenoma ( $\geq 10$  mm) at baseline (n = 12397): 6.1% AA.

**Conclusions** CRC was diagnosed at first surveillance in a very small percentage of cases, reflecting the high quality baseline colonoscopy performed in the BCSP.

AA was found at first surveillance in 8.0% of those IR at baseline and in 12.3% of those HR at baseline. These results support the hypothesis that post-polypectomy surveillance may be safely delayed or discontinued in some groups, particularly those with one adenoma of  $\geq 10$  mm.

### OP336 EFFECT OF THE NATIONAL SCREENING PROGRAM ON THE COLORECTAL CANCER INCIDENCE AND MORTALITY REDUCTION IN THE CZECH REPUBLIC

**Authors** Suchanek S<sup>1</sup>, Ngo O<sup>2</sup>, Grega T<sup>1</sup>, Majek O<sup>2</sup>, Zavoral M<sup>1</sup>

**Institute** 1 1st Faculty of Medicine, Charles University, Military University Hospital, Department of Internal Medicine, Prague, Czech Republic; 2 Faculty of Medicine, Masaryk University, Institute of Biostatistics and Analyses, Brno, Czech Republic

**DOI** 10.1055/s-0039-1681512

**Aims** The organized non-population based National Colorectal Cancer (CRC) Screening Program in the Czech Republic has been running since year 2000. In January 2014, the transition to population-based setting has been implemented. The main target lesions of the CRC screening program are the adenomas and early cancers. Therefore, the relation between number of colonoscopies/endoscopic polypectomies and CRC incidence and mortality decrease was evaluated.

**Methods** The analysis was based on the aggregate data from the Health Insurance Companies Databases, Preventive Colonoscopies Database and National Oncology Registry.

**Results** Between years 2000 and 2015, there was significant reduction of the CRC incidence (18.4%) and mortality (32.4%) observed. The number of colonoscopies and endoscopic polypectomies has been raising continuously every year. In 2015, there were 264,399 colonoscopies performed from the following indications: 227,905 (86.2%) symptoms, follow-up and therapy; 23,463 (8.9%) FIT positivity and 13,031 (4.9%) screening at age  $\geq 55$ . In the same year, overall 60,120 endoscopic polypectomies were done (22.7% of all colonoscopies) in following age groups: 5,272 in age  $< 50$ ; 5,627 in age 50 – 54 and 49,221 in age  $\geq 55$ . In 36,494 colonoscopies performed within the organized CRC screening program in year 2015, there were 14,085 (38.6%) adenomas and 969 (2.7%) cancers diagnosed. 40.0% of the adenomas were advanced ( $\geq 10$  mm, villous component, high-grade dysplasia). Majority of the cancers found were in stage I (45%) and II (18%).

**Conclusions** There is a very likely connection between the high number of diagnostic/therapeutic colonoscopies and CRC incidence and mortality reduction. To assess the benefit of the screening program to this effect, the comprehensive individual data from the new National Registry of Reimbursed Health Services needs to be evaluated.

Supported by the Czech Ministry of Health grant No. 17-31909A and projects MO1012 and Progres Q28/LF1.

### OP337 TIME TO COLONOSCOPY AFTER A POSITIVE FECAL TEST AND RISK OF COLORECTAL CANCER

**Authors** Hassan C<sup>1</sup>, Zorzi M<sup>2</sup>, Turrin A<sup>2</sup>, Narne E<sup>2</sup>, Fedato C<sup>2</sup>

**Institute** 1 ONRM Hospital, Rome, Italy; 2 Veneto Tumour Registry, Azienda Zero, Padua, Italy

**DOI** 10.1055/s-0039-1681513

**Aims** To evaluate if time to colonoscopy after a positive fecal blood test is associated with the risk of colorectal cancer or adenoma and to identify a safety-threshold.

**Methods** We used the data from the colorectal cancer screening programs of the Veneto Region (North East of Italy) from 2004 to 2017. The date and the outcome of each colonoscopy was recorded, together with the date of the corresponding positive fecal blood test.

**Results** Overall, 80% of the 123,165 colonoscopies that were included in the study took place within 60 days after the FIT, 13.7% between 61 and 90 days, 3.8% between 91 and 120 days, 1.7% between 121 and 180 days and 0.8% after more than 180 days (n = 1008).

Colorectal cancer and high-risk adenoma were more frequently detected among subjects whose colonoscopy was performed more than 180 days after the FIT (colorectal cancer: OR vs. 1-60 days 1.40, p = 0.001; high risk adenoma: OR 1.12, p < 0.001), while no significant association was observed between the time-to-colonoscopy and a diagnosis of intermediate- or low-risk adenoma.

**Conclusions** A time-to-colonoscopy shorter than 180 days after a positive FIT is not associated with an increased risk of colorectal cancer or high-risk adenoma. In the experience of the Veneto screening program, a longer interval was observed for a minority of patients (0.8%) and it was generally due to delays attributable to the patients.

### OP338 GASTRIC ADENOMA OR EARLY GASTRIC CANCER IS AN IMPORTANT RISK FACTOR FOR COLORECTAL ADENOMA

**Authors** Lee JH<sup>1</sup>, Lee J<sup>1</sup>, Lee JI<sup>1</sup>, Kim MW<sup>1</sup>, Park CG<sup>1</sup>, Cho JY<sup>1</sup>

**Institute** 1 Chosun University, Gwangju, Korea, Republic of

**DOI** 10.1055/s-0039-1681514

**Aims** Patients diagnosed gastric cancer have a higher prevalence and increased risk of colorectal cancer. But few studies have investigated the risk of colorectal cancer or adenoma in patients with early gastric cancer or gastric adenoma. The purpose of this study is to investigate the prevalence of colorectal adenoma or cancer in patient with gastric adenoma and early gastric cancer.

**Methods** We performed a prospective study. From January 2015 to December 2016, 110 patients who had treated stomach ESD due to early gastric cancer or adenoma were enrolled. Healthy age- and sex-matched controls were enrolled from general screening population. Demographic factors and colonoscopic findings of the cases and the controls were collected and prevalence and risk factor of colorectal adenoma and cancer of both groups are analyzed.

**Results** Data from 110 patient in the gastric neoplasm group (93 with gastric adenoma, 17 early gastric cancer) and 110 healthy control group participants were included in the statistical analysis. The presence of gastric adenoma or early gastric cancer was an independent risk factor for colorectal adenoma

(OR = 2.52 (1.34 – 4.75. P = 0.004) and colorectal advanced adenoma (OR = 3.19, 95% CI = 1.07 – 9.53, P = 0.037).

**Conclusions** 1. This is the first prospective randomized control study to confirm that gastric adenoma or early gastric cancer is as an important risk factor for colorectal adenoma by identifying colonoscopic quality indicators that may affect adenoma detection. (High quality colonoscopy). The risk of colorectal adenoma and advanced colorectal adenoma increased significantly in patients with gastric adenoma and early gastric cancer. Therefore, we suggest that colonoscopic surveillance should be strictly considered in patient with gastric adenoma and early gastric cancer.

### OP339 UK BOWEL CANCER SCREENING PROGRAM: A LOCAL EXPERIENCE OF POLYPECTOMY FOR POLYPS ≥ 2CM

**Authors** Ding M<sup>1</sup>, Nawaz F<sup>1</sup>, Aleem J<sup>1</sup>, Hameed K<sup>1</sup>, Ahmed M<sup>1</sup>

**Institute** 1 University Hospitals Birmingham, Birmingham, United Kingdom

**DOI** 10.1055/s-0039-1681515

**Aims** The English National Health Service (NHS) Bowel Cancer Screening Program (BCSP) was introduced in 2006 to improve CRC mortality by earlier detection of CRC and has been associated with a 15% reduction in mortality. We wanted to study the outcome of large polypectomies under BCSP in our department.

**Methods** We analysed all patients in the BCSP at a District General Hospital between 1/1/11 and 1/1/17 and selected those who had polypectomies for polyps ≥ 2 cm in diameter. Data was obtained from electronic patient records and follow-up was for at least one year.

**Results** A total of 299 patients, (209 M, 90F, age range 61 – 91y, median 70y) had at least one polyp ≥ 2 cm at index colonoscopy. 75.9% of polyps (n = 227) were removed en bloc, the rest by piecemeal EMR (pEMR). Site of polyps were: rectum (42), recto-sigmoid (12), sigmoid (183), descending colon (13), splenic flexure (4), transverse colon (12), hepatic flexure (6), ascending colon (13) and caecum (14). Size of polyps: 20 – 29 mm (196), 30 – 39 mm (66), 40 – 49 mm (18), > 50 mm (19). Paris morphology where documented: 1 p (178), 1 s (92), 1 sp (17), IIa (3), IIb (0), IIc (0), other (8). Polyp histology: carcinoma (4.7%, n = 14), tubulovillous adenoma (55.2%, n = 165), tubular adenoma (32.8%, n = 98), traditional serrated adenoma (1.7%, n = 5) and sessile serrated polyp (n = 1). 28 (9.4%) of patients underwent surgery, 4 of them with adenocarcinoma.

After initial polypectomy, one year follow up colonoscopy data was available in 116 patients. Of these, the polypectomy site was endoscopically clear in 103/116 (88.8%). The recurrence rate at 12 months increased with the size of the initial polyp, (20 – 29 mm = 5/75, 6.7%), (30 – 39 mm = 2/26, 7.7%), (40 – 49 mm = 3/5, 60%) and (50+mm = 3/10, 30%), p < 0.05.

The complication rate was 2.3% (n = 7): 1 early bleed, 5 late bleeds and 1 suspected perforation (not seen at laparotomy). The others were managed conservatively.

**Conclusions** Polypectomy was effective in removing large polyps found during the BCSP. There was a statistically significant difference between polyp size and recurrence. The complication rate for large polypectomy was low.

### OP340 BREATH ANALYSIS CAN BE USED TO DETECT COLORECTAL CANCER: PROOF-OF-PRINCIPLE STUDY

**Authors** van Keulen KE<sup>1</sup>, Jansen ME<sup>2</sup>, Schrauwen RWM<sup>3</sup>, Kolkman JJ<sup>2</sup>, Siersema PD<sup>4</sup>

**Institute** 1 Dept. of Gastroenterology and Hepatology, Radboud University Medical Center, Nijmegen, Netherlands; 2 Dept. of Gastroenterology and Hepatology, Medisch Spectrum Twente, Enschede, the Netherlands and University Medical Center Groningen, Groningen, Netherlands; 3 Dept. of Gastroenterology and Hepatology, Bernhoven, Uden, the Netherlands, Uden,

Netherlands; 4 Dept. of Gastroenterology and Hepatology, Radboud University Medical Center, Gastroenterology, Nijmegen, Netherlands  
DOI 10.1055/s-0039-1681516

**Aims** Colorectal cancer (CRC) is the third most common cancer diagnosis and a major cause of mortality worldwide. This study aims to assess if breath analysis with an electronic nose (Aeonose, the eNose company, the Netherlands) can be used as a non-invasive screening test for CRC.

**Methods** This multicenter, cross-sectional, proof-of-principle study was conducted in three hospitals in the Netherlands. Consecutive colonoscopy patients aged  $\geq 18$  years old, without inflammatory bowel disease or (previous) malignancy, were included. A random sample of two-thirds of the data was used to develop a disease-specific breathprint with an artificial neural network (ANN) which was then used to blindly predict patient diagnosis of the remaining patients (internal validation). Finally, a new disease-specific model was developed with all available data to further improve the ANN.

**Results** Breath samples of 511 patients were collected. Sixty-four patients were excluded due to an inadequate breath tests ( $n = 51$ ), incomplete colonoscopy ( $n = 8$ ) or colitis ( $n = 5$ ). Seventy patients were diagnosed with CRC and 128 patients did not have any colonic abnormalities. The prediction model for CRC had an AUC of 0.76, with a sensitivity and specificity of 83% and 60%, and predicted the blinded data set with a sensitivity and specificity of 85% and 62%. The final disease-specific model using all data had a diagnostic accuracy of 0.84 with a sensitivity of 95% and specificity of 64%.

**Conclusions** Breath analysis with the Aeonose can be used to detect CRC with high sensitivity. It is expected that with the inclusion of more patients the robustness of the ANN can be further improved for the detection of CRC.

Saturday, April 6, 2019

14:30 – 16:00

Duodenum

Club E

### OP341 PROPHYLACTIC CLIPPING FOR THE PREVENTION OF DELAYED COMPLICATION AFTER ENDOSCOPIC RESECTION FOR SUPERFICIAL NON-AMPULLARY DUODENAL TUMOR

**Authors** An JY<sup>1</sup>, Kim BW<sup>1</sup>, Park JM<sup>2</sup>, Kim TH<sup>3</sup>, Lee J<sup>3</sup>

**Institute** 1 The Catholic University of Korea, Internal Medicine, Incheon, Korea, Republic of; 2 The Catholic University of Korea, Internal Medicine, Seoul, Korea, Republic of; 3 The Catholic University of Korea, Internal Medicine, Bucheon, Korea, Republic of

DOI 10.1055/s-0039-1681517

**Aims** Although endoscopic resection (ER) has been accepted as a standard treatment modality for superficial non-ampullary duodenal tumor (SNADT) recently, it can cause adverse events such as perforation and bleeding. The effect of prophylactic mucosal closure after ER is controversial. The aim of this study was to investigate the efficacy of prophylactic clipping for the prevention of delayed complications.

**Methods** We retrospectively reviewed medical records of patients who underwent ER for SNADT from 3 centers. Patients were divided into 2 groups, immediate clipping group (ICG) vs. no clipping group (NCG). Baseline characteristics and factors associated with delayed complications such as size of the lesion, tumor location, histologic types, and co-morbidities were compared between the two groups.

**Results** A total of 91 lesions from 91 patients were included in this study. Six patients underwent ESD and 85 patients underwent EMR. Forty seven patients were allocated into ICG and 44 patients were allocated into NCG. Delayed bleeding occurred in 1 patient (2.1%) and delayed perforation occurred in 1 patient (2.1%) among ICG. Delayed bleeding occurred in 6 patients (13.6%,  $p = 0.053$ ) and delayed perforation occurred in 3 patients (6.8%,  $p = 0.350$ ) in NCG. Delayed perforation were managed by laparoscopic simple closure and delayed bleeding were managed by endoscopic hemostasis ( $n = 6$ ) or embolization ( $n = 1$ ). There was no procedure related death.

**Conclusions** Although prophylactic clipping showed a tendency of low complication rates, further studies with prospective design is anticipated.

### OP342 ENDOSCOPIC RESECTION OF WIDESPREAD ADENOMATA OF THE PAPILLA AND SMALL-INTESTINE AS ORGAN PRESERVING MINIMALLY INVASIVE INTERVENTION USING ESD OR ESD/EMR. PRELIMINARY RESULTS FROM A EUROPEAN CENTER

**Authors** Farmer A<sup>1</sup>, Hofmeyer M<sup>1</sup>, Hochberger J<sup>1</sup>

**Institute** 1 Gastroenterology, Vivantes Klinikum im Friedrichshain, Berlin, Germany

DOI 10.1055/s-0039-1681518

**Aims** Most duodenal adenomata can be resected endoscopically using EMR. However, a considerable number of widespread lesions are still removed surgically with a considerable morbidity and mortality. The challenge of endoscopic resection in the duodenum consists in the thin duodenal wall. Lesions distally to the papilla have a high risk of secondary perforation due to aggressive pancreatic and biliary juice.

**Methods** Within the last two years we performed over 200 ESD-resections in our hospital. In 18 cases a resection in ESD-or combined ESD/EMR-technique was performed in the small intestine i.e. duodenum/papilla, jejunum and once jejunal-pouch after procto-colectomy. In selected cases with lesions located at the level or distally to the papilla and widespread resection we inserted a modified polyurathan vacuum sponge with a continuous negative pressure to suck off biliary and pancreatic fluid.

**Results** From 28.08.2016 to 20.08.2018 we performed 18 resections in 16 patients with laterally spreading D3-/D2-papillary or extrapapillary duodenal adenomata  $> 2$  cm in size ( $2,2 \times 1,8$  cm to  $7,5 \times 3,7$  cm). In 7 cases a protective duodenal vacuum sponge was inserted. In 16 of 18 cases a macroscopic complete resection was performed. In 2/18 cases a 50% partial resection of the two bulky lesions in D2/D3 with LGIEN was performed intentionally in the two elderly patients at elevated operative risk. In total 11 en-bloc ESD-resections were carried out with R0 resection in 10/11 cases (1x fragmentation). 7 adenomata were removed as combined ESD/EMR. All intraoperative bleedings and microperforations were successfully managed endoscopically. However, in one patient a secondary perforation occurred three days after ESD with the need of surgery. A second patient with prior LG adenoma in biopsy was operated electively due focal pT1bG2R0 adenocarcinoma. Mortality was 0% in the group.

**Conclusions** Widespread ESD and ESD/EMR is feasible as surgery sparing resection in selected cases with widespread papillary and small intestinal adenomata.

### OP343 COMPLICATIONS AND OUTCOMES AFTER ENDOSCOPIC RESECTION OF SPORADIC DUODENAL ADENOMAS

**Authors** Neuhaus L<sup>1</sup>, Probst A<sup>1</sup>, Messmann H<sup>1</sup>, Freund S<sup>1</sup>

**Institute** 1 III. Medizinische Klinik, Klinikum Augsburg, Augsburg, Germany

DOI 10.1055/s-0039-1681519

**Aims** To prospectively evaluate the complications and outcomes after endoscopic resection of sporadic duodenal adenomas (SDA).

**Methods** From 10/2015 to 07/2018 endoscopic resections of sporadic ampullary (ASDA) and non-ampullary duodenal adenomas (NASDA) were prospectively registered regarding the localisation, technique of resection, duration of endoscopic therapy, size, histology and complications.

**Results** 89 SDAs have been resected in 83 patients. 20 (22.5%) were ampullary and 69 (77.5%) were non-ampullary lesions. The mean size was 22 mm (4–60 mm) with a mean circumferentially expansion of 28% of the lumen. Procedure time was longer in in the ASDA group (58 min vs. 38 min). Bleeding after resection was observed in 19% of cases (ASDA: 30%; NASDA: 15.9%;

$p = 0.14$ ). The risk for bleeding was significantly associated with the size of the adenoma (11% in adenomas  $< 30$  mm and 37% in adenomas  $\geq 30$  mm;  $p = 0.008$ ) 5 of 20 patients with an ampullary adenoma resection developed acute pancreatitis postinterventional (25%). Three cases of intraprocedural perforations were observed which could all be controlled endoscopically. One patient died after cholangitis, formation of a stricture with the consequence of perforation after dilatation.

**Conclusions** The endoscopic resection of even large duodenal adenomas is possible in an experienced center but shows a high frequency of complications of which the most relevant is bleeding. Resections of ASDA are at higher risk for complications compared to NASDA.

### OP344 EFFECTIVENESS OF PROPHYLACTIC MUCOSAL CLOSURE AFTER DUODENAL ENDOSCOPIC SUBMUCOSAL DISSECTION TO PREVENT HAZARDOUS COMPLICATIONS

**Authors** Hoteya S<sup>1</sup>, Okamoto Y<sup>1</sup>, Ochiai Y<sup>1</sup>, Suzuki Y<sup>1</sup>, Tanaka M<sup>1</sup>, Nomura K<sup>1</sup>, Odagiri H<sup>1</sup>, Yamashita S<sup>1</sup>, Kikuchi D<sup>1</sup>, Matsui A<sup>1</sup>, Miani T<sup>1</sup>, Iizuka T<sup>1</sup>, Tateiri Y<sup>1</sup>, Tsubaki T<sup>1</sup>, Koyama A<sup>1</sup>, Araki T<sup>1</sup>

**Institute** 1 Gastroenterology, Toranomon Hospital, Tokyo, Japan

**DOI** 10.1055/s-0039-1681520

**Aims** The endoscopic submucosal dissection (ESD) for superficial non-ampullary duodenal epithelial tumors (SNADETs) is technically challenging because of anatomical specificities and, to date, has not been validated concerning the high rate of complications. Especially, postoperative complications such as delayed perforation and bleeding are often hazardous. The aims of this study were to clarify the feasibility and effectiveness of prophylactic closure for large mucosal defect after duodenal ESD using endoscopic closing technique such as endoloop method or grasping method.

**Methods** We analyzed 76 consecutive duodenal ESDs between February 2011 to November 2018. We divided the duodenal ESDs into 59 (77.6%) closure group (with prophylactic closure after ESD using clipping technique) and 17 (22.4%) non-closure groups. The outcomes (rate of general anesthesia, tumor/resection size, operation time, complete resection rate, delayed bleeding rate, cancer bearing rates and hospitalization days) were retrospectively analyzed.

**Results** There was no significant difference between the closure and non-closure groups about the cancer bearing rates (52.9% and 47.5%), mean operation time (203.6 and 147.3 min), complete resection rates (88.2% and 96.6%) and hospitalization (13.1 and 10.1 days). The mean size of the tumor/resection was significantly smaller in closure group (20.9/29.5 mm) than in non-closure group (34.0/38.6 mm). The rate of general anesthesia was significantly higher in closure group (98.3%) than in non-closure group (88.2%). Delayed bleeding rate was significantly lower in closure group (1.7%) than that of non-closure group (23.5%). All patients with delayed bleeding were managed safely and successfully by coagulation using hemostatic forceps or clips. Delayed perforation occurred in only 1 patient in non-closure group, who required local closure and drainage of an abscess by open surgery.

**Conclusions** Endoscopic closing technique such as endoloop method or grasping method were feasible and reliable. Using those technique, the prophylactic mucosal closure after duodenal ESD could prevent the hazardous delayed complications.

### OP345 ENDOSCOPIC PAPILLECTOMY FOR NEOPLASTIC LESIONS OF THE AMPULLA OF VATER: A SYSTEMATIC REVIEW WITH POOLED-ANALYSIS

**Authors** Fugazza A<sup>1</sup>, Spadaccini M<sup>1</sup>, Frazzoni L<sup>2</sup>, Fuccio L<sup>2</sup>, Hassan C<sup>3</sup>, D'Amico F<sup>1</sup>, Lamonaca L<sup>1</sup>, Craviotto V<sup>1</sup>, Maselli R<sup>1</sup>, Maroni L<sup>1</sup>, Repici A<sup>1</sup>, Anderloni A<sup>1</sup>

**Institute** 1 Humanitas Research Hospital, Rozzano, Italy; 2 Sant Orsola – Malpighi Hospital, Bologna, Italy; 3 Nuovo Regina Margherita Hospital, Rome, Italy

**DOI** 10.1055/s-0039-1681521

**Aims** Endoscopic papillectomy (EP) is currently accepted as a viable alternative therapy to surgery in both sporadic and familial ampullary lesions (AL). Many series have reported relatively low morbidity and acceptable outcomes compared to surgery, but most of them were retrospective studies with limited samples. Considering the lack of conclusive evidences, we performed a pooled analysis of the available literature to assess the safety and efficacy of EP for AL.

**Methods** Electronic databases (Medline, Scopus, EMBASE) were searched up to September 2018. The search was restricted to English language full articles. Studies including patients with AL lesions endoscopically resected were eligible. The adverse event rates (primary outcome), complete resection, en-bloc resection, needs-for-further-treatments and curative resection (complete resection without recurrence) rates were pooled by means of a random- or fixed-effect model according to the degree of heterogeneity to obtain a proportion with a 95% confidence interval (CI).

**Results** Twenty-nine studies were eligible for inclusion providing data on 1751 patients (mean ages ranging from 42 to 68 years). Nine studies were performed in United States, 1 in Australia, 10 in Asia, and the others in Europe; six studies were prospective. The means of the lesion size ranged from 8.7 mm to 20.3 mm. Biliary and pancreatic stenting were performed in 33.3% (20.2 – 49.5%) and 75.2% (63.6 – 84.0%) respectively.

The overall adverse events rate was 25.4% (CI: 21.5 – 29.7%) with rates of procedural-related bleedings and perforations of 10.7% (8.1 – 14.1%) and 3.2% (2.3 – 4.3%) respectively. Pancreatitis occurred after the 12.3% (CI 10.7 – 14.1%) of the procedures and cholangitis rate was 2.9% (CI: 2.0 – 4.4%). Complete resection rate was 91.3% (CI: 86.7 – 94.4%) with a rate of en-bloc resection of 81.7% (CI: 73.6 – 87.7). Multiple endoscopic treatments were needed in the 11.9% (CI: 7.2 – 17.2) of cases, and 74.1% (CI: 66.4 – 80.6) of the procedures were "curative" in a mean endoscopic surveillance period ranging from 9.6 to 84.5 months).

**Conclusions** Endoscopic papillectomy (EP) is a relatively safe technique compared to surgery for resecting ampullary lesions (AL). Even if efficacy outcomes, are heterogeneously reported by the different studies, EP still seems to be a reliable alternative therapy to surgery in term of curative resection rates.

### OP346 SALINE-IMMERSION THERAPEUTIC ENDOSCOPY OF SPORADIC LATERALLY SPREADING NONAMPULLARY DUODENAL ADENOMAS

**Authors** Lazaridis N<sup>1</sup>, Murino A<sup>1</sup>, Koukias N<sup>1</sup>, Telese A<sup>1</sup>, Costa D<sup>1</sup>, Raymond R<sup>1</sup>, Despott E<sup>1</sup>

**Institute** 1 Royal Free Unit for Endoscopy, The Royal Free Hospital and University College London (UCL) Institute for Liver and Digestive Health, London, United Kingdom

**DOI** 10.1055/s-0039-1681522

**Aims: Introduction** Sporadic laterally spreading nonampullary duodenal adenomas (LSNDA) are an uncommon incidental finding during oesophagogastroduodenoscopy. Endoscopic mucosal resection (EMR) in the duodenum is challenging due to increased risk of perforation and bleeding. Underwater EMR (UEMR) is a novel and effective endoscopic resection technique performed without submucosal injection. Saline-immersion therapeutic endo-

scopy (SITE) is an evolution of UEMR and saline solution is used instead of water to minimise the risk of water intoxication.

**Aims** Our aim was to evaluate the efficacy and safety of SITE-EMR for SLSNDA.

**Methods** Retrospective review of SLSNDA resected by SITE-EMR at our institution between May 2017 to October 2018. Demographic, clinical, endoscopic findings and follow-up data were analysed.

**Results** Nine SLSNDA (median size: 25 mm) were found in eight patients (4 male, median age: 69year-old). One was located in D1, 4 in D2 and 4 in D3. En-bloc resection was achieved in two lesions (23%) while wide-field resection was performed in seven lesions (77%). Complete resection was achieved in seven patients (87.5%). A circumferential lesion involving the whole duodenal bulb was found in one case and SITE-EMR technique was not feasible as well as other alternative endoscopic resection techniques due to severe fibrosis; the patient was therefore referred for surgery and excluded from further analysis. Histological results revealed six (75%) tubulo-villous adenomas with low-grade dysplasia and two tubular adenomas low-grade dysplasia (25%). Immediate complications including perforation and bleeding did not occur. One patient (12.5%) presented with delayed GI bleeding 24hours post procedure and was treated successfully with endoclips. Three cases (37.5%) of recurrences were identified at 3 months follow-up requiring further endoscopic treatment. No further recurrence was identified at 6 and 12 months follow-up in any patient.

**Conclusions** SITE-EMR of SLSNDA appears to be a safe and effective management with low recurrence rates at long term follow-up.

### OP347 EFFECT OF SUBMUCOSAL INJECTION IN ENDOSCOPIC PAPILLECTOMY OF AMPULLARY TUMOR: PROPENSITY-SCORE MATCHING ANALYSIS

**Authors** Ryu JK<sup>1</sup>, Chung KH<sup>1</sup>, Lee SH<sup>1</sup>, Kim YT<sup>1</sup>, Lee DH<sup>2</sup>

**Institute** 1 Internal Medicine, Seoul National University, College of Medicine, Seoul, Korea, Republic of; 2 Seoul National University, Seoul, Korea, Republic of

DOI 10.1055/s-0039-1681523

**Aims** The role of submucosal injection (SI) in endoscopic papillectomy (EP) is controversial. **Objective** This study investigated the effects of SI before EP of ampullary tumors.

**Methods** All patients who underwent initial curative EP at our institution between March 2006 and March 2014 were retrospectively recruited. The presence of residual tumor after three months, recurrence-free survival and post-procedural adverse events were compared between the SI group and non-injection (NI) group. Propensity-score matching was performed between the two groups to reduce potential selection bias and confounding.

**Results** A total of 122 patients were included (SI: 26, NI: 96). Following propensity-score matching, 25 paired patients were selected. Residual tumor was not shown in the NI group, whereas seven (28.0%) patients in the SI group had residual tumor ( $p=0.010$ ). The recurrence-free survival of the NI group was significantly longer than that of the SI group ( $p=0.036$ ). Upon multivariate analysis, pathologic grade ( $p=0.026$ ) and SI ( $p=0.033$ ) were significantly related to recurrence-free survival. Post-procedural adverse events were not significantly different between the two groups.

**Conclusions** SI before EP of ampullary tumor was related to more frequent residual tumor and shorter recurrence-free survival and did not reduce post-procedural adverse events.

Saturday, April 6, 2019  
ERCP cannulation 2

14:30 – 16:00  
South Hall 1A

### OP348 UTILITY OF NEWLY DEVELOPED SHORT TYPE DOUBLE BALLOON ENDOSCOPY FOR ERCP IN POSTOPERATIVE PATIENTS WITH SURGICAL ANATOMIC VARIATIONS: A LARGE CASE SERIES

**Authors** Shimatani M<sup>1,2</sup>, Mitsuyama T<sup>1</sup>, Tokuhara M<sup>1</sup>, Masuda M<sup>1</sup>, Ito T<sup>1</sup>, Miyoshi H<sup>1</sup>, Ikeura T<sup>1</sup>, Takaoka M<sup>1</sup>, Okazaki K<sup>1</sup>

**Institute** 1 Third Department of Internal Medicine, Kansai Medical University, Osaka, Japan; 2 Shimatani Clinic, Kobe, Japan

DOI 10.1055/s-0039-1681524

**Aims** The aim of this study was to evaluate the usefulness of new short DBE for ERCP in postoperative patients.

**Methods** From August 2015 to October 2018, ERCP using new short DBE (DB-ERCP) was performed in 238 postoperative patients (579 procedures). We retrospectively studied the success rate of reaching the blind end, the mean time to reach the blind end, the overall success rate of DB-ERCP, the mean time to complete ERCP related interventions, and adverse events.

**Results** The success rate of reaching the blind end was 99.1%. By type of reconstruction methods, the success rate of reaching the blind end was 95.6% in Roux-en-Y (R-Y) hepaticojejunostomy, 100% in R-Y partial gastrectomy, 96.1% in R-Y total gastrectomy, 100% in Billroth II gastrectomy (B-II), 100% in pancreatoduodenectomy (PD), 100% in pylorus preserving pancreaticoduodenectomy (PpPD) and 96.7% in others. The mean time to reach the blind end was 16.1 min. By type of reconstruction methods, the mean time to reach the blind end was 25.6 min. in R-Y hepaticojejunostomy, 16.2 min. in R-Y partial gastrectomy, 17.5 min. in R-Y total gastrectomy, 6.8 min. in B-II, 9.2 min. in PD, 11.7 min. in PpPD and 15.0 min. in others. The overall DB-ERCP success rate was 95.5%. By type of reconstruction methods, the overall DB-ERCP success rate was 98.8% in R-Y hepaticojejunostomy, 100% in R-Y partial gastrectomy, 95.9% in R-Y total gastrectomy, 93.8% in B-II, 96.5% in PD, 98.9% in PpPD and 90% in others. The mean time to complete DB-ERCP was 61.1 min. By type of reconstruction methods, the mean time required to complete DB-ERCP was 79.4 min. in R-Y hepaticojejunostomy, 66.4 min. in R-Y partial gastrectomy, 74.4 min. in R-Y total gastrectomy, 44.1 min. in B-II, 41.3 min. in PD, 46.9 min. in PpPD and 51.5 min. in others. The occurrence of adverse events was 4.0%.

**Conclusions** The newly developed short DBE for ERCP in postoperative patients is useful and safe.

### OP349 LAPAROSCOPY-ASSISTED VS. BALLOON ENTEROSCOPY-ASSISTED ERCP FOR POST BARIATRIC ROUX-EN-Y GASTRIC BYPASS PATIENTS

**Authors** Julseth TC<sup>1,2</sup>, Glomsaker T<sup>3</sup>, Mala T<sup>3</sup>, Bretthauer M<sup>2</sup>, Young J<sup>4</sup>, Refsum E<sup>2</sup>, Aabakken L<sup>1</sup>

**Institute** 1 Oslo University Hospital, Rikshospitalet, Department of Gastroenterology, Oslo, Norway; 2 University of Oslo, Institute of Health and Society, Clinical Effectiveness Research Group, Oslo, Norway; 3 Oslo University Hospital, Ullevål, Department of Gastroenterological Surgery, Oslo, Norway; 4 University of Oslo, Faculty of Medicine, Oslo, Norway

DOI 10.1055/s-0039-1681525

**Aims** Roux-en-Y gastric bypass (RYGB) patients are at increased risk of biliary disease necessitating endoscopic retrograde cholangiopancreatography (ERCP), which poses a challenge due to the long endoscopic access route to the major papilla. The two most widely utilized treatment strategies are laparoscopy assisted ERCP (LA-ERCP) and balloon enteroscopy assisted ERCP (BEA-ERCP). There are few studies comparing these procedures. The aim of the current study was to compare the performance, benefits and harms of LA-ERCP and BEA-ERCP in a post RYGB patients.

**Methods** We compared electronic patient records of all ERCPs performed in RYGB patients at two tertiary care endoscopy centers in Oslo, Norway between 2008 and 2017. One center performed BEA-ERCP, while the other performed LA-ERCP for this patient group. The primary outcomes were procedure performance, success and adverse events.

**Results** During the 10-year study period, 61 BEA-ERCP and 39 LA-ERCP procedures were performed. Median procedure time was 125 minutes for BEA-ERCP, versus 182 minutes for LA-ERCP ( $p < 0.001$ ). Procedure success rate was 67% for BEA-ERCP and 87% for LA-ERCP. The success rate for BEA-ERCP increased from 54% (first quintile) to 83% (last quintile) for BEA-ERCP, as compared to 88% to 100% for LA-ERCP. Concomitant cholecystectomy was performed during 64% (25/39) of LA-ERCP. Adverse events occurred in 26% (16/61) of BEA-ERCP and 28% (11/39) of LA-ERCP ( $p = 0.828$ ). Serious adverse events, defined as Clavien-Dindo grade  $\geq 3b$ , occurred in 1,6% (1/61) of BEA-ERCP and 7,7% (3/39) of LA-ERCP ( $p = 0.132$ ).

**Conclusions** In experienced hands, laparoscopy-assisted and balloon enteroscopy-assisted ERCP for post bariatric Roux-en-Y gastric bypass patients have comparable success rates. Serious adverse events may be fewer with balloon-assisted ERCP, and it may be less time-consuming. However, concomitant cholecystectomy can be performed with LA-ERCP, but not with BEA-ERCP.

## OP350 COMBINED RETROGRADE/ANTEGRADE ENDOSCOPIC APPROACH TO DISCONNECTED BILE-DUCT (DBD) AS A RESULT OF SEVERE POSTOPERATIVE INJURY

**Authors** de Benito M<sup>1</sup>, Carbajo AY<sup>1</sup>, Peñas-Herrero I<sup>1</sup>, García-Alonso FJ<sup>1</sup>, Bazaga S<sup>1</sup>, Tejedor-Tejeda J<sup>1</sup>, Sánchez-Ocaña R<sup>1</sup>, De la Serna C<sup>1</sup>, García-Pajares F<sup>1</sup>, Almohalla C<sup>1</sup>, Sánchez-Antolín G<sup>1</sup>, Pérez-Miranda M<sup>1</sup>

**Institute** 1 Hospital Universitario Rio Hortega, Valladolid, Spain

**DOI** 10.1055/s-0039-1681526

**Aims** DBD is defined at ERCP by lack of proximal filling under pressure cholangiography with/without contrast extravasation. Combined percutaneous-endoscopic approaches are encouraging. We hypothesized that aggressive retrograde (ERCP) and/or antegrade (EUS) attempts at recanalization might salvage DBD for endotherapy. To assess feasibility and efficacy of an endoscopic treatment algorithm of DBD and characterize the heterogeneous techniques used.

**Methods** Among 756 databased ERCPs at single center 2010 – 2018 for post-operative complications (strictures/leaks) in 261 patients (169 Liver transplant [LT]; 92 Other), 51 (20 female; age = 62.5 [34 – 92] years) had DBD (24 post-cholecystectomy, 15 post-LT, 12 Other). Procedural success/complications, technique and outcomes were determined.

**Results** Recanalization was achieved in 32/51 DBD, by means of ERCP in 16 (8 post-LT, 4 post-cholecystectomy); ERCP combined with EUS-guided antegrade approach in 15 (5 post-LT, 6 post-cholecystectomy), and EUS alone in 1. Lack of upstream dilation precluded EUS in 13, and recanalization failed in 6 despite EUS-hepatico-gastrostomy. 12 initial failures underwent surgical repair. 21/32 recanalizations required forced antegrade/retrograde techniques: hard end of stiff guidewire, intraductal needle-knife/hollow-needle puncture, transhepatic peritoneoscopy or magnetic-compression anastomosis. Recanalization took a mean (range) of 3.4 (1 – 6) ERCPs. Coincidental bilomas were endoscopically drained in 4 DBD. 26 Patients completed 31 treatment courses of stenting (2 plastic & 22 covered metal with/without plastic) after 269 (51 – 698) days of stents in place. After a mean follow-up of 479 (30 – 2200) days post-stent removal, 8 recurrences developed (5 successfully re-treated endoscopically, 2 undergoing stenting, 1 surgery). Overall complications: 7 (2 severe) post-procedural or stent related cholangitis, 4 post-sphincterotomy/EUS-BD bleeding, 2 pancreatitis, one death.

**Conclusions** 62.7% of DBDs can successfully be recanalized endoscopically by means of forced mechanical (guidewires, needles), thermal or magnetic techniques. Antegrade EUS approaches can salvage 50% ERCP failures. Mid-term

treatment outcomes using this algorithm for DBDs appear comparable to those seen with partial postoperative strictures.

## OP351 FEWER COMPLICATIONS FOLLOWING PERCUTANEOUS-TRANSHEPATIC-ENDOSCOPIC RENDEZVOUS PROCEDURES COMPARED TO PERCUTANEOUS TRANSHEPATIC CHOLANGIOGRAPHY ALONE

**Authors** Bokemeyer A<sup>1</sup>, Müller F<sup>1</sup>, Niesert H<sup>1</sup>, Brückner M<sup>1</sup>, Bettenworth D<sup>1</sup>, Nowacki T<sup>1</sup>, Beyna T<sup>2</sup>, Ullerich H<sup>1</sup>, Lenze F<sup>1</sup>

**Institute** 1 Department of Medicine B for Gastroenterology and Hepatology, University Hospital Münster, Münster, Germany; 2 Department of Internal Medicine, Evangelisches Krankenhaus Düsseldorf, Münster, Germany

**DOI** 10.1055/s-0039-1681527

**Aims** Biliary drainage can be challenging in cases of refractory bile duct obstruction and percutaneous-transhepatic-endoscopic rendezvous procedures (PTE-RVs) might facilitate biliary drainage even in these cases. This study evaluated the safety and the technical success of PTE-RVs in comparison to those of percutaneous transhepatic cholangiographies (PTCs) for biliary drainage.

**Methods** Over a 10-year period, percutaneous procedures were retrospectively analyzed in our tertiary referral center. The examinations were accomplished due to a previous or expected failure of standard endoscopic methods including ERC or balloon-assisted ERC to achieve biliary access.

**Results** In total, 553 percutaneous procedures including 163 PTE-RVs and 390 PTCs were performed in 244 patients during the 10-year period of observation. 71.3% of the patients had a malignant disease with pancreas-carcinoma (32.8%) and cholangio-carcinoma (19.0%) as the most frequent, while 28.7% of the patients had a benign disease with cholelithiasis (45.7%) and post-operative biliodigestive anastomotic strictures (31.4%) as the most frequent conditions. 50.8% of the patients had a postoperative change in bowel anatomy.

The technical success rate of PTCs was very high (89.7%) and although the technical success rate of PTE-RVs was significantly lower, it was still high (80.4%;  $p < 0.003$ ). Overall, adverse events occurred in 23.5% of all examinations; comparing, significantly less complications occurred following PTE-RVs than following PTCs (16.6% vs. 26.4%;  $p = 0.037$ ).

**Conclusions** Rendezvous procedures offer a high technical efficacy and significant less complications happen following PTE-RVs in comparison to PTCs. Considering this, PTE-RV should be preferred over sole PTC in terms of safety.

## OP352 PATIENT RADIATION EXPOSURE DURING ENTEROSCOPY-ASSISTED ERCP IN SURGICALLY ALTERED ANATOMY

**Authors** Moreels T<sup>1</sup>, De Ronde O<sup>1</sup>, Deprez P<sup>1</sup>, Piessevaux H<sup>1</sup>

**Institute** 1 Gastroenterology, Cliniques Universitaires Saint-Luc, Brussels, Belgium

**DOI** 10.1055/s-0039-1681528

**Aims** To provide data on radiation exposure in patients with surgically altered anatomy undergoing enteroscopy-assisted ERCP (EA-ERCP) during a 3-months registration period in comparison with conventional ERCP (C-ERCP) data.

**Methods** 20 EA-ERCP procedures were compared with 53 C-ERCP procedures. Data on patient and procedure characteristics were collected as well as radiation data: fluoroscopy time, total radiation dose and dose-area product (DAP).

**Results** Mean age in the EA-ERCP group was  $58 \pm 5$  years vs.  $66 \pm 2$  years in the C-ERCP group ( $p = 0.105$ ) with a general M/F ratio of 67/33%. Surgical reconstructions were Roux-en-Y hepaticojejunostomy, total gastrectomy, gastric bypass and Whipple's resection. EA-ERCP procedures were restricted to biliary indications, whereas C-ERCP indications were both biliary and pancreatic. Mean fluoroscopy time was comparable in both groups ( $358 \pm 28$  s vs.  $350 \pm 40$  s,  $p = 0.815$ ), as was total mean radiation dose with a tendency to be

lower in the EA-ERCP group ( $83 \pm 9$  mGy) as compared to the C-ERCP group ( $97 \pm 10$  mGy,  $p = 0.449$ ). However, DAP was significantly higher in the EA-ERCP group ( $2104 \pm 187 \mu\text{Gy} \cdot \text{m}^2$  vs.  $1464 \pm 117 \mu\text{Gy} \cdot \text{m}^2$ ,  $p = 0.006$ ), as is the total procedure time ( $82 \pm 7$  min vs.  $41 \pm 3$  min,  $p < 0.001$ ). These results indicate that C-ERCP procedures are more complex needing magnified fluoroscopy, whereas EA-ERCP procedures take more time for enteroscope insertion under wide field fluoroscopic guidance (as shown by increased DAP) with less complex ERCP manipulation (as shown by lower total dose).

**Conclusions** ESGE guidelines provide data on patient radiation exposure during conventional ERCP. However, no data are currently available on patient radiation exposure during enteroscopy-assisted ERCP in patients with surgically altered anatomy. Radiation exposure in EA-ERCP is different as compared to C-ERCP: EA-ERCP takes longer with a higher DAP, but with a lower total radiation dose. This is explained by the need of fluoroscopy during enteroscope insertion (higher DAP) to perform less complex ERCP procedures (lower total dose).

### OP353 PREDICTIVE FACTORS OF LACK OF RESPONSE TO ENDOSCOPIC TREATMENT FOR POST-OPERATIVE BILIARY LEAKS: A PROSPECTIVE STUDY

**Authors** Ballester-Clau R<sup>1</sup>, Albuquerque Miranda M<sup>2,3</sup>, Torres Vicente G<sup>1</sup>, Luz Vargas A<sup>2,3</sup>, Miguel Salas I<sup>1</sup>, Zaragoza Velasco N<sup>1</sup>, Figa Francesch M<sup>4</sup>, Miñana Calafat JM<sup>1</sup>, Reñé Espinet JM<sup>1</sup>, Gonzalez-Huix Lladó F<sup>1,2</sup>

**Institute** 1 Hospital Universitari Arnau de Vilanova de Lleida, Lleida, Spain; 2 Clinica Girona, Girona, Spain; 3 Hospital de Palamós, Palamós, Spain; 4 Hospital Dr. Josep Trueta, Girona, Spain

DOI 10.1055/s-0039-1681529

**Aims** To determine the predictive factors of lack of resolution of post-operative biliary leaks after endoscopic treatment.

**Methods** Consecutive patients with post-operative biliary leaks (POL) were prospectively enrolled at two centers. All of them underwent ERCP and sphincterotomy with or without plastic stent placement. Variables: Demographic, clinical and endoscopic data, type of surgery, leak location and output, related to POL complications, endoscopic treatment, leak resolution and resolution time (days).

**Results** 113 patients (women 36.3%; age  $X = 63.2 \pm 16.1$ y). 89 (78.8%) with post-cholecystectomy leak and 24 (21.2%) with post-hepatic surgery (PHL). The majority of them were extrahepatic (66.4%) and originated in cystic stump (41.6%) or in the common bile or hepatic duct (24.8%). We performed only sphincterotomy in 14 cases (12.4%) and sphincterotomy + stent insertion in 96 (85%). Biliary stricture was detected in 28 cases (24.8%), biloma in 36 (31.9%) and residual biliary stones in 38 (33.6%). In 76.1% the leak was solved and the resolution time was  $5.7 \pm 6.4$  days. The leaks after hepatic resection surgery (62% vs. 13.5%;  $p = 0.000$ ), located in intra-hepatic ducts (40% vs. 13.3%;  $p = 0.003$ ), associated with stricture (39.3% vs. 1.9%;  $p = 0.016$ ) and biloma (47.2% vs. 9.5%,  $p = 0.000$ ) were most often not resolved. The predictors of lack of POL resolution in the multivariate analysis were PHL (OR = 6.9; 95% CI 2.1 – 22.6), presence of biloma (OR = 4.2, 95% CI 1.3 – 13.3) and to perform only sphincterotomy without stent placement (OR = 4.1, 95% IC 1.0 – 17.3).

**Conclusions** Post hepatic resection biliary leaks have a resolution rate significantly lower than the post-cholecystectomy ones, especially when they are associated to biloma and it is not possible the biliary stenting.

### OP354 TREATMENT OF REFRACTORY POST-SPHINCTEROTOMY AND POST-PAPILLECTOMY BLEEDING BY ENDOSCOPIC FIBRIN GLUE INJECTION. RESULTS OF A LARGE SERIES

**Authors** Valerii G<sup>1</sup>, Tringali A<sup>1</sup>, Borrelli de Andreis F<sup>1</sup>, Greco S<sup>1</sup>, Perri V<sup>1</sup>, Familiari P<sup>1</sup>, Boškoski I<sup>1</sup>, Costamagna G<sup>1</sup>

**Institute** 1 Policlinico Gemelli Foundation IRCCS, Catholic University Rome, Digestive Endoscopy Unit, Rome, Italy

DOI 10.1055/s-0039-1681530

**Aims** Bleeding is one of the most common complication after endoscopic biliary sphincterotomy (ES) and post-papillectomy. Endoscopic hemostasis can be achieved by epinephrine, hemoclip, thermal coagulation or combining these options. Transarterial embolization (TAE) or even surgery are the last options to control bleeding. Aim of this study is to evaluate the results and the long-term follow-up of treatment of refractory post-sphincterotomy and post-papillectomy bleeding with endoscopic injection of fibrin glue.

**Methods** Consecutive patients with refractory intraoperative or delayed bleeding following endoscopic sphincterotomy or papillectomy between October 2007 and February 2017 were identified from an electronic database. The following data were recorded: type of procedure with bleeding, treatment of first bleeding (diluted epinephrine injection, hemoclips or thermal coagulation), time between first and last bleeding, complications. Fibrin glue (Tissucol, Baxter, frozen storage; Beriplast P, CSL Behring, refrigerator storage) was injected only for refractory bleeding.

**Results** Over a 9 years period and a case volume of > 10000 ERCPs, refractory post-sphincterotomy and post-papillectomy bleeding occurred in 63 cases, 26 intraoperative (40.6%) and 37 delayed (57.8%). All cases were treated with fibrin glue and stable hemostasis was reached in 61 (95.3%) cases except in 2 cases and in one case also after fully covered metal stent insertion, emergency arteriography diagnosed, and successfully treated in one case gastroduodenal artery pseudoaneurism, surgery was necessary in the other one. After fibrin glue injection 29 patients received a biliary stent, 32 a NBD, 2 patients both. Cholangiography through the NBD showed an intraductal fibrin clot in 2 cases (6.3%) easily removed with a Dormia basket. No cases of pancreatitis were reported after fibrin glue injection.

**Conclusions** Endoscopic fibrin glue injection for refractory post-sphincterotomy and post-papillectomy bleeding could represent a safe and effective treatment. Main limitation of this series is the lack of a control group.

Saturday, April 6, 2019

14:30 – 16:00

Motility 2

Panorama Hall

### OP355 GASTRIC PER ORAL ENDOSCOPIC PYLOROMYOTOMY (G-POEM): A RETROSPECTIVE SINGLE-CENTER EXPERIENCE

**Authors** Mourabit Y<sup>1</sup>, Blero D<sup>1</sup>, Huberty V<sup>1</sup>, Arvanitakis M<sup>1</sup>, Deviere J<sup>1</sup>, Louis H<sup>1</sup>

**Institute** 1 CUB Erasme, Gastroenterology, Bruxelles, Belgium

DOI 10.1055/s-0039-1681531

**Aims** Evaluate the safety and the efficacy of G-POEM as a treatment of patients with gastroparesis and refractory symptoms.

**Methods** Patients who were intended to benefit from G-POEM from January 2015 to November 2018. Symptoms were assessed with the Gastroparesis Cardinal Symptoms Index (GCSI) score. Gastric Emptying was evaluated with scintigraphy (GES) half gastric emptying time (HGET), Retention Percentage at 2 Hours (RPH2). Statistical evaluation was carried out using the software SPSS. Statistical difference is determined with the Wilcoxon Signed Ranks Test, with  $P < 0.05$  considered as significant. Data are presented as medians with minimum and maximum.

**Results** 23 patients were treated. GES was delayed in all patients, median HGET was 143.5 min (101 – 802, n = 13) and RPH2 58.5% (40 – 104, n = 14). Follow-up was 3 months (1 – 24, n = 22). Aetiologies were diabetic in 13% of patients (n = 3), post surgical in 30% (n = 7), idiopathic in 30% (n = 7), post oesophago-gastrectomy in 26% (n = 6). Median duration of symptoms was 26 months (2 – 149). Median age was 55 years (17 – 73, n = 23), with 74% female (n = 17) and 26% male subjects (n = 6). Previous therapies included Botox injection in 39% of patients (n = 9), and Surgical jejunostomy in 13% of patients (n = 3). G-POEM was completed successfully in 22 patients (95.65%) with one failure due to fibrosis and thus no access to submucosal space. They were 3 immediate complications and no delayed complications (1 bulbar perforation, 1 gastric perforation and 1 hemorrhage) all managed endoscopically. Median length of myotomy was 2 cm (1 – 3, n = 12). Median GCSI before and after treatment were 4 (2.78 – 5, n = 11) and 2.11 (0.44 – 4.44, n = 13). GCSI was compared before and after treatment in 10 patients and were significantly improved (p = 0.022). GES were obtained in 14 patients at 3 months (1 – 10), with a significant reduction of RPH2 and HGET (p = 0.003 and 0.016).

**Conclusions** These retrospective data suggest that G-POEM is a technically feasible and safe procedure.

### OP356 PERORAL ENDOSCOPIC SEPTOTOMY (POES) FOR ZENKER DIVERTICULUM: A PILOT STUDY

**Authors** [Repici A<sup>1</sup>](#), [Maselli R<sup>1</sup>](#), [Belletrutti PJ<sup>1</sup>](#), [Galtieri PA<sup>1</sup>](#), [Fugazza A<sup>1</sup>](#), [Anderloni A<sup>1</sup>](#), [Chiara Ferrara E<sup>1</sup>](#), [Carrara S<sup>1</sup>](#), [Di Leo M<sup>1</sup>](#), [Spadaccini M<sup>1</sup>](#), [D'Amico F<sup>1</sup>](#), [Lamonaca L<sup>1</sup>](#), [Craviotto V<sup>1</sup>](#), [Capogreco A<sup>1</sup>](#), [Dal Buono A<sup>1</sup>](#), [Colombo M<sup>1</sup>](#), [Gabbadini R<sup>1</sup>](#), [Sethi A<sup>2</sup>](#), [Castoro C<sup>1</sup>](#), [Hassan C<sup>3</sup>](#)

**Institute** 1 Humanitas Research Hospital, Rozzano, Italy; 2 Columbia University, New York, United States; 3 Nuovo Regina Margherita Hospital, Rome, Italy

DOI 10.1055/s-0039-1681532

**Aims** Treatments Zenker's diverticulum (ZD) aim to dissect the muscle in order to remove the underlying dysfunctional condition. In the last decade, the endoscopic septotomy performed with a flexible endoscope has been reported as a safe and effective alternative to both open surgery and rigid endoscopic diverticulotomy. More recently, Li described a novel endoscopic technique, called Z-POEM, inspired by the per-oral endoscopic myotomy (POEM) developed for Achalasia. Patients with short septum diverticulum represent a difficult-to-be-treated subgroup of patients because of anatomical limitation leading to reduced operation space. Aim of this study was to investigate the efficacy and safety of a novel alternative third space approach, called Per-Oral Endoscopic Septotomy (POES) to treat symptomatic patients with short-septumZD.

**Methods** All patients with short-septumZD who were referred for endoscopic repair since September 2017, were considered for the study. Exclusion criteria consisted of previous treatments for Zenker, ZD with septum > 2 cm, use of anticoagulants, inability to provide informed consent. The POES technique consisted of a 15 mm mucosotomy performed, after submucosal injection, at the top of the diverticular septum, alongside its long axis. The underlying submucosa was dissected to create an endoscopic window to access the submucosal space and to visualize the muscular septum. Then this was dissected along its entire length, sparing the overlying mucosa. Mucosal incision was finally sealed with clips. Outcomes included improvement of dysphagic symptoms which were scored using the Dakkak and Bennett dysphagia scale (0 – 4) and procedure-related adverse events.

**Results** Fourteen patients (M/F:9/5, mean age:62.5 ± 13.2) underwent the POES. All procedures were performed under deep sedation. Mean size of ZD was 18.1 ± 2.6 mm and mean dysphagia score was 2.8 ± 0.4. Average procedural time was 12.0 ± 2.6 min. No intra-nor post-procedural adverse events occurred. Septal miotomy was successfully completed in all patients. Procedure was performed in outpatient setting in 11 out of 14 patients. Dysphagia has signif-

icantly improved in thirteen out of 14 patients, with dysphagia score dropping from 2.8 ± 0.4 to 0.2 ± 0.6. No recurrences were reported in a mean follow up time of 7.3 ± 2.1 months (range: 6 – 12).

**Conclusions** According to the preliminary results of this pilot study, POES treatment provided safe and effective treatment of a specific difficult-to-treat group of patients with ZD.

### OP357 PER-ORAL ENDOSCOPIC PYLOROMYOTOMY (G-POEM) FOR THE TREATMENT OF REFRACTORY GASTROPARESIS

**Authors** [Hustak R<sup>1,2,3</sup>](#), [Rabekova Z<sup>1</sup>](#), [Vackova Z<sup>1</sup>](#), [Kollar M<sup>4</sup>](#), [Krajcivova J<sup>1</sup>](#), [Spicak J<sup>1</sup>](#), [Martinek J<sup>1</sup>](#)

**Institute** 1 Department of Hepatogastroenterology, Institute for Clinical and Experimental Medicine (IKEM), Prague, Czech Republic; 2 Department of Laboratory Medicine, Faculty of Health Sciences and Social Work, University of Trnava, Trnava, Slovakia; 3 Gastroenterology Department, University Hospital Trnava, Trnava, Slovakia; 4 Department of Pathology, Institute for Clinical and Experimental Medicine (IKEM), Prague, Czech Republic

DOI 10.1055/s-0039-1681533

**Aims** G-POEM is a new promising method for the treatment of refractory gastroparesis (GP). So far, small studies have been published suggesting its short-term efficacy and low incidence of periprocedural complications, but more data is necessary to assess the real role of G-POEM in clinical practice. The aim of our pilot study was to assess long-term (more than 12 months) clinical effectiveness, safety and technical aspects of G-POEM in consecutive patients with refractory GP.

**Methods** All patients with Gastroparesis cardinal symptom index (GCSI) > 2.3 and abnormal gastric emptying study (GES) were included. Main outcomes were a) the proportion of patients with treatment success (defined as a decrease of a total GCSI score of at least 40%) at 3, 12 and 24 M and b) incidence of adverse events.

**Results** G-POEM was performed in 9 patients (5 women) with the following etiologies of GP: 5 post-surgical, 2 diabetics, 1 idiopathic, 1 combined post-surgical and diabetic and all were successfully completed. Treatment success was achieved in 8/9 patients (88.9%) at 3, 12 and 3/4 (75%) at 24 M. The mean GCSI score decreased from 3.3 ± 0.8 to 1.0 ± 0.3 (p < 0.001), 1.0 ± 0.7 (p = 0.02) and 1.4 ± 0.9 (p = 0.15) at 3, 12 and 24 M after the procedure. In those patients with a treatment success, no recurrences have occurred so far. In one patient, there was a leak on POD1 and he needed additional clips to safely close the incision. One patient experienced delayed bleeding from gastric ulceration, which was successfully treated endoscopically, all remaining patients recovered uneventfully. GES improved/normalized in all patients.

**Conclusions** G-POEM was effective in 88.9% of patients and the effect seems long-lasting. (Supported by a grant from the Czech Ministry of Health 17 – 28797A).

### OP358 SUBMUCOSAL TUNNELLING ENDOSCOPIC SEPTUM DIVISION (Z-POEM) FOR ZENKER'S DIVERTICULUM: A NEW EMERGING TECHNIQUE COMPARED TO CONVENTIONAL ENDOSCOPIC SEPTOTOMY

**Authors** [Desai P<sup>1</sup>](#), [Kabrawala M<sup>1</sup>](#), [Nandwani S<sup>2</sup>](#), [Mehta R<sup>2</sup>](#), [Patel C<sup>1</sup>](#), [Kalra P<sup>2</sup>](#), [Prajapati R<sup>1</sup>](#), [Patel N<sup>2</sup>](#)

**Institute** 1 Endoscopy, Surat Institute of Digestive Sciences, Surat, India; 2 Surat Institute of Digestive Sciences, Surat, India

DOI 10.1055/s-0039-1681534

**Aims** Zenker's diverticulum (ZD) is an acquired protrusion of the esophageal wall. A wide variety of different treatment techniques have been published. Historically ZD managed by surgery and for last few years endoscopic septum

division is done. We compared the clinical success of Z-POEM for ZD with conventional.

**Methods** Patient treated with conventional septotomy from 2013 to 2016 and with Z-POEM from 2016–2018 for ZD, were included in our retrospective data analysis. A total 15 patients (9 men), who were presented symptomatic ZD were treated with conventional septotomy (n=8) and Z-POEM (n=7). A mean age was 71.4 years (range 67–81). The most common symptom was dysphagia (78.6%), which was recorded by a 0–4 score (0=no dysphagia, 1=solids, 2=semisolids, 3=liquids, 4=saliva).

**Results** Clinical response was significantly more frequent in the Z-POEM (50.0% vs. 0%;  $P=0.05$ ). Z-POEM patients had shorter mean hospital stay than conventional septotomy patients (1.1day vs. 2.5day;  $P<0.05$ ) despite longer procedure time of Z-POEM (49 min vs. 34.5 min;  $P<0.05$ ). Conventional septotomy shown significantly longer mean remaining length of septum than Z-POEM (5.5 mm vs. 2.6 mm;  $P=0.05$ ). The complete resolution of sole complaint regurgitation by Z-POEM (100% vs. 37%;  $P=0.05$ ). Patients were followed for at least 18 months and showed a favourable outcome; more recurrence of symptoms in conventional 3/8 vs 0/7 in Z-POEM (37.5% vs. 0%;  $P<0.05$ ). Rate of adverse events significantly less in the Z-POEM group (14.3% vs. 62.5%;  $P<0.05$ ). There were no cases of bleeding in Z-POEM and in conventional septotomy two cases (25%) bleeding who required endoscopic intervention.

**Conclusions** POEM allows for a longer myotomy than conventional septotomy, which may result in improved clinical outcomes. Z-POEM appears to be an effective and safe alternative to conventional septotomy in patients with ZD.

### OP359 SIX YEARS OF SINGLE CENTER EXPERIENCE WITH PERORAL ENDOSCOPIC MYOTOMY (POEM)

**Authors** Rabekova Z<sup>1</sup>, Vackova Z<sup>1</sup>, Hucl T<sup>1</sup>, Stirand P<sup>1</sup>, Spicak J<sup>1</sup>, Kieslichova E<sup>2</sup>, Janousek R<sup>3</sup>, Martinek J<sup>1</sup>

**Institute** 1 Department of Hepatogastroenterology, Institute for Clinical and Experimental Medicine, Prague, Czech Republic; 2 Department of Anaesthesiology and Intensive Care, Institute for Clinical and Experimental Medicine, Prague, Czech Republic; 3 Radiodiagnostic and Interventional Radiology Department, Institute for Clinical and Experimental Medicine, Prague, Czech Republic

DOI 10.1055/s-0039-1681535

**Aims** POEM has proved excellent mid-term efficacy even when compared with other standard methods for treatment of achalasia, but the long-term durability still needs to be confirmed. Nevertheless, the high risk of post-POEM reflux tempers the enthusiasm. The aim of our study was to assess the long-term clinical outcome of POEM and a thorough analysis of post-POEM reflux.

**Methods** A retrospective analysis of prospectively collected data of patients undergoing POEM (December 2012–November 2018). All patients were scheduled for follow up at 3, 6, 12 M and every year after POEM. Upper GI endoscopy, HRM and 24-hour pH monitoring were performed 3 M after POEM; endoscopy was then repeated between 24–36 M. Main outcomes were treatment success defined as ES <3, recurrence rate and reflux parameters evaluated by 24 h pH-metry, presence of reflux esophagitis, reflux symptoms and use of PPIs.

**Results** A total of 295 patients with achalasia underwent 308 POEMs. Follow-up visits at 3, 12, 24, 36 and 48 M were completed in 238, 167, 122, 66 and 25 patients. At 3, 12, 24, 36 and 48 M treatment success was achieved in 97% (CI 95–100), 95% (91–98), 90% (84–95), 83% (74–92) and 83% (74–92) of patients. A total of 24 patients experienced treatment failure (n=6) or recurrence (n=18). At 3 M, RE was observed in 101/238 (42.4%), LA C/D in 11 patients). Abnormal acid exposure was detected in 89/208 (42.8%) patients. At 24–36 M, endoscopy was performed in 82 patients and RE was present in 25 patients (30.5%). PPIs were administered to 38.4% and 40.1% of patients at 3 and 24 M, respectively.

**Conclusions** POEM is a highly effective endoscopic treatment for achalasia with sustained treatment success of more than 80% at 24 and 36 M. Post-POEM reflux is present in almost 40% of patients, thus remaining a crucial clinical challenge in safety profile of the procedure.

### OP360 ESOPHAGEAL CLEANSING BEFORE POEM – A SIMPLE AND EFFECTIVE TECHNIQUE

**Authors** Desai P<sup>1</sup>, Kabrawala M<sup>1</sup>, Kalra P<sup>1</sup>, Mehta R<sup>1</sup>, Patel C<sup>2</sup>, Nandwani S<sup>1</sup>, Prajapati R<sup>2</sup>, Patel N<sup>1</sup>

**Institute** 1 Surat Institute of Digestive Sciences, Surat, India; 2 Endoscopy, Surat Institute of Digestive Sciences, Surat, India

DOI 10.1055/s-0039-1681536

**Aims** To devise a simple yet effective method for pre procedural oesophageal preparation for POEM.

**Methods** We have devised a scoring system depending on the esophageal mucosa, presence of fluid/froth and severity of candidial infection on the initial endoscopy.

- Grade I – clean esophagus
- Grade II – presence of fluid/froth + crumpled but normal mucosa
- Grade III- fluid/froth + intermittent esophageal candidiasis
- Grade IV- fluid/froth + severe esophageal candidiasis
- Grade V- extensive food residue with candidial infection

This is a comparative analysis of 100 patients with achalasia cardia confirmed on endoscopy and HRM. The first 50 (Group – A) patients were prepared with conventional preparation:

1. Clear liquids for 48 hours
2. NBM for 24 hours prior to POEM
3. Thorough wash with saline day before POEM

The subsequent 50 patients (Group – B) were prepared with simple and novel method:

1. patients are kept on warm water and a “carbonated drink” only
2. NBM for 6 hours prior to POEM
3. No wash was given.

**Results:**

- Grade I 14 12
- Grade II 13 21
- Grade III 13. 06
- Grade IV 06 07
- Grade V. 04. 04

No difference was found in group I to III as far as luminal clearance was concerned.

Group-B was superior in terms of shorter stay, less cost (10000 INR less) and more compliance. All patients of grade-V and two patients of grade-IV in group-A required additional wash prior to POEM due to food residue where group-B patients had clear lumen even in grade-IV and V. Group-B patients had less exposure to anesthesia as and less risk as they had much clearer esophageal lumen.

**Conclusions** Simple warm water before POEM, cleans the oesophagus far better than any other agent.

Decreases time of preparation and improves patient compliance.

Very cheap and cost effective.

Reduces anaesthesia risk and time.

### OP361 AN NOVEL DEVICE FOR ENDOSCOPIC RECORDING GASTROINTESTINAL SLOW WAVE

**Authors** Kim SH<sup>1</sup>, Chun HJ<sup>1</sup>, Kim S<sup>1</sup>, Kim JH<sup>1</sup>, Jeon HJ<sup>1</sup>, Jang S<sup>1</sup>, Choi SJ<sup>1</sup>, Lee JM<sup>1</sup>, Choi HS<sup>1</sup>, Kim ES<sup>1</sup>, Keum B<sup>1</sup>, Jeon YT<sup>1</sup>, Lee HS<sup>1</sup>, Kim CD<sup>1</sup>

**Institute** 1 Korea University College of Medicine, Division of Gastroenterology and Hepatology, Department of Internal Medicine, Seoul, Korea, Republic of

DOI 10.1055/s-0039-1681537

**Aims** Gastric slow waves regulate peristalsis, and gastric dysrhythmias have been implicated in functional motility disorders. To accurately define slow wave patterns, it is currently necessary to collect recordings during open surgery, which is invasive and limit their application. We therefore developed a novel gastric slow wave mapping device for use during endoscopic procedures. We aimed to assess feasibility of the new device for acquisition of gastrointestinal slow wave.

**Methods** The device consists of a spreading catheter constructed of a flexible core coated with Pebax. Acquisition of gastric electrical signals was performed on healthy fasted weaner pigs under general anesthesia. Once deployed with endoscopic guidewire, catheter arrays is revealed with 12 electrode at 5 mm intervals. A multi-channel recorder (Acknowledge 4.4, MP150; Biopac Systems, Santa Barbara, CA) was used to record gastric myoelectrical activity throughout the study. We compared gastric electrical signals from gastric mucosal according to various lesions.

**Results** Gastric slow wave activity was successfully recorded simultaneously via both the novel endoscopic probe and the serosal measurement. The mean amplitude was  $0.67 \pm 0.05$  mV in endoscopic probe and  $1.07 \pm 0.11$  mV in reference. Recordings from the device and a reference array in pigs were identical in frequency, and activation patterns and velocities were consistent.

**Conclusions** In conclusion, the novel endoscopic device achieves high-quality mucosal slow wave recordings. It might be applied for endoscopic diagnostic studies to document slow wave patterns in patients with gastric motility disorders.

Saturday, April 6, 2019  
Preparation

14:30 – 16:00  
Club A

### OP362 PUBLIC ATTITUDES TO COLONOSCOPY: EMBARRASSMENT LEVELS AND COLONOSCOPY

**Authors** Bhandari P<sup>1</sup>, Amlani B<sup>2</sup>, Radaelli F<sup>3</sup>

**Institute** 1 Department of Gastroenterology, Portsmouth University Hospital, Portsmouth, United Kingdom; 2 Medical Affairs, Norgine, Harefield, United Kingdom; 3 Unità Operativa Complessa di Gastroenterologia, Ospedale Valduce, Como, Italy

DOI 10.1055/s-0039-1681538

**Aims** European public beliefs and attitudes to colonoscopy are poorly understood. A survey was conducted to better understand the issue.

**Methods** An online survey was conducted in the UK, Germany, France, Spain, and Italy among members of the general public who had not had a colonoscopy and also those who had undergone a colonoscopy in the last five years. One of the ten questions to both groups asked: Please indicate how strongly you agree or disagree with the following statements? 'I would be embarrassed to have a colonoscopy'.

The survey targeted 500 people that had not had a colonoscopy and 100 people that have undergone a colonoscopy in the last five years in each country. The survey targeted people aged 18 to 70 and aimed to balance respondent groups for region, gender, age and occupation.

**Results** Among 53,795 invited persons, 18,650 (35%) responded to the survey, 2,500 (5%) completed the survey who had never had a colonoscopy before and 500 (1%) completed the survey who had a colonoscopy in the last five years across the five assessed EU countries.

Despite the experience of colonoscopy being better than anticipated (59% felt it was better than expected) 43% of respondents who have had a colonoscopy noted that they'd be embarrassed to have another compared with 59% of those that haven't had a colonoscopy.

Response levels differed across the countries, notably the embarrassment levels in both groups between Spain and Germany. 66% from Spain who had undergone a colonoscopy and 78% who haven't would be embarrassed to undergo the procedure, compared with 29% and 38% respectively in Germany.

**Conclusions** Embarrassment doesn't disappear following a colonoscopy. Despite the experience of colonoscopy being better than anticipated, two in five adults would still be embarrassed to have another colonoscopy.

### OP363 EDUCATIONAL TELEPHONE INTERVENTION BY ENDOSCOPY NURSE. IMPACT ON THE ADHERENCE OF OUTPATIENT COLONOSCOPY

**Authors** Seoane Urgorri A<sup>1</sup>, Font Lagarriga X<sup>1</sup>, Pérez Berbegal R<sup>1</sup>, Pérez Carregal C<sup>1</sup>, Parrilla Carrasco M<sup>1</sup>, Romero Xandre J<sup>1</sup>, Álvarez González MA<sup>1</sup>, Pantaleón Sánchez M<sup>1</sup>, Enriquez CF<sup>1</sup>, Riu Pons F<sup>1</sup>, Dedeu Cusco JM<sup>1</sup>, Barranco Priego LE<sup>1</sup>, Bessa Caserras X<sup>1</sup>, Ibañez Zafón I<sup>1</sup>

**Institute** 1 Endoscopy Unit, Parc de Salut Mar, Hospital del Mar, Barcelona, Spain

DOI 10.1055/s-0039-1681539

**Aims** The growing complexity of colonoscopy in endoscopy units has increased the need for good patient preparation and the endoscopy nurse role is crucial for it. This study was directed to determine the impact of an educational telephone intervention on colonoscopy adherence. The compliance with colonoscopy preparation protocols and patient satisfaction were also assessed.

**Methods** Prospective, randomized, controlled study. All consecutive patients referred for colonoscopy from the primary care centers from February to July 2018 were included. Two groups were designed, one of which received a standardized educational telephone call before the procedure. All patients received medical information from the primary care center and an administrative reminder from the hospital. An intention-to-treat (ITT) and per-protocol (PP) analysis were performed.

**Results** 767 patients in each group were initially enrolled. Finally, 747 were included in the control group (CG) and 738 in the interventional group (IG). Telephone contact was achieved in 613 (83%). Non-adherence for colonoscopy was lower in the IG: ITT [8.4%, OR 1.8 (95% CI 1.30–2.53),  $p = 0.0001$ ], PP [4.4%, OR 3.6 (95% CI 2.35–5.61),  $p = 0.0001$ ] compared with the CG [14.3%]. Rescheduling due to non-compliance protocols was higher in the CG [2.3%] compared to the IG: ITT [0.4%,  $p = 0.003$ ], PP [0.3%,  $p = 0.003$ ]. Compliance with the cleansing protocols was poor in the CG [correct diet 95.3%, split-dose 89.8%] in comparison with the IG: ITT [correct diet 97.9%,  $p = 0.01$ ; split-dose 91.8%,  $p = 0.002$ ], PP [correct diet 98.3%,  $p = 0.01$ ; split-dose 92.6%,  $p = 0.002$ ]. The information received was lower rated as excellent or very good in the CG [64.9%] compared with IG: ITT [85%,  $p = 0.0001$ ], PP [84.9%,  $p = 0.0001$ ].

**Conclusions** A patient standardized educational telephone intervention performed by an endoscopy nurse improves adherence, protocols compliance and patient satisfaction in outpatient colonoscopy.

### OP364 DIAGNOSTIC YIELD OF UPPER ENDOSCOPY ACCORDING TO APPROPRIATENESS: A SYSTEMATIC REVIEW

**Authors** Hassan C<sup>1</sup>, Zullo A<sup>1</sup>

**Institute** 1 ONRM Hospital, Rome, Italy

DOI 10.1055/s-0039-1681540

**Aims** Despite some official guidelines are available, a substantial rate of inappropriateness for upper gastrointestinal (UGI) endoscopies has been reported. This study aimed to estimate the inappropriate rate of UGI in different countries, also including the diagnostic yield.

**Methods** A systematic review of studies on UGI endoscopy appropriateness was performed by adopting official guidelines as reference standard. Diagnostic yield of relevant endoscopic findings and cancers was compared between appropriate and inappropriate procedures. The Odd Ratio (OR) values and the Number-Needed-to-Scope (NNS) were calculated.

**Results** Data of 23 studies with a total of 53,392 patients were included. UGI indications were overall inappropriate in 21.7% (95% CI = 21.4–22.1) of the patients. The inappropriateness rate significantly ( $P < 0.0001$ ) decreased from

35.1% in the earlier studies to 22.1%-23% in the more recent ones. A relevant finding was found in 43.3% of appropriate and in 35.1% of inappropriate endoscopies ( $P < 0.0001$ ; OR: 1.42, 95% CI = 1.36 – 1.49; NNS = 12). Prevalence of cancers was also higher in appropriate than in inappropriate UGIs (2.98% vs. 0.09%,  $P < 0.0001$ ; OR = 3.33; NNS = 48). The prevalence of detected cancers significantly ( $P < 0.004$ ) increased from 1.38% in the earlier studies to 2.11% in the more recent ones, whilst prevalence of other relevant findings remained similar.

**Conclusions** Rate of inappropriate UGI endoscopies is still high. Diagnostic yield of appropriate endoscopies is higher than that of inappropriate procedures, including upper GI cancers. Therefore, implementation of guidelines in clinical practice is urged.

### OP365 SAME SESSION BI-DIRECTIONAL ENDOSCOPY – TIME FOR A TAILORED APPROACH

**Authors** Alfa-Wali M<sup>1</sup>, Khoo CK<sup>2</sup>, Varma A<sup>2</sup>, Saedon M<sup>3</sup>

**Institute** 1 St George's Hospital, London, United Kingdom; 2 Grantham and District Hospital, Grantham, United Kingdom; 3 Nottingham University Hospital, Nottingham, United Kingdom

**DOI** 10.1055/s-0039-1681541

**Aims** In the United Kingdom (UK), patients with iron deficiency anaemia (IDA) are referred to secondary care for investigations. The British Society of Gastroenterology (BSG) recommends urgent upper gastrointestinal (UGI) and lower gastrointestinal (LGI) endoscopies for patients with IDA. This is the commonest indication for simultaneous bi-directional endoscopy. The aim of this study was to determine the utility of bi-directional endoscopy in patients with IDA.

**Methods** All patients who had simultaneous bidirectional endoscopies between July 2015 and December 2016 at a UK Trust were recruited into the study. Demographic and clinical data which included endoscopic findings and histology were analysed using SPSS.

**Results** 1650 patients (male  $n = 785$ , female  $n = 870$ , age 63 (16 – 95)) underwent both procedures simultaneously in the study period. 972 patients were anaemic (male = 538, female = 434), 798 had IDA (male = 402, female = 396). The majority of patients had normal findings on endoscopy (80% UGI, 77% of LGI). Neoplastic lesions were found in only 0.9% ( $n = 15$ ) on UGI endoscopy but in 4% ( $n = 61$ ) on LGI endoscopy. A further 0.3% ( $n = 5$  UGI) and 14% ( $n = 230$  LGI) had polyps with malignant potential. In all anaemic patients, overall malignancy detection rate was 3.5% ( $n = 58$ ) (UGI  $n = 9$  vs. LGI  $n = 49$ ,  $p < 0.05$ ). Specifically, in patients with IDA, an overall malignancy detection rate for both UGI and LGI endoscopies was 3% ( $n = 49$ ) (UGI  $n = 5$  vs. LGI  $n = 44$ ,  $p < 0.05$ ).

**Conclusions** This study suggests that urgent UGI endoscopies may be unnecessarily performed in patients with anaemia. The national use of faecal immunochemical testing may reduce the number of colonoscopies and allow for more strategic use of LGI endoscopies in the investigations of anaemia. It seems prudent that the recommendation for urgent endoscopic investigation for anaemia be revisited.

### OP366V E-PATIENT COUNSELING TRIAL (E-PACO): COMPUTER BASED PATIENT EDUCATION IS NON-INFERIOR TO NURSE COUNSELING PRIOR TO COLONOSCOPY, A MULTICENTER RANDOMIZED CONTROLLED TRIAL

**Authors** Veldhuijzen G<sup>1</sup>, Klemm-Kropp M<sup>2</sup>, Terhaar sive Droste JS<sup>3</sup>, van Balkom B<sup>4</sup>, van Esch AA<sup>5</sup>, Drenth JPH<sup>5</sup>

**Institute** 1 Radboudumc, Gastroenterology and Hepatology, Nijmegen, Netherlands; 2 Northwest Clinics, Gastroenterology and Hepatology, Alkmaar, Netherlands; 3 Jeroen Bosch Hospital, Gastroenterology and Hepatology, Den Bosch, Netherlands; 4 Bernhoven Hospital, Gastroenterology and Hepatology,

Uden, Netherlands; 5 Gastroenterology and Hepatology, Radboudumc, Nijmegen, Netherlands

**DOI** 10.1055/s-0039-1681542

**Aim** Optimal patient education prior to colonoscopy improves adherence to instructions for bowel preparation and leads to cleaner colons. We developed a computer based education (CBE) supported by video and 3D animations. We hypothesized that CBE may replace current nurse counseling (NC) in most cases, without losing quality of bowel cleanliness during colonoscopy.

**Methods** A prospective, multicenter, endoscopist blinded, non-inferiority randomized controlled trial was conducted. The primary outcome was the rate of successful bowel cleansing, evaluated using the Boston Bowel Preparation Scale (BBPS). Secondary outcome measures were sickness absence, anxiety, satisfaction and information re-call scores. Data was gathered through questionnaires and endoscopy reports. Four endoscopy units participated, with different levels (rural, urban, tertiary). Inclusion criteria were adult age and referral for complete colonoscopy.

**Results** Out of 1035 eligible patients, we randomized 845 patients. After evaluation, 497 patients were included in our per-protocol analyses, 217 in the NC group and 280 in the CBE group. Baseline characteristics were similarly distributed amongst groups. Response rates of patient questionnaires were 100%, 55.6% and 47.3%. Endoscopists scored BBPS in 95% of the cases. Successful bowel cleansing was achieved in 93.2% of the CBE group, which was non-inferior to the NC group (94%); a difference of -0.8% [95% confidence interval -5.1 – 3.5]. BBPS scores were 7.8 (SD 1.62) and 8.0 (SD 1.69), respectively. Sickness absence was significantly more frequent in the NC group (28.0% vs. 4.83%). In the CBE group, only 21.8% of patients needed additional information, resulting in 4.8% extra outpatient visits. Other secondary outcomes showed no significant difference in both groups.

**Conclusion** As modality for patient education, CBE is non-inferior to NC in terms of bowel cleanliness during colonoscopy, with lower patient sickness leave. CBE therefore is practical and efficient for patient education prior to colonoscopy and is recommended for daily practice.

### OP367 INTRODUCTION OF A DOUBLE-VERIFICATION CHECKLIST FOR ENDOSCOPY PATHOLOGY SAMPLES: A QUALITY IMPROVEMENT PROJECT

**Authors** Murphy C<sup>1,2,3</sup>, Murray M<sup>1</sup>, Wieneke P<sup>1</sup>

**Institute** 1 Bantry General Hospital, Cork, Ireland; 2 Department of Medicine, University College Cork, National University of Ireland, Cork, Ireland;

3 University College Cork, APC Microbiome Ireland, Cork, Ireland

**DOI** 10.1055/s-0039-1681543

**Aims** Improvement of patient safety and quality in endoscopy is of utmost importance. Of late, more emphasis has been placed on improvement of technical skills and key performance indicators than examining non-technical skills and human factors for error. In Bantry General Hospital (BGH) there was high number of pathology specimens taken at endoscopy rejected for analysis due to specimen mislabeling. This represented a major breach of patient safety. A quality improvement (QI) project was undertaken within the endoscopy department using the PDSA approach with the aim of error reduction.

**Methods** **Plan** The standardized Safety Attitudes Questionnaire (SAQ) was administered to the nine departmental staff members to assess the baseline safety opinions of staff.

**Do** A double-verification checklist was introduced within the department to reduce labeling errors.

**Study** Pathology errors for a year post checklist introduction were reviewed and a qualitative feedback questionnaire administered to staff.

**Act** Qualitative feedback gave scope for expansion of further QI projects within the department.

**Results** The baseline specimen rejection rate was 1.92%. Introduction of a double-verified safety checklist led to an 88% reduction in labeling errors. A high positive score has been demonstrated in all categories of the SAQ in the

endoscopy unit in BGH indicating a strong culture and safety attitude present within the unit. A qualitative analysis of why errors occurred drew up two main themes, namely process and human factors. Advantages of the new checklist were outlined under the themes of quality factors and process factors. The time constraints of the new process was the main cited disadvantage.

**Conclusions** Introduction of a double-verification safety checklist in BGH successfully reduced error in specimen labeling rates in endoscopy in the context of a strong safety culture within the unit. The study highlights the benefits of safety checklists in the endoscopy process as a means of improvement of patient safety.

## OP368 ACHIEVEMENT OF EUROPEAN SOCIETY OF GASTROINTESTINAL ENDOSCOPY (ESGE) PERFORMANCE MEASURES: OBSERVATIONS FROM THE EUROPEAN COLONOSCOPY QUALITY INVESTIGATION (ECQI) QUESTIONNAIRE

**Authors** Spada C<sup>1</sup>, Agrawal A<sup>2</sup>, Amaro P<sup>3</sup>, Brink L<sup>4</sup>, Fischbach W<sup>5</sup>, Hüniger M<sup>6</sup>, Jover R<sup>7</sup>, Kinnunen U<sup>8</sup>, Koulaouzidis A<sup>9</sup>, Ono A<sup>10</sup>, Patai Á<sup>11</sup>, Pecere S<sup>12,13</sup>, Petruzzello L<sup>12,13</sup>, Toth E<sup>14</sup>, Amlani B<sup>15</sup>, Riemann JF<sup>16</sup>

**Institute** 1 Fondazione Poliambulanza, Brescia, Italy; 2 Doncaster Royal Infirmary, Doncaster, United Kingdom; 3 Coimbra University Hospital, Coimbra, Portugal; 4 Herlev Hospital, Herlev, Denmark; 5 Gastroenterologie und Innere Medizin, Aschaffenburg, Germany; 6 Private Practice for Internal Medicine, Würzburg, Germany; 7 Hospital General Universitario de Alicante, Alicante, Spain; 8 Tampere University Hospital, Tampere, Finland; 9 The Royal Infirmary of Edinburgh, Edinburgh, United Kingdom; 10 Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain; 11 Markusovszky University Teaching Hospital, Szombathely, Hungary; 12 Fondazione Policlinico Universitario A. Gemelli IRCCS, Digestive Endoscopy Unit, Rome, Italy; 13 Università Cattolica del Sacro Cuore, Centre for Endoscopic Research Therapeutics and Training – CERTT, Rome, Italy; 14 Skåne University Hospital, Lund University, Malmö, Sweden; 15 Norgine, Harefield, Middlesex, United Kingdom; 16 Director em. Klinikum Ludwigshafen, Chairman, LebensBlicke Foundation for the Prevention of Colorectal Cancer, Ludwigshafen, Germany  
**DOI** 10.1055/s-0039-1681544

**Aims** To investigate the quality of colonoscopy in current clinical practice, through the use of online questionnaires, compared with recently published European Society of Gastrointestinal Endoscopy (ESGE) key performance measures.

**Methods** The development of the procedure questionnaire, by the European Colonoscopy Quality Investigation (ECQI) Group, has been previously described in posters presented at UEGW, 2015 and 2016. Data collection is an ongoing process. We analysed data collected between 2/6/16 and 30/4/18.

**Results** 6445 colonoscopies were documented by 84 practitioners across 12 European countries.

**Adequate bowel preparation** was defined as Boston Bowel Preparation Scale score  $\geq 6$  (ESGE minimum standard  $\geq 90\%$ ). From our data (data unavailable for 209, 3.2%), 84.2% ( $n = 5427$ ) of procedures had adequate bowel cleansing. **Caecal intubation rate** (ESGE minimum standard of  $\geq 90\%$  of all diagnostic and screening colonoscopies visualise the whole caecum, where indication exists). The caecum was the intended endpoint in 69.4% of procedures (ileum 28.1%, anastomosis 1.3%, data unavailable 1.2%). For those colonoscopies where the caecum was the intended endpoint ( $n = 4473$ ), 94.7% reported reaching the caecum but only 77.5% (3281/4234) of those stated endpoint photo-documentation.

**Polyp detection rate (PDR)** (ESGE minimum standard  $\geq 40\%$  of screening and diagnostic colonoscopies performed in those aged 50 years or older). At least one polyp was detected in 40.7% (1357/3335) of qualifying procedures.

**Withdrawal time** from caecum to anal canal and inspection of the entire bowel mucosa at negative (no biopsy or therapy) screening or diagnostic

colonoscopy (ESGE minimum standard mean 6 minutes). Of the 1150 qualifying procedures providing data, the overall mean ( $\pm$ SD) withdrawal time was  $7.8 \pm 3.1$  minutes, the median withdrawal time was 7 minutes.

**Conclusions** Our findings indicate that while minimum standards for PDR and withdrawal time are being met, they are not achieved for adequate bowel clearance, or photo-documentation of caecal intubation.

Saturday, April 6, 2019

14:30 – 16:00

Genetic

Club H

## OP369 COLORECTAL CANCER IN FAMILIAL ADENOMATOUS POLYPOSIS: RESULTS FROM THE DANISH POLYPOSIS REGISTRY

**Authors** Gásdal Karstensen J<sup>1,2</sup>, Burisch J<sup>1</sup>, Pommergaard HC<sup>1,2</sup>, Højen H<sup>1</sup>, Jespersen N<sup>1</sup>, Aalling L<sup>1</sup>, Nordblad Schmidt P<sup>1</sup>, Bülow S<sup>1</sup>

**Institute** 1 Gastrounit, Danish Polyposis Registry, Copenhagen University Hospital Hvidovre, Hvidovre, Denmark; 2 Department of Gastrointestinal Surgery, Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark

**DOI** 10.1055/s-0039-1681545

**Aims** Familial adenomatous polyposis (FAP) is an autosomal dominant disorder that predisposes to colorectal cancer (CRC). The Danish Polyposis Registry is a nationwide, complete registry of FAP patients that coordinates a surveillance program consisting of 1) tracing and genotyping of 1<sup>st</sup> degree relatives and 2) annual or biannual colonoscopies until referral to colectomy or proctocolectomy. We aimed this study to assess efficacy of the surveillance program including the incidence, prevalence, and crude survival rates of CRC for Danish FAP patients.

**Methods** Data was collected from the Danish Polyposis Registry and the periods 1990–99 and 2000–17 were compared.

**Results** By the end of 2017, the registry comprised 226 families with 721 affected individuals. While the mean annual incidence rate of FAP was stable from 1990–99 (0.19/100,000/year) to 2000–17 (0.32/100,000/year) ( $p = 0.91$ ), the point prevalence increased significantly from 4.86/100,000 in 1999 to 6.11/100,000 by the end of 2017 ( $p = 0.005$ ). During the period 2000–17, FAP related CRC constituted 25/72,218 of all CRC cases (0.03%), which was a significant decrease from 1990–99 (26/30,005 cases, 0.09%) ( $p = 0.001$ ). The risk of CRC was significantly higher for probands ( $n = 191$ , 61.6%) compared to call-up cases ( $n = 5$ , 1.9%) ( $p < 0.001$ ). All CRCs in call-up patients were detected at the initial endoscopic evaluation. Thus, no cases were identified in the surveillance program. The life expectancy for probands differed significantly from call-up patients (69.9 years, 95% CI, 66.9–72.9 vs 56.1 years, 95% CI, 53.6–58.6,  $p < 0.001$ ); hence, an appropriate tracing and preoperative endoscopic surveillance program prolong life expectancy with 13.4 years for first-degree family members.

**Conclusions** The Danish Polyposis Registry enables close monitoring of FAP patients resulting in a minimized risk of CRC and a prolonged life expectancy within the surveillance programme. Establishment of further national polyposis registries is strongly recommended in order to globally secure high quality patient care for FAP patients.

## OP370 ENDOSCOPIC MANAGEMENT OF DUODENAL AND JEJUNAL POLYPOSIS IN PATIENTS WITH FAMILIAL ADENOMATOUS POLYPOSIS USING DOUBLE BALLOON ENDOSCOPY

**Authors** Sekiya M<sup>1</sup>, Sakamoto H<sup>1</sup>, Yano T<sup>1</sup>, Miyahara S<sup>1</sup>, Nagayama M<sup>1</sup>, Tojo H<sup>1</sup>, Kobayashi Y<sup>1</sup>, Shinozaki S<sup>1,2</sup>, Sunada K<sup>1</sup>, Kawarai Lefor A<sup>3</sup>, Yamamoto H<sup>1</sup>

**Institute** 1 Department of Medicine Division of Gastroenterology, Jichi Medical University, Shimotsuke, Japan; 2 Shinozaki Medical Clinic,

Utsunomiya, Japan; 3 Department of Surgery, Jichi Medical University, Shimotsuke, Japan

DOI 10.1055/s-0039-1681546

**Aims** It was reported that endoscopic treatment for colorectal polyposis can be considered in the management of Familial adenomatous polyposis (FAP) patients refusing colectomy. Despite the lifetime risk for duodenal and small bowel cancer is approximately 4%, prophylaxis is not discussed sufficiently. The aim of the study was to elucidate the long-term outcomes, safety and developing cancer after double balloon endoscopy (DBE)-assisted endoscopic treatment in FAP patients with duodenal and jejunal polyposis.

**Methods** We retrospectively reviewed 8 patients underwent endoscopic treatments more than two sessions using DBE from August 2004 to July 2018 at Jichi Medical University Hospital.

The following outcome were included:

1. clinical characteristics (age, sex, number of endoscopy, history of abdominal surgery);
2. results (procedure time, the number of resected polyps, maximum diameter of resected polyp, resection method, pathological consequence;
3. adverse events and development of small intestinal cancer.

**Results** A total of 72 DBEs were performed in these patients during the study period and 1237 polyps were resected. The mean number of DBEs per patient was 6 (range 3–28). The average age at the first examination of 8 patients (5 male and 3 female) was 31 (range 16–53 years). The median observation period was 77.5 months (8 to 167).

There were 11 adverse events, including 7 delayed bleedings and 4 acute pancreatitis. These bleeding episodes were treated successfully by endoscopic hemoclips and pancreatitis were managed conservatively.

No development of advanced duodenum or jejunal cancer was observed during the observation period, and only one intramucosal carcinoma was found in the duodenum in one patient.

**Conclusions** Endoscopic resection using DBE for duodenal and jejunal polyposis of FAP can be performed safely and effectively.

## ESGE Days 2019 ePoster podium presentations

Friday, April 5, 2019

10:30 – 11:00

Anorectal disorders

ePoster Podium 1

### ePP1 AT THE EDGE OF OUR INTEREST – ANAL INTRAEPITHELIAL NEOPLASIA

**Authors** Prochazka R<sup>1</sup>

**Institute** 1 Gastroenterology, Nemocnice Jablonec nad Nisou, Jablonec nad Nisou, Czech Republic

DOI 10.1055/s-0039-1681547

**Aims** The aim of the study was to acquaint the gastroenterologist community with the anal intraepithelial neoplasia, the precursor lesion of the anal squamous carcinoma, and more importantly to introduce a novel approach to its detection and the treatment.

**Methods** In a small cohort of 11 patients with a suspicion of AIN, the squamocolumnar junction was examined meticulously by a HD flexible endoscope with the attached 5 mm soft hood. Indication for the thorough investigation was the presence of one or more of the AIN/aSCC risk factors or anal symptomatology. The anal transitional zone was observed in white light followed by the NBI chromoendoscopy to search for the background color and to investigate the pattern of the IPCL. Detected lesions were removed by EMR, pinned to a cork and send for a histological evaluation. If the AIN was detected, the patient was seen endoscopically in 3–6 months and if indicated in additional 6 months.

**Results** In our cohort there were six females and five males between the ages 37 to 69. AIN was confirmed in 8 patients, AIN III and AIN II equally in three patients and AIN I in the remaining two. In seven AIN patients IPCL irregularity was observed by NBI chromoendoscopy. Background color sign, in contrary to the diagnostics in the esophagus, was not a predictor of early neoplasia, AIN. In one patient a recurrence was found at 3 months after the primary treatment and removed by reEMR.

**Conclusions** IPCL irregularity observed by the NBI HD chromoendoscopy predicted a presence of AIN with 78% certainty and IPCL irregularity was present in 88% of AIN patients. The accuracy can be lower in the squamous epithelium altered by inflammation. The HD chromoendoscopy in high risk population followed by an endoscopic resection in local anesthesia offers a preventive measure to anal squamous carcinoma.

### ePP2 NARROW-BAND IMAGING PREDICTS THE HISTOLOGY OF ANAL SQUAMOUS INTRAEPITHELIAL LESION AND SUPERFICIALLY INVASIVE SQUAMOUS CELL CARCINOMA WITH HIGH ACCURACY

**Authors** Gizzi G<sup>1</sup>, Villani V<sup>1</sup>, Frazzoni L<sup>2</sup>, Tamanini G<sup>2</sup>, La Marca M<sup>2</sup>, Fuccio L<sup>2</sup>  
**Institute** 1 MF Toniolo Hospital, Bologna, Italy; 2 Department of Medical and Surgical Sciences, University of Bologna, Bologna, Italy

DOI 10.1055/s-0039-1681548

**Aims** Anal cancer incidence is increasing. Squamous cell carcinoma is the most frequent histologic type and is preceded by precancerous lesions, i.e. squamous intraepithelial lesions (SILs), and by superficially invasive squamous cell carcinoma (SISCCA), a microinvasive disease with low metastatic risk. SIL and SISCCA are amenable to conservative or excisional treatment, however their endoscopic identification is challenging. We aimed at assessing narrow-band imaging (NBI) in predicting histology of SIL and SISCCA.

**Methods** Retrospective analysis of prospectively collected database. Patients with suspected SIL and SISCCA underwent a rectosigmoidoscopy with high-definition colonoscopes (HDTV Olympus 180 Exera) or dual-focus colonoscopes (HDTV Olympus 190 Exera) with NBI evaluation and histological assessment. Three NBI patterns were identified: i) pattern I, elongation of intrapapillary capillary loops toward epithelial surface; ii) pattern II, thickened and tortuous intrapapillary capillary loops; iii) pattern III, mosaic-like disposition of intrapapillary capillary loops.

SILs were classified according to the LAST classification in high-grade (HSIL) and low-grade (LSIL). Correlation between tumour grade and NBI was evaluated with Spearman's rho coefficient. We calculated diagnostic accuracy of NBI in detecting the presence of HSIL or SISCCA vs. LSIL.

**Results** We documented 45 lesions in 42 patients (mean age 54.5 years; 24 females). In details, 33 (73.3%) lesions were LSIL, 9 (20%) were HSIL, and 3 (6.7%) were SISCCA. NBI pattern positively correlated to the tumour grade (Spearman's rho = 0.952, p < 0.001). Furthermore, 33/33 (100%) LSILs had NBI pattern I, 8/9 (88.9%) HSILs had NBI pattern II, and 3/3 SISCCAs had NBI pattern III. Diagnostic accuracy of NBI pattern II or III in detecting HSIL or SISCCA vs. LSIL was high (sensitivity = 91.7%, 95% CI 61.5–99.8%; specificity = 100%, 95% CI 89.4–100%).

**Conclusions** NBI evaluation of suspected SIL can differentiate low grade SIL from high grade SIL and SISCCA with high accuracy. The mosaic-like NBI pattern is strongly associated with SISCCA.

### ePP3V ENDOSCOPIC BAND LIGATION FOR THE TREATMENT OF REFRACTORY RADIATION PROCTITIS

**Authors** Maestro Prada I<sup>1</sup>, Quintanilla Lázaro EM<sup>1</sup>, García-Ramos García C<sup>1</sup>, Chaudarcas Castiñeira P<sup>1</sup>, Álvarez Sánchez M<sup>1</sup>, Castro Urda JL<sup>1</sup>

**Institute** 1 Hospital Universitario Severo Ochoa, Leganés, Spain

DOI 10.1055/s-0039-1681549

Radiation proctitis is a known complication following radiation therapy for pelvic malignancy. The majority of cases are treated with conservative management, including endoscopic treatment.

We present a patient with a chronic radiation proctitis despite treatment with argon plasma coagulation.

**Case report** 67 year-old man with a history of prostate adenocarcinoma and chronic radiation proctitis. The patient was initially treated with several sessions of argon plasma coagulation in other hospital. He maintained rectal bleeding daily and secondary anemia requiring intravenous iron therapy.

In the colonoscopy we observed radiation proctitis over hemorrhoids in distal rectum (image 1). Due to the impossibility of a new fulguration it was decided to perform endoscopic band ligation (image 2) with no complications. Six weeks later, a control endoscopy was performed, identifying post-banding ulcers (image 3), so we postponed a new control for two months. In this colonoscopy we observed a scar tissue and petechial erythematous area on hemorrhoidal pedicle (image 4), performing a new endoscopic band ligation. In the last endoscopy, six months after the first ligation, findings were post-banding scars and slight proctitis above two hemorrhoid pedicles, performing a new ligation (image 5).

Clinically, after the first endoscopic band ligation, symptoms improved only for a week, with further deterioration due to rectal bleeding secondary to rectal ulcers.

After the second endoscopic band ligation, the patient refers clear improvement of symptoms with rectal bleeding episodes reduced to rare events and hemoglobin normalization.

**Discussion** Medical and endoscopic management of chronic radiation proctitis is complex, with no evidence of an efficient therapeutic option. In this case, endoscopic band ligation as an effective treatment of chronic radiation proctitis refractory to argon plasma coagulation. It is not clear the number of sessions required to control of symptoms, but it seems a possible alternative to thermal treatments.

Friday, April 5, 2019

10:30 – 11:00

Colon stent

ePoster Podium 2

#### ePP4 SCHEDULED INSERTION OF SELF-EXPANDING METAL STENT (SEMS) OF COLON IN SUBOCCLUSION SECONDARY TO COLORECTAL CANCER. PRELIMINARY RESULTS

**Authors** Díez Redondo P<sup>1</sup>, Núñez Rodríguez H<sup>1</sup>, Torres R<sup>1</sup>, Pérez-Miranda M<sup>1</sup>

**Institute** 1 Gastroenterology, Hospital Rio Hortega, Valladolid, Spain

**DOI** 10.1055/s-0039-1681550

**Aims** Colonic obstruction occurs in 8 – 13% of patients with advanced colorectal cancer (CRC).

**Objective** To analyze the efficacy and safety of early insertion of SEMS in patients with malignant colonic obstruction that does not allow the passage of the colonoscope but without acute obstructive symptoms.

**Methods** Randomized and double-blind clinical trial. Patients with stage IV CRC or locally advanced rectum between 2014 and 2017 with malignant stenosis that prevent the passage of the colonoscope at the diagnosis but without acute obstructive clinic were randomized to SMA placement or not. We analyze demographic variables, clinical scales of obstruction, treatments received and complications.

**Results** We include 17 patients. 7 patients were assigned to the "SEMS group" and 10 to "no SEMS". The mean follow-up was 164 days (7 – 616). Most frequent localization: left colon and rectum (23.5% both). Without differences in demographic characteristics between both groups.

During the follow-up a clinical scale of obstruction was used which improved in 100% of the patients in the SEMS group compared to 30% in the non-SEMS group (associated with chemotherapy treatment).

60% of those included in the non-SEMS group required urgent SEMS placement (mean time since diagnosis: 136 days, SD 74). Finally, 16 SEMS were placed (7 early and 9 urgently for different reasons in both groups). There were no significant differences between the two groups in terms of complications, although migration and perforation were more frequent in the non-SEMS group. The 2 perforations were deferred in patients treated with bevacizumab.

**Conclusions:**

- Sixty percent of the patients in the non-SEMS group had an episode of acute colonic obstruction that required the placement of urgent colonic SEMS. Migration and perforation were more frequent in the non-SEMS group.
- The small number of patients evaluated to date makes it necessary to extend the inclusion period in order to obtain more reliable conclusions.

#### ePP5 FACTORS ASSOCIATED WITH TECHNICAL SUCCESS IN COLONIC STENT PLACEMENT

**Authors** Couto I<sup>1</sup>, Guerrero-Montañés A<sup>1</sup>, López-Álvarez M<sup>1</sup>, Yáñez-González-Doposo L<sup>1</sup>, Seoane-Pillado MT<sup>2</sup>, Alonso-Aguirre P<sup>1</sup>

**Institute** 1 Gastroenterology, Complejo Hospitalario Universitario de A Coruña, A Coruña, Spain; 2 Statistics, Complejo Hospitalario Universitario de A Coruña, A Coruña, Spain

**DOI** 10.1055/s-0039-1681551

**Aims** To evaluate factors associated with the successful placement of colonic stents.

**Tab. 1** Multivariate analysis of factors associated with technical success in endoscopic stent placement

	Sig	OR (CI 95%)
Peritoneal carcinomatosis	0,025	0,309 (0,111 – 0,861)
Expert endoscopist	0,003	3,935 (1,602 – 9,668)

**Methods** We performed an observational and retrospective study of patients attended in a single center between 2007 and 2014, with colonic stents placed for any reason. Technical success was defined as the correct placement of the stent in the radiological image. Three doctors had more experience in endoscopic stents and skills in ERCP, and were referred to "experts".

**Results** There were included 217 patients, with technical success in 189 (87,1%). There were no differences attending to the length of the stent, level of the neoplasia, or emergency setting. The groups of expert endoscopists achieved a technical success in 110 (93,2%) cases, and the other group in 79 (79,8%), with an OR 3,4 (1,4 – 8,3). In the multivariate analysis, the presence of peritoneal carcinomatosis was associated with less technical success and the experience of the endoscopist with higher.

**Conclusions** In our study, the technical success of the placement of colonic stents was associated with the experience of the endoscopist and the absence of peritoneal carcinomatosis.

#### ePP6 THE PROGNOSTIC IMPACT OF BOWEL PERFORATION FOLLOWING SELF-EXPANDABLE METAL STENT AS A BRIDGE TO SURGERY FOR MALIGNANT COLORECTAL OBSTRUCTION

**Authors** Lee BI<sup>1</sup>, Kwon TH<sup>1</sup>, Choe Y<sup>1</sup>, Lee HH<sup>1</sup>, Lim H<sup>2</sup>, Park YM<sup>3</sup>, Kim JW<sup>3</sup>, Hyeon SE<sup>4</sup>, Jung Y<sup>4</sup>, Han SW<sup>1</sup>, A Research Group for Endoscopic Instruments and Stents (REIS)

**Institute** 1 Division of Gastroenterology, Department of Internal Medicine, College of Medicine, The Catholic University of Korea, Seoul, Korea, Republic of; 2 Division of Gastroenterology, Department of Internal Medicine, University of Hallym College of Medicine, Hallym University Sacred Heart Hospital, Anyang, Korea, Republic of; 3 Division of Gastroenterology, Department of Internal Medicine, Kyung Hee University School of Medicine, Seoul, Korea, Republic of; 4 Division of Gastroenterology, Department of

Internal Medicine, Soonchunhyang University College of Medicine, Cheonan, Korea, Republic of

DOI 10.1055/s-0039-1681552

**Aims** Although Self-expandable metal stent (SEMS) is very useful for relieving malignant colorectal obstruction, it may cause bowel perforation and result in impaired oncological outcomes. However, data comparing the outcomes of patients with or without perforation are limited. We aimed to compare overall survival and recurrence rates depending on SEMS-related bowel perforation.

**Methods** This multicenter study included obstructive colorectal cancer patients treated with SEMS as a bridge to surgery. The data were retrospectively collected and the patients were matched at a ratio of 1:5 according to age, sex, tumor location, pathologic stage, and curative resection. The oncological outcomes according to perforation were evaluated using the Kaplan-Meier method.

**Results** From January 2009 to February 2018, 258 patients underwent SEMS as a bridge to surgery. Of these patients, 18 (7.0%) had SEMS-related perforations (the perforation group). Overt and silent perforations were identified in 16 and 2, respectively. The rate of more than 14 cm of SEMS length was higher in the perforation group compared the entire patients without perforation (16.7% vs. 2.5%,  $p = 0.019$  by Fisher's exact test). In comparison with 90 matched controls (the non-perforation group), the 5-year overall survival rate was lower in the perforation group (54.3% vs. 77.2%,  $p = 0.078$ ). The 5-year recurrence rate was significantly higher in the perforation group compared the non-perforation group (50.1% vs. 23.6%,  $p = 0.003$ ).

**Conclusions** Insertion of longer SEMS increases the risk of perforation. SEMS-related perforation is associated with increased recurrence rate.

Friday, April 5, 2019

10:30 – 11:00

CRC screening 4

ePoster Podium 3

### ePP10 THE COMPARISON OF THE EFFICIENCY OF COLON CAPSULE ENDOSCOPY AND OPTICAL COLONOSCOPY IN PATIENTS WITH POSITIVE IMMUNOCHEMICAL FECAL OCCULT BLOOD TEST: MULTICENTER, PROSPECTIVE STUDY

**Authors** Voska M<sup>1</sup>, Grega T<sup>1</sup>, Ngo O<sup>2</sup>, Buckova B<sup>2</sup>, Majek O<sup>2</sup>, Vojtechova G<sup>1</sup>, Tacheci I<sup>3</sup>, Benes M<sup>4</sup>, Bures J<sup>3</sup>, Spicak J<sup>4</sup>, Zavoral M<sup>1</sup>, Suchanek S<sup>1</sup>

**Institute** 1 Department of Medicine First Faculty of Medicine Charles University, Military University Hospital Prague, Prague, Czech Republic; 2 Institute of Biostatistics and Analyses, Faculty of Medicine, Masaryk University, Brno, Czech Republic; 3 2nd Department of Internal Medicine, Faculty of Medicine Charles University, University Hospital, Hradec Kralove, Czech Republic; 4 Hepatogastroenterology Department of Institute for Clinical and Experimental Medicine, Prague, Czech Republic

DOI 10.1055/s-0039-1681553

**Aims** The main aim of the study was a negative predictive value (NPV) of the second generation of colon capsule endoscopy (CCE2) for large polyps ( $\geq 10$  mm). The secondary aims were: accuracy of detection of polyps  $\geq 6$  mm and  $\geq 10$  mm, complications and target population acceptance of CCE2 and optical colonoscopy (OC).

**Methods** In this multicenter feasibility study, the second generation of colon capsule endoscopy (CCE2) has been prospectively compared with OC in persons with positive FIT with cut-off level 75 ng/ml. CCE2 videos were viewed independently by a nurse and a physician, both blinded to the results of OC. The methods of acceptance were evaluated based on the questionnaire completed after CCE2 and OC were finished.

**Results** From April 2016, 200 individuals have been enrolled; data from 105 persons have been analyzed. During the optical colonoscopy, polyps were diagnosed in 79 persons (75%), polyps  $\geq 6$  mm and  $\geq 10$  mm in 47 (45%) and 29 (28%) persons, respectively. The sensitivity of CCE2 for polyps  $\geq 6$  mm and  $\geq 10$  mm was 87% (95% confidence interval [CI]: 74–95%) and

83% (95% CI: 64–94%), respectively. The specificity for polyps  $\geq 6$  mm and  $\geq 10$  mm reached 84% (95% CI: 73–93%) and 91% (95% CI: 82–96%), respectively. The negative predictive value of CCE2 for polyps  $\geq 10$  mm was 93% (95% CI: 85–98%). Nurses identified 40 polyps  $\geq 6$  mm of 47 (85%) and 25 polyps  $\geq 10$  mm of 29 (86%) found on OC. A total of 69 patients (66%) preferred CCE2 as the primary screening method.

**Conclusions** The second generation of colon capsule has appeared to have a high negative predictive value for the detection of clinically relevant colorectal neoplasia in a screening population. This method might be considered as an adequate tool for colorectal cancer screening.

### ePP11 RESULTS OF A COLORECTAL SCREENING PROGRAMME BELOW THE FIT THRESHOLD OF 100 NG/ML (20UG/G)

**Authors** Matias DJ<sup>1,2</sup>, Rodríguez Martín L<sup>1</sup>, Villar Lucas C<sup>1</sup>, Quiñones Castro R<sup>1</sup>, Pérez Fernández R<sup>1</sup>, Díez Rodríguez R<sup>1</sup>, Jiménez Palacios M<sup>1</sup>, Jorquera Plaza F<sup>1</sup>, Vivas Alegre S<sup>1</sup>

**Institute** 1 Gastroenterology Department, Complejo Asistencial Universitario de León, León, Spain; 2 Gastroenterology Department, Complejo Asistencial Universitario de Salamanca, Salamanca, Spain

DOI 10.1055/s-0039-1681554

**Aims** The CRC screening programmes based on the immunological FOBT/FIT (faecal occult blood test) among asymptomatic subjects between 50–69 years old have proved its efficacy in the reduction of CRC incidence and mortality. The threshold to consider a FIT positive in the Spanish CRC screening programme and therefore be invited to undergo colonoscopy is 100 ng/ml. Considering that values above 50 ng/ml are considered positive out of the screening programme, there is a % of asymptomatic subjects with values between 50–99 ng/ml that could have undetected lesions.

**Aim** TO ANALYSE THE ENDOSCOPIC FINDINGS IN PATIENTS WITH FIT RESULTS BETWEEN 50–99 NG/ML.

**Tab. 1** Comparative of endoscopic findings FIT50–99 vs. FIT>100

	Screening group (FIT>100)	FIT 50–99	p value
Adenomas: Total/	879 (69.2%)/557 (74.9%)	32 (45.7%)/17 (54.8%)/15	0,00/0,13/0,05
Male/Female	322 (61.2%)	(38.5%)	
High risk adenomas: Total/Male/	608 (47.9%)/426 (57.3%)	14 (20%)/10 (32.3%)/4	0,00/0,05/0,01
Female	182 (34.6%)	(10.3%)	
CRC: Total/Male/	105 (8.3%)/71 (9.3%)/34	2 (2.9%)/1 (3.3%)/1	0,074/0,212/
Female	(6.5%)	(2.6%)	0,285
Age (years)	65.27	65.47	0,705

**Methods** We analysed retrospectively FIT results (OC-SENSOR, Biogen) received in the laboratory of León's Hospital in the first round of CRC screening between 2014–2016. We selected those patients with FIT results between 50–99 that had undergone colonoscopy by their doctor's indication as screening. As a control group, we used subjects that undergone colonoscopy as part of the CRC screening programme (FIT  $\geq 100$ ).

**Results** A total of 989 subjects between 60–69 years old presented FIT results ranging from 50 to 99 ng/ml. 70 (7%) of them underwent colonoscopy. We detected adenomas in 32 (45.7%), high risk adenomas in 14 (20%) and CRC in 2 (2.9%). In the indexed table, we present the results comparing with the control group.

**Conclusions** The FIT threshold established for the populational CRC screening in Spain is efficient, but it can increase the false negative (FN) situations. It is necessary to evaluate these results with larger series to find the risk factors associated to FN as well as allow us to propose evidence-based changes to the threshold or modifications to the screening interval.

## ePP12 THE ROLE OF COLON CAPSULE ENDOSCOPY IN COLORECTAL CANCER SCREENING: A SYSTEMATIC REVIEW

**Authors** Vuik FER<sup>1</sup>, Nieuwenburg SAV<sup>1</sup>, Spada C<sup>2,3</sup>, Senore C<sup>4</sup>, Kuipers EJ<sup>1</sup>, Spaander MCW<sup>1</sup>

**Institute** 1 Gastroenterology and Hepatology, Erasmus MC University Medical Center, Rotterdam, Netherlands; 2 Digestive Endoscopy and Gastroenterology Unit, Poliambulanza Foundation, Brescia, Italy; 3 Digestive Endoscopy Unit, Fondazione Policlinico Universitario Agostino Gemelli – IRCCS, Catholic University, Rome, Italy; 4 AOU Città della Salute e della Scienza, CPO Piemonte, Turin, Italy

**DOI** 10.1055/s-0039-1681555

**Aims** Colorectal cancer (CRC) screening programs have been implemented in many countries in order to decrease CRC incidence and mortality. Primary colonoscopy (OC) and fecal immunochemical test (FIT) are the most commonly used screening modalities. An alternative screening instrument is colon capsule endoscopy (CCE). Although the accuracy has already been proven, information on the performance of CCE in a screening population remains scarce. This is the first systematic review on the role of CCE as a CRC screening tool.

**Methods** A systematic search was conducted until November 2018 to retrieve studies from Embase, Web of Science, Medline Ovid and Cochrane Central. Studies were included when subjects underwent both CCE and OC and reported on test accuracy of CCE compared to OC in a screening population. Primary outcomes were participation, detection rate of polyps and sensitivity and specificity of any polyp. Secondary outcomes were the rate of complete colon visualization and cleansing score.

**Results** Literature search retrieved 499 studies, of these 7 met the inclusion criteria. In total 975 patients were included. All studies concerned a first (n = 6) or second (n = 1) round FIT-positive screening population. Studies that reported on participation showed rates of 8.9% and 22.9%. The polyp detection rate in CCE varied from 69% to 82%. All CRCs found during CCE were also reported during OC. Sensitivity of any polyp ranged between 79% and 98.5% and specificity between 65% and 99%. Bowel preparation was adequate in 70% to 92% and completion rate varied from 54% to 90%. No adverse events with CCE were reported in the included studies.

**Conclusions** CCE is a safe and effective diagnostic tool for the detection of cancer and polyps in a screening population. Bowel preparation is adequate in most studies, but the low completion rates affect the performance of CCE. More studies are needed to determine the role of CCE as screening instrument.

Friday, April 5, 2019

Colonic polyps: detection

10:30 – 11:00

ePoster Podium 4

## ePP8 HOW STRONG IS THE EVIDENCE SUPPORTING HIGH DEFINITION COLONOSCOPY SUPERIORITY IN INCREASING EXAMINATION OUTCOMES? A META-ANALYSIS OF RANDOMIZED CONTROLLED STUDIES

**Authors** Tziatzios G<sup>1</sup>, Gkolfakis P<sup>1</sup>, Lazaridis LD<sup>1</sup>, Triantafyllou K<sup>1</sup>

**Institute** 1 Attikon University General Hospital, Athens, Greece

**DOI** 10.1055/s-0039-1681556

**Aims** Previous meta-analysis showed marginal difference between high definition (HD-C) and standard definition (SD-C) colonoscopy in terms of colonic adenomas detection. Due to non-randomized design of the majority of studies included in this meta-analysis, we aimed to elucidate the effect of HD-C on adenoma detection by meta-analyzing results of randomized controlled trials (RCTs) only.

**Methods** A literature search was performed for RCTs evaluating HD-C versus SD-C in terms of ADR, mean number of adenomas per colonoscopy (MAC), advanced ADR (AADR) and right colon adenoma detection rate (RCADR). The effect size on study outcomes was calculated using the appropriate effect model and is presented as Risk Ratio [RR (95% CI)] or Mean Difference [MD (95% CI)].

**Results** Five RCTs involving 3507 patients (HD-C 1741; SD-C 1766) were included. One study included screening examinations, one evaluated subjects with positive FOBT – personal or familial history of colorectal cancer and three studies evaluated colonoscopies with mixed indications (screening, surveillance and symptomatic). ADR was reported in all 5 studies. Compared to SD-C, HD-C significantly increased ADR [RR (95% CI)=1.15 (1.06 – 1.25); I<sup>2</sup>=0%] and MAC as reported in 4 studies with 3087 examinations [MD (95% CI)=0.09 (0.04 – 0.14); I<sup>2</sup>=0%]. On the contrary, this benefit was not achieved in terms of AADR since meta-analysis of data from 3 studies (2261 examinations) detected no difference between HD-C and SD-C [RR (95% CI)=1.08 (0.84 – 1.40); I<sup>2</sup>=0%] and in terms of RCADR [data from 2 studies with 1641 examinations; RR (95% CI)=1.38 (0.86 – 2.22); I<sup>2</sup>=84.7%].

**Conclusions** Meta-analysis of RCTs data provides moderate level of evidence that high definition colonoscopy is superior to the standard definition, regarding adenoma detection.

## ePP9 MUCOSAL FLATTENING ASSISTED COLONOSCOPY (FAC) FOR IMPROVING ADENOMA DETECTION RATE: A SYSTEMATIC REVIEW WITH PAIRWISE AND NETWORK META-ANALYSIS

**Authors** Marmo C<sup>1</sup>, Thayalasekaran S<sup>2</sup>, Pradeep B<sup>2</sup>, Gkolfakis P<sup>3</sup>, Triantafyllou K<sup>3</sup>, Hassan C<sup>4</sup>, Marmo R<sup>5</sup>

**Institute** 1 Gastroenterology, Vanvitelli University of Naples, Naples, Italy;

2 Gastroenterology, Queen Alexandra Hospital, Portsmouth, United Kingdom;

3 Gastroenterology, Attikon University Hospital, University of Athens School of Medicine, Athens, Greece; 4 Gastroenterology, Nuovo Regina Margherita Hospital, Rome, Italy; 5 Gastroenterology, Hospital Curto, Polla (Salerno), Italy

**DOI** 10.1055/s-0039-1681557

**Aims** Improving ADR is currently the central focus of quality improvement in colonoscopy. Fold flattening devices could ameliorate the ADR. Aims of study; to compare efficacy of mucosal flattening assisted colonoscopy vs. standard colonoscopy in improving adenoma detection rate.

**Methods** Full text Randomized Clinical Trials (RCT) included in the analysis. Pairwise and then network meta-analysis performed; relative ranking was evaluated by surface under the cumulative ranking curves (SUCRA).

**Results** 13 articles included; total of 8243 patients. Endocuff (EC), EndoRing (ER), G- Eye and Standard Colonoscopy (SC) were compared. *Pairwise meta analysis: SC vs. EC* EC, improved ADR with an OR of 1.36 (c.i.95% 1.12 to 1.60) p = 0.001. A significant Heterogeneity was present: sub grouping studies in three level of ADR in the SC, the OR between the two treatment arms were significantly different. When in SC the ADR > 40% no difference was present: OR 1.07 (c.i.95% 0.85 to 1.34) p = .184; when ADR >= 25% OR = 1.85 (c.i.95% 1.35 to 2.53) p = 0.000; when ADR was > 25 and < 41, OR = 1.43 (c.i.95% 1.13 to 1.77) p = 0.014. *SC vs. ER* no difference was observed between the two procedures OR = 1.063 (c.i. 95% 0.875 to 1.291) p = 0.540. *SC vs. G-Eye* - OR = 0.63 (c.i.95% 0.48 to 0.83) p = < 0.001. *Network meta analysis ER vs EC* indirect comparison provided a trend favoring EC: ADR Log OR = -0.33 (c.i. 95% -0.72 to 0.04) p < 0.08. G Eye device reach the higher (SUCRA) percentage of effectiveness: SUCRA Estimated Probabilities = 90.5 and the probability best = 78.1%; EC SUCRA = 67.8 and probability best 17.4%.

**Conclusions** Endocuff devices improve ADR when the ADR in SC is <= 40%. G Eye reach the higher probability to be best device for improving ADR.

Friday, April 5, 2019

10:30 – 11:00

EUS diagnosis pancreatobiliary

ePoster Podium 5

### ePP13V EUS TISSUE DIAGNOSIS OF A MALIGNANT SOLID PSEUDOPAPILLARY TUMOR OF THE PANCREAS IN A YOUNG MALE RARE PRESENTATION OF A RARE PANCREATIC TUMOR -CASE REPORT-

**Authors** Gonzalez Haba Ruiz M<sup>1</sup>, Agudo Castillo B<sup>1</sup>, Pons Renedo F<sup>1</sup>, Tejerina Gonzalez E<sup>2</sup>, Calleja Panero JL<sup>1</sup>

**Institute** 1 Gastroenterology, Hospital Universitario Puerta de Hierro Majadahonda, Madrid, Spain; 2 Pathology, Hospital Universitario Puerta de Hierro Majadahonda, Madrid, Spain

DOI 10.1055/s-0039-1681558

**Introduction** Solid pseudopapillary tumors (SPT) of the pancreas are rare neoplasms of uncertain origin that account for 0.2 to 2.7% of all pancreatic tumors. SPT's have an unclear malignant potential and can mimic aggressive tumors. Preoperative EUS sampling can establish the diagnosis of these atypical tumors with an overall favorable prognosis.

We report the case of a 50 year-old man consulting for lower back pain who was found on CT scan to have a large pancreatic tail mass. Serum markers were negative and no distant metastases were present.

**Procedure and Results** EUS confirmed the presence of a 42 mm hypoechoic, heterogeneous, solid lesion with cystic components and calcifications. There was contact with the splenic vein without flow interruption. Fine needle aspiration was performed. Cytologically, minimally cohesive, uniform and monotonous cells were present, lining delicate capillary-sized blood vessels, with a pseudopapillary architecture.

Immunohistochemical study was positive for vimentin, CD56, receptor of progesterone, and focal synaptophysin.

Distal pancreatectomy with splenectomy was subsequently performed with a pathologic staging pT2 pN0 (0/6)(AJCC 2017). No adjuvant therapy was administered as decided on multidisciplinary board.

**Conclusion** SPTs are exocrine neoplasms that mainly affects young women, rarely men. Symptoms are vague. Cross sectional imaging typically shows a well-encapsulated lesion with solid and cystic components and varying degrees of central necrosis; but none are specific.

EUS plays an important role in diagnosis and staging, providing the possibility of cytologic – histologic evaluation. Immunohistochemical pattern is critical in diagnosing these tumors for differentiating them from other pancreatic tumors with a radical different prognosis.

First line treatment is complete surgical resection given its malignant potential. Larger tumors (diameter >5 cm), lymphovascular invasion, lymph node metastasis, synchronous metastasis and positive margin may indicate future risk of metastasis.

### ePP14 HIGH DIAGNOSTIC ACCURACY OF ENDOSCOPIC ULTRASONOGRAPHY IN PATIENTS WITH SUSPECTED CHOLEDOCHOLITHIASIS

**Authors** Keczer B<sup>1</sup>, Dubravcsik Z<sup>2</sup>, Szepes A<sup>2</sup>, Madácsy L<sup>2</sup>, Harsányi L<sup>1</sup>, Szjártó A<sup>1</sup>, Hritz I<sup>1</sup>

**Institute** 1 Center for Therapeutic Endoscopy, 1st Department of Surgery, Semmelweis University, Budapest, Hungary; 2 Bács-Kiskun County University Teaching Hospital, Kecskemét, Hungary

DOI 10.1055/s-0039-1681559

**Aims** The likelihood of common bile duct (CBD) stones can be prognosticated by various clinical predictors, however the sensitivity and specificity of these factors is moderate. Endoscopic ultrasonography (EUS) has been shown to be a non-invasive precise test for the detection of CBD stones. Our aim was to assess the diagnostic accuracy of EUS in patients with suspected choledocholithiasis in two centers during the period of 1 year.

**Methods** Prospective study of patients with cholelithiasis and clinical symptoms associated with abnormal liver function tests or suspicion of biliary obstruction due to stones detected by imaging modalities were categorized and divided into an intermediate- and high likelihood groups according to the clinical predictors defined by the ASGE guidelines and referred for linear EUS. **Results** Total of 95 patients (70 females, 25 males; mean age of 60.9 ± 19.1 and 61.3 ± 17.8 years, respectively) were assessed. CBD stones were detected by EUS overall in 53 (55%) patients: 41% (20/49) in the intermediate likelihood and 72% (33/46) in the high likelihood group of patients, respectively. The size and the number of detected CBD stones in all patients were confirmed by the following endoscopic retrograde cholangio-pancreatography (ERCP). No significant difference was observed between the two likelihood groups concerning the detection of CBD stones. Two-month follow up of patients with no CBD stones detected on EUS revealed clinical findings in 4% (2/42) suspicious for biliary obstruction; 1 ERCP had to be performed in the follow-up period. The specificity and sensitivity of EUS was 100% and 95%, the positive predictive value and negative predictive value was 100% and 93%, respectively. No correlation was found between the stones detected by ERCP and the analyzed liver function tests.

**Conclusions** EUS is highly sensitive and accurate diagnostic tool for the detection and evaluation of CBD stones also in patients with previous normal imaging findings.

### ePP15 DILATION OF THE COMMON BILE DUCT OF INDETERMINATE CAUSE – THE ROLE OF ENDOSCOPIC ULTRASONOGRAPHY

**Authors** Sousa M<sup>1</sup>, Fernandes S<sup>1</sup>, Proença L<sup>1</sup>, Silva J<sup>1</sup>, Gomes C<sup>1</sup>, Carvalho J<sup>1</sup>

**Institute** 1 Centro Hospitalar de Vila Nova de Gaia e Espinho, Vila Nova de Gaia, Portugal

DOI 10.1055/s-0039-1681560

**Aims** Dilation of the common bile duct (CBD) of undetermined cause is commonly observed in clinical practice and may have multiple etiologies. The aim of this study was to identify positive endoscopic ultrasonography (EUS) predictors and to assess agreement with magnetic resonance cholangiopancreatography (MRCP).

**Methods** Retrospective study including patients who underwent EUS for dilation of CBP detected on ultrasound (VBP>= 7 mm) or computerized tomography (VBP>= 10 mm) with no identified cause between 2010 – 2017.

**Results** We included 56 patients – mean age of 70 years, 70% female, 29% cholecystectomy. The EUS was positive in 30% of the patients – 6 patients had choledocholithiasis, 3 ampuloma, 2 choledochal cyst, 2 benign CBD stenosis, 1 cyst of the head of the pancreas, 1 cholangiocarcinoma, 1 chronic pancreatitis and 1 CBD compression due to adenomegaly.

Factors positively related with findings in EUS were an increased gamma glutamyl transferase (331 U/L vs. 104 U/L, p = 0.039), alkaline phosphatase (226 U/L vs. 114 U/L, p = 0.041), total bilirubin (TB) (6.5 g/dL vs. 1.2 g/dL, p = 0.035) and the presence of signs/symptoms (p = 0.042).

MRCP was concordant with EUS findings in 76% of the cases (n = 46; MRCP did not identify 3 cases of lithiasis, 2 ampulomas and 1 CBD compression due to adenomegaly and EUS did not identify 3 cases of benign stenosis CBD, 1 choledocholithiasis and 1 cyst of the bile duct). Seven patients repeated EUS and the findings were concordant with first in 86% of cases (1 case of unidentified ampuloma in the first EUS).

**Conclusions** EUS identified a cause for CBD dilatation in 30% of cases, with increased cholestasis enzymes, increased TB and presence of signs and symptoms being predictors of a positive test. Agreement with MRCP was 76%.

### ePP16 ACUTE UPPER GASTROINTESTINAL BLEEDING: ADHERENT CLOTS, ADHERENCE TO GUIDELINES

Authors Patel RN<sup>1</sup>, Ikidde S<sup>1</sup>, Oza CN<sup>1</sup>, Tariq Z<sup>2</sup>

Institute 1 Broomfield Hospital, Mid Essex Hospitals Trust, Chelmsford, United Kingdom; 2 Barnet Hospital, Royal Free London NHS Foundation Trust, London, United Kingdom

DOI 10.1055/s-0039-1681561

**Aims** Acute upper gastrointestinal haemorrhage secondary to peptic ulcer disease carries a significant mortality risk. The management of peptic ulcers with adherent clots (Forrest IIB) remains uncertain. ESGE recommends consideration of endoscopic clot removal. We aim to describe the demographics and outcomes of patients with adherent clots at a district general hospital.

**Methods** Data for patients admitted to Mid-Essex Hospital Trust (MEHT) and diagnosed with a peptic ulcer over the last 3 years was obtained from the coding department using ICD-10 codes (K25.0, K25.2, K26.0, K26.2, K27.0 and K27.2). 89 patients that had undergone inpatient endoscopy were identified.

**Results** 89 patients; female 28 (31.5%), mean age 72.9 (23–96). 17 (19.1%) patients were taking anticoagulants/antiplatelets (8 warfarin, 4 DOACs, 5 clopidogrel/ticagrelor). Mean length of stay 12.7 days. 6 (6.7%) patients had rebleeds, 2 (2.2%) patients underwent surgery and 6 (6.7%) patients died.

29 (32.6%) patients had adherent clots found at endoscopy.

Of 29 patients with adherent clots; 3 (10.3%) had documented endoscopic removal; 14 (48.3%) had documented not removal and 12 (41.4%) had no documentation of adherent clot management. 13 of the 14 adherent clots (93%) that were not removed were located in D1. 8 (27.6%) patients with an adherent clot only received monotherapy.

Tab. 1 Adherent Clot versus No Adherent Clot – Demographics and ulcer outcomes

	Adherent Clot (n = 29)	No Adherent Clot (n = 60)	*p value
Indication (Haematemesis & Melaena), n (%)	15 (51.7)	10 (16.7)	0.0006
Size (cm), mean (range)	1.5 (0.5–5)	1.1 (0.5–3)	0.009
Transfused, n (%)	26 (89.7)	42 (70.0)	0.04

**Conclusions** Patients with adherent clots presented with more severe symptoms, had larger ulcers and required more transfusions. Only 10% of adherent clots had documentation of endoscopic removal and almost half of adherent clots were not removed. Clearer documentation is required for future practice. Ambiguous guidelines could be contributing to variability in practice and suboptimal management.

### ePP17 UPPER GASTROINTESTINAL BLEEDING (UGIB)-TRANSFUSION POLICIES AND TIMING OF ENDOSCOPY. ARE GUIDELINE RECOMMENDATIONS INCORPORATED IN "REAL WORLD" CLINICAL PRACTICE? A NORTHERN GREECE, SINGLE-CENTRE, 1 YEAR EXPERIENCE

Authors Stourmaras E<sup>1</sup>, Protopapas A<sup>1</sup>, Neokosmidis G<sup>1</sup>, Stogiannou D<sup>1</sup>, Panagiotou G<sup>1</sup>, Gerothanassi N<sup>1</sup>, Triantafyllou E<sup>1</sup>, Pimenidou N<sup>1</sup>, Protopapas A<sup>1</sup>

Institute 1 Medical School, Aristotle University of Thessaloniki, AHEPA Hospital, Thessaloniki, Greece

DOI 10.1055/s-0039-1681562

**Aims** Aim of the study is to assess whether guidelines are incorporated in our clinical practice and to recommend performance improvement strategies.

**Methods** All patients requiring urgent endoscopy for UGIB in 2015 were included. Data were collected from patient medical records, department's endoscopy report software and blood bank archive.

**Results** 106 endoscopies were performed on 96 patients (27F/69M), median age 73.8 and 66.5 years respectively. Etiology was mostly nonvariceal (84 NVUGIB vs. 12 VH). 54/96 patients (56.25%) were transfused with mean Hb = 7.55gr/dl (4.5–9.7gr/dl). 42/54 patients (78%) received transfusion as recommended (in 28/54 target hemoglobin 7–9gr/dl and in 12/54 Hb 9–11 gr/dl), with 12 patients (22%) transfused outside recommendations. Mean time to endoscopy was 27 h (14.6 h for VH, 28.6 h for NVUGIB). When excluding endoscopy referrals during weekends, mean time decreases to 17.8 h (18.45 h for NVUGIB, 10.7 h for VH). In the NVUGIB subgroup requiring endoscopy within 12 h, 15/22 (68.1%) underwent timely endoscopy. Interfering weekend (2), untimely referrals from other departments (2) or undefined reasons (3) caused delay of remaining cases. In NVUGIB patients requiring endoscopy <24 h, prompt intervention was achieved in 42/64 (64.5%), with interfering weekend identified as delay factor in 16 hemorrhages (mean time 72.2 h). Mortality, however, was not affected by breaching recommended time to endoscopy. Hospital mortality was 5.2% - patients that died underwent endoscopy within 10 hours and death was related to older age, severe hemorrhage and comorbidities.

**Conclusions** 78% of UGIB patients were transfused according to guidelines. 2/3 of endoscopies were performed within recommended time. 74% of NVUGIB patients underwent endoscopy within 24 h - interfering weekend/bank holiday was the main reason to delay endoscopy. We therefore recommend a 24/7 endoscopy service, as delayed endoscopy is associated with increased mortality, prolonged hospital stay and increased transfusion requirements. Regular training of medical staff involved in transfusion in UGIB is advised, to minimise unnecessary and potentially harmful transfusions.

### ePP19 EFFECT OF FELLOW INVOLVEMENT ON COLONOSCOPY OUTCOMES: A SYSTEMATIC REVIEW AND META-ANALYSIS

Authors Tziatzios G<sup>1</sup>, Gkolfakis P<sup>1</sup>, Triantafyllou K<sup>1</sup>

Institute 1 Hepatogastroenterology Unit, Second Department of Internal Medicine – Propaedeutic, Research Institute and Diabetes Center, Medical School, National and Kapodistrian University of Athens, Attikon University General Hospital, Athens, Greece

DOI 10.1055/s-0039-1681563

**Aims** The effect of fellow involvement on colonoscopy outcomes is controversial. Thus, we evaluated this effect on adenoma detection rate (ADR) and on other colonoscopy quality indicators.

**Methods** MEDLINE and Cochrane central register of controlled trials were searched up to September 2018 for studies evaluating fellow-involved colonoscopies vs. attending physicians-only examinations in terms of colonoscopy outcomes. Primary outcome was ADR, while advanced ADR (AADR), mean number of adenomas per colonoscopy (MAC), cecum intubation rate (CIR) and adverse events rate comprised the secondary outcomes. The effect size on study outcomes was calculated using random-effects model and it is presented as Odds Ratio (OR) or Mean Difference (MD) with 95% confidence interval (CI).

**Results** Nineteen observational studies involving 34059 patients (fellow-involved 16875, attending physician-only 17184) were included. Compared to the attending physician-only group, fellow involvement marginally increased ADR [OR (95% CI)=1.12 (1.00–1.26); I<sup>2</sup>=76%]. Attending physicians with low-to-moderate ADR (<35%) benefited most from fellow's participation [OR (95% CI): 1.26 (1.13–1.40) vs. 1.12 (1.00–1.26); p=0.03 when ADR<35% and OR (95% CI): 1.29 (1.13–1.46) vs. 0.95 (0.78–1.16);

$p = 0.01$  when  $ADR < 30\%$ , respectively]. Moreover, fellow-involved group had higher MAC compared to attending-only group [MD (95% CI) = 0.12 (0.04 – 0.20);  $I^2 = 53\%$ ]. No benefit from fellow involvement was detected either for AADR, CIR or adverse events rate.

**Conclusions** Fellow involvement during colonoscopy is associated with more adenomas detected per procedure and higher ADR compared to the attending physician-only group, especially for those with  $ADR < 35\%$ .

## ePP20 INFLUENCE OF BOWEL PREPARATION (BP) QUALITY ON THE DETECTION OF SERRATED POLYPS (SP): A PROSPECTIVE STUDY IN A REGIONAL FOBT-BASED COLORECTAL CANCER SCREENING PROGRAM

**Authors** Satorres C<sup>1,2</sup>, García-Campos M<sup>1</sup>, García-Morales N<sup>1</sup>, Alonso N<sup>1</sup>, Ponce M<sup>1,2</sup>, Argüello L<sup>1,2</sup>, Pons V<sup>1,2</sup>, Bustamante-Balen M<sup>1,2</sup>

**Institute** 1 Gastrointestinal Endoscopy Unit, La Fe Polytechnic University Hospital, Valencia, Spain; 2 Gastrointestinal Endoscopy Research Group, La Fe Health Research Institute, Valencia, Spain

**DOI** 10.1055/s-0039-1681564

### Aims:

1. To determine the influence of BP quality on the serrated polyp detection rate (SPDR);
2. to describe the proportion of serrated lesions detected in second examinations performed after a poor-prepared initial screening colonoscopy.

**Methods** Prospective study in which all individuals referred for a screening colonoscopy after a positive FOBT between April 2017 and October 2018 were included. Only complete colonoscopies were considered. Six endoscopists and 3 pathologists participated. The Boston BP scale was used (0 – 5 = inadequate; 6 – 7 adequate; 8 – 9 good). The main outcome was SPDR. Secondary outcomes were ADR, advanced adenoma detection rates (AADR) and proximal SPDR.

**Results** In 718 of 750 patients (95.7%) cecum was intubated [women 334 (46.5%); mean (SD) age: 61.6 (5.8)]. A total of 2118 lesions were detected [1368 (64.6%) adenomas and 107 (5.0%) SP]. Overall SPDR was 10.3% (IC95% 10.3 – 15.3) while overall ADR was 67.3% (IC95% 63.5 – 71.0). The relationship of BP with SPDR and ADR is summarized in Tab. 1.

**Tab. 1** Relationship between bowel preparation and detection rates (\* $p < 0.05$ )

Bowel prep	ADR (%)	SPDR (%)	AADR (%)	SPDR-PC (%)
Adequate	68.6*	10.0	29.4*	5.6
Non-adequate	58.5	13.0	17.6	4.6
Boston $\geq 2$ every segment	69.0*	10.0	29.7*	5.8
Boston $< 2$ any segment	58.8	12.6	17.5	4.1

No relationship between SPDR and BP adjusted for age, sex, withdrawal time an endoscopist was found. Forty-four (54.3%) of the 81 reexaminations were because of poor BP. SPDR and ADR in these colonoscopies was 6.8% (IC95% 4.8 – 8.8) and 68.2% (IC95% 64.3 – 71.7) respectively. Presence of a SP in the initial endoscopy did not predict a SP in the reexamination.

### Conclusions:

1. Unlike ADR and AADR, SPDR is not influenced by BP.
2. SPDR in reexaminations is similar to that of the initial colonoscopies. A different approach to reexaminations depending on the initial findings is not warranted.

## ePP21 RECORDING OF EUROPEAN SOCIETY OF GASTROINTESTINAL ENDOSCOPY (ESGE) PERFORMANCE MEASURES: OBSERVATIONS FROM THE EUROPEAN COLONOSCOPY QUALITY INVESTIGATION (ECQI) QUESTIONNAIRE

**Authors** Toth E<sup>1</sup>, Agrawal A<sup>2</sup>, Amaro P<sup>3</sup>, Brink L<sup>4</sup>, Fischbach W<sup>5</sup>, Hüniger M<sup>6</sup>, Jover R<sup>7</sup>, Kinnunen U<sup>8</sup>, Koulaouzidis A<sup>9</sup>, Ono A<sup>10</sup>, Patai Á<sup>11</sup>, Pecere S<sup>12,13</sup>, Petruzzello L<sup>12,13</sup>, Riemann JF<sup>14</sup>, Amlani B<sup>15</sup>, Spada C<sup>16</sup>

**Institute** 1 Skåne University Hospital, Lund University, Malmö, Sweden; 2 Doncaster Royal Infirmary, Doncaster, United Kingdom; 3 Coimbra University Hospital, Coimbra, Portugal; 4 Herlev Hospital, Herlev, Denmark; 5 Gastroenterologie und Innere Medizin, Aschaffenburg, Germany; 6 Private Practice for Internal Medicine, Würzburg, Germany; 7 Hospital General Universitario de Alicante, Alicante, Spain; 8 Tampere University Hospital, Tampere, Finland; 9 The Royal Infirmary of Edinburgh, Edinburgh, United Kingdom; 10 Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain; 11 Markusovszky University Teaching Hospital, Szombathely, Hungary; 12 Fondazione Policlinico Universitario A. Gemelli IRCCS, Digestive Endoscopy Unit, Rome, Italy; 13 Università Cattolica del Sacro Cuore, Centre for Endoscopic Research Therapeutics and Training – CERTT, Rome, Italy; 14 Director em. Klinikum Ludwigshafen, Chairman, LebensBlicke Foundation for the Prevention of Colorectal Cancer, Ludwigshafen, Germany; 15 Norgine, Harefield, Middlesex, United Kingdom; 16 Fondazione Poliambulanza, Brescia, Italy

**DOI** 10.1055/s-0039-1681565

**Aims** To investigate how selected ESGE performance measures are assessed in current clinical practice, using online questionnaires.

**Methods** The development of the online practitioner and institution questionnaires, by the European Colonoscopy Quality Investigation (ECQI) Group, has been previously described in posters presented at UEGW, 2015 and 2016. Data collection is an ongoing process: we analysed data collected between 2/6/16 and 30/4/18.

**Results** We received 91 completed practitioner questionnaires and 52 completed institution forms from 12 European countries.

The ESGE recommends that adenoma detection rate (ADR) should be used as a measure of adequate inspection at screening or diagnostic colonoscopy in patients aged  $\geq 50$  years. ADR was reported as routinely recorded by only 34% of practitioners and in 29% of institutions. Polyp detection rate (PDR) was routinely recorded by 47% of practitioners and in 42% of institutions. The responses also showed that caecal intubation rate (CIR) was reported as routinely recorded by 64% of practitioners and in 62% of institutions.

Furthermore, the collected responses showed that scale-based bowel cleansing quality was reported as routinely recorded in 56% of institutions while 76% of practitioners reported routinely using a cleansing scale. The proportion of practitioners reporting routinely recording polyp removal rate was 44%, polyp retrieval rate 37%, and retraction time 60%. 77% of practitioners routinely used a polyp classification scale, and 54% routinely placed tattoos following polyp removal based on guidelines.

Patient satisfaction was recorded in 25% of institutions, during-procedure complications were reported to be routinely recorded in 83%, but post-procedure complications by only 56%. 69% of institutions reported that quality guidelines were routinely followed.

**Conclusions** Data collected by ECQI, thus far, indicate that many performance measures recommended by the ESGE are not currently being recorded in real-life practice.

### ePP22 NEAR-FOCUS NBI CLASSIFICATION OF VILLOUS ATROPHY IN SUSPECTED COELIAC DISEASE: INTERNATIONAL DEVELOPMENT AND VALIDATION

**Authors** Gulati S<sup>1</sup>, Emmanuel A<sup>1</sup>, Pavlidis P<sup>1</sup>, Patel M<sup>1</sup>, Vackova Z<sup>2</sup>, Sayer V<sup>3</sup>, El Menabaway T<sup>4</sup>, Plewa S<sup>1</sup>, Dubois P<sup>1</sup>, Martinek J<sup>2</sup>, Neumann H<sup>5</sup>, Haji A<sup>1</sup>, Hayee B<sup>1</sup>

**Institute** 1 King's College Hospital NHS Foundation Trust, London, United Kingdom; 2 IKEM, Prague, Czech Republic; 3 Princess Royal University Hospital, London, United Kingdom; 4 Royal Free Hospital, London, United Kingdom; 5 University Medical Center Mainz, Mainz, Germany

**DOI** 10.1055/s-0039-1681566

**Aims** To develop a reliable and validated endoscopic classification of villous atrophy in suspected coeliac disease using near focus Narrow Band Imaging (NF-NBI).

**Methods** Patients with symptoms/investigations warranting duodenal biopsy were prospectively recruited between September 2017 to August 2018. Six paired NF-white light (NF-WLE) and NF-NBI images with biopsy (2 from the first part of the duodenum, 4 from the second) were obtained from each patient. Histopathology grading used Marsh-Oberhuber classification (M-O). Images were reviewed for quality and biopsy orientation. Separate images were used for development of the classification, training and validation steps. A modified Delphi process was performed on images and video recordings by 3 endoscopists to define NF-NBI characteristics (included if kappa > 0.6). 10 blinded endoscopists (3 expert, 7 non-expert) underwent a short training module on the proposed NBI classification and evaluated paired (NF-WLE/NF-NBI) images.

**Results** 100 consecutive patients were recruited and n = 97 completed the study (66F, 51.2 ± 17.3 yrs). TTG positive n = 17/88. M-O VA (3a/3b/3c): n = 22. After image quality and biopsy orientation review; 573 paired images remained (M-O 0/1/2: n = 470; VA n = 103). 510 paired images developed the classification with modified Delphi; Villous shape, vascular discrimination, crypt phenotype. 10 endoscopists evaluated 50 paired images each (500 paired total observations made for validation). Sensitivity, specificity, NPV and accuracy of NF-NBI for the diagnosis of VA (Subtotal/total atrophy) using this classification: 97.9 (95.2 – 99.3); 86.2 (81.4 – 90.1); 97.8 (95.0 – 99.1); 91.8 (89.04 – 94.05) respectively. Mean of difference in confidence using NF-NBI vs. WLE was 0.61 (0.51 – 0.71), p < 0.0001: The classification was further validated in histopathologically proven duodenitis (n = 15) images with no features of VA using the proposed classification.

**Conclusions** A novel NF-NBI classification for VA had been validated to reliably diagnose VA in suspected CD amongst both expert/non-expert endoscopists using readily available equipment and required only short training supporting translation to wider practice.

### ePP23 MODERN ENTEROSCOPY IN THE DIAGNOSIS OF ISOLATED LESIONS OF THE SMALL INTESTINE IN CROHN'S DISEASE

**Authors** Ivanova E<sup>1,2</sup>, Fedorov E<sup>2</sup>, Tikhomorova E<sup>2</sup>

**Institute** 1 Endoscopy, Medical Center 'Petrovskie Vorota', Moscow, Russian Federation; 2 Endoscopy, Moscow University Hospital №31, Moscow, Russian Federation

**DOI** 10.1055/s-0039-1681567

**Aims** Capsule endoscopy is the best way to assess all over the gut and to detect mucosal inflammatory changes better than any other imaging modality.

The aim of the study is to estimate the importance of video capsule endoscopy (VCE) in visual diagnosis of isolated small bowel Crohn's disease (CD).

**Methods** From II.2007 until V.2018 we've performed 689 VCE in 668 pts. (m-325, f-343, mean age 41.2 ± 16.7 years, range 17 – 86). The indication for the small bowel (SB) examination in 189 (28.3%) pts. was suspected IBD. The main clinical symptom in most (87.3%) 165/189 of pts. was pain, including 100 (60.6%) pts. in combination with diarrhea. Capsule endoscopy was performed using small bowel (Olympus and Given Imaging) and colon (CC2) capsules, followed by balloon-assisted enteroscopy in 86 (45.5%) cases.

**Results** Endoscopic signs of enteritis were estimated in 98 (51.9%) patients., including 48 (49.0%) with typical endoscopic criteria of CD. The main findings were aphthous erosions and ulcers. Isolated small bowel involvement was registered in 17/48 (35.4%) patients. According to clinical, VCE and morphological results the diagnosis of CD was confirmed in 41/48 pts.; however Langhans giant cells were detected just in 9/41 (22.0%) cases, incl. post-surgical specimens. In other 45/86 cases histology showed chronic enteritis in 10 (22.2%) pts., erosive enteritis in 17 (37.8%) pts., ulcerative enteritis in 2 (4.4%), eosinophilic enteritis in 6 (13.3%), exudative enteropathy in 4 (8.9%) pts., celiac disease in 4 (8.9%) pts., radiation enteritis in 2 (4.4%). There were 4 cases of capsule retention: Crohn's strictures (3) and stenotic post traumatic ulcerative enteritis (1), resolved endoscopically.

**Conclusions** VCE gives essential information for diagnosis of Crohn's disease in patients with unclear diagnosis, allowing to identify isolated small bowel Crohn's lesions in 35.4% of pts., thus radically change management of these patients.

### ePP24 ARE WE DOING UNNECESSARY DUODENAL BIOPSIES FOR COELIAC DISEASE IN PATIENTS REFERRED WITH IRON DEFICIENCY ANAEMIA (IDA)?

**Authors** Nassar A<sup>1</sup>, Hunsley M<sup>1</sup>, Singh D<sup>1</sup>

**Institute** 1 General Surgery, South Tyneside District Hospital, South Shields, United Kingdom

**DOI** 10.1055/s-0039-1681568

**Aims** According to British Society of Gastroenterologists (BSG) guidance, all patients referred with iron deficiency anaemia (IDA) should first be screened for Coeliac Disease (CD) with serology, Tissue Transglutaminase (TTG). If Coeliac serology is negative, duodenal biopsies do not need to be collected at gastroscopy unless there are specific clinical features to suggest CD. The aim of this study was to evaluate the investigation of Coeliac Disease amongst patients referred with IDA to the Two Week Wait suspected Gastrointestinal (GI) cancer pathway.

**Methods** All patients referred through suspected Gastrointestinal cancer pathway between January 2017 and October 2017 were identified from the Cancer Referral Database. Clinic letters for all the referrals were reviewed to identify patients referred with IDA and included in the study. A database was established in Microsoft Excel recording patient demographics, symptoms, Full blood count, Ferritin, Serum TTG, endoscopic procedures including biopsies and radiological investigations.

**Results** Out of a total of 1769 referrals, 274 were for IDA and included in the study. Median age was 75 (range: 35 – 94) and male: female ratio was 119:155. Upper GI endoscopy was done in 232 patients (n = 232) as part of their investigation. A total of 137 (59%) patients had duodenal biopsy of which only 44 (19%) had CD related symptoms. This resulted in potentially 93 (40%) unnecessary duodenal biopsies. Serum TTG done only in 50 patients (21.5%) and were all negative. 182 patients (79.7%) did not have serum TTG checked. 67 patients (29%) had no investigations for coeliac disease at all. Coeliac disease was diagnosed in 5 patients based on duodenal biopsy.

**Conclusions** A significant number of patients had unnecessary duodenal biopsies. Performing serum TTG for all patients referred with IDA can decrease the need for duodenal biopsy thus reduce overall cost and increase the efficiency of detecting CD.

Friday, April 5, 2019

13:00 – 13:30

Bowel cleansing 1

ePoster Podium 1

### ePP25 TOLERANCE AND EFFICACY OF A NOVEL LOW-VOLUME PEG + ASCORBATE (NER1006) PREPARATION IN THE ELDERLY: A REAL-LIFE SINGLE CENTER STUDY

**Authors** Oliveira A<sup>1,2</sup>, Mascarenhas-Saraiva M<sup>1,3</sup>

**Institute** 1 Manoph – Endoscopy and Motility Lab, Porto, Portugal; 2 Hospital Central do Funchal, Funchal, Portugal; 3 Gastroenterology, Hospital CUF Porto, Porto, Portugal

DOI 10.1055/s-0039-1681569

**Aims** A low-volume preparation with Polyethylene Glycol (PEG) and Ascorbate (PEG-Asc) – NER1006 was recently launched, however, its efficacy and tolerance in the elderly population remain unclear. We evaluated efficacy, tolerance, and acceptability of the NER1006 (1L) preparation, in comparison to the standard PEG-Asc 2L preparation, in elderly patients.

**Methods** Single center, investigator-blinded study, directed for patients aged >65, choosing between the new preparation (group A – NER1006) or the standard preparation of the endoscopy center (group B – 15 mg bisacodyl + 2L PEG-Asc), both split-dosis. Primary outcomes: patient-reported tolerance (adverse events – AEs) efficacy (overall successful bowel cleansing, high quality cleansing in the right colon), measured by Harefield Cleansing Scale (HCS) and Boston Bowel Preparation Scale (BBPS). Secondary-end points: polyp detection rate (PDR) for overall and right colon (site colonoscopist assessment), adenoma detection rate (ADR), comparison of the new preparation with previous experiences (Group A); willingness to repeat the preparation that was used.

**Results** 149 patients enrolled (group A: 94, aged 65 – 94; group B: 55, aged 65 – 86). With the exception of a higher occurrence of nausea/disgust for group A (28,72% vs. 12,72%;  $p=0,02$ ), AEs did not differ. No group differences in overall successful cleansing, but high quality cleansing was achieved for the group A in overall colon (BBPS = 9 – 87,2% vs. 54,5%  $p<0,005$ ; HCS = A – 74,5% vs. 38,2%  $p<0,005$ ) and in the right colon (HCS score 3/4 = 80,9% vs. 47,3%  $p<0,005$ ). For secondary end-points: no differences in PDR or ADR and willingness to repeat the preparation were found; 75,6% of the Group A preferred this preparation regarding previous experiences.

**Conclusions** In elderly individuals, in a real-life scenario, the novel 1L PEG-Asc preparation with a split-dosis regimen has comparable tolerance, and superior colon cleansing versus 2L PEG-Asc, and is preferred by patients that had previous examinations.

### ePP26 EFFECTS OF THE RESPECT OF EDUCATIONAL PATIENT MESSAGES BEFORE COLONOSCOPY ON BOWEL PREPARATION

**Authors** Bel Hadj Mabrouk E<sup>1</sup>, Zaimi Y<sup>2</sup>, Ayari M<sup>2</sup>, Ayadi S<sup>2</sup>, Mouelhi L<sup>2</sup>, Dabbeche R<sup>2</sup>

**Institute** 1 Medicine Faculty of Tunis, Erriadh, Tunisia; 2 Charles Nicole Hospital, Tunis, Tunisia

DOI 10.1055/s-0039-1681570

**Aims** Adequate bowel preparation is essential for a successful endoscopy for screening as well as surveillance. Despite patients' educational oral or written messages, inadequate bowel preparation remains high.

**Methods** This is a prospective study in the endoscopy center of the gastrointestinal department from January 2018 to June 2018. A thorough questionnaire was taken by all the patients who had a colonoscopy during the period of the study. The bowel preparation quality was evaluated by the Boston bowel preparation scale (BBPS) score and the rate of adequacy (BBPS $\geq$ 6).

**Results** 120 patients were included. 70% were female. All patients received standard instructions regarding the bowl preparation. Low fiber diet was pre-

scribed for all the patients, and a written educative paper was delivered in the first consult. The bowl preparation was the polyethylene glycol (4 liters). Before proceeding to the endoscopy, all patients were interrogated. 63,3% respected the low fiber diet during the week before the colonoscopy. During the procedure, only 43,3% had an adequate bowel preparation (BBPS $\geq$ 6). Statistical analysis showed that respect of the low fiber diet during the week before the colonoscopy is significantly correlated to an adequate bowel preparation ( $p<0,005$ ).

**Conclusions** Insisting on respecting the low fiber diet during the week before the colonoscopy is primordial to have a good bowel preparation and a then better detection of colic lesions.

### ePP27 ORAL SULFATE SOLUTION IN OBESE PATIENTS AS PREPARATION FOR COLONOSCOPY: A PROSPECTIVE, MULTICENTER, NONINFERIORITY TRIAL

**Authors** Lee HS<sup>1</sup>, Kim EY<sup>2</sup>, Kim ES<sup>3</sup>, Kim SK<sup>3</sup>, Lee YJ<sup>4</sup>, Lee HJ<sup>4</sup>, Jang BI<sup>5</sup>, Kim KO<sup>6</sup>, Yang CH<sup>7</sup>, Hwan YS<sup>7</sup>, Kim YG<sup>8</sup>, , Daegu-Gyeongbuk Gastrointestinal Study Group (DGSG)

**Institute** 1 Gastroenterology and Hepatology/Internal Medicine, School of Medicine, Kyungpook National University, Daegu, Korea, Republic of; 2 Catholic University of Daegu School of Medicine, Daegu, Korea, Republic of; 3 School of Medicine, Kyungpook National University, Daegu, Korea, Republic of; 4 Keimyung University School of Medicine, Daegu, Korea, Republic of; 5 Yeungnam University College of Medicine, Daegu, Korea, Republic of; 6 Daegu Fatima Hospital, Daegu, Korea, Republic of; 7 Dongguk University School of Medicine, Gyeongju, Korea, Republic of; 8 Soonchunhyang University College of Medicine, Gumi, Korea, Republic of

DOI 10.1055/s-0039-1681571

**Aims** Obesity might be related to inadequate bowel preparation with conventional lavage solution. A new formulation of oral sulfate solution (OSS, Suclear) showed effective bowel preparation compared with a standard 4L polyethylene glycol regimen in general population. However, there is no study on bowel preparation with OSS in obese patients. We investigated whether OSS is effective in obese patients as bowel preparation for colonoscopy.

**Methods** We compared the efficacy of OSS in obese patients with those in non-obese patients as bowel preparation for colonoscopy. This was a prospective, multicenter, single-blind, noninferiority study of adult outpatients undergoing routine elective colonoscopy. Body mass index (BMI) was categorized as obese (BMI 25 or more 25 kg/m<sup>2</sup>) or non-obese (less than 25 kg/m<sup>2</sup>). Both obese and non-obese patients respectively received OSS given in equally divided doses the evening before and the morning of colonoscopy. Adequate bowel preparation was defined as the Boston bowel preparation scale score  $\geq$ 6. The noninferiority margin for the difference in adequate bowel preparation rate was defined as -15%.

**Results** Colonoscopic examinations were performed in 96 obese and 98 non-obese patients. Adequate bowel preparation rate was 88.5% in obese patients and 94.9% in non-obese patients. With an absolute difference -6.4%, 95% CI -0.142 to 0.015, bowel preparation in obese patients was noninferior to that in non-obese patients.

**Conclusions** Bowel preparation with OSS for colonoscopy in obese patients is noninferior compared to that in non-obese patients.

### ePP28 ENDOSCOPIC TREATMENT OF RECTAL NEUROENDOCRINE TUMORS IN A 12 YEAR RETROSPECTIVE SINGLE CENTER STUDY

**Authors** Da|ubkowski K<sup>1</sup>, Białek A<sup>1</sup>, Rusiniak-Rossińska N<sup>1</sup>, Michalska K<sup>1</sup>, Kos-Kudła B<sup>2</sup>, Starzyńska T<sup>1</sup>

**Institute** 1 Department of Gastroenterology, Pomeranian Medical University, Szczecin, Poland; 2 Department of Pathophysiology and Endocrinology, Katowice, Poland, Medical University of Silesia, Katowice, Poland  
**DOI** 10.1055/s-0039-1681572

**Aims** Our aim was to analyse the clinical, endoscopic and pathological characteristics of rectal neuroendocrine tumors and check whether the neuroendocrine origin of lesions was suspected during endoscopy and subsequently were these lesions removed with appropriate method.

**Methods** Retrospective analysis of patients hospitalized in our department (2006–2018) was done to look for rectal NENs. Clinical data were analysed. Further patients fate was checked by analysing their follow-up imaging results and by an information obtained from patient in a phone call.

**Results** 27 patients (equal sexual distribution) with rectal NENs were diagnosed (3 patients who underwent surgery were excluded). The patients mean age was 51 (range 33–64). Most of the patients were asymptomatic (67%). Endoscopically there were three main lesion appearances; “typical” (15 patients) smooth seating polyps with yellowish reflexion, atypical seating small flat polyps (6 patients) or lesions with central depression (3 patients). Only 9 out of 24 of the lesions were suspected of neuroendocrine origin and removed with ESD/EMR (R0 resection in all), the rest 15/24 were removed with biopsy forceps or snare polypectomy (R0 not obtained). Mean size of lesions was 6,5 mm (range 3–10 mm) and majority of lesions were G1 lesions (21 patients), with only three G2 lesions. The follow-up (median 68 months) was longer in the group treated with polypectomy than ESD/EMR (75 months vs. 51,5 months). Most of the patients are disease free apart from one patient who after seven years after snare polypectomy of G1 tumor, developed local recurrence and distal metastases (the patient was referred to our department for follow-up rectal EUS).

**Conclusions** Rectal neuroendocrine tumors, mostly, are small lesions with low potential of malignancy, however, with the risk of metastatic spread. In majority of cases the origin of the lesions is not suspected during colonoscopy and subsequently these lesions are removed with not appropriate method. More impact must be put on education of endoscopists in this field.

### ePP29 SAFETY AND FEASIBILITY OF ENDOSCOPIC FULL-THICKNESS RESECTION IN COLORECTUM USING OVER THE SCOPE CLIP. A MULTICENTER SPANISH EXPERIENCE 2015 – 2018

**Authors** Uchima H<sup>1,2</sup>, Barquero D<sup>3</sup>, Esteban JM<sup>4</sup>, Espinos JC<sup>2,5</sup>, Marín Gabriel JC<sup>6</sup>, Rosón P<sup>7</sup>, Fernandez Cadenas F<sup>8</sup>, Ortega A<sup>7</sup>, López Fraile M<sup>8</sup>, Mel L<sup>4</sup>, Palacio Galán MA<sup>8</sup>, Puig I<sup>9</sup>, Rodríguez-Sánchez J<sup>10</sup>, Arribas J<sup>6</sup>, Fernández Simón A<sup>3</sup>, Sábado F<sup>11</sup>, García Lledó J<sup>12</sup>, Albéniz E<sup>13</sup>, Mata A<sup>2,3</sup>, Spanish Group of Endoscopic Resection (GSEED de Resección Mucosa)

**Institute** 1 Gastrointestinal Endoscopy, Hospital Universitario Doctor Josep Trueta de Girona, Girona, Spain; 2 Gastrointestinal Endoscopy, Centro Medico Teknon, Barcelona, Spain; 3 Hospital Sant Joan Despi-Moises Broggi, Barcelona, Spain; 4 Hospital Clinico San Carlos, Madrid, Spain; 5 Hospital Mutua Terrassa, Terrassa, Spain; 6 Gastroenterology, Hospital Universitario 12 de Octubre, Digestive System Service, Madrid, Spain; 7 Hospital Quiron Salud Malaga, Málaga, Spain; 8 Hospital Universitario Central de Asturias, Oviedo, Spain; 9 Althaia, Xarxa Assistencial Universitària de Manresa, Digestive System Service, Manresa, Spain; 10 Gastrointestinal Endoscopy, Hospital General

Universitario Ciudad Real, Ciudad Real, Spain; 11 Consorcio Hospitalario Provincial Castellón, Castellón, Spain; 12 Hospital Universitario Gregorio Marañón, Madrid, Spain; 13 Complejo Hospitalario de Navarra, Digestive System Service, Endoscopy Unit, Pamplona, Spain  
**DOI** 10.1055/s-0039-1681573

**Aims** To study the safety and feasibility of the endoscopic full-thickness resection (EFTR) in colorectal lesions using an over-the-scope-clip.

**Methods** The clinical, endoscopic and histological data were collected prospectively in all cases of EFTR performed in 10 centers of Spain using the FTRD kit (Ovesco Endoscopy, Tübingen, Germany) during the period from June 2015 to July 2018.

**Results** 71 EFTR were scheduled.

In 3 patients EFTR was not possible due to impossibility to pass the sigmoid with the kit.

In the other 68 patients the technical success was 85.2% with en-bloc resection in 83,8%.

The mean age of the patients was 67 years (range 40–86), being men 64,79%.

Indications were: non-lifting sign recurrent lesions (46.47%), non-lifting sign untreated lesions (23.94%), incomplete resection of non-lifting sign lesions (11,26%), appendicular lesions (2.8%), suspected T1 lesion (7%), EFTR of suspicious scar (4,2%), subepithelial lesions (4.2%).

The mean diameter of the resected specimen was 21.53 mm (95% CI 19.87–23,2).

Final histology: LGD adenoma (40%), HGD adenoma (23%), intramucosal adenocarcinoma (4.47%), SSP (5.87%), T1sm1 (2.9%), advanced adenocarcinoma >sm2 (13%), scar tissue (6%) and others (2.8%).

In one case the OTSC was not deployed, with intraprocedural perforation. There were 2 cases of delayed perforation and 1 case of delayed bleeding.

10 patients underwent surgery: 3 perforation, 1 intraappendicular lesion, and 6 for advanced adenocarcinoma.

During the follow-up, 3 recurrences/residual tissues were detected, which were treated endoscopically.

**Conclusions** EFTR using a modified OTSC (FTRD system) for selected cases (such as failure of other endoscopic treatments in lesions <25 mm) is a safe and feasible technique.

Evaluation of the insertion with a long cap (e.g. “prOVE” cap) and traction of the lesion prior to EFTR is highly recommended. Special care must be taken to avoid performing the resection if the OTSC is not deployed.

### ePP30 ENDOSCOPIC FULL-THICKNESS RESECTION OF THE COLORECTAL LESIONS – A CZECH MULTICENTER EXPERIENCE

**Authors** Falt P<sup>1,2,3</sup>, Fojtik P<sup>4</sup>, Hucl T<sup>5</sup>, Drastich P<sup>5</sup>, Martinek J<sup>5</sup>, Tacheci I<sup>3,6</sup>, Suchanek S<sup>7</sup>, Lukas M<sup>8</sup>, Bortlik M<sup>8</sup>, Neumann F<sup>9</sup>, Volsansky P<sup>9</sup>, Urban O<sup>1,2</sup>

**Institute** 1 2nd Department of Internal Medicine, University Hospital Olomouc, Olomouc, Czech Republic; 2 Faculty of Medicine, Palacký University, Olomouc, Czech Republic; 3 Faculty of Medicine, Charles University in Hradec Králové, Hradec Králové, Czech Republic; 4 Digestive Diseases Center, Vítkovice Hospital, Ostrava, Czech Republic; 5 Department of Hepatogastroenterology, IKEM, Prague, Czech Republic; 6 2nd Department of Internal Medicine – Gastroenterology, University Hospital Hradec Kralove, Hradec Králové, Czech Republic; 7 Internal Clinic, Central Military Hospital, Prague, Czech Republic; 8 Clinical and Research Center for IBD, ISCARE, Prague, Czech Republic; 9 Endoscopy Center, Regional Hospital, Kolín, Czech Republic

**DOI** 10.1055/s-0039-1681574

**Aims** The purpose of the analysis was to evaluate feasibility, efficacy and safety of endoscopic full-thickness resection (FTR) of the colorectal lesions performed in the Czech Republic.

**Methods** We prospectively evaluated patients treated with FTR in seven tertiary endoscopy centers in the Czech Republic performing FTR.

**Results** A total of 63 patients (mean age 68.3 ± 12.1 years, 79% males) have been treated since June 2016. Indication for FTR was local residual neoplasia in 32 (51%), non-lifting neoplasia in 19 (30%), periappendicular neoplasia in 8 (13%), subepithelial tumor in 2 (3%) and transmural rectal biopsy in 2 patients (3%). FTR was technically feasible in 89% (56/63). There were 5 cases of snare dysfunction and it was not possible to pull a lesion into the cap in 2 cases. Full-thickness resection was histologically confirmed in 79% (50/63). R0 resection was achieved in 85% (52/61) including resections with standard snare following FTR snare dysfunction. Resections were considered curative in 79% (48/61), 6 cases of cancer with deep submucosal invasion were referred for surgery. In curatively treated patients, there were 9 cases of sm<sup>1</sup> cancer, 3 cases of intramucosal cancer, 20 cases of high-grade dysplasia adenoma, 10 cases of low-grade dysplasia adenoma, 5 cases of completely resected scar and 1 case of granular tissue. Complications occurred in 13% (8/63). There were 2 cases of delayed perforation treated surgically, 2 cases of acute appendicitis responding to conservative treatment and 4 cases of delayed bleeding.

**Conclusions** In our series of 63 patients treated by FTR in the Czech Republic, we demonstrate high technical feasibility in 89%, R0 resection rate in 85% and curative resection rate in 79% of cases. Complications occurred in 13% of patients, including two cases of delayed perforation requiring surgical therapy.

Friday, April 5, 2019  
CRC screening 1

13:00 – 13:30  
ePoster Podium 3

### ePP31 PUBLIC ATTITUDES TO COLONOSCOPY: THE PURPOSE OF COLONOSCOPY

**Authors** Bhandari P<sup>1</sup>, Amlani B<sup>2</sup>, Radaelli F<sup>3</sup>

**Institute** 1 Department of Gastroenterology, Portsmouth University Hospital, Portsmouth, United Kingdom; 2 Medical Affairs, Norgine, Harefield, United Kingdom; 3 Unità Operativa Complessa di Gastroenterologia, Ospedale Valduce, Como, Italy

**DOI** 10.1055/s-0039-1681575

**Aims** European public beliefs and attitudes to colonoscopy are poorly understood. A survey was conducted to better understand the issue.

**Methods** An online survey was conducted in five large European countries (UK, Germany, France, Spain, and Italy), among members of the general public who had not had a colonoscopy. One of 10 questions asked: Which of the following do you think colonoscopy is used for?

- A) Diagnosing diseases of the bowel;
- B) Screening for bowel cancer;
- C) Monitoring of people with bowel cancer;
- D) Preventing bowel cancer;
- E) Removal of unusual growth in the bowel;
- F) Abdominal surgery;
- G) Radiology;
- H) None of the above.

The survey targeted 500 people aged 18 – 70 years from each country, and aimed to balance respondent groups for region, gender, age and occupation.

**Results** Among 53,795 invited persons, 18,650 (35%) responded to the survey and 2,500 (5%) completed the survey who had never had a colonoscopy before across the five assessed EU countries. Among these, responses to A, B, C, D, E, F, G, and H were 78%, 65%, 48%, 45%, 35%, 11%, 7%, and 4%. Nearly half of all respondents, 45%, knew that colonoscopy can prevent bowel cancer while 35% recognised removal of an unusual growth as a potential use of colonoscopy. Response levels were generally comparable across Germany, France, Spain, and Italy, however in the UK fewer respondents (26%) selected D) Preventing bowel cancer and more respondents (41%) indicated E) Removal of unusual growth in the bowel.

**Conclusions** Most people in the UK, Germany, France, Spain, and Italy believed that colonoscopy is mainly a diagnostic procedure. Depending on what respondents considered for the response option "Preventing bowel cancer", only one out of three people in the assessed five countries may be aware that colonoscopy can also be curative through removal of detected lesions.

### ePP32 POST-POLYPECTOMY SURVEILLANCE IN THE ENGLISH BOWEL CANCER SCREENING PROGRAMME: RESULTS OF SECOND SURVEILLANCE

**Authors** Bonnington SN<sup>1</sup>, Sharp L<sup>1</sup>, Rutter MD<sup>1,2</sup>

**Institute** 1 Newcastle University, Newcastle upon Tyne, United Kingdom; 2 University Hospital of North Tees, Stockton on Tees, United Kingdom  
**DOI** 10.1055/s-0039-1681576

**Aims** The English Bowel Cancer Screening Programme (BCSP) offers individuals aged 60 to 74 years guaiac FOB testing, with an invitation for colonoscopy if positive. Post-polypectomy surveillance is performed within the BCSP for individuals within the screening age range.

**Methods** Details were extracted from the BCSP database for individuals who attended surveillance from the start of the BCSP in 2006 until January 2017. Data were analysed using Stata 14.

**Results** 9742 individuals with high risk (HR) adenomas at baseline subsequently attended for 2<sup>nd</sup> surveillance (S2). In this group,

- Of 3639 with no further adenoma at 1<sup>st</sup> surveillance (S1), 288 (7.9%) had advanced adenoma (AA) and 20 (0.5%) CRC at S2
- Of 3347 with LR adenomas at S1, 342 (10.2%) had AA and 9 (0.3%) CRC at S2
- Of 1533 with IR adenomas at S1, 217 (14.1%) had AA and 8 (0.5%) CRC at S2
- Of 1223 with HR adenomas at S1, 181 (14.7%) had AA and 5 (0.4%) CRC at S2

7822 individuals with IR adenomas at baseline attended S2.

- Of 4342 with no adenoma at S1, 203 (4.7%) had AA and 13 (0.3%) CRC at S2
- Of 2324 with LR adenomas at S1, 149 (6.4%) had AA and 7 (0.3%) CRC at S2
- Of 586 with IR adenomas at S1, 47 (8.0%) had AA and 1 (0.2%) CRC at S2
- Of 570 with HR adenomas at S1, 62 (10.9%) had AA and 1 (0.2%) CRC at S2.

**Conclusions** AA at S2 occurs in 7.9% – 14.7% for HR at baseline and 4.7% – 10.9% for IR at baseline. For those with a maximum risk of IR at both baseline and S1, AA occurs in ≤8.0% at S2. These findings support the discontinuation of surveillance in lower risk groups.

### ePP33 PROXIMAL NEOPLASIA YIELD AMONG SUBJECTS REFERRED FOR COLONOSCOPY FOLLOWING A POSITIVE SCREENING SIGMOIDOSCOPY, ACCORDING TO REFERRAL INDICATION

**Authors** Senore C<sup>1</sup>, Arrigoni A<sup>2</sup>, Fasoli R<sup>3</sup>, Cassoni P<sup>4</sup>, Hassan C<sup>5</sup>

**Institute** 1 SSD Epidemiologia e screening – CPO, AOU Città della Salute e della Scienza, CPO Piemonte, Turin, Italy; 2 SC Gastroenterologia U, AOU Città della Salute e della Scienza, Turin, Italy; 3 SC Gastroenterologia, AO S. Croce e Carle, Cuneo, Italy; 4 Dipartimento di Scienze Mediche, Università di Torino, Turin, Italy; 5 Endoscopy, Nuovo Regina Margherita, Rome, Italy  
**DOI** 10.1055/s-0039-1681577

**Aims** The Piedmont (Italy) CRC screening program adopted once-only sigmoidoscopy (FS), at age 58, as primary screening test. Screenees are referred for colonoscopy (TC), based on the following criteria: ≥1 high-risk (HR – size >9 mm.; size <10 mm and villous component>20% or high-grade dysplasia; >2 adenomas <10 mm) distal polyp; inadequate bowel preparation in subjects with polyps (any size); increased CRC risk due to family history (FH), or symptoms (endoscopist's judgement), among subjects with negative FS. Lim-

ited evidence is available about the proximal neoplasia yield of the different indications.

**Methods** We estimated positive predictive value (PPV) for CRC, advanced adenoma (AA) and advanced neoplasia (AN – CRC+AA) of TC referral and the number needed to scope (NNScope) to detect 1 AN, by referral indication, among subjects referred for TC between January 1st 2012 and December 12th.

**Results** Out of the 6832 screenees undergoing TCs during the study period, positive FH accounted for 15% of referrals and symptoms for 6%, while 55% and 24% of patients had been detected with a HR polyp, or with polyps during a FS with inadequate preparation, respectively. The AN PPV was 5.1% among screenees with positive FH (only 1 CRC detected), 6.6% among symptomatic patients; 12.7% among those with HR polyps and 8.6% among those with inadequate bowel preparation and polyps; the corresponding figures for the NNScope to detect 1 AN were: 19.4, 7.8, 11.6, 15.1. The NNScope was higher among women (25.6) than among men (11.7) when considering symptomatic subjects.

**Conclusions** The proximal AN yield is high when polyps are detected in the distal colon, while it is low for other indications. A wide variability among endoscopists was observed in the proportion of TC referrals for FH, or symptoms, suggesting the need to implement efforts aimed to promote a more efficient TC utilization.

Friday, April 5, 2019  
ERCP pancreas 1

13:00 – 13:30  
ePoster Podium 4

### ePP34 ENDOSCOPIC TREATMENT OF CHRONIC PANCREATITIS IN PEDIATRIC POPULATION: LONG-TERM EFFICACY AND SAFETY

**Authors** Kohoutova D<sup>1,2,3</sup>, Tringali A<sup>1</sup>, Paparella G<sup>1</sup>, Perri V<sup>1</sup>, Boškosi I<sup>1</sup>, Hamanaka J<sup>1,4,5</sup>, Costamagna G<sup>1</sup>

**Institute** 1 Digestive Endoscopy Unit, Fondazione Policlinico Universitario Agostino Gemelli, Rome, Italy; 2 Royal Marsden Hospital NHS Foundation Trust, London, United Kingdom; 3 Charles University, Faculty of Medicine and University Hospital Hradec Kralove, Hradec Kralove, Czech Republic;

4 Department of Gastroenterology, Yokohama City University Graduate School of Medicine, Yokohama, Japan; 5 Department of Gastroenterology, Yokohama Minami Kyosai Hospital, Yokohama, Japan

DOI 10.1055/s-0039-1681578

**Aims** Chronic pancreatitis (CP) in children is an increasingly recognised disease. Purpose of study was to analyse safety and long-term efficacy of endoscopic treatment in children with CP.

**Methods** Records of 38 patients < 18 years, referred to Digestive Endoscopy Unit at Catholic University, Policlinico "A. Gemelli" between 1991 and 2017, were reviewed. Abdominal pain, analgesia and number of episodes of acute pancreatitis in pre- and post-ERCP period were evaluated. Need for surgery was assessed. Therapeutic intervention data and complications were interrogated.

**Results** 158 ERCPs were performed. Median post-ERCP follow-up was 7 years. Majority of patients had CP type IV (47%) and type Ib (37%) (Cremer's classification). Major papilla pancreatic sphincterotomy was performed in 47%, major and minor in 24% and minor in 29%. Stones/plugs were removed in at least one of ERCPs in 66% individuals. Eleven out of 38 patients had stricture of pancreatic duct; these were dilated and stented in 5/11 and stented in 6/11. Five complications were recorded (3%). Severity and frequency of abdominal pain improved significantly;  $p < 0.001$ . Use of analgesia and number of episodes of AP decreased significantly;  $p < 0.001$ . One child required subsequent surgery.

**Conclusions** Endoscopic management of symptomatic CP in children is safe and effective.

### ePP35 SPYGLASSDS GUIDED LITHOTRIPSY FOR PANCREATIC DUCT STONES IN SYMPTOMATIC, TREATMENT REFRACTORY CHRONIC PANCREATITIS – 12 MONTHS FOLLOW UP ON CLINICAL, TECHNICAL SUCCESS AND QUALITY OF LIFE

**Authors** Gerges C<sup>1</sup>, Pullmann D<sup>1</sup>, Schneider M<sup>1</sup>, Siersema PD<sup>2</sup>, Neuhaus H<sup>1</sup>, van Geenen EJM<sup>2</sup>, Beyna T<sup>1</sup>

**Institute** 1 Innere Medizin, EVK Duesseldorf, Duesseldorf, Germany; 2 Gastroenterology, Radboud University Medical Center, Nijmegen, Netherlands

DOI 10.1055/s-0039-1681579

**Aims** Pancreatic duct (PD) stones are a common complication in chronic calcifying pancreatitis (CCP) and can contribute to pain onset and exacerbation. Digital-single-operator-pancreaticoscopy (d-SOP) guided lithotripsy was shown to be a promising option of therapy regarding technical success (95% ductal clearance) and clinical success after 3–6 months FU (achieved in 95%)<sup>1</sup>. There is only little evidence of mid- and long-term technical and clinical success or impact on quality of life<sup>2</sup>.

**Methods** Multicenter, retrospective analysis of all d-SOP (SpyGlass DS) guided lithotripsies (n = 23) of PD stones performed between 2015 and 2017 in 20 CCP patients. Clinical success (defined as pain reduction > 50% in numerical rating scale) was determined by a systematic questionnaire regarding pain intensity and incidence as well as quality of life based on SF-12 after 3, 6 and 12 months in an ongoing follow up.

**Results** After 12 months 2 of 20 patients were referred for partial pancreatectomy, one was lost to follow-up. Of the 17 remaining clinical success was persistent in 11 (55%). Regarding quality of life twelve patients described major improvements in symptoms and disability in daily life. There was no need of further interventional therapy except subsequent stenting in case of persistent PD strictures.

**Conclusions** D-SOP guided lithotripsy is safe and effective regarding technical success and clinical outcome. Beneficial effects on symptom control and quality of life seem to last in the majority of CCP patients after a 12 months follow-up and are comparable to published ESWL results. Technical success was persistent even after 12 months.

1. Gerges C PD, Bahin F et al. SpyGlassDS guided lithotripsy for pancreatic duct stones in symptomatic treatment refractory chronic calcifying pancreatitis. Endoscopy International Open 2018.

2. Gerges C, Pullmann D, Schneider M, et al. Pancreatoscopy in endoscopic treatment of pancreatic duct stones, systematic review. Minerva Chir 2018.

### ePP36 THE OUTCOME OF FCSEMS FOR REFRACTORY MPD STRICTURES: A SYSTEMATIC REVIEW AND POOLED ANALYSIS

**Authors** Tringali A<sup>1</sup>, Stasi E<sup>2</sup>, Cintolo M<sup>1</sup>, Forti E<sup>1</sup>, Dioscoridi L<sup>1</sup>, Pugliese F<sup>1</sup>, Adler DG<sup>3</sup>, Mutignani M<sup>1</sup>

**Institute** 1 Endoscopy, ASST Grande Ospedale Niguarda, Milano, Italy; 2 Gastroenterology and Endoscopy, IRCCS De Bellis, Castellana Grotte, Italy; 3 Gastroenterology and Hepatology, University of Utah, Salt Lake City, United States

DOI 10.1055/s-0039-1681580

**Aims** Pancreatic duct (PD) stent placement is an effective treatment for symptomatic chronic pancreatitis associated with PD stricture. A subset of patients is refractory then the placement of multiple plastic stents has demonstrated a higher clinical success rate. Self-expandable metal stents (SEMSs) have been used with unsatisfactory results because of migration. However, fully covered SEMSs (FC-SEMSs) have not been extensively studied in this clinical context.

**Methods** we searched multiple databases (Embase, PUBMED; Cochrane) to identify studies reporting the efficacy and safety of FC-SEMSs in patients with

refractory symptomatic pancreatic strictures. Outcomes were technical success, stricture and pain resolution, recurrence of symptoms, adverse events and need for surgery. We reported proportions (expressed as a percentage), with their 95% CI, found in the individual studies included in the meta-analysis, given both for the Fixed effects model and the Random effects model. Pooled analysis was performed using a proportion with Medcalc statistical software.

**Results** 9 studies were identified, for a total of 139 patients. FC-SEMS had a pooled rate (PR) of 98.5% for technical success, 85.3% (95% CI 69.3–96.1) for stricture resolution and 68.6% (95% CI 47.3–87.8) for complete pain resolution. Other outcomes were as follows: stricture recurrence (PR 15.4% 95% CI 6.1–27.9), need for re-stenting (PR 26.8% 95% CI 9.5–48.9), adverse event (PR 12.1% 95% CI 7.4–18.5), stent migration (PR 17.2% 95% CI 3.74–37.8), PEP (PR 12.7% 95% CI 5.7–23.3) severe pain (PR 18.7 95% CI 6.0–39.2), de novo stricture (PR 18.6% 95% CI 7.7–34.8), need for surgery (PR 10% 95% CI 1.8–28.3).

**Conclusions** FC-SEMSs are effective in the treatment of refractory strictures with a pooled rate of 85% for stricture resolution and 68% for pain resolution. However, FC-SEMSs carry a high rate of adverse events and stricture recurrence with the need for reintervention mostly related to stent migration. Further studies are needed to define the role of FC-SEMSs in refractory MPD strictures.

Friday, April 5, 2019

13:00 – 13:30

EUS FNA 1

ePoster Podium 5

### ePP37 IMPACT OF EUS-FNB FROM PERITONEAL LESIONS FOR AVOIDING DIAGNOSTIC LAPAROSCOPY: A PROSPECTIVE COHORT STUDY (THE IMPALA STUDY)

**Authors** Orprayoon T<sup>1</sup>, Kongkam P<sup>1</sup>, Sirisub N<sup>2</sup>, Klaikaew N<sup>3</sup>, Sanpawat A<sup>3</sup>, Ridditid W<sup>1</sup>, Angsuwatharakon P<sup>1</sup>, Kullavanijaya P<sup>1</sup>, Rerknimitr R<sup>1</sup>

**Institute** 1 Division of Gastroenterology, Department of Medicine, Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital, Bangkok, Thailand; 2 Department of Obstetrics and Gynecology, Chulalongkorn University and King Chulalongkorn Memorial Hospital, Bangkok, Thailand; 3 Department of Pathology, Chulalongkorn University and King Chulalongkorn Memorial Hospital, Bangkok, Thailand

DOI 10.1055/s-0039-1681581

**Aims** To prospectively study impact and amount of tissue for immunohistochemical staining (IHCS) of EUS-FNB from peritoneal lesions.

**Methods** From March 2017 to June 2018, a total of 36 EUS-FNB passes were prospectively performed in 15 patients with peritoneal lesions (7 males, 8 females; mean age 60.9 ± 11.3 years) at the King Chulalongkorn Memorial Hospital, Bangkok, Thailand.

**Results** Ascites was detected by CT and EUS in 87.7% (13/15) and 93.3% (14/15) of patients, respectively. Percutaneous abdominal paracentesis was feasible in 80% (12/15) of patients. Ascites cytology was positive for malignancy in only 6.7% (n = 1) of patients. Median number of passages of EUS-FNB was 3 (2–3) times per case. Needle types were 20G needle. No procedure related adverse events. Amount of tissue was graded as grade A (sufficient core tissue for diagnosis and IHCS), B (a diagnosis based on cell morphology), and C (not enough tissue for diagnosis) in 72.2% (26/36), 11.1% (4/36), and 16.7% (n = 6/36) of 36 passes, respectively. Blood contamination was <25%, 25–50% and >50% in 88.9% (32/36), 5.6% (2/36), and 5.6% (2/36), respectively. Of 13 patients with amount of tissue was graded as A, 9 from 13 showed positive results for malignancy. Diagnoses by IHCS were confirmed by subsequent surgery in 33.3% (3/9) of patients. Benign diagnosis was finally made with long term follow up in 1 from 15 patients. Malignancy was correctly diagnosed by core tissue biopsy from EUS-FNB in 9 from 14 patients (64.3%). For another 5 patients with malignancy, diagnoses were finally made by tissue (n = 3) and follow up (n = 2).

**Conclusions** EUS-FNB from peritoneal lesions provided adequate tissue for IHS in majority of patients and diagnostic laparoscopy is not required in positive cases.

### ePP38 HIGH PERFORMANCE OF A NEW FRANSEEN NEEDLE FOR ENDOSCOPIC ULTRASOUND-GUIDED FINE-NEEDLE BIOPSY IN SOLID LESIONS: A RETROSPECTIVE MULTICENTER STUDY

**Authors** de Nucci G<sup>1</sup>, Del Vecchio Blanco G<sup>2</sup>, Amato A<sup>3</sup>, Forti E<sup>4</sup>, Santo Mezzi G<sup>5</sup>, Mogavero G<sup>3</sup>, Domenico Mandelli E<sup>1</sup>, Manes G<sup>1</sup>

**Institute** 1 ASST Rhodense, Gastroenterology and Endoscopy Unit, Garbagnate Milanese-Milano, Italy; 2 Tor Vergata University, Gastroenterology Unit, Rome, Italy; 3 Valduce Hospital, Gastroenterology Unit, Como, Italy; 4 Ca Grande Niguarda Hospital, Endoscopy Unit, Milan, Italy; 5 Vimercate and Desio Civil Hospital, Gastroenterology and Endoscopy Unit, Vimercate, Italy  
DOI 10.1055/s-0039-1681582

**Aims** Endoscopic ultrasound-guided fine needle aspiration (FNA) is the standard choice to sample gastrointestinal/pancreatic lesions. EUS-FNA is accurate when rapid on-site evaluation (ROSE) is performed, but ROSE is not always available. EUS-guided fine needle biopsy (EUS-FNB) can give a better chance to reach a diagnosis providing more tissue. It is not simple to use 19-gauge needles especially in transduodenal settings for risk of complications. A new needle for EUS-FNB, the Acquire™ needle is available from 2016. Data for pancreatic and non pancreatic solid lesions are available but these are based only on small sample size studies. The aim of our study is to perform a retrospective evaluation of all sampling procedures performed using the 22/25 gauge Acquire™ needle in patients with solid lesions.

**Methods** We performed a retrospective analysis of prospective, multicentric databases in five Italian Endoscopic centres, including all consecutive patients with solid lesions who underwent EUS with tissue sampling 22/25-gauge Acquire needles between June 2016 and October 2018. All lesions localized at pancreas, nodes, biliary, kidney/liver masses, periduodenal/perigastric abdominal masses were enrolled in the study. Features of masses at EUS evaluations and technical details of FNB were recorded.

**Results** 370 patients (60.2% males, mean age 64,3) were enrolled. EUS-FNB was performed using the 22 and 25 gauge Acquire™ needle. The biopsies was done transgastrically in 160 (43%) cases and transduodenally in 210 (57%) ones. A mean of 2.2 ± 0.32 passes per lesion site were performed, without any complication. A tissue core biopsy sample for histological evaluation was obtained in 362 (97%) cases. In all the cases, the specimens were useful for cytological analysis. Acquire sensitivity, specificity and diagnostic accuracy were 98.8%, 100% and 98.7% respectively.

**Conclusions** EUS-FNB using the 22 and the 25-gauge Acquire™ needle has a very high accuracy and is useful to achieve histological sample in almost all the patients.

### ePP39 CONSCIOUS SEDATION FOR ENDOSCOPIC ULTRASONOGRAPHY WITH FINE NEEDLE ASPIRATION IS EFFECTIVE AND WELL-TOLERATED

**Authors** Christodoulou D<sup>1</sup>, Skamnelos A<sup>1</sup>, Lamouri C<sup>1</sup>, Kartsoli S<sup>1</sup>, Kavvadias A<sup>1</sup>, Theopistos V<sup>1</sup>, Tzampouras N<sup>1</sup>

**Institute** 1 University Hospital of Ioannina, Ioannina, Greece  
DOI 10.1055/s-0039-1681583

**Aims** Endoscopic ultrasonography (EUS) is an important procedure for the diagnosis of pancreatic disorders allowing fine-needle aspiration (FNA). We aimed to investigate the efficacy and tolerance of the procedure in patients who received only conscious sedation.

**Methods** Patients who underwent EUS for diagnostic evaluation and tissue acquisition for pancreatic disorders were prospectively evaluated for the efficacy and tolerance of sedation. Sedation used included combination of midazolam and fentanyl to achieve relaxation or mild sleep, but keeping patient

responsive to orders and able to open his eyes when instructed to do so. Oxygen saturation, blood pressure and pulse rare was constantly monitored during procedure and until complete recovery of patients.

**Results** In total 80 subsequent patients who underwent evaluation of a pancreatic solid or cystic lesion were studied (45 males, median age 72, range 42–88 years). The patients received midazolam at a median dose of 3.2 mg (range 1–8 mg) and fentanyl at a median dose of 50 mcg (range 25–150 mcg). Procedure was tolerated rather well in all patients and was abandoned after a less than expected number of needle passes in only four patients. When interviewed, 52 patients found procedure comfortable, 14 patients well-tolerable, 14 patients uncomfortable. Pancreatic evaluation achieved in all patients and tissue acquisition achieved in 74. In the remaining patients procedure had to be repeated (in 4) or surgical biopsy was preferred (in 2). The median duration of the procedure was 32 minutes (range 18–72 minutes). However, physicians performing procedure found that deep sedation would be preferable for at least half of the patients.

**Conclusions** EUS-FNA can safely be performed with conscious sedation in the majority of patients, if there is no availability of deep sedation. This may not be the case in patients who cannot be easily sedated if patient has to undergo more complex procedure.

Friday, April 5, 2019

13:00 – 13:30

GI bleeding 2

ePoster Podium 6

## ePP40 THE EVOLUTION OF OESOPHAGEAL VARICES IN NON CIRRHOTIC PORTAL HYPERTENSION CAUSED BY PORTAL VEIN THROMBOSIS

**Authors** Boutallaka H<sup>1</sup>, Benelbarhdadi I<sup>1</sup>, Loubaris K<sup>1</sup>, Zahra Ajana F<sup>1</sup>

**Institute** 1 Ibn Sina University Hospital, Rabat, Morocco

**DOI** 10.1055/s-0039-1681584

**Aims** The aim of our study is to specify the evolution of oesogastric varices and thus haemorrhagic recurrence risk in patients with portal hypertension (PHT) by portal vein thrombosis (PVT).

**Methods** This is a retrospective study from January 1991 to February 2017, including 163 patients followed for PHT due to PVT without liver disease. PVT was diagnosed by abdominal doppler ultrasonography in all patients.

**Results** The mean age was 34.4 ± 14 years. The sex ratio M/F was 0.49. In all patients, upper GI endoscopy was performed. Hypertensive gastropathy was found in 30.7% (n = 50), Grade I oesophageal varices (OV) in 6% (n = 10), grade II in 30.7% (n = 50), grade III in 47.2% (n = 77) and gastric varices were noted in 14.7% (n = 24). These varices were the site of red signs in 19%. All patients had abdominal doppler ultrasonography showing a PVT in 54.6% (n = 89), this was partial in 31.9% (n = 52), complete in 11.6% (n = 19) and extended to the splenic venous in 11.1% (n = 18). Portal cavernoma was found in 45.4% (n = 74). All patients performed an etiologic assessment of thrombosis, myeloproliferative syndrome was found in 7.3% (n = 12), deficiency in coagulation inhibitor in 31.3% (n = 51), celiac disease in 4.9% (n = 8), neoplasia in 3.7% (n = 6), abdominal surgery in 9.2% (n = 15), pregnancy in 1.2% (n = 2) and no etiology was found in 42% (n = 69). Endoscopic variceal ligation (EVL) was performed in 65.6% (n = 107), the mean number of ligation sessions was 3 and eradication of varices was noted in 99% (n = 106). All patients received anticoagulant therapy except those having portal cavernoma with no obvious cause. During following up, no bleeding recurrence was noted in 84% (n = 137) and 6% (n = 10) of deaths were reported.

**Conclusions** The evolution of oesophageal varices in portal hypertension due to PVT unrelated to cirrhosis seems to be better than in cirrhotic portal hypertension.

## ePP41 ACUTE GASTROINTESTINAL BLEEDING IN THIRD WORLD COUNTRIES WITH FEW RESOURCES: A STUDY OF 1347 PATIENTS IN SPECIALIZED CENTRE

**Authors** Arabi Mohammad N<sup>1</sup>, MUSAAD A<sup>1</sup>, Ahmed E<sup>1</sup>, Aziz MA<sup>1</sup>

**Institute** 1 Ibn Sina Specialized Hospital, Khartoum, Sudan

**DOI** 10.1055/s-0039-1681585

**Aims** Acute gastrointestinal blood loss presents a management challenge and a crucial threat to the patients. The bleeding lesion cannot be easily controlled by endoscopy for unexperienced hand, but it is necessary for definitive diagnosis and management. The aim of this study is to reflect the causes, and management of acute gastrointestinal bleeding in Sudanese patients.

**Methods** It is cross sectional hospital based study, it included 1347 patients who presented to Mohamed saleh idris-bleeding centre, Ibn sina specialized hospital, Khartoum, Sudan, a specialized centre that receives 1900–2200 active gastrointestinal bleeding patients per year as an emergency, all patients were admitted, resuscitated and decision of endoscopy was made for all, data collected and analysed by SSPS.

**Results** Nearly 95% of patients had upper gastrointestinal bleeding, it is common in male and the mean age was 45 years. Oesophageal varices due to bilharzial portal hypertension was diagnosed in more than 90%, most of them had active bleeding. Sclerotherapy was used in the majority of them to stop bleeding, band ligation in 10.1%, both sclerotherapy and band ligation in only 1.8%. Sengestaken tube was used in 9.4%, approximately 9% had fundal varix and only 6% had both oesophageal and fundal varix, and few patients had ectopic duodenal varix, all of them were injected with N-butyl-2-cyanoacrylate (Histoacryl), while only 5.6% of the patients had ulcer and few patients had gastric malignancy. The most common cause of lower gastrointestinal bleeding was upper gastrointestinal bleeding followed by diverticular disease in 39.6%, colonic tumours 12.34%, inflammatory bowel disease 10.4%, angiodysplasia 4.5%, and the remaining were ischemic colitis, rectal varix and small bowel origin.

**Conclusions** Oesophageal varices and diverticular disease being the commonest causes of acute gastrointestinal bleeding. Sclerotherapy is cheap and beneficial in cessation of active oesophageal variceal bleeding, and N-butyl-2-cyanoacrylate is effective in gastric and duodenal varix.

## ePP42V THE USE OF OVER-THE-SCOPE CLIP IN THE MANAGEMENT OF ACUTE ESOPHAGEAL VARICEAL BLEEDING

**Authors** Mangas-Sanjuan C<sup>1,2</sup>, Bozhychko M<sup>1,2</sup>, Martínez B<sup>3</sup>, Compañy L<sup>1,2</sup>, Ruiz FA<sup>1,2</sup>, Martínez Sempere J<sup>1,2</sup>, Casellas JA<sup>1,2</sup>, Ramón Aparicio J<sup>1,2</sup>

**Institute** 1 Endoscopy Unit, Hospital General Universitario de Alicante, Alicante, Spain; 2 Instituto de Investigación Sanitaria y Biomédica de Alicante, ISABIAL, Alicante, Spain; 3 Endoscopy Unit, Hospital Universitario del Vinalopó, Elche, Alicante, Spain

**DOI** 10.1055/s-0039-1681586

**Aim** Esophageal bleeding control associated to portal hypertension (PHT) might be difficult using endoscopy band ligation (EBL) due to either collapse of the bleeding varix or scarring the mucosa due to fibrosis secondary to prior banding. The over-the-scope clip (OTSCs; Ovesco, Tübingen, Germany) has been reported to control non-variceal bleeding, but there is scarce data about the use related to variceal bleeding (VB). So our aim is to describe our experience in terms of efficacy and safety with this novel method.

**Methods** We report a case series study of consecutive adult patients with active VB treated with OTSC after EBL failure between October 2017 to September 2018 at a two tertiary care centers in our region. Efficacy of bleeding control is the absence of bleeding immediately after using OTSC until 7-days after; safety is the absence of complications associated with OTSC placement during 30-day follow-up period.

**Results** Total 5 patients are included (3men/2women), and the mean age is 57 years (50–64 years). 4 patients have PHT due to liver cirrhosis and one has

nodular regenerative hyperplasia because of Osler-Weber-Rendu disease. 80% have clinically significant PHT (HVPG mean 15 mm Hg, 13–16 mm Hg) and 100% of patients had prior EBL (1–3 sessions). In 4 cases EBL was not possible due to collapse of the varix and the other was due to scarring the mucosa. We use OTSC type “t” (pointed teeth) 12 mm using a diagnostic videogastroscope (GIF-H290; Olympus Medical Systems, Tokyo, Japan) in all cases. Adequate bleeding control was achieved in 100% of patients, and no re-bleeding occurred. There were no complications during 30-day follow-up and only one patient developed dysphagia after 4 months of placement.

**Conclusion** When there is an esophageal variceal bleeding refractory to EBL, the use of OTSC can be an endoscopic effective and safety alternative in the pursuit of bleeding control.

Friday, April 5, 2019

13:00 – 13:30

Quality 2

ePoster Podium 7

### ePP43 PATIENT SATISFACTION AFTER THE REALIZATION OF AN ENDOSCOPY: A QUALITY CRITERIA IN OUR UNITS

**Authors** Fernández N<sup>1</sup>, Amelia Cid L<sup>1</sup>, Arroyo Alonso JA<sup>1</sup>, Rial Fernández MJ<sup>1</sup>, Hermida Perez MJ<sup>1</sup>, Salgado A<sup>2</sup>, Estevez P<sup>1</sup>, Rodríguez Prada JJ<sup>1</sup>

**Institute** 1 Hospital Alvaro Cunqueiro, Vigo, Spain; 2 Unidad de Estadística, Hospital Alvaro Cunqueiro, Vigo, Spain

DOI 10.1055/s-0039-1681587

**Aims** To determine the satisfaction level and to know the main quality problems that patient perceives after a endoscopy in gastrointestinal endoscopy unit, through a satisfaction test.

**Methods** A cross-sectional descriptive study was performed at endoscopy unit between May-July 2018. After the recovery, patients were offered anonymously and voluntarily to answer a questionnaire, an adaptation of mGHAA-9; validated and easy to apply.

**Results** 754 surveys were carried out, 489 in the morning and 542 colonoscopies. Half patients were males. The 88% said they read the informed consent. Almost all the procedures were under sedation: 66% was sedated with propofol (P). 57% of patients did not feel any discomfort; patients sedated with P have significantly less discomfort than those with F/D ( $p < 0.05$ ). Waiting time to the appointment was too much for 24%, the delay at the same day of endoscopy was acceptable to 91% of participants. To the patients of the afternoon shift, normal priority, the time of delay seemed significantly greater ( $p < 0.05$ ); the wait on the same day of the test was higher in the morning shift ( $p < 0.05$ ). The courtesy of staff and respect for privacy were scored as very good or excellent by 85 and 72%, without differences between groups. The overall score was excellent and very good in 80% of the cases; There were differences between shifts, with the total score being significantly better in the afternoon ( $p < 0.05$ ), and also in men compared to women. The information received about test and preparation was adequate (27–39%) or very good (34–39%) in more than half of patients. Finally most of patients would repeat the test in our hospital with same staff.

**Conclusions** Sedation with propofol significantly decreases discomfort, its use should be considered. Courtesy and respect for privacy are important to maintain patient confidence. Endoscopy waiting list and information given to patients are areas to improve.

### ePP44 COMFORT: IN THE EYE OF THE BEHOLDER?

**Authors** Hussey M<sup>1</sup>, Moran C<sup>1</sup>, Harkin G<sup>1</sup>, McGettigan N<sup>1</sup>, O'Toole A<sup>1</sup>, Harewood G<sup>1</sup>, Boland K<sup>1</sup>, Cheriyan D<sup>1</sup>, Patchett S<sup>1</sup>

**Institute** 1 Beaumont Hospital, Gastroenterology, Dublin, Ireland

DOI 10.1055/s-0039-1681588

**Aims** Patient comfort score is a recognised key performance indicator in the delivery of colonoscopy. Limited data exists regarding the degree of agree-

ment between endoscopy staff and patients regarding comfort level during colonoscopy.

**Methods** Endoscopist and nurse recorded comfort scores were prospectively recorded for each colonoscopy from the endoscopy documentation, and a patient comfort score was completed by the patient in the recovery area using the standard Gloucester comfort scoring system. Results were compared among groups using Pearson's correlation coefficient and a chi square test with a  $p \leq 0.05$  considered significant.

**Results** To date, 104 patients have been included, 61% female ( $n = 63$ ), and the majority of patients were  $> 50$  yrs (mean 59 yrs, range 23–89 yrs,  $n = 75$ ). 86% ( $n = 89$ ) were diagnostic procedures and 80% ( $n = 83$ ) of the procedures were performed by gastroenterologists. The median sedation used was 3 mg of midazolam (0–5 mg) and 50mcg of fentanyl (0–100mcg). We identified discordance between reported comfort levels between patients, nurses and doctors. Correlation was greatest when comparing nurses and doctors ( $r = 0.85$ ). Agreement between patients and doctors was moderate at best ( $r = 0.51$ ), with moderate levels of agreement also noted between patients and nurses ( $r = 0.55$ ). 38% ( $n = 40$ ) of patients reported higher levels of discomfort (comfort score  $\geq 3$ ), compared with 25% ( $n = 26$ ) of doctors ( $p = 0.05$ ) and 30% of nurses ( $n = 31$ ) ( $p = 0.1$ ). Significantly higher doses of sedatives ( $\geq 3$  mg midazolam) were recorded in these patients with the greatest level of discomfort compared with patients with Gloucester score 1–2 (63% [ $n = 25/40$ ] vs. 40% [ $n = 26/64$ ],  $p = 0.03$ ). Comparison of comfort scores according to procedure duration, age, or gender did not reveal significant differences. However, younger patients ( $n = 29$ ), 31% ( $n = 9$ ) self-reported higher levels of discomfort, all of whom were female ( $p = 0.002$ ).

**Conclusions** These results suggest that the perception of procedure related discomfort varies between these three groups, including endoscopists and nurses. This study also highlights the challenge of accurate patient comfort score reporting as a quality performance indicator during colonoscopy.

### ePP45 HOW LONG TIME SHOULD AN ESOPHAGOGASTRODUODENOSCOPY BE DONE?

**Authors** Sohn KM<sup>1</sup>

**Institute** 1 Gastroenterology, Hansol Hospital, Seoul, Korea, Republic of

DOI 10.1055/s-0039-1681589

**Aims** Esophagogastroduodenoscopy (EGD) is commonly used to detect upper gastrointestinal (GI) neoplasms. However, it is not clear how the time of EGD affects the detection of cancer or premalignant lesions that increase the risk for GI cancer. We investigate whether differences in endoscopy exam time of cancer affect cancer detection rates.

**Methods** We performed a retrospective analysis of data from 24,604 subjects who underwent EGD as part of a comprehensive health-screening program from January 2016 to December 2016 in Korea. Endoscopy findings were extracted from reports prepared by 9 board-certified endoscopists. Endoscopists were classified as fast, moderate or slow based on their mean examination time for a normal EGD without biopsy during their first year of the study. All endoscopists used the same endoscopy unit.

**Results** Mean examination time of EGD without biopsy was 3.9 min (range, 2–14 min). When cut-off times of 3 and 7 min were used, three endoscopists were classified into the fast (mean duration,  $2.6 \pm 1.0$  min), 4 into the moderate ( $3.8 \pm 1.4$  min), and two into the slow ( $7.2 \pm 1.3$  min) groups. Neoplastic lesion detection rates in the fast, moderate, and slow groups were 0.95%, 0.96%, and 0.95%, respectively. There was no statistical difference in the detection rate. The rate of complications such as Mallory-Weiss tear was higher in slow group.

**Conclusions** Examination time is important in endoscopy. However, a simple increase in the examination time did not increase the detection rate of precancerous lesions. It is important to more detail observation about the suspicious lesion during the examination and to learn the blind spot test. Further research is needed in the future.

### ePP46 PROGNOSIS OF GASTRIC DYSPLASIA AFTER COMPLETE RESECTION WITH ENDOSCOPIC PROCEDURES CONSIDERING MUCIN PHENOTYPE

**Authors** Park J<sup>1</sup>, Lee JS<sup>1</sup>, Kim JO<sup>1</sup>, Jeon SR<sup>1</sup>, Kim HG<sup>1</sup>, Lee TH<sup>1</sup>, Cho JH<sup>1</sup>  
**Institute** 1 Digestive Disease Center, Soonchunhyang University Hospital, Seoul, Korea, Republic of  
**DOI** 10.1055/s-0039-1681590

**Aims** Gastric adenomas are considered premalignant, and some can be interpreted as cancer according to different pathologic guidelines. The dysplastic lesions share histologic characteristics including mucin phenotype that are related prognosis. The prognosis of the lesions has been studied but tends to be researched separately. Moreover, the proposed prognostic factors are mostly derived from the study of surgical specimens, and most of them did not consider the anatomical changes after surgery. Previously researched prognostic factors of gastric dysplasia were evaluated on the recurrence after complete resection with endoscopic procedure.

**Methods** From 2005 to 2016, 1678 gastric dysplasia were endoscopically removed in Soonchunhyang university hospital, Seoul. They were followed up with endoscopy under a standardized protocol. For the 716 lesions were histologically evaluated including mucin phenotype with immunohistochemical stain of MUC5AC, MUC6, MUC2, and CD10. Recurrence of dysplastic lesions were analyzed for the 688 lesions with at least 1 year's follow-up.

**Results** Five-hundred and forty-three malignant lesions including in situ lesions were completely resected with endoscopic procedures. Endoscopic submucosal dissection was performed on 603 lesions and other lesions were removed with endoscopic mucosal resection. Submucosal invasion was on 83 lesions of carcinoma. The mucin phenotype of lesions was immunohistochemically evaluated. During median 40 months of follow-up, there was 89 cases of recurrence (12.9%). Kaplan-Meier analysis of the recurrence-free survival were estimated and the elderly over 65 years of age showed statistical significance ( $p = 0.039$ ).

**Conclusions** Completely resected early stage of gastric dysplasia showed relatively low recurrence rate. Previously proposed histologic features did not affect prognosis. However, the age of patient showed statistical significance on recurrence-free survival. Regular surveillance on elderly patients is important to improve the clinical outcome of gastric dysplasia.

### ePP47 THE PREVALENCE OF GASTRIC NEOPLASIA IS INCREASED IN PATIENTS WITH CHRONIC LIVER DISEASE COMPARED TO A HEALTHY SCREENING POPULATION

**Authors** Morais R<sup>1</sup>, Marques M<sup>1</sup>, Gaspar R<sup>1</sup>, Alves R<sup>2</sup>, Silva J<sup>1</sup>, Dias E<sup>1</sup>, Antunes J<sup>1</sup>, Pereira P<sup>1</sup>, Lopes S<sup>1</sup>, Cardoso H<sup>1</sup>, Liberal R<sup>1</sup>, Macedo G<sup>1</sup>  
**Institute** 1 Gastroenterology, Centro Hospitalar São João, Porto, Portugal; 2 Medicina Interna, Hospital Garcia de Orta, Lisboa, Portugal  
**DOI** 10.1055/s-0039-1681591

**Aims** The standard paradigm of screening varices in patients with cirrhosis has for the greater part involved esophagogastroduodenoscopy (EGD). More recently, however, the Baveno VI criteria were proposed to identify patients who could safely avoid screening EGD. Epidemiological studies have suggested that patients with cirrhosis have an increased risk for gastric cancer. We aimed to evaluate the prevalence of gastric neoplasia in cirrhotic patients who underwent screening EGD in a country with intermediate gastric cancer risk.

**Methods** This retrospective case-control study enrolled all asymptomatic cirrhotic patients who underwent EGD for varices screening from January 2008 to June 2018. Cases were matched with asymptomatic healthy individuals who

underwent EGD for gastric cancer screening at the same time as colonoscopy performed for colorectal cancer screening.

**Results** We included 1974 subjects (610 patients, 1364 controls). Besides a male predominance in cases, no other demographic characteristic differed between groups. The leading aetiology of cirrhosis was alcoholic liver disease (53.3%) and chronic hepatitis C (16.2%). Of the 610 patients with cirrhosis, 13 (2.1%) had gastric neoplasia [gastric cancer,  $n = 10$ ; high-grade dysplasia,  $n = 2$ ; low-grade dysplasia,  $n = 1$ ]. Most of the lesions (61.5%) were located in the gastric body, with a median size of 18 mm (15–24). Eight patients underwent surgical resection, 3 endoscopic resection ( $n = 2$  ESD,  $n = 1$  EMR) and 2 were referred for palliative care due to decompensated liver disease. Compared to controls, cirrhotic patients had a higher prevalence of gastric neoplasia [2.1% vs. 1%,  $p = 0.044$ ; gastric cancer 1.6% vs. 0.8%,  $p = 0.08$ ]. The prevalence of *Helicobacter pylori* infection was lower in patients compared to controls (36.2% vs. 47.2%,  $p = 0.004$ ).

**Conclusions** The prevalence of gastric neoplasia is significantly increased in patients with cirrhosis compared to healthy screening population. Despite growing evidence supporting the role of non-invasive methods to rule out varices, EGD should still be considered in cirrhotics, at least in those from countries with intermediate gastric cancer risk.

### ePP48 GASTRIC ADENOCARCINOMA UNDER THE AGE OF 60: A MULTICENTRIC STUDY FROM SOUTHERN EUROPE

**Authors** Rodríguez de Santiago E<sup>1,2</sup>, Hernanz N<sup>1</sup>, Marcos-Prieto HM<sup>3</sup>, Jorge-Turrión MÁ<sup>4</sup>, Barreiro-Alonso E<sup>5</sup>, Rodríguez-Escaja C<sup>4</sup>, Jiménez-Jurado A<sup>3</sup>, Machado-Volpato N<sup>1</sup>, Pérez-Valle F<sup>5</sup>, García-Prada M<sup>3</sup>, Sierra-Morales M<sup>1</sup>, Ríos León R<sup>1</sup>, García de Paredes AG<sup>1</sup>, Castaño-García A<sup>3</sup>, Ramón Foruny-Olcina J<sup>1,2</sup>, González Martín JA<sup>1,2</sup>, Peñas-García B<sup>1,2</sup>, Vázquez-Sequeiros E<sup>1,2</sup>, Albillos A<sup>1,2,6</sup>

**Institute** 1 Ramon y Cajal University Hospital, Madrid, Spain; 2 University of Alcalá. IRYCIS, Madrid, Spain; 3 Hospital Universitario de Salamanca, Salamanca, Spain; 4 Hospital Universitario Central de Asturias, Oviedo, Spain; 5 Hospital universitario de Cabueñes, Gijón, Spain; 6 Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBEREHD). Instituto de Salud Carlos III, Madrid, Spain  
**DOI** 10.1055/s-0039-1681592

**Aims** In Europe, gastric adenocarcinoma (GC) is commonly regarded as a disease of the elderly. This study aims to assess the proportion, characteristics, and survival of patients diagnosed with GC under the age of 60.

**Methods** This is a retrospective, multicentric, and analytical study conducted at four tertiary hospitals. All patients diagnosed with GC between 2008–2015 were included. Demographic, clinical, endoscopic, histologic, and survival data were retrieved. A multivariate analysis was performed to compare GC in young (age  $\leq 60$  years) and elderly patients.

**Results** A total of 1,374 GC were included. The mean age was 74 years (SD:11.1) and 62.2% were males. One hundred seventy-seven patients were under the age of 60 (12.9%, 95% CI = 11.2–14.8%). GC was frequently encountered as a metastatic disease in both young and elderly patients (Stage IV: 45.7% and 41%, respectively). In the multivariate analysis, alcohol abuse, ASA functional status I-II, diffuse subtype, neoadjuvant, and palliative therapy were independently associated ( $p < 0.05$ ) with GC  $\leq 60$  years. No differences were found in 2-year survival (GC  $\leq 60$ : 39% vs. 35%,  $p = 0.45$ ). Curative-intent surgery, TNM stage I-II, body mass index  $< 30$  kg/m<sup>2</sup>, and better functional status at diagnosis were independent predictors of survival in GC under the age of 60.

**Conclusions** One out of eight cases of GC were diagnosed below 60 years. Overall survival was poor regardless of age. Factors associated with localized disease correlated with improved survival in younger patients, altogether underlining the urgent need for early diagnosis strategies in Western countries.

Friday, April 5, 2019

13:30 – 14:00

Bowel cleansing 2

ePoster Podium 1

### ePP49 A COMPARISON STUDY OF 2L PEG-ASCORBIC ACID VERSUS 1L PEG-ASCORBIC ACID WITH BISACODYL VERSUS SODIUM PICOSULFATE/MAGNESIUM CITRATE WITH BISACODYL AS BOWEL PREPARATION

**Authors** Choi SJ<sup>1</sup>, Jeon YT<sup>1</sup>, Kim JH<sup>1</sup>, Jeon HJ<sup>1</sup>, Jang SH<sup>1</sup>, Kim SH<sup>1</sup>, Kim SH<sup>1</sup>, Lee JM<sup>1</sup>, Choi HS<sup>1</sup>, Kim ES<sup>1</sup>, Keum B<sup>1</sup>, Lee HS<sup>1</sup>, Chun HJ<sup>1</sup>, Kim CD<sup>1</sup>

**Institute** 1 Division of Gastroenterology, Department of Internal Medicine, Korea University, Seoul, Korea, Republic of

**DOI** 10.1055/s-0039-1681593

**Aims** Bowel preparation is the most important colonoscopy quality indicator because it affects both the cecal intubation and adenoma detection rates. Ingestion of a large volume of PEG, as well as its unpleasant taste, results in low compliance rates and unsatisfactory cleansing quality. To reduce drug dose and increase patients satisfaction, we would like to compare the efficacy and patient satisfaction of the following three methods: 2 Liters of PEG-ascorbic acid mono regimen versus 1 Liter of PEG-ascorbic acid plus bisacodyl versus Sodium picosulfate with magnesium citrate (SPMC) plus bisacodyl.

**Methods** This study was a single center, randomized, prospective, observer-blinded study. The study was performed from april 2018 to July 2018 and we enrolled 300 patients and randomly classified them into three groups of 100 patients each. To evaluate bowel cleansing, we used the Boston bowel preparation scale (BBPS). The degree of discomfort and satisfaction of the patients in the bowel preparation process was investigated through questionnaire.

**Results** Baseline characteristics of the three groups were similar. There was no significant difference in the bowel preparation quality using BBPS in three groups. Abdomen fullness was statistically significantly lower in SPMC and bisacodyl group.(P-value = 0.003) Also patients' satisfaction compare with previous preparation was significantly higher in the SPMC and bisacodyl group. (P-value = 0.016).

**Conclusions** In this study, the combination of SPMC and bisacodyl group is similar for the improvement of the bowel preparation than the other PEG groups. However, the SPMC and bisacodyl group patients feel more comfortable than other groups. Therefore, in order to satisfy both good intestinal cleansing and patient compliance, we conclude that bowel preparation with the SPMC and bisacodyl group might be the better method than others.

### ePP50 LAB AUTOMATIC EVALUATION OF COLON CLEANSING

**Authors** Luca M<sup>1</sup>, Ciobanu A<sup>2</sup>, Drug V<sup>3,4</sup>

**Institute** 1 Institute of Computer Science, Romanian Academy, Iasi, Romania;

2 Institute of Computer Science, Romanian Academy, Iasi, Romania;

3 University of Medicine and Pharmacy, 'Gr. T. Popa', Iasi, Romania; 4 Institute of Gastroenterology and Hepatology, 'Sf. Spiridon', Emergency Hospital, Iasi, Romania

**DOI** 10.1055/s-0039-1681594

**Aims** For objective estimation of colon cleansing, we propose a LAB color selection procedure to automatically detect and compute the Bowel Preparation Coefficient (BPC) on more scales, on the informative frames of a video colonoscopy.

**Methods** The advantage of LAB color space is that one of the three numerical values used to express color, is the lightness  $L^*$ . The other two axes green-red ( $a^*$ ) and blue-yellow ( $b^*$ ) components, are more approached to the human perception than other color spaces.

To retain only the relevant video colonoscopy frames and to decrease the complexity, we detect the edges on each frame, we test the entropy levels on sub-frames and we discard the non-informative images. On a semi-super-

vised detection we identify the color cube and color squares corresponding to residual material presence on bowels, slightly varying for each patient. Areas for valid frames are computed and summed, obtaining the overall final estimation.

**Results** Tests have been made on tens of thousands of frames. We may obtain up to 50.000 frames from a 20 minutes video colonoscopy. We used 17 videos of slightly different lengths. Blurred frames, highly lighted, light reflections were automatically discarded. On the remaining frames we identified fecal residues and computed  $a^*b^*$  color features. For speed, we take into consideration only the two color variables during the final total color evaluation on the valid frames of a video.

**Conclusions** Previous attempts have been made using RGB color space, characterized by computing burden. Our method offers an algorithm easy to compute, results being obtained faster. This procedure can be applied to the video recordings, saving time and facilitating the computer-assisted analysis of the cleansing aspects, relevant for diagnosis in colonoscopy.

### ePP51 SPLIT-DOSE LACTULOSE WITH ADJUNCTIVE ORAL BISACODYL AND ORAL SODIUM PHOSPHATE: A PILOT STUDY OF A NOVEL BOWEL PREPARATION

**Authors** Loh WL<sup>1</sup>, Tan T<sup>2</sup>, Tan O<sup>2</sup>, Tung J<sup>2</sup>, Ngooi S<sup>2</sup>, Ngoi SS<sup>2</sup>

**Institute** 1 SingHealth, General Surgery, Singapore, Singapore; 2 Gleneagles Hospital, Singapore, Singapore

**DOI** 10.1055/s-0039-1681595

**Aims** Various colonoscopic bowel preparations are in use clinically. Split-dose preparations are generally recommended for morning colonoscopies. We herein present a novel form of bowel preparation with split-dose lactulose as the backbone with oral bisacodyl and sodium phosphate, in a pilot study assessing its safety and efficacy.

**Methods** Patients were instructed to adhere to clear fluids from 2000hrs the evening before. The bowel preparation utilised oral lactulose 30 mLs and bisacodyl 5 mg at 2200hrs the evening before, followed by oral lactulose 100 mLs and oral aqueous sodium phosphate 20 mLs four hours prior to the scheduled colonoscopy. All colonoscopies were carried out during the morning session. Patients' demographics, past medical and surgical history, indication for colonoscopy, tolerability, presence of side effects, colonoscopy findings, and bowel preparation cleanliness were recorded.

**Results** This pilot study consisted of 82 patients with 41 females (50%), with a median age of 57 years (range 22 to 78). The most common indication for colonoscopy was abdominal pain (43 patients, 52.4%). 78 patients (95.1%) completed their bowel preparation, with only two patients (2.4%) suffering from side effects (vomiting). Median time to reaching the cecum was five minutes (median 3 – 25), and withdrawal time was 14 minutes (median 10 – 39). 55 patients (67.1%) and six patients (7.3%) had polyps and a malignancy detected respectively. 0 patients (0%), five patients (6.1%), 45 patients (54.9%), 32 patients (39.0%) had inadequate, poor, good, and excellent bowel preparation as per the Boston Bowel Preparation Scale.

**Conclusions** This novel split-dose bowel preparation is safe, well-tolerated, and efficacious in selected patients. It should be assessed against other established preparations in future studies.

### ePP52 COLD SNARE PIECEMEAL ENDOSCOPIC MUCOSAL RESECTION (CSP-EMR) OF LARGE SESSILE COLONIC POLYPS $\geq 20$ MM IS FEASIBLE, SAFE AND EFFECTIVE

**Authors** Mangira D<sup>1</sup>, Cameron K<sup>1</sup>, Koo JH (Brian)<sup>1</sup>, Moss A<sup>1</sup>

**Institute** 1 Department of Gastroenterology, Western Health, University of Melbourne, Melbourne, Australia

**DOI** 10.1055/s-0039-1681596

**Aims** EMR is the standard therapy for resection of large ( $\geq 20$  mm) non-malignant sessile colonic polyps. Serious adverse events are mostly due to electrocautery. This could be avoided by cold-snare-EMR. We hypothesized that aggressive wide field cold snare piecemeal EMR (CSP-EMR) could be as effective as conventional EMR, but with fewer adverse events. The study evaluated safety and efficacy of CSP-EMR for  $\geq 20$  mm sessile colonic polyps.

**Methods** All CSP-EMR cases performed by a single endoscopist (A.M.) at two academic hospitals for sessile polyps  $\geq 20$  mm, from Jan 2016-Dec 2017, were identified retrospectively. During this period, all lesions that were not suspicious for submucosal invasion, and were not very large Paris 0-Is lesions where cold snare resection would be technically very difficult, were performed by CSP-EMR. Efficacy was defined as the absence of residual or recurrent polyp during the first surveillance colonoscopy, which was assessed by rigorous endoscopic EMR scar examination and biopsies for histology. Clinically significant intra-procedural or delayed adverse events, histological outcomes and surveillance colonoscopy findings were assessed by reviewing medical records.

#### Results:

**Tab. 1** Results

Patients demographics:	Total no (n): 133	Male, n (%): 46 (31.1)	Female, n (%): 87 (68.9)	Median age (range): 67 years (21 – 88)
Polyp details:	Total no (n): 148	Size (mm) mean: 25.27	Size (mm) median: 20 mm	Range (mm): 20–60
Histology:	SSA/P without dysplasia n (%): 84 (56.8)	SSA/P with dysplasia n (%): 6 (4.1)	Adenomas with LGD, n (%): 50 (33.8%)	Adenomas with HGD, n (%): 2 (1.4%)
Surveillance:	Patients with follow up, n (%): 110 (82.7)	Polyps with follow up, n (%): 124 (83.8)	Recurrence, n (%): 4 (3.2)	
Adverse events:	Intra-procedural bleeding treated with clips n (%): 2 (1.5)	Post-procedural bleeding settled spontaneously, n (%): 4 (3.0)	Abdominal pain settled spontaneously, n (%): 1 (0.8)	Perforation = 0 Post-polypectomy syndrome = 0

**Conclusions** CSP-EMR of sessile colonic polyps  $\geq 20$  mm is feasible and was at least as effective as conventional EMR, but with improved safety profile. We hypothesise that the enhanced safety of cold snaring allowed for an aggressive wide field resection that reduced recurrence rates. A randomised controlled trial or large prospective observational studies are required to more rigorously demonstrate non-inferiority and improved safety profile of CSP-EMR compared to conventional EMR, and to further determine which polyp morphologies are best suited to CSP-EMR.

### ePP53 POLYPECTOMY IN SCREENING COLONOSCOPIES – ARE WE FOLLOWING THE PUBLICATION OR THE GUIDELINES?

**Authors** Pammer D<sup>1,2</sup>, Waldmann-Kammerlander E<sup>1,2</sup>, Penz D<sup>1,2</sup>, Asaturi A<sup>1,2</sup>, Hinterberger A<sup>1,2</sup>, Majcher B<sup>1,2</sup>, Szymanska A<sup>1,2</sup>, Trauner M<sup>1</sup>, Ferlitsch M<sup>1,2</sup>

**Institute** 1 Department of Internal Medicine III, Division of Gastroenterology & Hepatology, Medical University Vienna, Vienna, Austria; 2 Austrian Society of Gastroenterology and Hepatology (OEGGH): Quality Assurance Working Group, Vienna, Austria

**DOI** 10.1055/s-0039-1681597

**Aims** The European Society of Gastrointestinal Endoscopy (ESGE) guidelines for colorectal polypectomy recommends cold snare polypectomy for all diminutive ( $\leq 5$  mm) and small polyps between 6 – 10 mm. In a publication from Britto-Arias the forceps resection rates (FRR) for polyps  $\geq 5$  mm were 22,75% in hospitals and 52,58% in private practices. The aim of this study was to compare if the publication of own results or publication of the guidelines has more impact on the reduction of FRRs of polyps  $\geq 5$  mm.

**Methods** 107.124 colonoscopies performed by 279 endoscopists between 08/2015 and 10/2018 were assessed within the Austrian quality assurance program for screening colonoscopies. For the demonstration of the endoscopists adherence to the European polypectomy guidelines, the resection technique, based on the polyp size before (08/2015 – 03/2017) and after (04/2017 – 10/2018) the publication of the guidelines was assessed and compared. Further we investigated if there was a decrease of the FRR after our prior study by Britto-Arias et al. (08/2015). Therefore, endoscopists were subclassified according to their facility (hospital, private practice).

**Results** A total of 90.279 screening colonoscopies performed by 266 endoscopists were included in this study. The polyp detection and resection rate were 38,58% (n = 34.826) and 91,74% (n = 31.948), respectively. Overall, 28,00% (n = 2.521) of polyps  $\geq 5$  mm were resected using forceps, which does not correspond to the ESGE-Guidelines. For polyps  $\geq 5$  mm the FRR decreased in private practices after both publications (RR:0,68vs.0,83;  $p < 0,001$ ). In contrast, in hospitals a significant decrease of the FRR was observed after the study but not after the guideline's publication (RR:0,91vs.1,19;  $p < 0,001$ ). At least, for polyps  $\geq 5$  mm endoscopists had a mean adequate polypectomy technique rate of 68,31% (CI95%: 64,21 – 72,41).

**Conclusions** Regarding to the polypectomy technique, we have investigated that the study publication leads to an increase of the adherence for polyps  $\geq 5$  mm in both, hospitals and private practices.

### ePP54 CAN SERT SCORE PREDICT HISTOLOGICAL RECURRENCE IN PIECEMEAL ENDOSCOPIC MUCOSAL RESECTION? – A COMPARATIVE STUDY WITH SMSA SCORE

**Authors** Silva J<sup>1</sup>, Pinho R<sup>1</sup>, Silva AP<sup>1</sup>, Ponte A<sup>1</sup>, Rodrigues J<sup>1</sup>, Sousa M<sup>1</sup>, Gomes AC<sup>1</sup>, Carvalho J<sup>1</sup>

**Institute** 1 Gastroenterology, Centro Hospitalar de Vila Nova de Gaia e Espinho, Vila Nova de Gaia, Portugal

**DOI** 10.1055/s-0039-1681598

**Aims** Piecemeal endoscopic mucosal resection (pEMR) allows the resection of larger non-invasive colorectal lesions. Prediction of histological recurrence (HR), as determined in the first surveillance colonoscopy, is still a limitation. The recently described SERT score (Sydney EMR-recurrence tool) can predict endoscopic recurrence (ER), however it was not evaluated as a predictor of HR. The present study aimed to validate the SERT score as a predictor of ER and HR as to compare it with the SMSA score (size, morphology, site, access) already validated as a predictor.

**Methods** The SERT and SMSA scores were calculated for all lesions submitted to pEMR between 2012 – 2018. In the first surveillance colonoscopy, performed at 3 – 6 months, ER and HR were evaluated. In the absence of ER, biopsy of the scar was performed in most cases. In patients with ER, removal of the residual lesion was attempted.

**Results** 188 pEMR were considered. 61.7% were males and the mean age was  $66.1 \pm 9.8$ . Most lesions were located at the right colon (n = 47, 59.0%). Mean size was  $31.0 \pm 13.8$  mm. ER was suspected in 27.1% (n = 51), and in 72.5% of these cases (n = 37) HR was confirmed.

There was a moderate positive correlation between the SERT and SMSA scores ( $p < 0.001$ ;  $r = 0.57$ ). There was a significant association between SMSA score and ER ( $p < 0.001$ ) as well as HR ( $p < 0.001$ ). SERT score was also significantly associated with ER ( $p = 0.005$ ) and HR ( $p = 0.015$ ). The SERT score showed a

discriminative power to ER and HR, not significantly different from SMSA score ( $p = 0.5$ ).

**Conclusions** The SERT score correlates with the SMSA score and both can be used to predict RE and HR in lesions removed by pEMR. The SERT score showed a similar discriminative power for endoscopic and histologic recurrence. The SERT score is less complex and allows predicting not only endoscopic recurrence but histologic recurrence as well.

Friday, April 5, 2019

13:30 – 14:00

CRC screening 2

ePoster Podium 3

## ePP55 TRENDS OF COLORECTAL CANCER INCIDENCE RATES IN 40 – 49 YEAR OLD SUBJECTS: FIGURES FROM THE NORTH-EAST ITALIAN CANCER REGISTRIES

**Authors** Hassan C<sup>1</sup>, Zorzi M<sup>2</sup>, Guzzinati S<sup>2</sup>, Mazzoleni G<sup>2</sup>, Piffer S<sup>2</sup>, Serraino D<sup>2</sup>, Dal Maso L<sup>2</sup>, Rugge M<sup>2</sup>

**Institute** 1 ONRM Hospital, Rome, Italy; 2 Veneto Tumour Registry, Azienda Zero, Padua, Italy

DOI 10.1055/s-0039-1681599

**Aims** The American Cancer Society recently lowered the age for starting colorectal cancer (CRC) screening from 50 to 45 years. The clinical rationale behind such a strategy lies in epidemiological evidence from the USA of a rising incidence of CRC before the age of 50.

In 2003, the European Council set the age to start CRC screening at 50 years, and all European screening programs (with Austria the only exception) still follow this recommendation.

In order to make available epidemiological data on the CRC risk among young Europeans, we analysed the trends of CRC incidence rates in 40 – 49 year olds of North-Eastern Italian Regions.

**Methods** We analysed the CRC incidence rates of the Cancer Registries of the North-Eastern Italian Regions (Bolzano, Friuli Venezia Giulia, Trento and Veneto; covered population = 7,200,000 subjects), from 2003 to 2014, separately for 40 – 44 and 45 – 49 year olds. We computed the Annual Percent Change (APC), with 95% Confidence Intervals (95% CI).

**Results** No significant modifications have been registered in the malignant colorectal lesions incidence rates (years 2003 to 2014) among subjects younger than 50 years, the APC being 0.18 for 40 – 44 year olds (95% CI from -2.76 to 3.21) and APC -0.15 for 45 – 49 year olds (95% CI from -1.70 to 1.42).

**Conclusions** Our results should mean that we can rule out any need to change the CRC secondary prevention strategy with confidence. Making epidemiological data available on the temporal trends on the CRC risk among young European adults is an incoming priority.

## ePP56 HIGH-RISK LESIONS ARE A STRONGER PREDICTOR FOR INTERVAL CANCER THAN LOW ADENOMA DETECTION RATE

**Authors** Waldmann E<sup>1,2</sup>, Sinkovec H<sup>3</sup>, Heinze G<sup>3</sup>, Penz D<sup>1,2</sup>, Majcher B<sup>1,2</sup>, Hinterberger A<sup>1,2</sup>, Trauner M<sup>1,2</sup>, Ferlitsch M<sup>1,2</sup>

**Institute** 1 Dept. of Internal Medicine III, Div. of Gastroenterology and Hepatology, Medical University of Vienna, Vienna, Austria; 2 Quality Assurance Working Group, Austrian Society for Gastroenterology and Hepatology, Vienna, Austria; 3 Center for Medical Statistics, Informatics and Intelligent Systems, Institute of Clinical Biometrics, Medical University of Vienna, Vienna, Austria

DOI 10.1055/s-0039-1681600

**Aims** Although endoscopic screening reached high quality standards, interval cancers still occur in a significant number of patients and the underlying risk factors are poorly understood. After index colonoscopy patients with high-risk adenomas ( $\geq 2$  polyps or  $\geq 10$  mm or high-grade dysplasia or villous or tubu-

lo villous histology) should undergo surveillance colonoscopy after 3 years, patients with low-risk adenomas after 10 years.

The aim of this study was to evaluate the impact colonoscopy performance and lesion characteristics on the prevalence of interval cancer.

**Methods** Screening colonoscopies performed between 1/2009 and 6/2015 within a quality assurance program in Austria were included. An interval cancer was defined as colorectal cancer diagnosed at least 6 month after screening colposcopy and the scheduled time of surveillance colonoscopy.

**Results** 146,894 colonoscopies were included (50.8% women, median age 60 years) of which 19% were classified as high-risk. During a median follow up of 36.9 month, 114 interval cancers were identified. Patients with high-risk lesions had significantly higher incidence rates of interval cancers than those in the low-risk group (HR 1.77 [1.18 – 2.66];  $p = 0.006$ ). Other factors associated with interval cancer were older age (HR per 10 years 1.87 [1.52 – 2.29];  $p < 0.001$ ) and adenoma detection rate  $\leq 20\%$  (HR 0.65 [0.44 – 0.95];  $p = 0.025$ ). Interestingly, there was no association with female sex.

**Conclusions** High-risk lesions are a stronger predictor for the occurrence of interval cancer than low adenoma detection rate. In contrast to previous studies there was no association with female sex.

## ePP57 POST-COLONOSCOPY COMPLICATIONS WITHIN THE COLORECTAL CANCER SCREENING PROGRAMS OF THE VENETO REGION (ITALY)

**Authors** Zorzi M<sup>1</sup>, Hassan C<sup>2</sup>, Benazzato L<sup>1</sup>, Fantin A<sup>1</sup>, Fedato C<sup>1</sup>, Guzzinati S<sup>1</sup>

**Institute** 1 Veneto Tumour Registry, Azienda Zero, Padua, Italy; 2 ONRM Hospital, Rome, Italy

DOI 10.1055/s-0039-1681601

**Aims** To define the complication rate and the 30-days mortality rate after colonoscopy within the colorectal cancer screening programs of the Veneto Region (North East of Italy) and to identify the variables associated with complications.

**Methods** We considered the subjects who underwent a colonoscopy after a positive fecal immunochemical test (FIT+) from 2002 to 2014. Complications and deaths occurring within 30 days after colonoscopy were identified using the regional Hospital Discharge Records dataset. Complications were classified as follows: perforation (suspected/confirmed), hemorrhage, post-polypectomy syndrome, not otherwise specified complicated polypectomy, cardiovascular, other.

We computed complication and mortality rates and evaluated the variables associated with complications through multivariate analysis.

**Results** We included in the study 117,881 subjects, who underwent a colonoscopy within the regional screening program. Overall, 497 complications were recorded (complication rate 0.42%), which included 281 hemorrhages (57%), 65 perforations (13%), 27 post-polypectomy syndromes (5.4%), 59 complicated polypectomy NOS (12%) and 49 cardiovascular complications (9.9%). Seventeen subjects died within 30 days after colonoscopy, possibly due to causes related to the exam (mortality rate  $1.44 \times 10,000$ ).

The risk of complications was significantly higher in case of completion colonoscopies (Odds Ratio vs. first post-FIT+ colonoscopy 1.64;  $p = 0.026$ ), age (OR per 5-year increase 1.12;  $p = 0.005$ ), incomplete colonoscopy (OR 2.44;  $p < 0.001$ ), operative procedure (OR 1.74;  $p = 0.001$ ), diagnosis of carcinoma (OR vs. negative 9.73;  $p < 0.001$ ), high risk adenoma (OR 7.60;  $p < 0.001$ ) and low risk adenoma (OR 2.33;  $p = 0.001$ ).

**Conclusions** The complication and mortality rate of screening programs of the Veneto Region are comparable with the data from the literature. Hospital Discharge Records are a useful source of data for identifying post-colonoscopy complications.

### ePP58 PANCREAS DIVISUM AND RECURRENT PANCREATITIS: LONG-TERM RESULTS OF MINOR PAPILLA SPHINCTEROTOMY

**Authors** Schepis T<sup>1</sup>, Tringali A<sup>2</sup>, Voiosu T<sup>3</sup>, Landi R<sup>2</sup>, Perri V<sup>2</sup>, Boškoski I<sup>2</sup>, Bove V<sup>2</sup>, Costamagna G<sup>2</sup>

**Institute** 1 Digestive Endoscopy Unit, Fondazione Policlinico Universitario A. Gemelli IRCCS., Rome, Italy; 2 Digestive Endoscopy Unit, Fondazione Policlinico Universitario A. Gemelli IRCCS. Università Cattolica del Sacro Cuore, Centre for Endoscopic Research Therapeutics and Training – CERTT, Rome, Italy; 3 Gastroenterology Department, Colentina Clinical Hospital, Bucharest, Romania

**DOI** 10.1055/s-0039-1681602

**Aims** Pancreas divisum (PD) is the most common congenital anatomical variant of the pancreatic ductal system and a potential cause of acute recurrent pancreatitis (ARP) in a minority of patients. Endoscopic therapy has been studied as a therapeutic option for symptomatic PD, but there is limited long-term data on efficacy and safety of this method. We aimed to assess the technical success and clinical benefit of minor papilla endoscopic sphincterotomy (MiES) in the setting of ARP in patients with PD.

**Methods** We conducted a retrospective study of prospectively collected data of consecutive patients treated by minor papilla endoscopic sphincterotomy (MiES) at a tertiary referral center. Clinical data, including gender, age, smoking and drinking habits, number of episodes of acute pancreatitis (AP) as well as technical data pertaining to the endoscopic therapy were reviewed. Patients available for follow-up were contacted to assess the long-term impact of the endoscopic intervention using the Patient's Global Impression of Change (PGIC) questionnaire.

**Results** A total of 138 patients with PD including 77 patients with ARP, were treated endoscopically by MiES; 48 patients were available for long-term follow-up using the PGIC score, with a mean follow-up period of 9.7 years. Procedure-related complications developed in 10 cases (12.9%): 5 post-MiES delayed bleeding and 5 cases of mild pancreatitis. MiES was clinically successful in 35 patients (72.9%) who did not experience any more episodes of AP after the initial endoscopic treatment. Significant or very significant improvement in quality of life assessed by the patient at follow-up (PGIC  $\geq 6$ ) occurred in 41 / 48 patients (85.4%). On multivariate analysis, stenosis of the MiES was the only predictive factor for increased risk of recurrent pancreatitis after initial therapy.

**Conclusions** MiES resulted a safe and efficient treatment for ARP in patients with PD, with clinical benefit even at long-term follow-up.

### ePP59 ERCP WITH DRILLING USING SOHENDRA EXTRACTOR FOR STENTING NARROW AND IMPASSABLE MAIN DUCT STRICTURES IN CHRONIC CALCIFYING PANCREATITIS: A LARGE RETROSPECTIVE STUDY

**Authors** Gonzalez JM<sup>1</sup>, Le Mouel JP<sup>1</sup>, Barthet M<sup>1</sup>

**Institute** 1 Gastroenterology, Hôpital Nord, AP-HM, Aix Marseille Univ., Marseille, France

**DOI** 10.1055/s-0039-1681603

**Aims** The management of symptomatic chronic pancreatitis (CP) requires stenting of the main pancreatic duct (MPD), to calibrate strictures, sometimes non crossable except by the wire. We describe our experience using Sohendra extractor to cross the obstruction for stent placement. The objectives were: to assess the technical success (ability to place a stent), and to elucidate the characteristics of the management, the factor associated with failure, and the complications.

**Methods** This is a retrospective study conducted between 2005 and 2017 in a tertiary center. All patients having undergone a drilling of MPD with Sohendra extractor strictures between 2004 and 2018 were included. Demographical, clinical and endoscopic characteristics were recorded.

**Results** 101 patients (mean age 53.3  $\pm$  12.8 years old, sex-ratio 2 M/1F) mostly with alcoholic CP, having undergone 180 MPD drilling were included. The site of the stricture was cephalic, isthmic, corporeo-caudal or diffuses in 50%, 22%, 17% and 11% of cases, respectively. Fifty-nine patients had one single drilling (58%), other patients had 2 (21%), 3 (11%) or > 4 (10%) drillings during separate ERCPs. I was performed during the first ERCP in 32% of cases. The technical success was 93% (167/180). The Sohendra extractor diameter was 7Fr in 43% and 10Fr in 57% of cases. Then, a plastic stent was placed in 97% of cases (n = 164), mostly 7Fr. During the following ERCP, a stent exchange was possible in 67% of cases. If not, a successful new drilling was performed in most cases (83%). The complication rate was 4.5%, essentially benign pancreatitis (n = 6) and bacteriemia without sepsis (n = 2). In multivariate analysis, the predictive factors for failure were a drilling performed during the first ERCP (virgin papilla; p = 0.038) and a diameter of the Sohendra extractor of 7Fr (p = 0.016).

**Conclusions** MPD drilling using Sohendra extractor is a simple, inexpensive, safe and effective approach for treating difficult strictures in CP.

### ePP60 SINGLE-OPERATOR PANCREATOSCOPY (SOP) WITH SPYGLASS SYSTEM IN PATIENTS WITH CHRONIC PANCREATITIS

**Authors** Mansilla-Vivar R<sup>1,2</sup>, Argüello-Viudez L<sup>1</sup>, Sanchez-Montes C<sup>1</sup>, Alonso-Lazaro N<sup>1</sup>, Ponce-Romero M<sup>1</sup>, Bustamante-Balén M<sup>1</sup>, Pons-Beltrán V<sup>1</sup>

**Institute** 1 Digestive Endoscopy Unit, Health Research Institute Hospital La Fe, La Fe Polytechnic University Hospital, Valencia, Spain; 2 Digestive Endoscopy Unit, Puerto Montt Hospital, Puerto Montt, Chile

**DOI** 10.1055/s-0039-1681604

**Aims** Interventional procedures for pain treatment in chronic pancreatitis include extracorporeal shock wave lithotripsy, endoscopic stone extraction and bridging of pancreatic strictures. Standard treatment is effective in 90% of cases. Direct pancreatoscopy using smaller-caliber endoscopic equipments have been developed to explore and treat in biliary and pancreatic duct with promissory results.

To assess the usefulness, efficacy and safety of single-operator-pancreatoscopy (SOP) with the SpyGlass system in symptomatic patients with chronic calcifying pancreatitis.

**Methods** Retrospective review of a prospectively-maintained database of endoscopic procedures in a tertiary referral center. Consecutive adults confirmed with symptomatic pancreatic lithiasis after standard treatment with ERCP underwent to SOP with SpyGlass between September 2008 and October 2018.

**Results** We performed 20 procedures in 11 patients. From 2008 to 2015, we use legacy SpyGlass and then we use SpyGlass DS. Seven patients (63%) were male with a median age of 56 years ( $\pm 11,3$ ). Mean time procedure in ERCP was 92 minutes ( $\pm 38,6$ ) with 23 minutes ( $\pm 13,2$ ) of SOP with SpyGlass. Median time of follow up was 6 months (range 1 – 55). Technical success was achieved in 18/20 (90%) procedures and clinical success in 10/11 (90%) of patients. To achieve clinical success, 5 patients needed 1 procedure, 4 patients needed 2 procedures, 1 patient needed 3 procedures and 1 patient need 4 procedures. Mean number of pancreatic stones was 2 (range 1 to +5) with mean size of 7.5 mm ( $\pm 4,85$ ). SpyGlass with intraductal laser lithotripsy was used in 3 procedures and electrohydraulic lithotripsy in 8 procedures. This clinical series has no mortality and 1 patient needed surgery. We report 2 minor technical complications resolved in the same procedure.

**Conclusions** SOP is a useful and safe technique for treating pancreatic lithiasis with low rate of adverse effects. However, this procedure must to be performed by expert endoscopists.

Friday, April 5, 2019  
EUS FNA 2

13:30 – 14:00  
ePoster Podium 5

### ePP61 SOLITARY NEEDLE TRACT SEEDING METASTASES FOLLOWING PANCREATIC CANCER RESECTIONS WITH PREVIOUS EUS-FNA

**Authors** Lovecek M<sup>1</sup>, Skalicky P<sup>1</sup>, Urban O<sup>2</sup>, Mohelnikova-Duchonova B<sup>3</sup>, Falt P<sup>2</sup>, Zoundjiekpon V<sup>2</sup>, Tesarikova J<sup>1</sup>, Svebisova H<sup>3</sup>, Lemstrova R<sup>3</sup>, Ehrmann J<sup>4</sup>, Neoral C<sup>1</sup>

**Institute** 1 Surgery I, University Hospital Olomouc, Faculty of Medicine and Dentistry, Palacky University Olomouc, Olomouc, Czech Republic; 2 Gastroenterology, University Hospital Olomouc, Faculty of Medicine and Dentistry, Palacky University Olomouc, Olomouc, Czech Republic; 3 Oncology, University Hospital Olomouc, Faculty of Medicine and Dentistry, Palacky University Olomouc, Olomouc, Czech Republic; 4 Pathology, University Hospital Olomouc, Faculty of Medicine and Dentistry, Palacky University Olomouc, Olomouc, Czech Republic

DOI 10.1055/s-0039-1681605

**Aims** Pancreatic cancer (PDAC) seeding metastases following EUS-FNA is not frequent. However, the accurate frequency of this dissemination of PDAC is not known. A progression of the disease recurrence leading to death during the first two years following radical surgery is faster than the growth of seeding metastasis into its detectable size. In a case, that an isolated seeding metastasis develops, it becomes a serious complication involving patient's prognosis. Reports regarding this kind of dissemination have been increasing during last few years. We present two cases of seeding metastases. One has been following left pancreatectomy. Second is an unique case of metastasis following pylorus preserving hemipancreatoduodenectomy, as there is not previously published such a case.

**Methods** Retrospective analysis of PDAC patients operated on with curative intent between 2010 – 2015 revealed two patients with previous EUS-FNA and subsequent recurrence in the stomach. Detailed histopathological analysis and comparison of primarily resected tumors and secondary resected metastases were performed.

**Results** Case 1. 75-yrs woman, PDAC located in head of the pancreas. CT, EUS-FNA, radical surgery were performed. Solitary lesion in pylorus of 20 mm was diagnosed by PET/CT scan 15 months following radical surgery. Pyloric resection and histopathological analysis proved identical tumor. Overall survival was 29 months.

Case 2. 71-yrs woman, PDAC located in tail of the pancreas. CT, EUS-FNA, radical surgery were performed. Solitary lesion in gastric posterior wall of 18 mm was diagnosed by PET/CT scan 23 months following radical surgery. Gastrectomy and histopathological analysis proved histologically identical tumor. Actual survival is 53 months without recurrence.

**Conclusions** The indication of EUS-FNA should be prudent. If pre-operatively is required, the puncture channel should be removed during surgery. When tumor is located in the body or tail of pancreas, channel should be marked. If it is not possible, than should be carefully followed up its location and resected, when recurrence/seeding occurs.

### ePP62 EUS-FNA FOR DUODENAL HYPOECHOIC SOLID SUBEPITHELIAL LESION DIAGNOSED BY EUS

**Authors** Akahoshi K<sup>1</sup>, Akahoshi K<sup>1</sup>, Shiratsuchi Y<sup>1</sup>, Oya M<sup>2</sup>, Kubokawa M<sup>1</sup>, Gibo J<sup>1</sup>, Yodoe K<sup>1</sup>

**Institute** 1 Gastroenterology, Aso Iizuka Hospital, Iizuka-shi, Japan; 2 Pathology, Aso Iizuka Hospital, Iizuka-shi, Japan

DOI 10.1055/s-0039-1681606

**Aims** The frequency of histological types and the usefulness of EUS-FNA for duodenal subepithelial lesions (DSEL) whose EUS image shows a hypoechoic solid mass are still unknown. The aim of this study is to clarify them.

**Methods** From October 2004 to April 2018, 16 consecutive patients who underwent EUS-FNAs for DSEL whose EUS image showed a hypoechoic solid mass were evaluated prospectively. The reference standards for the final diagnosis were surgery (n = 12), or clinical follow-up (n = 4). We used 22G or 25G FNA needles and performed rapid on-site cytopathological examination and immunohistochemical analysis in all lesions.

**Results** There were 8 FNA specimens from the duodenal bulb and 8 from the descending portions. The final histopathological diagnoses (Surgery or EUS-FNA) included 9 cases of GIST (56%), 2 cases of leiomyoma (13%), and 1 case each of carcinoid (hereinafter 6% each), malignant lymphoma, cancer, leiomyosarcoma, and gauzeoma. The frequency of malignant tumors in DSEL whose EUS image showed a hypoechoic solid mass, was 81% (13/16). Puncture was not performed because of intervening vessels in one case. The diagnostic rate was 80% (12/15). In 9 surgically resected cases (excluding 3 unsuccessful EUS-FNA cases), the diagnostic accuracy of EUS-FNA was 89% (8/9). There were no complications.

**Conclusions** DSEL whose EUS image showing a hypoechoic solid mass is highly likely to be malignant tumor containing GIST. EUS-FNA for DSEL whose EUS image showing a hypoechoic solid mass is a safe and accurate method. It should be taken into consideration in decision making, especially in early diagnosis and early treatment for this condition.

### ePP63V A RARE PANCREATIC NEOPLASM...

**Authors** Bruno M<sup>1</sup>, Maletta F<sup>2</sup>, Gaia S<sup>1</sup>, Cortegoso Valdivia P<sup>1</sup>, Venezia L<sup>1</sup>, Papotti M<sup>2</sup>, Saracco GM<sup>1</sup>, De Angelis CG<sup>1</sup>

**Institute** 1 Gastroenterology Unit, AOU Città della Salute e della Scienza, Turin, Italy; 2 Pathology Unit, University of Turin. AOU Città della Salute e della Scienza, Turin, Italy

DOI 10.1055/s-0039-1681607

In 2014 a 44 years-old lady underwent transabdominal US for mild crampy abdominal pain and loose stools (eventually attributed to IBS). A 1.5 cm lesion in the uncinat process of the pancreas was detected (confirmed by CT). Then she was referred for EUS-FNA. A 13 × 11 mm hypoechoic mass was detected. FNA was performed with a 25G needle (4 passes). Cytology revealed sheets and bundles of spindle cells and immunohistochemistry led to the diagnosis of pancreatic schwannoma (negative staining for desmin, actin, DOG-1 and CD117 and positive for S100) with a low proliferation index (ki67 <1%). Schwannomas are rare mesenchymal tumors, their origin from the pancreas is exceedingly rare (only 70 cases in literature). Their diagnosis before surgery is difficult, only 17 patients underwent EUS-FNA and the diagnosis could be reached in only 9 cases. To our knowledge, follow-up has been proposed to only 1 patient but the lesion grew up after a 11-month follow-up. After collegial consultation follow-up was proposed to our patient, relying to abdominal US. Four years have passed: the lesion is unchanged and the patient is asymptomatic. We think that a wait-and-see strategy may be proposed for pancreatic schwannomas, provided they are small, stable in size, with a low proliferation index, well-defined margins and without the need for excessive radiation exposure.

Friday, April 5, 2019  
GI bleeding 3

13:30 – 14:00  
ePoster Podium 6

### ePP64 ENDOSCOPIC HISTOACRYL INJECTION IS SAFE AND EFFECTIVE MODALITY FOR HEMOSTASIS OF BOTH ACUTE VARICEAL AND NON-VARICEAL BLEEDING

**Authors** Moon JS<sup>1</sup>, Choi JH<sup>1</sup>, Kang YM<sup>1</sup>, Park JH<sup>1</sup>, Kim YS<sup>1</sup>, Ryu SH<sup>1</sup>, Park TY<sup>1</sup>

**Institute** 1 Department of Internal Medicine, Inje University Seoul Paik Hospital, Seoul, Korea, Republic of

DOI 10.1055/s-0039-1681608

**Aims** Histoacryl is one of the materials that can be used as a sclerosing agent and is known to be effective in endoscopic hemostasis of acute gastric variceal bleeding. In addition, it can be applied to hemostasis of ulcer bleeding with relatively simple manipulation and is also effective. We reviewed patients who had undergone treatment endoscopically with Histoacryl and assessed the effectiveness and side effects according to each disease.

**Methods** We retrospectively reviewed 100 cases treated endoscopically with Histoacryl in Seoul Paik Hospital from January 2004 to October 2018. All cases were categorized by each disease. For the cases of bleeding, initial hemostasis rate and rebleeding rate within 7 days were evaluated. We reviewed the procedure records and post-procedure medical records to confirm the adverse effects.

**Results** Among 100 cases treated with Histoacryl, 92 cases were upper GI bleedings, 8 cases were fistula. Among upper GI bleeding cases, 79 were variceal bleedings, 12 were ulcer bleedings, and 1 was post-ESD bleedings. Gastric variceal bleeding accounted for the majority of variceal bleeding in 72 of 79 cases (91.1%). Among the ulcer bleeding, there were 9 cases of gastric ulcer and 3 cases of duodenal ulcer. Initial hemostasis was obtained from all bleeding cases. The delayed bleeding rate within 7 days was 9.9% of all bleeding cases, 10.0% of variceal hemorrhage cases, and 9.1% of ulcer bleeding cases. No significant complication was observed, but 3 patients were expired within six months for reasons unrelated to this procedure.

**Conclusions** According to our data, Histoacryl treatment is relatively safe and has a high success rate of hemostasis not only for variceal bleeding but also for ulcer bleeding. Therefore, it is considered to be a useful method for upper GI bleeding which is difficult to hemostasis.

## ePP66 ECTOPIC VARICEAL BLEEDING TREATED WITH HEMOSPRAY AS SALVAGE THERAPY: 2 CASE STUDIES

**Authors** Masegosa Ataz J<sup>1</sup>, Doyle J<sup>1</sup>, Henry E<sup>1</sup>, Padol S<sup>1</sup>, Barron M<sup>1</sup>

**Institute** 1 NHS Tayside, Gastroenterology, Dundee, United Kingdom

**DOI** 10.1055/s-0039-1681609

**Aims** Ectopic varices are portosystemic shunts out of the common gastro-oesophageal varices alongside the gastrointestinal tract, and although rare the rate of bleeding is 4 fold higher comparing to common varices. Likewise, treatment strategies have shown poorer outcomes than gastro-oesophageal. No cases have been reported in literature of the use of hemospray in ectopic varices.

**Methods** We present two cases of use of hemospray as a salvage therapy and their outcomes.

**Results** Case 1: 56 Year old female Alcoholic liver disease Child-Pugh C presented with a 4 day history of melena hypovolaemic shock.

Gastroscopy showed fresh blood in duodenum. Deeper D3 intubation showed a duodenal varix with a fibrin plug, treated with 10 ml of thrombin injection, still oozing so hemospray applied with good result. The patient rebled in less than 48 hours. TIPS was performed, with cessation of bleeding.

Case 2: 56 year old female with exact same background was admitted with increased jaundice. While admitted she had several episodes of rectal bleeding plus 4 point hemoglobin drop secondary to large rectal varices. Endoscopic thrombin injection x 5 seemed to stop the bleeding. 24 hours later another frank rectal haemorrhage observed. In new sigmoidoscopy, a persistent fibrin plug started bleeding. 19 ml thrombin applied but still minimal oozing which effectively stopped after hemospray.

Patient hb improved to baseline, however continued to drink and had further episode of bleeding in 3 months, resolved after TIPS insertion.

**Conclusions** In the 2 cases described, the salvage use of hemospray as a combined method was effective to provide immediate hemostasis but did not contribute to achieve a definitive treatment as the underlying cause was still untreated.

Hemospray could potentially play a key role in contributing to stabilize the patient's haemodynamics, facilitating the treatment of reversible decompensating factors as well as a bridge towards definitive treatment.

Friday, April 5, 2019

13:30 – 14:00

Quality 3

ePoster Podium 7

## ePP67 REVISITING REPORTING OF PERFORMANCE MEASURES FOR LOWER GASTROINTESTINAL ENDOSCOPY FROM A TERTIARY REFERRAL CENTER FROM ROMANIA: STILL A LONG WAY TO GO...

**Authors** Bobeica D<sup>1</sup>, Draghici T<sup>1</sup>, Voiosu T<sup>1</sup>, Bengus A<sup>1</sup>, Rimbas M<sup>1</sup>, Mateescu B<sup>1</sup>, Voiosu A<sup>1</sup>

**Institute** 1 Colentina Clinical Hospital, Bucharest, Romania

**DOI** 10.1055/s-0039-1681610

**Aims** Standardized reporting and quality benchmarking for colonoscopy are essential marks of a high-quality Endoscopic unit. We previously reported suboptimal key performance measures in colonoscopy practices in a single tertiary referral center. This is a reassessment of the key performance measures 6 months after announcing the results of the former audit to the colonoscopists in the unit.

**Methods** This is a single-center retrospective analysis of colonoscopy performance in a tertiary-referral center. All colonoscopy reports from a 3-month period were analyzed for this study, in identical fashion to the previous audit. Standard ESGE guideline recommendations for performance measures in lower GI endoscopy were used for the following key measures: indication ( $\geq 85\%$ ), quality of bowel preparation ( $\geq 90\%$ ), caecal intubation rate ( $\geq 90\%$ ), adenoma ( $\geq 25\%$ ) and polyp detection rate ( $> 40\%$ ).

**Results** During a 3-month period (1.03 – 31.05.2018) 278 colonoscopies were performed in our unit. Since the previous audit there was a noticeable improvement in the reported indication for colonoscopy which was adequate in 91.2% compared to 78.7% of cases in the initial audit. However, there was no improvement in the rate of adequate bowel preparation (63.8% vs. 64.5%) or caecal intubation rate (71.3% vs. 74.7%). The adenoma detection rate and the polyp detection rate for the service remained consistent and were 27% (vs 27.3%) and 49% (vs 51.7%).

**Conclusions** Some suboptimal key performance measures persisted after reporting the results of the previous audit. Further retraining and proper reporting of outcomes are mandatory for improvement of key performance measures and achieving recommended quality standards in lower GI endoscopy.

## ePP68 ANALYSIS OF THE QUALITY OF COLONOSCOPY REPORTS OVER A YEAR AS PART OF THE COLORECTAL CANCER SCREENING PROGRAM IN THE FRENCH DEPARTMENT OF FINISTERE

**Authors** Noel C<sup>1</sup>, Jezequel J<sup>1</sup>, Cholet F<sup>1</sup>, Bommelaere F<sup>2</sup>, Bouzeloc S<sup>3</sup>, Cariou M<sup>3</sup>, Nousbaum JB<sup>1</sup>, Robaszkiewicz M<sup>1</sup>

**Institute** 1 Gastroenterology, University Hospital (CHU), Brest, France; 2 ADEC 29, Brest, France; 3 Digestive Tumors Registry of Finistère, Brest, France

**DOI** 10.1055/s-0039-1681611

**Aims** To carry out a qualitative analysis of the colonoscopy reports (CR) established in individuals examined for a positive FIT in Finistere during year 2016. This study was based on the ESGE quality indicators for colonoscopy.

**Methods** All CR sent to the structure in charge of the screening program have been reviewed. Fifteen indicators were analyzed.

**Results** 1401 reports were analysed: 1135 colonoscopies were performed in private practice and 266 in public hospitals. The indication for colonoscopy was mentioned in 99.6% of CR; 14.6% of CR did not contain data related to sedation or anesthesia. Data relative to the bowel preparation were present in 90.6% of CR; the Boston classification was used in 35.0% of cases. The most

proximal colonic segment reached was mentioned in 99.0% of cases; 95.0% of colonoscopies were complete. 947 CR described at least one colonic lesion. The number and location of lesions was mentioned in 98.9% and 95.3% of cases. The estimated size of the lesions was present in 84.3% of CR. A macroscopic description of the lesions was provided in 76.4% of CR; the Paris and Kudo classifications were used in only 7.4% and 1.2% of cases respectively. The modalities of polyp removal were described in 84.8% of cases. No report mentioned complications during colonoscopy. Recommendations for further colonoscopic surveillance were mentioned in 36.4% of CR. 64.2% of the CR met at least 4 of the 5 major quality indicators to be included in the report (Adenoma detection rate and patient's experience were not assessed in individual CR).

**Conclusions** One third of the CR performed as part of a colorectal screening campaign do not meet the required quality criteria and can be improved. The implementation of a standardized report software would improve quality and allow quality indicators extraction.

### ePP69 COMPARISONS OF COLONOSCOPY QUALITY INDICATORS FOR THE PREDICTION OF ADENOMA MISS RATE

**Authors** Kim D<sup>1</sup>, Koo JS<sup>1</sup>, Hwang SH<sup>1</sup>, Choe JW<sup>1</sup>, Kim SY<sup>1</sup>, Hyun JJ<sup>1</sup>, Jung SW<sup>1</sup>, Jung YK<sup>1</sup>, Yim HJ<sup>1</sup>, Lee SW<sup>1</sup>

**Institute** 1 Internal Medicine, Korea University Ansan Hospital, Ansan, Korea, Republic of

DOI 10.1055/s-0039-1681612

**Aims** Adenoma detection rate (ADR) is most widely used as an indicator of quality for colonoscopy. However, high ADR alone do not guarantee the complete removal of adenomas due to limitation of definition of ADR. Therefore, other optimal indicator is needed to better reflect the quality of colonoscopist. In our study, we analyzed the association of several quality indicators such as the total adenomas per colonoscopy (APC), adenoma per positive participants (APP) and ADR-plus with adenoma missed rate (AMR).

**Methods** Patients who underwent more than two total colonoscopy for screening, surveillance within 3 years in Korea University Ansan Hospital between January 2011 and February 2016 were included. AMR and AMR more than 5 mm miss rate (AMR>5 mm) were calculated from 9 endoscopists who performed total colonoscopy more than 50 times as a first colonoscopist. ADR, APC, APP and ADR plus were calculated from patients with age over 40 years.

**Results** A total of 716 patients aged  $\geq 40$  years were analyzed retrospectively. Mean age was 58.9 years and male was 450 (62.8%). And mean time interval between colonoscopic exams was 21.6 months. There were no significant differences in age, sex, bowel preparation quality and mean time interval between colonoscopic exams among nine endoscopists. AMR was 0.36, 0.38, 0.45, 0.28, 0.43, 0.35, 0.28, 0.24 and 0.37. AMR>5 mm was 0.35, 0.23, 0.24, 0.22, 0.29, 0.35, 0.18, 0.20 and 0.35, respectively. AMR was not significantly correlated with all quality indicators. Whereas APC had a significant inverse correlation with AMR>5 mm ( $r=-0.729$ ,  $p=0.026$ ), the other indicators were not significantly correlated with AMR>5 mm ( $r$  for ADR  $=-0.221$ ,  $p=0.567$ ;  $r$  for ADR plus  $=-0.661$ ,  $p=0.053$ ,  $r$  for APP  $=-0.638$ ,  $p=0.064$ ).

**Conclusions** APC had the significant negative association with AMR>5 mm. APC might be a better quality indicator for meticulous colonoscopist.

Friday, April 5, 2019  
Stomach diagnosis 2

13:30 – 14:00  
ePoster Podium 8

### ePP70 WE CAN JUDGE THE PRESENT OR PAST *H. PYLORI* INFECTION WITH ONLY ONE ENDOSCOPIC CARDIAC IMAGE (WHALE SHARK SIGN: WSS)

**Authors** Yamasaki T<sup>1</sup>, Chibai M<sup>2</sup>, Sakurai T<sup>1</sup>, Mitobe J<sup>1</sup>, Maruyama Y<sup>1</sup>, Miyashita H<sup>1</sup>, Akita Y<sup>1</sup>, Miyazaki R<sup>1</sup>, Mitsunaga M<sup>1</sup>, Saruta M<sup>1</sup>

**Institute** 1 Department of Internal Medicine, Division of Gastroenterology and Hepatology, The Jikei University, School of Medicine, Tokyo, Japan; 2 Surgery, Heiwadai Clinic, Tokyo, Japan

DOI 10.1055/s-0039-1681613

**Aims** We have confused with various newly endoscopic findings (patchy redness and map-like redness etc.) after *H.pylori* (HP) eradication. On this time, we have found out a new other ultimate useful finding showing HP related gastritis at gastric cardia including present and post HP infection. Our aim of this study is to elucidate the possibility of judgement with only this cardiac endoscopic view about presence or absence with HP infection.

**Methods** We have found out so useful and specific cardiac image (Whale Shark Sign: WSS) closely related to HP infection five years ago. We have examined the presence of WSS on 5,132 cases that have been able to overview on their endoscopic profiles. The 4,833 cases their serum HP antibody titers were measured from Jan. 2012 to Oct. 2018. A total of 3,579 patients (HP positive) were enrolled.

**Results** Mean age of patients was 53.2 years old. The positive predictive value (PPV) of WSS was surprisingly high (98.7%). According to this high PPV, we can think WSS positive cases are high risk of gastric cancer. This WSS mean that the presence of irregular gastric mucosal surface pattern and the presence of lymphoid hyperplasia, that showing HP infectious stomach. This lymphoid hyperplasia at gastric cardia were recognized small round whitish nodules on white light endoscopy. And this was more emphasized with image-enhanced endoscopy (Narrow Band Imaging: NBI), it looks like Whale Shark. This WSS sign is so simple and easy for every gastroenterologist. It is so useful to know gastric cancer risk at gastric entrance (cardia) with the presence of an easy simple sign.

**Conclusions** We have been able to judge the presence of HP infection with only cardiac endoscopic image (WSS). Since this sign is very easy and simple, everyone will be able to judge the presence of HP infection and gastric cancer risk.

### ePP71 DIAGNOSTIC ACCURACY OF ENDOFASTER COMPARED TO HISTOLOGY FOR CHRONIC ATROPHIC GASTRITIS USING NARROW BAND IMAGING (NBI) TARGETED BIOPSIES: A REAL-TIME PROSPECTIVE STUDY

**Authors** Esposito G<sup>1</sup>, Cazzato M<sup>1</sup>, Galli G<sup>1</sup>, Conti L<sup>1</sup>, Lahner E<sup>1</sup>, Di Giulio E<sup>1</sup>, Annibale B<sup>1</sup>

**Institute** 1 Department of Medical-Surgical Sciences and Translational Medicine, Sapienza University, Rome, Italy

DOI 10.1055/s-0039-1681614

**Aims** NISO Biomed EndoFaster is a new device that within 15 seconds measures the gastric pH of the gastric juice through its aspiration from the gastric cavity during routine endoscopy. The aim of this study was to compare the diagnostic accuracy of NISO Biomed EndoFaster in comparison of histological examination as gold standard for chronic atrophic gastritis using narrow band imaging (NBI) targeted biopsies.

**Methods** Prospective study conducted on consecutive adult outpatients undergoing gastroscopy for suspected chronic atrophic gastritis (anemia, dyspepsia). At the beginning of gastroscopy, gastric juice was aspirated and analyzed by EndoFaster in real time (15 seconds). Endoscopists were blinded to the report of the device. Then patients were evaluated by high resolution

narrow band imaging (HR-NBI) after the use of white light (WL). Biopsies were taken where the endoscopists recognized intestinal metaplasia (targeted biopsies) or using Sydney System if intestinal metaplasia was not recognized.

**Results** Overall, 101 patients were included (62% F; 55 (19–80) years). Chronic atrophic gastritis was present in 42% of patients. Endofaster showed an accuracy for atrophic gastritis of 87.2% and a sensitivity, specificity, PPV and NPV of 77.8%, 96.4%, 94.6% and 84.4%, respectively, for the diagnosis of hypochloridia. NBI had an accuracy of 90.7% for the diagnosis of intestinal metaplasia. Endofaster allowed to correctly diagnose atrophic gastritis in 3.0% of patients negative to NBI (atrophic gastritis without intestinal metaplasia).

**Conclusions** Endofaster seems a promising tool to correctly diagnose chronic atrophic gastritis. The high PPV suggests performing biopsies only in patients with a real need of doing biopsies. Endoscopy centers where the use of NBI is not available or where NBI does not evidentiate intestinal metaplasia, the use of Endofaster should be considered.

## ePP72 RELIABILITY AND ACCURACY OF BLUE LIGHT IMAGING FOR STAGING OF INTESTINAL METAPLASIA IN STOMACH (BLIMPS)

**Authors** Castro R<sup>1</sup>, Libânio D<sup>1</sup>, Santos C<sup>2,3</sup>, Afonso LP<sup>4</sup>, Pimentel-Nunes P<sup>1,3,5</sup>, Dinis-Ribeiro M<sup>1,2,3</sup>

**Institute** 1 Gastroenterology, Portuguese Institute of Oncology, Porto, Portugal; 2 MEDCIDS, Faculty of Medicine, University of Porto, Porto, Portugal; 3 CINTESIS, Faculty of Medicine, University of Porto, Porto, Portugal; 4 Pathology, Portuguese Institute of Oncology, Porto, Portugal; 5 Department of Surgery and Physiology, Faculty of Medicine, University of Porto, Porto, Portugal

DOI 10.1055/s-0039-1681615

**Aims** A grading endoscopic system using high-resolution scopes with NBI has been shown to accurately identify patients with extensive GIM (EGGIM) that need surveillance. However, no description is available with alternative systems such as the new system of Fujifilm, BLI. We aim to determine the reliability and accuracy of BLI regarding the diagnosis and staging of GIM.

**Methods** A consecutive series of patients (n = 29), previously assessed by NBI, with a full spectrum of gastric changes (OLGIM 0-IV) were submitted to gastroscopies using FujifilmEG-760ZHD/ELUXEO-VP7000 and endoscopists (blinded to the previous histologic status) were asked to determine EGGIM score on real-time using BLI-bright mode (eg, 0–2 for the lesser curvature of antrum and corpus, greater curvature of antrum and corpus and incisura, total 0–10). Reliability with BLI using the previous classification by Pimentel-Nunes P et al. among 3 observers was determined with WLE, LCI and BLI (n = 32 per site images). Secondly, accuracy was determined by comparing with previously EGGIM (cutoff of 4) with NBI and current OLGIM status.

**Results** The overall interobserver reliability for histologic presumption based on endoscopic images with BLI (wK 0.80[95% CI:0.64–0.93]) and LCI (wK 0.76[95% CI:0.53–0.90]) was substantially better than WLE (wK 0.43[95% CI:0.20–0.66]). The proportion of certainty varied between 50 to 62% for WLE, 59 to 81% for LCI, 78 to 91% for BLI. Accuracy is reported in table 1.

Tab. 1 Accuracy (n = 29)

EGGIM using BLI-Bright	EGGIM using NBI		OLGIM (n = 27)	
	0–4	5–10	0-II	III-IV
0–4	12 (92%)	4	16 (84%)	0
5–10	1	12 (75%)	3 (16%)	8 (100%)
	>90% agreement		AUC 0.92 (CI 95%: 0.82–1.00)	

**Conclusions** BLI is reliable in determining the presence of GIM. BLI-bright seems to agree significantly with NBI evaluation (90% agreement) and preliminary data suggests very high sensitivity for identifying those at risk (OLGIM III/IV). External multicentre assessment is required for further validation.

## ePP73 HIGH-QUALITY COLON CLEANSING IMPROVES SEGMENTAL POLYP AND ADENOMA DETECTION RATES: POST HOC ANALYSIS OF RANDOMISED CLINICAL TRIALS USING THE BOSTON BOWEL PREPARATION SCALE

**Authors** Hassan C<sup>1</sup>, Halonen J<sup>2</sup>, Manning J<sup>3</sup>

**Institute** 1 Gastroenterology and Endoscopic Unit, Ospedale Nuovo Regina Margherita, Roma, Italy; 2 Medical Affairs, Norgine, Harefield, United Kingdom; 3 Borders General Hospital, Berwickshire, United Kingdom  
DOI 10.1055/s-0039-1681616

**Aims** Successful colon cleansing is defined as a segmental score of 2 or higher on the Boston Bowel Preparation Scale (BBPS). The additional clinical value of high-quality cleansing (BBPS 3) is subject for debate. This post hoc analysis of three randomised phase 3 clinical trials assessed the segmental lesion detection rates in the right colon at variable BBPS scores.

**Methods** Three similarly designed phase 3 trials assessed the efficacy and safety of 1L NER1006 versus standard bowel preparations. Polyps and adenomas were detected by site endoscopists as per local practice while cleansing assessment was standardised with treatment-blinded central readers using the validated BBPS. This pooled analysis assessed the right colon polyp (PDR) and adenoma (ADR) detection rates versus attained right colon cleansing quality. 1-sided t-tests assuming unequal variance compared the relative lesion detection rates versus the high-quality score BBPS 3.

**Results** A total of 1749 patients were included: BBPS 3 (n = 284), BBPS 2 (n = 1192), BBPS 1 (n = 210) and BBPS 0 (n = 63). BBPS 3 in the right colon was associated with a significantly higher PDR than BBPS 2 (23.6% vs. 17.2%; P = 0.010), BBPS 1 (23.6% vs. 15.2%; P = 0.009) and BBPS 0 (23.6% vs. 4.8%; P < 0.001). BBPS 3 in the right colon was also associated with a significantly higher ADR than BBPS 2 (14.8% vs. 10.9%; P = 0.046) and BBPS 0 (14.8% vs. 4.8%; P = 0.002). BBPS 1 had a numerically smaller ADR than BBPS 3 and BBPS 2.

**Conclusions** With a strictly assessed cleansing quality using the BBPS, higher PDR and ADR were obtained with high-quality versus adequate only right colon cleansing. As expected, high-quality right colon cleansing also enabled significantly greater PDR and ADR than failed cleansing. These findings encourage endoscopists to prioritise cleansing efficacy when selecting bowel preparations for their patients.

## ePP74 THE INDEX EVALUATING INDIVIDUALS' INDEPENDANCY IN ACTIVITIES OF DAILY LIVING DOES NOT SATISFACTORILY PREDICT INADEQUATE BOWEL PREPARATION IN INPATIENTS UNDERGOING COLONOSCOPY

**Authors** Triantafyllou K<sup>1</sup>, Gkolfakis P<sup>1</sup>, Skamnelos A<sup>2</sup>, Diamantopoulou C<sup>3</sup>, Dagas A<sup>4</sup>, Tziatzios G<sup>1</sup>, Thomopoulos K<sup>3</sup>, Potamianos S<sup>4</sup>, Christodoulou D<sup>2</sup>

**Institute** 1 Hepatogastroenterology Unit, Second Department of Internal Medicine – Propaedeutic, Research Institute and Diabetes Center, Medical School, National and Kapodistrian University of Athens, "Attikon" University General Hospital, Athens, Greece; 2 Division of Gastroenterology, University Hospital & Faculty of Medicine, School of Health Sciences, University of Ioannina, Ioannina, Greece; 3 Division of Gastroenterology, Department of Internal Medicine, University Hospital of Patras, Patras, Greece; 4 Department of Gastroenterology, Faculty of Medicine, School of Health Sciences, University of Thessaly, Larisa, Greece  
DOI 10.1055/s-0039-1681617

**Aims** Katz index\* assesses independancy of a person in performing activities of daily living (bathing, dressing, toileting, transferring, continence, feeding).

We evaluated the use of Katz index for the prediction of inadequate bowel preparation among inpatients undergoing colonoscopy.

**Methods** Post-hoc analysis of the data from a cohort inpatients undergoing colonoscopy in 4 tertiary Greek centers. To calculate Katz index each of the aforementioned domains scores 1 point if patient performs the respective activity independently (range 0–6; higher value indicates higher independency level). We used the Area Under the Curve (AUROC) to determine Katz index discriminative ability to predict inadequate bowel prep.

**Results** Out of 261 patients (100 bedridden, 140 men, 70.7 ± 15.4 years old) 89 (34.1%) had inadequate bowel preparation (BBPS < 6). Katz index was higher among ambulatory compared to bedridden patients ( $p < 0.0001$ ), but it did not differ between individuals with adequate and inadequate bowel preparation ( $p = 0.08$ ). Katz index showed a low discriminative ability to predict inpatients with inadequate bowel preparation not only in the entire cohort [AUROC (95% CI) = 0.44 (0.36–0.52),  $p = 0.11$  but also in the groups of ambulatory and bedridden patients [AUROC (95% CI) = 0.50 (0.39–0.60),  $p = 0.9$  and 0.55 (0.43–0.67),  $p = 0.4$  respectively].

**Conclusions** Katz index failed to predict satisfactorily inpatients (either ambulatory or bedridden) with inadequate bowel preparation before colonoscopy.

\*Katz, S, et al. Progress in the development of the index of ADL. *The Gerontologist*; 1970;10, 20–30.

### ePP75 HIGH-QUALITY COLON CLEANSING IMPROVES REAL-WORLD IDENTIFICATION OF HIGH-RISK PATIENTS: POST HOC ANALYSIS OF RANDOMISED CLINICAL TRIALS USING TWO VALIDATED CLEANSING SCALES

**Authors** Manning J<sup>1</sup>, Amlani B<sup>2</sup>, Hassan C<sup>3</sup>, Ponchon T<sup>4</sup>

**Institute** 1 Borders General Hospital, Berwickshire, United Kingdom; 2 Medical Affairs, Norgine, Harefield, United Kingdom; 3 Gastroenterology and Endoscopic Unit, Ospedale Nuovo Regina Margherita, Rome, Italy; 4 Gastroenterology and Endoscopy, Edouard Herriot Hospital, Lyon, France  
DOI 10.1055/s-0039-1681618

**Aims** Clinical guidelines classify colonoscopy patients with three or more detected adenomas as being at high risk for advanced neoplasia. These patients have a recommended follow-up after 3 years. Our post hoc analysis of three phase 3 randomised clinical trials assessed whether increased colon cleansing quality could improve the real-world identification of high-risk patients.

**Methods** Three similarly designed phase 3 trials assessed the efficacy and safety of 1L NER1006 (PLENVU) versus standard bowel preparations. Polyps were detected by site endoscopists as per local practice. Cleansing quality was assessed by treatment-blinded central readers using the validated Harefield Cleansing Scale (HCS) and Boston Bowel Preparation Scale (BBPS). This pooled analysis assessed the identification of high-risk patients with three or more adenomas versus attained colon cleansing quality.

**Results** At total of 1749 patients were included (Table). Three or more adenomas/patient were observed more frequently when the overall cleansing quality increased from failure to high-quality (HCS grade A vs. C: 8.7% vs. 3.9%;  $P = 0.022$ , and BBPS overall score 7–9 vs. 0–5: 8.6% vs. 4.6%;  $P = 0.013$ ). When the cleansing quality improved from adequate to high, a numerical trend towards increased detection was observed with both scales, and statistical significance was established with BBPS 7–9 vs. 6 at 8.6% vs. 5.6%;  $P < 0.001$ .

**Tab. 1** Overall colon cleansing quality versus detection of high-risk patients with three or more adenomas per patient

Overall colon cleansing quality	High-quality	Adequate/Successful	Failure	
BBPS overall score	7–9 (N = 463)	6 (N = 958)	0–5 (N = 328)	
High-risk patients, n/N (%); P-value vs. High-quality	40/463 (8.6)	54/958 (5.6) $P < 0.001$	15/328 (4.6) $P = 0.013$	
HCS Grade	A (N = 242)	B (N = 1229)	C (N = 203)	D (N = 75)
High-risk patients, n/N (%); P-value vs. High-quality	21/242 (8.7)	74/1229 (6.0) $P = 0.062$	8/203 (3.9) $P = 0.022$	6/75 (8.0) $P = 0.427$

**Conclusions** With high- versus adequate only colon cleansing quality, more patients were identified as being at high-risk for advanced neoplasia. This trend was numerically consistent across both HCS and BBPS, but reached statistical significance only with the more balanced sample sizes in the BBPS analysis.

Friday, April 5, 2019

14:00 – 14:30

Colon: resection 3

ePoster Podium 2

### ePP76 DEVELOPMENT OF A MODIFIED SMSA SCORING SYSTEM WITH IMPROVED ACCURACY IN THE PREDICTION OF COMPLICATIONS OF ENDOSCOPIC MUCOSAL RESECTION IN THE COLON

**Authors** Silva JC<sup>1</sup>, Rodrigues J<sup>1</sup>, Pinho R<sup>1</sup>, Sousa M<sup>1</sup>, Gomes AC<sup>1</sup>, Silva AP<sup>1</sup>, Carvalho J<sup>1</sup>

**Institute** 1 Gastroenterology, Centro Hospitalar de Vila Nova de Gaia e Espinho, Vila Nova de Gaia, Portugal

DOI 10.1055/s-0039-1681619

**Aims** The SMSA (*size, morphology, site, access*) scoring system allows stratification of the complexity of endoscopic mucosal resections (EMR). However, the influence of other lesion characteristics in EMR outcomes is widely recognized. The aim of this study was to develop a modified SMSA scoring system with complementary lesion characteristics and determine its accuracy in the prediction of complications of EMR.

**Methods** Consecutive colorectal, non-pedunculated lesions, ≥ 20 mm, referred to EMR between 2015–2016 were included. Lesions with previous resection attempts were excluded. The relation between SMSA and total complication rate (intra-procedure and post-EMR bleeding, intestinal perforation and post-polypectomy syndrome) was evaluated. Additional predictive characteristics of complications were determined and their incorporation into the SMSA evaluated.

**Results** 225 lesions were selected, mean size 29.5 ± 13.0 mm, most of type 0-Ila (37.3%) or 0-Is (28.0%) Paris Classification, with granular surface (72.9%). Technical success of EMR was 94.2% (n = 212), with *piecemeal* (68.9%) or *en bloc* (31.1%) resection, and was related to the SMSA ( $p < 0.001$ ). Total complication rate was 22.6%: intra-procedure bleeding = 15.1%; post-EMR bleeding = 6.1%; intestinal perforation = 0.9%; post-polypectomy syndrome = 0.9%. The area under the ROC curve of the SMSA for prediction of complications was 0.70 (95% CI 0.61–0.79,  $p < 0.001$ ). On multivariate analysis, lesion component 0-Ilb/0-Ilc (OR = 2.4, 95% CI 1.1–6.5,  $p = 0.041$ ) and non-granular/mixed surface type (OR = 2.6, 95% CI 1.2–5.9,  $p = 0.020$ ) were associated with complications independently of the SMSA. The incorporation of the two characteristics into the SMSA (component 0-Ilb/Ilc = 2 points, non-granular/mixed surface = 3 points) had a significantly increased association with the total complication rate (area under the ROC curve = 0.79), by a difference of 0.087;  $p = 0.032$  (*DeLong et al. method*).

**Conclusions** The incorporation of the Paris Classification (component 0-Ilb or Ilc) and the lesion surface type (granular or non-granular) into the SMSA scoring system increased its accuracy in the prediction of complications of EMR.

## ePP77 LONG-TERM OUTCOMES OF PATIENTS WITH INDETERMINATE OR POSITIVE LATERAL MARGIN AFTER ENDOSCOPIC RESECTION AND RELATED FACTORS WITH RECURRENCE IN LARGE, SESSILE OR FLAT COLORECTAL POLYPS

**Authors** Kim HW<sup>1</sup>, Park SB<sup>1</sup>, Kang DH<sup>2</sup>, Choi CW<sup>2</sup>, Kim SJ<sup>1</sup>, Nam HS<sup>1</sup>, Ryu DG<sup>1</sup>

**Institute** 1 Pusan National University Yangsan Hospital, Yangsan-si, Korea, Republic of; 2 Pusan National University Yangsan Hospital, Division of Gastroenterology, Department of Internal Medicine, Yangsan-si, Korea, Republic of

**DOI** 10.1055/s-0039-1681620

**Aims** Recurrence rate in colorectal polyps with indeterminate or positive lateral margin on histology is unclear. We evaluated the long-term outcomes of patients with indeterminate or positive lateral margin after endoscopic resection and related factors with recurrence in large, sessile or flat polyps.

**Methods** We collected the data for 156 lesions with large size ( $\geq 1$  cm), sessile or flat shape, indeterminate or positive lateral margin in histology and more than 24 months of follow-up intervals between Jan 2009 and Sep 2017. We analyzed recurrence rate, time to recurrence, histology at recurrence and risk factors related with recurrence.

**Results** During follow-up periods (24–86 months, mean 44.2), recurrence rate was 7.1% (11/156) and mean time to recurrence was 39.2 months (20–59). Recurrence rate of cuff-off techniques were 3.2% (4/127) in en bloc, 9.1% (1/11) 2 piecemeal resection and 33.3% (6/18) in  $\geq 3$  piecemeal resection. In analysis for risk factors related with recurrence, only  $\geq 3$  piecemeal resection were significantly related with recurrence in both univariate analysis and multivariate analysis (OR 16.92,  $p = 0.037$ ).

**Conclusions** Following patients with indeterminate or positive lateral margin after endoscopic resection in large, sessile or flat colorectal polyp, recurrence rate was relatively low and time to recurrence was long than 12 months. Therefore, surveillance interval for these patients can be extended for more than 12 months. However, short-term follow-up is mandatory in case of  $\geq 3$  piecemeal resections or suspected submucosal cancer in morphology because of risk of recurrence or interval cancer.

## ePP78 COLD ENDOSCOPIC MUCOSAL RESECTION OF 8 – 20MM SESSILE SERRATED POLYPS: A PROSPECTIVE TRIAL

**Authors** Papastergiou V<sup>1</sup>, Fragkaki M<sup>2</sup>, Velegraki M<sup>2</sup>, Mpitouli A<sup>2</sup>, Vardas E<sup>2</sup>, Voudoukis E<sup>2</sup>, Mathou N<sup>1</sup>, Giannakopoulos A<sup>1</sup>, Giannikaki L<sup>2</sup>, Apeassou D<sup>1</sup>, Paraskeva K<sup>1</sup>, Paspatis G<sup>2</sup>

**Institute** 1 Konstantopoulou-Patisision General Hospital, Athens, Greece; 2 Venizeleion General Hospital of Heraklion, Crete, Greece

**DOI** 10.1055/s-0039-1681621

**Aims** Sessile serrated polyps (SSPs) are recognized as a major contributor to the epidemiologic burden of colorectal cancer, although the optimal technique for their removal remains uncertain. We aimed to prospectively evaluate the efficacy and safety of cold endoscopic mucosal resection (c-EMR) for SSPs sized 8 – 20 mm.

**Methods** Consecutive adults referred for elective colonoscopy at two endoscopy units in Greece (3/2018 – 10/2018) were prospectively enrolled if they had at least one polyp 8 – 20 mm with optical features (narrow band imaging with magnification) suggestive of SSP. Patients on anticoagulants or antiplatelets other than aspirin were excluded. Lesions were resected using a stiff snare (size range: 9 – 20 mm) and a c-EMR technique comprising submucosal injection of a methylene blue-tinted normal saline solution. Outcomes were the presence of residual serrated neoplasia in post-polypectomy biopsies (4 biopsies obtained from the margins/1 from the base) and the occurrence of complications.

**Results** A total of 38 patients (63.2% females, mean 55.3  $\pm$  9.9 years) with 40 pathologically confirmed SSPs were enrolled. The mean size was 13.7  $\pm$  3.9 mm: 34 (80%) SSPs were  $\geq 10$  mm, 24 (60%) SSPs were  $\geq 15$  mm and 31 (77.5%) were proximal to the transverse colon. Cytological dysplasia was present in 6 (15%). A total of 22 (55%) lesions (mean size 10.8  $\pm$  2.9) were resected en bloc. In lesions resected piecemeal, the median number of resected pieces per case was 2 (range: 2 – 3). Marginal biopsies were positive in 2 (5%) lesions; all base biopsies were negative. Intraoperative bleeding (> 60 minutes) requiring haemostatic clip application occurred in 1 (2.5%) case. No delayed bleeding or perforation occurred within 2 weeks of follow-up.

**Conclusions** c-EMR is effective and safe technique for the removal of SSPs sized 8 – 20 mm.

Friday, April 5, 2019

CRC screening 3

14:00 – 14:30

ePoster Podium 3

## ePP79 POST-POLYPECTOMY SURVEILLANCE IN THE ENGLISH BOWEL CANCER SCREENING PROGRAMME: MULTIVARIATE LOGISTIC REGRESSION OF FACTORS INFLUENCING ADVANCED ADENOMA DETECTION AT FIRST SURVEILLANCE

**Authors** Bonnington SN<sup>1</sup>, Sharp L<sup>1</sup>, Rutter MD<sup>1,2</sup>

**Institute** 1 Newcastle University, Newcastle upon Tyne, United Kingdom;

2 University Hospital of North Tees, Stockton on Tees, United Kingdom

**DOI** 10.1055/s-0039-1681622

**Aims** The English Bowel Cancer Screening Programme (BCSP) offers individuals aged 60 to 74 years guaiac FOB testing, with an invitation for colonoscopy if positive. Post-polypectomy surveillance is performed by quality-accredited colonoscopists within the BCSP for individuals within the screening age range.

**Methods** Details were extracted from the BCSP database for 41519 individuals who attended surveillance (in the intermediate or high risk category) from the start of the BCSP in 2006 until January 2017. Data were analysed using Stata 14. Multivariate logistic regression was performed for the outcome of advanced adenoma (AA) at first surveillance, defined as size  $\geq 10$  mm,  $\geq 25\%$  villous architecture, or high-grade dysplasia (HGD).

Considered in the analysis were person factors: gender, age, smoking status, alcohol intake, BMI, co-morbidity; and procedure factors: quality of examination, number of adenomas, size of largest adenoma, villous architecture, HGD, proximal location, piecemeal resection, and surveillance interval.

**Results** The multivariate odds ratio (OR) for baseline factors found to have statistical significance are presented below.

Male gender; OR 1.13 ( $p < 0.001$ ).

Suboptimal examination\*; OR 1.46 ( $p < 0.000$ ).

Total number of adenomas (multiplicity):

1 OR 1

2 OR 1.56 ( $p < 0.000$ )

3 OR 1.58 ( $p < 0.000$ )

4 OR 1.90 ( $p < 0.000$ )

5 OR 2.24 ( $p < 0.000$ )

6 – 9 OR 2.47 ( $p < 0.000$ )

$\geq 10$  OR 3.03 ( $p < 0.000$ )

Maximum villous architecture:

TA OR 1

TVA OR 1.37 ( $p < 0.000$ )

VA OR 1.70 ( $p < 0.000$ )

Non-pedunculated adenoma  $\geq 10$  mm; OR 1.38 ( $p < 0.000$ )

Current smoker; OR 1.16 ( $p < 0.001$ )

Alcohol intake  $\geq 15$  units/week; OR 1.09 ( $p < 0.010$ )

ASA grade<sup>#</sup>:

1 OR 1

2 OR 1.09 (p0.019)

3–5 OR 1.33 (p0.000)

(\*Suboptimal defined as either poor bowel prep and/or incomplete to caecum.

# American Society of Anaesthesiologists grade).

**Conclusions** The only factor with an OR >2 was adenoma multiplicity at baseline. These findings will help inform future surveillance algorithms.

## ePP80 A SYNTHETIC PREDICTOR OF THE IMPACT OF COLORECTAL CANCER SCREENING PROGRAMMES ON INCIDENCE RATES

**Authors** Hassan C<sup>1</sup>, Zorzi M<sup>2</sup>

**Institute** 1 ONRM Hospital, Rome, Italy; 2 Veneto Tumour Registry, Azienda Zero, Padua, Italy

**DOI** 10.1055/s-0039-1681623

**Aims** Diagnosis and the removal of pre-cancerous lesions within colorectal cancer (CRC) screening programmes based on the faecal immunochemical test (FIT) reduces CRC incidence rates.

The impact of a screening programme on CRC incidence depends on a large number of variables, including the actual extension of invitations, participation rate, positivity rate of the screening test, compliance with invitation to second level assessment, endoscopist accuracy.

We propose a synthetic indicator that accounts for all the variables influencing the impact of a screening programme on incidence rates.

**Methods** We developed the “rate of Advanced Adenoma on the Target Population” (AA-TAP) as the rate of patients who received a diagnosis of advanced adenoma within a screening programme divided by the programme target population.

We computed the AA-TAP for the CRC Italian screening programmes using the data of the Italian National Survey from 2009 to 2016, overall and by Region.

**Results** In 2016, the actual extension of CRC screening programmes in Italy (i.e. the proportion of subjects of the annual target population who were regularly invited) was 76%, and the participation rate was 41%. Positivity rate was 5.4% at first FIT and 4.5% at subsequent FITs; compliance rate with colonoscopy was 82%. The detection rate for advanced adenoma was 8.1% at first and 6.2% at subsequent round.

The AA-TAP at a national level was 105 × 100,000, while significant differences were observed between the Northern and Central Regions (respectively 141 and 150 × 100,000) and the South and Islands (29 × 100,000).

The AA-TAP at a national level was stable on values slightly higher than 100 × 100,000 from 2010 to 2016.

**Conclusions** The AA-TAP summarises into a single indicator the potential impact of a screening programme in reducing CRC incidence rates. It may be useful when comparing different programmes, particularly if they have different screening protocols.

## ePP81 UP TO WHAT AGE PROPOSE MASS SCREENING FOR COLORECTAL CANCER BY FAECAL OCCULT BLOOD TEST? ANALYSIS OF A COHORT IN A WELL-DEFINED POPULATION

**Authors** Tardieu E<sup>1,2</sup>, Manfredi S<sup>2,3</sup>, Cottet V<sup>4</sup>, Faivre J<sup>4</sup>

**Institute** 1 ADEMAs, Macon, France; 2 INSERM U1231, Université De Bourgogne Franche Comté, Dijon, France; 3 Gastroenterology and Oncology, University Hospital Dijon, Dijon, France; 4 INSERM U 1231, Université De Bourgogne Franche Comté, Dijon, France

**DOI** 10.1055/s-0039-1681624

**Aims** The question of continuing screening beyond 75 years is often asked. Our cohort is the only one concerned with a population screened after 75 years, allowing the determination of participation rate, the rate of positivity of the test and the effect of screening on CRC mortality and incidence.

**Methods** Our cohort, established in 1988 is composed of 4268 elderly people, aged 70–74 residing in a well-defined French area. A fecal occult blood test (Hémoccult) was proposed until 2002, and then a follow-up until 2009. In our population the invitation was continued to 82–86 years. The population studied is covered by the Burgundian register of Digestive cancers collecting data in the whole area population, screened and not screened.

The ratio of the number of observed deaths or incident cases and the number of expected deaths or incident cases determine the ratio of mortality (SMR) and incidence (SIR).

**Results** Participation rates remained higher than 40% during the 3 first campaigns and decreased less than 40% in the following 4. The participation rate decreases with the age, it remains above 40% up to 78 years and above 30% up to 80 years. The positivity rates of the test ranged from 1.7% to 3.0%. The incidence of cancers was in 1998 (during the screening campaign) of 2.3% for the screened population and 3.3% for the non-screened (P=0.06); it was in 2009 (7 years after the last campaign of 3.3% and 4.8% respectively (P=0,014). The stages of cancer were significantly less advanced in the screened population, than in the non-screened. This difference did not vary according to the number of participation per individual. SMR and SIR didn't differ significantly between participants and non-participants.

**Conclusions** The CRC mass-screening efficiency indicators remain good over 75 years and supports the extension to 78–80 years for mass screening.

Friday, April 5, 2019

ERCP stenosis

14:00 – 14:30

ePoster Podium 4

## ePP82 ENDOSCOPIC RADIOFREQUENCY ABLATION FOR EXTRAHEPATIC MALIGNANT BILIARY OBSTRUCTION: SAFETY AND EFFICACY OF A SINGLE CENTER EXPERIENCE

**Authors** de Nucci G<sup>1</sup>, Domenico Mandelli E<sup>1</sup>, Redaelli D<sup>1</sup>, Reati R<sup>1</sup>, Morganti D<sup>1</sup>, Manes G<sup>1</sup>

**Institute** 1 Gastroenterology and Endoscopy Unit, ASST Rhodense, Garbagnate Milanese-Milano, Italy

**DOI** 10.1055/s-0039-1681625

**Aims** Malignant biliary obstruction is often secondary to pancreatic cancer or cholangiocarcinoma. Most of patients present at advanced stage with a short life expectancy and no chance of resolutive therapy. patients with ingravescer icterus, endoscopic drainage is performed with position of metal or plastic biliary stents. Radiofrequency ablation (RFA) have already been studied to improve stent patency and to treat liver lesions percutaneous via. The aim of our study is to assess efficacy and safety of RFA ablation in patients unfit for surgery with malignant biliary obstruction due to extrahepatic colangiocarcinoma.

**Methods** We enrolled 6 pts (mean age 71 years, 5 male) from October 2014 to June 2016 affected with extrahepatic colangiocarcinoma with or without ongoing chemotherapy and unfit for surgery. All the patients underwent biliary sphincterotomy and a colangiogram to confirm stricture location, length and diameter. The Habib Endo HPB probe was advanced over a wire and the stricture was ablated using an ERBE generator. A fully covered/plastic stent was placed after each RFA session to prevent stenosis.

**Results** The mean treated stricture length was 22,5 mm with a mean number of procedures of 3. Technical success was achieved in 100% with preferably metal fully covered stent placement in each patients after the ablation. No early adverse event was recorded: one colecistitis after 30 days in one patient after the third ablation, managed with medical therapy. Moreover the overall survival curve was compared with the SEER database registry stratified by diagnosis and stage demonstrated a significantly improved survival in patients who have received RFA.

**Conclusions** Even if in a retrospective manner, with a small number of patients and in absence of a comparison population, our study suggests that RFA

may offer a safe, effective alternative therapy to patients with malignant biliary extra hepatic obstruction possibly, unfit for surgery, conferring a survival benefit.

### ePP83V ENDOSCOPIC PALLIATION OF HILAR COLANGIOPANCREATITIS – USEFULNESS OF SELECTIVE OCCLUSION OF ONE INTRAHEPATIC DUCT

**Authors** Fernandes J<sup>1,2</sup>, Moreira M<sup>1</sup>, Araújo T<sup>1</sup>, Ribeiro H<sup>1</sup>, Giestas S<sup>1</sup>, Lucas F<sup>3</sup>, Libânio D<sup>1,4</sup>, Ramada J<sup>1</sup>, Martínez-Ares D<sup>1</sup>, Certo M<sup>5</sup>, Canena J<sup>6,7</sup>, Lopes L<sup>1,8,9</sup>

**Institute** 1 Gastroenterology, Hospital de Santa Luzia, Viana do Castelo, Portugal; 2 Gastroenterology, Centro Hospitalar Cova da Beira, Covilhã, Portugal; 3 Serviço de Medicina do Hospital de Cascais, Cascais, Portugal; 4 Gastroenterology, Instituto Português de Oncologia do Porto, Porto, Portugal; 5 Hospital de Braga, Braga, Portugal; 6 Gastroenterology, Hospital Amadora Sinta, Amadora, Portugal; 7 Gastroenterology, Nova Medical School/FCML da UNL, Lisbon, Portugal; 8 Life and Health Sciences Research Institute (ICVS), School of Medicine, University of Minho, Braga, Portugal; 9 ICVS/3B's – PT Government Associate Laboratory, Braga/Guimarães, Portugal

DOI 10.1055/s-0039-1681626

**Description** ERCP with stent placement for palliative biliary drainage is a common strategy used in the management of patients with unresectable hilar cholangiocarcinomas (HC).

Selective placement of two guidewires, one in the right intrahepatic duct (RIHD) and the other in the left hepatic duct (LIHD) is an essential pre-requisite for bilateral stenting. However, the insertion of the second guidewire to the contralateral intrahepatic duct can be extremely difficult in some patients, even after using multiple maneuvers, using different types of catheters and guidewires.

In this video, we demonstrate a technique to overcome the inability to direct the second guidewire to the contralateral intrahepatic duct. We describe an 85-year old man, with a type II HC, referred to our department for palliative bilateral stenting. After swiftly passing the first guidewire to the right lobe, we faced unexpected difficulties in directing the second guidewire to the dilated LIHD. Several maneuvers were attempted, including the use of angled-tip and small caliber hydrophilic wires, but all resulted invariably in cannulation of the right system. In order to overcome this difficulty, we introduced a 15-mm retrieval balloon into the dilated RHD; the balloon was inflated immediately proximal to the hepatic bifurcation, blocking the access to the RIHD. Subsequently, a second guidewire was inserted alongside the balloon catheter, across the hilar stricture and easily deflected off the inflated balloon into the LIHD. Two self-expandable metal stents were successfully deployed.

**Motivation** To the best of our knowledge there are no multimedia reports on this technical tip to facilitate the passage of a second guidewire to the opposite intrahepatic duct, which was first reported by Husain et al. Use of this technical maneuver could be a very useful tool for increasing the success of bilateral stenting in patients with hilar cholangiocarcinoma.

### ePP84 FEASIBILITY OF NEW BILIARY AND PANCREATIC BIODEGRADABLE STENT PLACEMENT: INTERIM ANALYSIS OF AN ONGOING SINGLE-CENTER, PROSPECTIVE, PILOT STUDY

**Authors** Anderloni A<sup>1</sup>, Fugazza A<sup>1</sup>, Maroni L<sup>1</sup>, Maselli R<sup>1</sup>, Orlando V<sup>1</sup>, D'Amico F<sup>1</sup>, Carrara S<sup>1</sup>, Mangiavillano B<sup>2</sup>, Omodei PD<sup>1</sup>, Preatoni P<sup>1</sup>, Lamonaca L<sup>1</sup>, Cappello A<sup>1</sup>, Pellegatta G<sup>1</sup>, Repici A<sup>1</sup>

**Institute** 1 Humanitas Clinical and Research Center, Rozzano (MI), Italy; 2 Digestive Endoscopy Unit, Humanitas – Mater Domini Hospital, Castellanza, Varese, Italy

DOI 10.1055/s-0039-1681627

**Aims** New biliary and pancreatic biodegradable stents (BS) have been developed for endoscopic use. Stents are provided in different sizes and polymeric

mixtures allowing 3 expected rates of biodegradation: slow (11 weeks), medium (20 days) and fast (12 days). Aim of the study was to evaluate biodegradation time, safety, technical success of implantation of newly available BS.

**Methods** Interim analysis of ongoing single-center, prospective, pilot study. Patients with indication to biliary or pancreatic plastic stent positioning during ERCP were prospectively enrolled. The primary outcome was the evaluation of biodegradation time, which was controlled by abdominal x-ray (2/4 weeks for fast BS; 3/6 weeks for medium BS; 3/6 months for slow BS). Secondary outcomes were adverse events (AEs) rate according to ASGE lexicon and evaluation of specific stent-related technical features which were arbitrary scored as compared to commonly used plastic stents.

**Results** 22 patients (5, 28% female; median age 71,7 years) were enrolled in study (32 BS). Stents were successfully placed in all patients. Stent loadability and pushability were considered good in all cases. Fluoroscopic visualization was good in 85% and medium in 15% of the patients. Evaluation of biodegradation time was available for all fast pancreatic BS and showed partial degradation after 2 weeks and complete degradation after 4 weeks in 4/5 patients, with early migration in one patient. In the remaining treated patients only 6 (2 with medium and 4 with slow BS) showed complete disappearance of the stent at the expected time. No AEs or additional treatments occurred during follow-up period. Only 1 post-ERCP pancreatitis (PEP) was observed in a patient subjected to pancreatic stent placement for PEP prevention after difficult biliary cannulation.

**Conclusions** The results of the interim analysis suggest that BS were feasible, with good fluoroscopic visualization and a favorable profile of safety. Available data of evaluation of biodegradation time suggest that stents survival is in line with expected times.

Friday, April 5, 2019

EUS therapeutic bile

14:00 – 14:30

ePoster Podium 5

### ePP85 PAPANICOLAOU CANNULATION USING HOME-MADE MONORAIL SPHINCTEROTOME AFTER EUS-GUIDED RENDEZVOUS TECHNIQUE

**Authors** Bozhychko M<sup>1</sup>, Mangas-Sanjuan C<sup>1</sup>, Compañy L<sup>1</sup>, Ruiz FA<sup>1</sup>, Martínez Sempere J<sup>1</sup>, Casellas JA<sup>1</sup>, Ramón Aparicio J<sup>1</sup>

**Institute** 1 Unidad Endoscopias, Hospital General Universitario de Alicante, Alicante, Spain

DOI 10.1055/s-0039-1681628

**Aims** When endoscopic retrograde cholangiopancreatography (ERCP) fails, EUS-guided rendezvous technique (EUS-RV) is an effective alternative. However, guidewire extraction through the duodenoscope is time-consuming and has some complications.

To assess the efficacy of papilla cannulation using a home-made monorail sphincterotome over a guidewire after EUS-RV.

**Methods** We report a prospective cohort study of biliary-pancreatic EUS-RV conducted in a tertiary Spanish center from June 2017-September 2018. Two cohorts were compared: one with traditional papilla cannulation after EUS-RV and one with papilla cannulation using home-made monorail sphincterotome. Monorail sphincterotome was made using the same sphincterotome when ERCP failed, by using a scalpel to make a 2–3 mm slot in the convex part of the distal end of the sphincterotome.

**Results** A total of 33 cases (21 men/12 women, mean age 75.4 years) were included: four cases of pancreatic EUS-RV and twenty-nine biliary EUS-RV. In regards to procedure indication: 10 patients with malignant stenosis, 13 with choledocholithiasis, 6 with benign biliary stenosis, 2 with pancreatic stenosis, 2 with intraductal lithiasis. NovaGold 0.018" guidewire was used in 19 cases while Visiglide 0.025" guidewire in 14 cases. Technical success to cannulate the papilla using monorail sphincterotome was 30/33 cases (91%). Median (P<sub>25</sub>-P<sub>75</sub>) duration of EUS-RV using monorail sphincterotome was significantly lower compared to traditional method: 32 (25–38) vs. 59 (51–66) min,

$p = 0.0003$ . There weren't differences in technical success of papilla cannulation with monorail sphincterotome regarding indication (malignant stenosis vs. other causes: 100% vs. 87%,  $p = 0.32$ ), type of guidewire (NovaGold vs. Visiglide: 89.5% vs. 92.9%,  $p = 0.61$ ), type of EUS-RV (biliary vs. pancreatic: 93.1% vs. 75%,  $p = 0.33$ ) or dilatation of biliary tract (yes vs. no: 100% vs. 89%,  $p = 0.37$ ).

**Conclusions** The use of home-made monorail sphincterotome over the guidewire for papilla cannulation after EUS-RV, significantly shortens the duration of the procedure compared to traditional methods.

### ePP86 NOT A SHOT IN THE DARK; THE IRISH EXPERIENCE OF EUS GUIDED GALLBLADDER DRAINAGE WITH THE HOT AXIOS STENT

**Authors** Maheshwari P<sup>1</sup>, Moran C<sup>1</sup>, Farman M<sup>1</sup>, Kumar S<sup>1</sup>, Harewood G<sup>1</sup>, Sengupta S<sup>1</sup>, Cheriyan D<sup>1</sup>

**Institute** 1 Beaumont Hospital, Dublin, Ireland

**DOI** 10.1055/s-0039-1681629

**Aims** The management of gallbladder disease is particularly challenging in patients who are elderly or poor surgical candidates. Current standard of care for acute cholecystitis in this cohort involves antibiotics and possible percutaneous drainage via interventional radiology. External drains are uncomfortable, may dislodge, and can result in delayed hospital discharge or re-admission. We report the first 10 cases in Ireland of EUS guided placement of a lumen apposing metal stent between the gallbladder and stomach or duodenum using the hot AXIOS system.

**Methods** Nine patients with acute or recurrent cholecystitis and 1 patient with malignant biliary obstruction causing cholecystitis were prospectively selected as appropriate candidates. Each patient was deemed unsuitable for surgical intervention given advanced age or co-morbidities. Under conscious sedation in the endoscopy unit, EUS guided gallbladder drainage (EUS-GBD) was performed. Elective, interval stent removal was not planned given patient frailty. Time to follow up or death was calculated from medical records and clinical efficacy was assessed on patient review.

**Results** EUS-GBD was performed in 10 patients (mean age 79.5 years, range 65–95). Stent placement was successful in 100% of patients. 1 patient with advanced metastatic duodenal obstruction developed an aspiration pneumonia a few days post procedure and died. Another patient died of lung cancer 230 days post-procedure; otherwise all patients were alive and clinically improved at time study end. Mean time to follow up or death was 179 days (median 193 days).

**Conclusions** EUS-GBD in carefully selected patients is feasible, safe and may reduce the morbidity and long term care issues associated with percutaneous drains.

### ePP87 USE OF CT IMAGING TO PREDICT SUCCESS OF ENDOSCOPIC ULTRASOUND GUIDED GALLBLADDER DRAINAGE

**Authors** Jaswani T<sup>1</sup>, Patel V<sup>1</sup>, Perez-Miranda M<sup>2</sup>, Yeaton P<sup>3</sup>

**Institute** 1 Virginia Tech Carilion School of Medicine, Roanoke, United States;

2 Gastroenterology, Hospital Universitario Rio Hortega, Valladolid, Spain;

3 Gastroenterology, Virginia Tech Carilion School of Medicine, Roanoke, United States

**DOI** 10.1055/s-0039-1681630

**Aims** Endoscopic ultrasound guided endoluminal gallbladder drainage is an evolving treatment for patients with gallbladder disease. The procedure is usually performed in patients medically unfit for surgery. Currently there are no predictive models to determine the likelihood of success of the procedure. Our study proposes a scoring system using CT imaging to determine eligibility for the procedure.

**Methods** This is a retrospective examination of 150 sequential CT scans with contrast of the abdomen performed between January 2015 and March 2015.

Images were assessed using non-diagnostic monitors with a web based PACS system browser (Sectra, Linköping, Sweden). The gallbladder was identified (when present) and its closest relationship to the stomach and duodenum was quantified using on-line measuring tools. A scoring system (CT assisted score-CTAS score) relating area to breadth was devised to create a numerical value inversely proportional to favorability, with a score of 1 being the most favorable.

**Results** Of the 150 scans reviewed, 100 scans were included in the analysis. Sixty-three demonstrated preferential approximation of the gallbladder to the duodenum. Sole gastric approximation was observed in only two patients. The CTAS ranged from 1 to 36, with 54 scans being 1, predicting success. The duodenal bulb was the most frequently approximated to the gallbladder wall compared to the second portion of the duodenum or gastric antrum.

**Conclusions** The CT assisted score may be a valuable tool to predict candidacy for endoscopic ultrasound guided endoluminal gallbladder drainage. Accessing the gallbladder from the duodenal bulb is preferential.

Friday, April 5, 2019

GI bleeding 4

14:00 – 14:30

ePoster Podium 6

### ePP88 UTILITY OF DOUBLE BALLOON ENTEROSCOPY FOR THE EVALUATION OF OBSCURE GI BLEEDING IN PATIENTS WITH SURGICALLY ALTERED UPPER GI TRACT ANATOMY

**Authors** Martinez-Alcala A<sup>1</sup>, Peter S<sup>2</sup>, Mönkemüller K<sup>3</sup>

**Institute** 1 Frankwald Klinik, Kornach, Germany; 2 Gastroenterology, University of Alabama, Birmingham, United States; 3 Gastroenterologie, Frankwald Klinik, Kronach, Germany

**DOI** 10.1055/s-0039-1681631

**Aims** To evaluate the diagnostic and therapeutic utility of double balloon enteroscopy for the diagnosis and treatment of obscure gastrointestinal bleeding in patients with surgically altered upper GI tract anatomy.

**Methods** This is a single center, observational, open label case series of 18 patients with Roux-en-Y anatomy undergoing 22 DBE procedures for OGIB during a three-year period.

**Results** Of the 18 patients (8 female, 10 male, mean age 57.8 years, range 36–72, mean ASA 3, range 2–4), 16 patients had active bleeding (i.e. overt OGIB, melena or hematochezia) at the time of DBE. In 12 cases the bleeding was occurring at the site of the anastomosis, whether that be hepaticojejunal or jejunojejunal (arterio-venous malformations at the anastomotic site  $n = 6$ , ulcers or erosions  $n = 4$ , Dieulafoy lesions  $n = 2$ ). In two patients the bleeding source were peptic ulcers in the excluded stomach or duodenum. In four patients no bleeding lesion was found. Endoscopic therapy was applied in 14 patients (in 4 patients dual therapy was utilized) (injection  $n = 5$ , argon plasma coagulation  $n = 9$ , clipping  $n = 4$ ).

**Conclusions** DBE was a safe and feasible technique to evaluate the small intestine in the setting of OGIB in patients with surgically altered anatomy. The anastomotic site (hepaticojejunostomy of jejuno-jejunal) was the source of bleeding in most patients. However, peptic ulcer was also a source of bleeding in two patients with excluded stomach. DBE should be considered as a useful tool to provide diagnosis and treatment in patients with OGIB and surgically altered upper GI anatomy.

## ePP89 OAKLAND SCORE IS NOT BETTER THAN HAEMOGLOBIN FOR PREDICTING OUTCOMES IN LOWER GASTROINTESTINAL BLEEDING

**Authors** Lira A<sup>1</sup>, Machlab S<sup>1</sup>, García-Iglesias P<sup>2</sup>, Martínez-Bauer E<sup>3</sup>, Mármol C<sup>2</sup>, Gallach M<sup>2</sup>, Hernández L<sup>2</sup>, Brunet E<sup>2</sup>, Melcarne L<sup>2</sup>, Da Costa J<sup>2</sup>, Llibre G<sup>2</sup>, Puig-Diví V<sup>3</sup>, Junquera F<sup>3</sup>, Campo R<sup>3</sup>, Calvet X<sup>2</sup>, Brullet E<sup>3</sup>

**Institute** 1 Gastroenterology and Endoscopy, Hospital Universitari Parc Taulí, Sabadell, Spain; 2 Gastroenterology, Hospital Universitari Parc Taulí, Sabadell, Spain; 3 Endoscopy, Hospital Universitari Parc Taulí, Sabadell, Spain

**DOI** 10.1055/s-0039-1681632

**Aims** The aim of this study was to compare the accuracy of Oakland score (OakS) with haemoglobin alone (Hb) for predicting outcomes after lower gastrointestinal bleeding (LGB).

**Methods** Safe discharge was the main outcome predicted by OakS. It was defined as the absence of the following: a) rebleeding; b) red blood cell transfusion; c) therapeutic intervention; d) readmission with further LGB within 28 days and e) in-hospital death.

A retrospective study was performed from January 2013 to December 2015 in a university tertiary care hospital. Patients with acute LGB were identified using the International Classification of Diseases (9th Revision) and Clinical Modification codes for admission diagnosis. OakS was retrospectively calculated according to clinical reports data. Area under the curve (AUROC), were calculated for OakS and Hb value. AUROCs were compared with the DeLong method by using STATA 14.1 software (StataCorp.2015).

**Results** A total of 258 patients with acute LGB were identified retrospectively. Median age was 76.4 years (range 31.7–96.5), 178 (69%) of patients were older than 70 years, 54.3% were men. 154 (57.7%) patients were safely discharged. Six patients (2.3%) died, 50 (19.4%) rebleed, 84 (32.6%) needed transfusion, 20 (7.8%) were readmitted, 28 (11.2%) needed endoscopic treatment and 3 (0.8%) transcatheter arterial embolization. No patient required surgery.

The comparison of the AUROC for OakS and Hb are shown in table 1.

**Tab. 1**

	Oakland Score AUROC (95% IC)	Haemoglobin AUROC (95% IC)	P value
Safe discharge. n = 154; 59.7%	0.80 (0.74–0.86)	0.82 (0.77–0.88)	0.1516
Rebleeding. n = 50; 19.4%	0.76 (0.68–0.83)	0.81 (0.75–0.87)	0.0409
Haemostatic intervention. n = 31; 12%	0.67 (0.55–0.77)	0.70 (0.61–0.80)	0.3852

**Conclusions** Hb seems non-inferior or even superior to OakS for predicting safe discharge, transfusion, rebleeding, haemostatic intervention or dead. OakS was better only for predicting readmission, but the predictive value for this outcome was low for both Hb and OakS.

## ePP90 CHARACTERISTICS OF ACUTE SEVERE LOWER GASTROINTESTINAL BLEEDING IN PATIENTS WITH CROHN'S DISEASE

**Authors** Jang BI<sup>1</sup>, Kim MC<sup>1</sup>, Kang MK<sup>1</sup>, Cho JH<sup>1</sup>, Kim SB<sup>1</sup>, Kim KH<sup>1</sup>, Kim KO<sup>1</sup>, Lee SH<sup>1</sup>, Kim TN<sup>1</sup>

**Institute** 1 Internal Medicine, Yeungnam University College of Medicine, Daegu, Korea, Republic of

**DOI** 10.1055/s-0039-1681633

**Aims** Acute severe lower gastrointestinal bleeding (LGIB) is a rare complication in Crohn's disease, which is a therapeutic challenge due to variety of clinical manifestations and extents of disease. We aimed to compare the characteristics of the first bleeding and re-bleeding episodes in patients with Crohn's disease.

**Methods** Between January 2012 and November 2015, 30 patients of severe LGIB of Crohn's disease were retrospectively investigated. Acute LGIB was defined as acute massive rectal bleeding requiring 2 packs of blood transfusion

within at least 24 hours or a sudden decrease in hemoglobin level below 9 g/dl.

**Results** Mean age at the time of bleeding was 38.4 ± 10.9 years. Mean duration from diagnosis of Crohn's disease to the first bleeding episode was 66.9 ± 63.7 months. Mean serum levels of hemoglobin and C-reactive protein were 8.6 ± 1.8 g/dL and 7.1 ± 7.9 mg/dL, respectively. And 19 (63.3%) patients had moderate-to-severe Crohn's disease. The bleeding focus was identified in 56.7% of patients, by colonoscopy (46.7%). The bleeding lesion was an ulcer in 81.3% of the cases, and left colon in 56.2%. The treatment of acute severe LGIB accounted for 50% of the medical treatments using systemic corticosteroids. The maintenance treatment were 16 (53.4%) using azathioprine and 4 (13.3%) using infliximab, respectively.

In moderate-to-severe Crohn's disease, re-bleeding episodes occurred more frequently than first bleeding episode, but not statistically significant ( $p=0.082$ ). However, utilization of the total parenteral nutrition was statistically significantly higher in the re-bleeding episode group than in the first bleeding group (45.0% vs. 90.0%,  $p=0.048$ ).

**Conclusions** Acute severe LGIB in Crohn's disease is usually considered to be a conservative treatment with systemic corticosteroids, azathioprine, and infliximab. However, operative treatment may be needed for poorly controlled bleeding and further studies including prevalence and re-bleeding risk factors are needed.

Friday, April 5, 2019

14:00 – 14:30

Quality 4

ePoster Podium 7

## ePP91 CONVERSION COEFFICIENT FOR THE ESTIMATION OF THE ADENOMA DETECTION RATE FROM THE POLYP DETECTION RATE: VALIDATION IN A REAL COLONOSCOPY SCREENING PRACTICE SETTING IN GREECE

**Authors** Papastergiou V<sup>1</sup>, Mathou N<sup>1</sup>, Giannakopoulos A<sup>1</sup>, Evgenidi A<sup>1</sup>, Schoretsanitis E<sup>1</sup>, Lenas M<sup>1</sup>, Apessou D<sup>1</sup>, Paraskeva K<sup>1</sup>

**Institute** 1 Konstantopoulou-Patision General Hospital, Athens, Greece

**DOI** 10.1055/s-0039-1681634

**Aims** Adenoma detection rate (ADR) is a fundamental metric in colonoscopy quality; however, it is cumbersome to obtain as it requires the linkage of endoscopy and pathology reports. The adenoma-to-polyp-detection-rate-quotient (APDRQ) has been proposed as an easy multiplier for the estimation of the individual endoscopist's ADR from polyp detection rate (PDR), although it lacks validation in different populations and practice settings. We aimed to validate the use of the APDRQ in a real colonoscopy practice setting in Greece.

**Methods** Consecutive screening colonoscopies of average-risk individuals conducted between January 2015 and June 2018 at the Endoscopy Unit of the Konstantopoulou General Hospital (Athens, Greece) were retrospectively evaluated. The actual ADR and PDR were calculated for each endoscopist and the weighted averaged ADR to PDR ratio for all the endoscopists was used to calculate APDRQ. The APDRQ was then used as a conversion multiplier to estimate each endoscopist's ADR from his/her PDR [estimated ADR = actual PDR × APDRQ].

**Results** A total of 1505 individuals were analyzed. The average PDR for the whole endoscopist group was 31.4% (range: 13% to 38.1%), whereas the average actual ADR was 20.4% (range: 13%-28.1%). Based on the weighted averaged ADR to PDR ratio for all the endoscopists, the APDRQ was estimated to 0.65. The average estimated ADR was 21.9% (range: 12.7%-30.2%). There was a strong correlation between actual ADR and the estimated ADR (Pearson correlation = 0.95).

**Conclusions** In a real colonoscopy screening practice setting, the ADR of an individual endoscopist can be reliably estimated from his/her PDR using an easily applied conversion coefficient.

## ePP92 PUBLIC ATTITUDES TO COLONOSCOPY: EXPERIENCE OF COLONOSCOPY

**Authors** Amlani B<sup>1</sup>, Bhandari P<sup>2</sup>, Radaelli F<sup>3</sup>

**Institute** 1 Norgine, Medical Affairs, Harefield, United Kingdom; 2 Portsmouth University Hospital, Department of Gastroenterology, Portsmouth, United Kingdom; 3 Ospedale Valduce, Unità Operativa Complessa di Gastroenterologia, Como, Italy  
DOI 10.1055/s-0039-1681635

**Aims** European public beliefs and attitudes to colonoscopy are poorly understood. A survey was conducted to better understand the issue.

**Methods** An online survey was conducted in the UK, Germany, France, Spain, and Italy (EU5) among members of the general public who had not had a colonoscopy and also those who had undergone a colonoscopy. One of the ten questions to both groups asked: Please indicate how strongly you agree or disagree with the following statements? A) I would be nervous of having a colonoscopy; B) Having a colonoscopy is painful; and C) I would be worried about a colonoscopy being painful.

The survey targeted 500 people that had not had a colonoscopy and 100 people that had undergone a colonoscopy in the last five years in each country. The survey targeted people aged 18 to 70 and aimed to balance respondent groups for region, gender, age and occupation.

**Results** Among 53,795 invited persons, 18,650 (35%) responded to the survey. 2,500 (5%) who have not had a colonoscopy and 500 (1%) who have had a colonoscopy in the last five years across the EU5 completed the survey. Negative attitudes to colonoscopy diminish following experience of the procedure (59% felt it was better than expected). Comparing those with and without experience, 74% vs. 49% would be nervous to have a colonoscopy; 40% vs. 25% think having a colonoscopy is painful; and 59% vs. 37% would be worried about it being painful. Responses were generally comparable across the five countries, however, just 9% of German respondents with experience noted that it was painful compared to 25% across the EU5.

**Conclusions** People with experience of colonoscopy tend to be more positive than those that have not undergone a colonoscopy. The colonoscopy 'experience' is not as bad as anticipated.

## ePP93 FELLOW INVOLVEMENT DURING COLONOSCOPY DOES NOT AFFECT EXAMINATION'S QUALITY INDICATORS IN A GREEK TERTIARY ENDOSCOPY FACILITY

**Authors** Gkolfakis P<sup>1</sup>, Tziatzios G<sup>1</sup>, Stamou A<sup>1</sup>, Karamaroudis S<sup>1</sup>, Grammatikos K<sup>1</sup>, Miltiadou K<sup>1</sup>, Gatos-Gatopoulos P<sup>1</sup>, Triantafyllou K<sup>1</sup>

**Institute** 1 Hepatogastroenterology Unit, Second Department of Internal Medicine – Propaedeutic, Research Institute and Diabetes Center, Medical School, National and Kapodistrian University of Athens, "Attikon" University General Hospital, Athens, Greece  
DOI 10.1055/s-0039-1681636

**Aims** To evaluate the effect of fellow's involvement during colonoscopy on examination's quality indicators.

**Methods** Colonoscopy records of two consecutive years were retrospectively assessed. We included screening, surveillance and diagnostic examinations; IBD and incomplete (due to obstruction) examinations were excluded. Adenoma detection rate (ADR), mean adenoma per colonoscopy (MAC), cecum intubation rate (CIR) and adverse events (AEs) comprised the endpoints.

**Results** We reviewed 2241 records (50.8% female, age 62 ± 12.9 years), 685 (30.6%), 569 (25.4%) and 987 (44%) were screening, surveillance and diagnostic examinations, respectively. A fellow was involved in 1580 (70.5%) of them by performing part or the entire colonoscopy under attending endoscopist's supervision (Group A); the rest were attending-only examinations (Group B). ADR did not differ between the two groups overall [27.8% vs. 26.1% (p = 0.43)] and per indication [27.6% vs. 23.9% (p = 0.29), 37.7% vs. 39.7% (p = 0.65) and 22.5% vs. 17.3% (p = 0.11)] for screening, surveillance and

diagnostic examinations, respectively. Similarly, MAC did not differ between groups A and B overall [0.45 ± 0.93 vs. 0.44 ± 0.98 (p = 0.88)] and among the three indications (0.39 ± 0.79 vs. 0.38 ± 0.88; p = 0.87, 0.65 ± 1.1 vs. 0.73 ± 1.2; p = 0.44 and 0.38 ± 0.93 vs. 0.27 ± 0.84; p = 0.12). CIR and AEs did not differ significantly between group A and B [95.3% vs. 94.6% (p = 0.51) and 0.01% vs. 0% (p = 0.52)] respectively.

**Conclusions** In a Greek tertiary center authorized to train fellows, their involvement in colonoscopy does not affect examination's quality indicators.

Friday, April 5, 2019

Stomach ESD

14:00 – 14:30

ePoster Podium 8

## ePP94 PREDICTIVE FACTORS OF NON-CURATIVE ENDOSCOPIC SUBMUCOSAL DISSECTION FOR EARLY GASTRIC CANCER

**Authors** Kang DH<sup>1</sup>, Choi CW<sup>1</sup>, Kim HW<sup>1</sup>, Park SB<sup>1</sup>, Lee JW<sup>2</sup>

**Institute** 1 Pusan National University, Yangsan, Korea, Republic of; 2 Pusan National University Yangsan Hospital, Yangsan, Korea, Republic of  
DOI 10.1055/s-0039-1681637

**Aims** Endoscopic submucosal dissection (ESD) has been accepted as the treatment of choice for early gastric cancer (EGC) without lymph node metastasis. However, additional surgical gastrectomy should be considered after non-curative endoscopic resection. We aimed to evaluate the predictive factors associated with non-curative endoscopic resection.

**Methods** Between November 2008 and June 2015, a retrospective study was conducted in a single, tertiary, referral hospital. A total of 596 EGC lesions resected by ESD were analyzed. Non-curative endoscopic resection was defined as the occurrence of lesions associated with piecemeal resection, positive resection margins, lymphovascular invasion, or lesions that did not meet the expanded indications for ESD.

**Results** The rate of non-curative endoscopic resection was 16.1%. The mean follow-up period was 35.3 ± 25.0 months. Associated predictive factors for non-curative endoscopic resection were female sex (OR, 2.470; p = 0.004), lesion size ≥ 20 mm (OR 3.714; p < 0.001), longer procedure time (OR 2.449, p = 0.002), ulceration (OR 3.538, p = 0.002), nodularity (OR 2.967, p < 0.001), depression (OR 1.806, p = 0.038), undifferentiated carcinoma (OR 2.825, p = 0.031) and lesion located in the mid or upper third of stomach (OR 7.135 and OR 4.155, p < 0.001, respectively). As the number of risk factors increased, the risk of non-curative ESD also increased.

**Conclusions** Prior to selection of ESD, the risks associated with non-curative ESD should be considered so that appropriate treatment modalities may be selected.

Friday, April 5, 2019

Stomach ESD

14:00 – 14:30

ePoster Podium 8

## ePP95 CAN HELICOBACTER PYLORI ERADICATION AFFECT OCCURRENCE OF METACHRONOUS GASTRIC TUMOR AFTER ENDOSCOPIC SUBMUCOSAL DISSECTION FOR EARLY GASTRIC TUMOR?

**Authors** Kim SH<sup>1</sup>

**Institute** 1 Gastroenterology of Internal Medicine, Eulji University/Eulji Hospital, Seoul, Korea, Republic of  
DOI 10.1055/s-0039-1681638

**Aims** metachronous gastric tumor (MGT) development has become a major problem after endoscopic resection. The relationship between helicobacter pylori eradication and MGT incidence rate has not been clarified. We evaluated the incidence, clinicopathologic features and the risk factors for MGT.

**Methods** From May 2008 to March 2013, we enrolled 260 patients (295 lesions) of gastric tumors which underwent ESD at EMC. Metachronous lesions were defined as secondary gastric neoplasms occurring at least 1 year after the initial ESD. We excluded 11 patients who have 22 synchronous lesions. Finally, a total of 249 patients (273 lesions) were enrolled this study. The 12 patients (31 lesions) were MGT and 237 patients (242 lesions) were single gastric tumor (SGT). We investigated the both patient factors and lesion factors. Lesion factors were tumor size, location, macroscopic finding and histological change.

**Results** The clinicopathologic features associated with MGT, including Helicobacter pylori infection ( $p=0.40$ ), histology ( $p=0.47$ ), tumor size ( $P=0.28$ ), depth ( $p=0.4$ ) and location ( $P>0.99$ ) were not significantly associated with MGT development. However, 70.45% of gastric tumors were occurred on the lower third, and 75% of MGT were developed on the same region ( $P>0.99$ ). 57.89% of MGT were developed on the same part of the stomach.

Macroscopically elevated features (IIa) were associated with MGT development ( $P=0.0014$ ). Multivariate analysis exhibited no associations among the factors. The median period (SD) of the MGT development after ESD was 28.85 (14.3) months. And occurrence rate was 4.42% per year.

**Conclusions** There was no statistically significant correlation between MGT development and HP infection. grossly flat elevated feature, only was considered as high risk of MGT development. However, two thirds of the early gastric tumors were likely to occur on the lower third of the stomach, and only half of the MGTs tended to develop on the same part of the stomach.

Friday, April 5, 2019

Stomach ESD

14:00 – 14:30

ePoster Podium 8

### ePP96 EARLY GASTRIC CANCERS FREQUENTLY RECUR IN PATIENTS WITH LIVER CIRRHOSIS (LC) COMPARED WITH NON-LC PATIENTS

**Authors** Joo MK<sup>1</sup>, Yang CH<sup>2</sup>, Koh JS<sup>1</sup>, Lee BJ<sup>1</sup>, Park JJ<sup>1</sup>, Chun HJ<sup>3</sup>, Lee SW<sup>4</sup>

**Institute** 1 Gastroenterology, Korea University Guro Hospital, Seoul, Korea, Republic of; 2 Internal Medicine, Dongguk University Gyeongju Hospital, Gyeongju, Korea, Republic of; 3 Gastroenterology, Korea University Anam Hospital, Seoul, Korea, Republic of; 4 Gastroenterology, Korea University Ansan Hospitals, Ansan, Korea, Republic of

DOI 10.1055/s-0039-1681639

**Aims** We investigated clinical efficacy, safety and long-term follow-up outcomes of early gastric cancer (EGC) treated by endoscopic resection in patients with liver cirrhosis (LC), by comparing with non-LC patients.

**Methods** From March 2007 to March 2016, EGC patients who had underlying LC and underwent endoscopic treatment at our institute were enrolled (LC-EGC group). Clinical and histopathologic short-term outcomes and long-term follow-up outcomes were compared with EGC patients without LC (non-LC-EGC group).

**Results** Seventeen EGC lesions in 14 patients LC were resected by endoscopic procedure for the treatment of EGC. Male were 85.7% (12/14), alcohol was the most common cause of LC (10/14, 71.4%), and 10 patients (71.4%) were corresponding to decompensated LC. When we compared LC-EGC group with non-LC-EGC group (665 EGC lesions in 640 patients), baseline characteristics (age, sex, comorbidities), characteristics of tumor (size, gross type, location), short-term outcomes (en bloc resection rate, complete resection rate, curative resection rate) and histopathology (differentiation, submucosal invasion, lymphovascular involvement) were not significantly different in both groups. However, recurrence of entire cancer (30.8% vs. 5.3%,  $p<0.001$ ), synchronous cancer (15.4% vs. 2.0%,  $p=0.001$ ) and metachronous cancer (15.4% vs. 3.3%,  $p=0.019$ ) were significantly higher in LC-EGC group than non-LC-EGC group.

**Conclusions** Endoscopic resection of EGC in LC patient is an effective and safe modality. However, physicians may pay attention to the recurrence of cancer during clinical follow-up.

Friday, April 5, 2019

Bariatric

16:30 – 17:00

ePoster Podium 1

### ePP97 ENDOSCOPIC SUBMUCOSAL LASER ABLATION FOR THE TREATMENT OF TYPE 2 DIABETES – PRELIMINARY FIRST IN HUMAN STUDY RESULTS

**Authors** Benes M<sup>1</sup>, Marcovitch I<sup>2</sup>, Mraz M<sup>3</sup>, Herschkovitz A<sup>2</sup>, Haluzik M<sup>3</sup>

**Institute** 1 Gastroenterology and Hepatology, IKEM, Prague, Czech Republic; 2 Clinical Department, Digma Medical Ltd., Petah Tikva, Israel; 3 Diabetology, IKEM, Prague, Czech Republic

DOI 10.1055/s-0039-1681640

**Aims** Duodenal exclusion by surgery or an artificial liner has been found very effective in treating T2DM.

Duodenal Glycemic Control (DGC) is an endoscopic procedure under direct vision which uses a disposable catheter (DiaGone) without an Implant. DiaGone utilizes precisely controlled laser technology to target the duodenal submucosa in order to modulate the GI neurohormonal axis, hence improving glucose metabolism.

Following encouraging data from an insulin-resistant porcine animal-model study, the DiaGone catheter was tested in a first-in-human study for the evaluation of safety and performance. The DGC procedure was performed under direct vision by interventional gastroenterologists on Subjects with T2DM uncontrolled on oral medication (metformin).

**Methods** Six patients (All men; baseline HbA1c 9.0% & mean BMI 30.0 kg/m<sup>2</sup>) were treated with sub-optimal energy dosage and analyzed for tolerability and safety.

**Results** All procedures completed successfully. Median procedure time was 50 minutes. 1-month follow-up endoscopies were without any clinical findings in all patients; there were no reported adverse events related to the device or the procedure. None of the patients reported changes in GI symptoms or behavior.

**Conclusions** DGC is an easy to use endoscopic treatment of T2DM, demonstrating safe and highly tolerable results. Currently, DiaGone catheter and DGC procedure are being tested in T2DM patients using therapeutic dosage in an on-going study.

### ePP98 EVALUATION OF FREQUENCY OF VOMITING AND THE NEED FOR HOSPITAL SUPPORT AFTER PLACEMENT OF THE INTRAGASTRIC BALLOON (IGB)

**Authors** Barrichello S<sup>1</sup>, Nunes GC<sup>2</sup>, Hoff AC<sup>3</sup>, Fernandes Fittipaldi JR<sup>4</sup>, Ferreira de Souza T<sup>5</sup>, Waisberg J<sup>5</sup>, Galvão Neto M<sup>5</sup>, Fabio Teixeira A<sup>6</sup>, Nobuki Usuy E<sup>7</sup>, Scarparo J<sup>8</sup>, Guimaraes Hourneax de Moura E<sup>9</sup>

**Institute** 1 Bariatric Endoscopy, Healthme Weight Management Clinic, São Paulo, Brazil; 2 Nutrition, Hospital das Clinicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil; 3 Bariatric Endoscopy, Angioskope Clinic, São José dos Campos, Brazil; 4 Bariatric Endoscopy, Endogastro Clinic, Rio de Janeiro, Brazil; 5 Bariatric Endoscopy, FMABC, Santo André, Brazil; 6 Bariatric Endoscopy, Gastros Bahia Clinic, Vitoria da Conquista, Brazil; 7 Bariatric Endoscopy, Usuy Clínica Médica, Florianópolis, Brazil; 8 Bariatric Endoscopy, Scarparo Scopia, Sao Paulo, Brazil; 9 Bariatric Endoscopy, Hospital das Clinicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil

DOI 10.1055/s-0039-1681641

**Aims** One of the most widely used treatment options in Brazil is the implantation of a silicone intragastric balloon (IGB).

The most common side effects after implantation of an IGB are nausea, vomiting and dehydration. According to Scudero et al 71.1% of patients experienced nausea and 57.9% had vomiting. Regarded as one of the major causes of early withdrawal of the balloon, it is important to evaluate the

frequency intravenous hydration required to quell nausea and vomiting during the first days of use of the accessory.

**Methods** Retrospective study, with analysis of medical records of 340 obese and overweight patients treated with iGBs between November 2014 and December 2016 in the bariatric endoscopy division of a private clinic in São Paulo.

The patients used omeprazole 40 mg once a day, as well as antiemetic drugs compulsorily for the first 5 days.

The data recorded were the number and frequency of vomiting and whether there was a need for intravenous hydration in the first three days after implantation of the iGB.

**Results** The sample consisted of adults, 84.11% of whom were women, with a mean age of 34.19 ± 6.16 years, a mean BMI of 36.94 ± 5.67 Kg/m<sup>2</sup>.

74.41% of our sample reported nausea and vomiting in the first three days after IGB placement. Among the patients who experienced vomiting, 67.58% presented a frequency of up to five times per day and 32.42% from five to ten times per day. Approximately 9.48% of the patients required intravenous hydration and there were no early IGB withdrawals.

**Conclusions** An endoscopic approach to obesity and excess weight with IGBs causes vomiting in the early days after implantation in 74.41% of patients and causes dehydration requiring intravenous fluid therapy in 7.06% of all patients who had IGBs implanted.

### ePP99V EXPLANT OF INTRAGASTRIC BALLOON WITH SEVERE FUNGAL COLONIZATION: HOW DO I DO IT?

**Authors** Silva M<sup>1</sup>, Dos Passos Galvão Neto M<sup>2</sup>, Grecco E<sup>2</sup>, Santos AL<sup>1,3</sup>, Gomes S<sup>4</sup>, Macedo G<sup>1</sup>, de Quadros LG<sup>2</sup>

**Institute** 1 Centro Hospitalar de São João, Porto, Portugal; 2 ABC Medical School, Santo André, Brazil; 3 Gastroenterology, Centro Hospitalar de São João, Porto, Portugal; 4 UCSP Rio Maior – ACES Lezíria, Rio Maior, Portugal  
DOI 10.1055/s-0039-1681642

**Introduction** Placement of an intragastric balloon (IGB) by endoscopic route is an efficient, safe and minimal invasive procedure for the treatment of obesity. Fungal colonization of IGBs is a rare adverse event that can lead to serious complications during IGB removal. The technique described herein may facilitate extraction in these cases and reduce the risk of complications, as this is a safe option for balloon removal after intense fungal colonization.

**Case report** A 43-year-old female patient with a body mass index of 30.7 kg/m<sup>2</sup>, without comorbidities, who was submitted to IGB placement to treat obesity. In the six months following the procedure, the patient was treated with proton pump inhibitors and she lost about 18 kg. Near the date scheduled to remove the IGB, the patient began with persistent fever and myalgia. The complete blood count showed leukopenia ( $2.0 \times 10^9/L$ ) and thrombocytopenia ( $48 \times 10^9/L$ ) and her serology (IgM) was positive for Dengue fever. Conservative treatment was instituted with rest and hydration and the patient had a good evolution. The removal of the IGB was postponed until normalization of the platelet count and resolution of the infection (seven months after the IGB placement). Upper endoscopy identified intense colonization of the balloon by fungus. The IGB was emptied according to the conventional technique using a balloon removal needle with the contents being aspirated completely. However, removal of the IGB using endoscopic tweezers was unsuccessful; it was impossible for the IGB to pass through the cardia as it was rigid with rough walls due to the fungal colonization and because of its friability. It was then decided to cut the balloon in the middle using bariatric scissors in order to reduce its thickness and facilitate its extraction. Finally, the endoscopic tweezers were again introduced and the IGB was successfully removed without further complications.

Friday, April 5, 2019

Colon capsule

16:30 – 17:00

ePoster Podium 2

### ePP100 THERAPEUTIC IMPACT OF COLON CAPSULE AS A PAN-ENTEROSCOPIC TEST

**Authors** Carretero C<sup>1</sup>, Prieto de Frias C<sup>1</sup>, Angos R<sup>1</sup>, Betes M<sup>1</sup>, De la Riva S<sup>1</sup>, Herraiz M<sup>1</sup>, Muñoz-Navas M<sup>1</sup>

**Institute** 1 Gastroenterology, University Clinic of Navarra, Pamplona, Spain  
DOI 10.1055/s-0039-1681643

**Aims** Colon capsule is a non-invasive device primarily designed for colonic visualization. However, a slight modification of the ingestion protocol may allow both the visualization of the small bowel and colon with only one prep and one capsule.

This pan-enteroscopic study might be useful for those patients who may have pathology in the small and large intestine (for instance in Peutz Jeghers syndrome) but also for those patients with gastrointestinal bleeding who are high-risk patients for anesthesia or for endoscopy.

**Methods** We have included all pan-enteroscopic capsule procedures performed in our unit, from October 2011 to January 2015. We have focused on patients with a previous negative gastroscopy. All patients prepared with PEG in split dose (2 liters+2 liters) and sodium phosphate as capsule booster (30 ml+15 ml).

**Results** 68 patients were submitted to a pan-enteric capsule study. 62.7% male with a mean age of 72 years. The reason for referral was occult-obscure gastrointestinal bleeding (OGIB) in 29.8% of cases, and 70.2% were high-risk patients for anesthesia/endoscopy. 31 (46.26%) had a negative gastroscopy and we found small bowel lesions in 67% and colonic findings in 80.6% of them. According to the findings in the panendoscopic study with capsule endoscopy in patients with negative EGD, in 64.5% of cases no other endoscopic studies would be needed.

Despite of having several cardiac patients and patients with renal insufficiency, no abnormalities were detected in renal function.

**Conclusions** A pan-enteroscopic capsule after a negative EGD may avoid further endoscopic studies in 64.5% of cases.

The pan-enteroscopic capsule is a relatively safe procedure, with no effect on renal function despite the use of sodium phosphate in high-risk patients.

### ePP101 DIABETES MELLITUS AND VIDEO CAPSULE ENDOSCOPY: SOME OF THEM JUST NEED MORE TIME

**Authors** Sergeev I<sup>1</sup>, Stein A<sup>1,2</sup>, Ringel Y<sup>1,3</sup>

**Institute** 1 Gastroenterology and Hepatology, Meir Medical Center, Kfar Saba, Israel; 2 Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel; 3 Gastroenterology and Hepatology, University of North Carolina School of Medicine, Chapel Hill, United States  
DOI 10.1055/s-0039-1681644

**Aims** The aim of the study was to evaluate the influence of DM on gastric and small bowel transit times, and on VCE examination completion rate.

**Methods** In single center, retrospective study we investigated the records of patients who underwent VCE (PillCam, Given Imaging) for evaluation of iron deficiency between 2010 – 2017. Patients with history of gastric/colonic/small bowel surgery, Parkinson's disease, Crohn's disease, and active non-prostate malignancy were excluded. Demographic and VCE examination related data were collected. DM-variables of interest included disease duration, insulin use, presence of end-organ damage, peak and current HgA1c.

**Results** 254 patients met the inclusion criteria. Forty seven percent had type 2 DM.

Patients with diabetic neuropathy had prolonged small bowel transition time (SBTT) compared to non-DM patients (5.24+/-1.18 VS 4.38+/-1.34 hours, p=0.02) and to DM patients without end-organ damage (5.24+/-1.18 VS 4.08+/-1.48 hours, p=0.005). Likewise, SBTT was prolonged in insulin treated

patients compared to non-DM patients (5.32+/-1.19 VS 4.38+/-1.34, p=0.004) and to DM patients without insulin treatment (5.32+/-1.19 VS 4.23+/-1.59, p=0.004).

Retinopathy or nephropathy alone did not significantly influence SBTT. Gastric transit time was similar between DM and non-DM cohorts (0.54 +/-0.67 hours VS 0.6 +/-0.82 hours, p=0.55), with no influence for DM characteristics.

VCE completion was lower in patients with diabetic neuropathy compared to those without end-organ damage (87.5% VS 98%, p=0.03). A trend for lower completion rate was noted in insulin treated patients and those with multiple end-organ damage.

**Conclusions** SBTT is significantly prolonged in DM patients with neuropathy or insulin treatment, leading to lower VCE completion rate in those patients. An a priori longer VCE recording time should be considered for patients with these conditions. For DM patients without end-organ damage or insulin treatment, transition times and VCE completion rates are similar to those without DM, and examination time adjustments are probably not needed.

### ePP102 COLON CAPSULE ENDOSCOPY WITH OR WITHOUT BIOMARKERS AS A VIABLE ALTERNATIVE TO COLONOSCOPY IN UNSELECTED PATIENTS WITH LOWER GI SYMPTOMS: RESULTS OF A PILOT STUDY

**Authors** Ismail MS<sup>1,2</sup>, Semenov S<sup>1,2</sup>, O'Connor A<sup>1</sup>, Breslin N<sup>1</sup>, Ryan B<sup>1</sup>, McNamara D<sup>1,2</sup>

**Institute** 1 Department of Gastroenterology, Tallaght University Hospital, Dublin, Ireland; 2 Trinity Academic Gastroenterology Group, Trinity College Dublin, Dublin, Ireland

**DOI** 10.1055/s-0039-1681645

**Aims** Lower-gastrointestinal symptoms (LGS) are poor at predicting Clinically-Significant Disease (CSD) despite being the main way of prioritising referrals. This has led to prolonged wait-times with majority having normal colonoscopies. Alternative diagnostic pathways are needed; biomarkers and/or colon capsule endoscopy (CCE) may be helpful.

**Aim** To evaluate the use of stool biomarkers and CCE in diagnosing lower-GI disease compared to colonoscopy.

**Methods** A prospective comparative single-centre study. Following ethical approval, patients 18–80 years referred with LGS were recruited. Participants had FC, FIT, CCE and a standard colonoscopy. FIT > 10ug/g and FC > 50ug/g was considered positive. Colonoscopy was considered gold-standard. Diagnostic accuracy of biomarkers and CCE was determined and Pearson-coefficients calculated.

**Results** So far, 69 patients recruited; 8 excluded. Mean age 47 (20–79) years, 43%(n=19) males. To date, 44/61 (72%) have undergone colonoscopy. Colonoscopy diagnostic yield 64%(n=28); caecal intubation 95%(n=41). Findings; diverticulosis 7 (16%), polyps 14 (30%), IBD 5 (11%), haemorrhoid 2 (5%). CSD 20%(9/44)-HRA 4 (9%), IBD 5 (11%).

40/44 (91%) FIT and 41/44 (93%) FC have been tested. 25%(n=10) FIT and 41%(n=13) FC were positive. Mean FIT = 14.2ug/g (range 0–149) and mean FC = 121.7ug/g (range <19.5–168). FIT and FC has a weak correlation with colonoscopy (r=0.1, -0.057 respectively). Combined FIT&FC positive (r=0.08). Sensitivity, specificity, PPV and NPV; FIT 29%,81%,70%,43%; FC 32%,63%,57%,37%; combined 52%,56%,65%,43%.

CCE excretion rate 82%(n=36/44) and reached left colon in 100%. Diagnostic yield for CCE was 61%(n=27). CCE had a strong correlation with colonoscopy (R=0.8). Polyp detection rate CCE, 39%(17/44) versus colonoscopy 32%(14/44).100%(9/9) CSD on colonoscopy was detected on CCE. Overall, CCE sensitivity=90%, specificity=93%, PPV=95%, NPV=92%. For CSD – sensitivity, specificity, PPV and NPV=100%.

**Conclusions** Biomarkers performed poorly and should not be considered a reliable screening tool for CSD in patients with LGS. However, CCE had excellent correlation with colonoscopy in our unselected symptomatic cohort and warrants further investigation as a filter test.

Friday, April 5, 2019  
Enteroscopy

16:30 – 17:00  
ePoster Podium 3

### ePP103 CORRELATION BETWEEN ENDOSCOPIC FEATURES AND HISTOLOGICAL SUBTYPES OF SMALL INTESTINAL LYMPHOMAS

**Authors** Ueno Y<sup>1</sup>, Fukushima M<sup>1</sup>, Morita S<sup>1</sup>, Inoue S<sup>1</sup>, Inokuma T<sup>1</sup>

**Institute** 1 Kobe City Medical Center General Hospital, Gastroenterology, Kobe, Japan

**DOI** 10.1055/s-0039-1681646

**Aims** A small intestine is a common involved site of malignant lymphomas. With the development of double-balloon endoscopy (DBE), we can evaluate features and take biopsy from small intestinal lymphomas (SIL) less invasively. We investigated the correlation between endoscopic features and histological subtypes of SIL.

**Methods** We retrospectively analyzed 43 SIL patients diagnosed by using DBE at our institution from April 2004 to September 2018.

**Results** The median age was 66 years (range 29–89 years) and 28 were males. Involved sites included duodenum in 1 patient, jejunum in 18, ileum in 8 and broad small intestine in 16. Histological subtypes were as follows; FL (N=18), DLBCL (N=17), MEITL (N=3), anaplastic large cell lymphoma (N=2), adult T-cell leukemia-lymphoma (N=1), extranodal marginal zone lymphoma of mucosa-associated lymphoid tissue type (N=1), mantle cell lymphoma (N=1). In Lugano classification, 18 patients were at stage I, 6 at stage II<sub>1</sub>, 4 at stage II<sub>2</sub>, 5 at stage II<sub>E</sub>, 10 at stage IV.

As regards endoscopic features, FL presented as mainly multiple lymphomatous polyposis type (N=16), DLBCL as ulcer type (N=11), MEITL mixed type (N=3).

\*follicular lymphoma (FL), diffuse large B-cell lymphoma (DLBCL), mono-morphic epitheliotropic intestinal T-cell lymphoma (MEITL).

**Conclusions** There is a tendency between endoscopic features and histological subtypes. Pathological grounds are needed for each definitive diagnosis, but we can predict a subtype of malignant lymphoma based on endoscopic features. DBE is useful for diagnosis with malignant lymphoma in terms of observation of morphologic features and pathological and histological findings by biopsy.

### ePP104V CRYPTOGENIC MULTIFOCAL ULCEROUS STENOSING ENTERITIS (CMUSE) IN THE ENTEROSCOPIC ERA

**Authors** Elli L<sup>1</sup>, Tontini GE<sup>1</sup>, Topa M<sup>1</sup>, Puricelli M<sup>1</sup>, Soru P<sup>1</sup>, Penagini R<sup>1</sup>, Soncini M<sup>2</sup>, Vecchi M<sup>1</sup>

**Institute** 1 Gastroenterology and Endoscopy Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy; 2 Gastroenterology and Digestive Endoscopy Unit, ASST Santi Paolo e Carlo, P.O. San Carlo Borromeo, Milan, Italy

**DOI** 10.1055/s-0039-1681647

**Background and study aims** Cryptogenic multifocal ulcerous stenosing enteritis (CMUSE) is a rare and overlooked small bowel disorder of uncertain origin. Differential diagnosis from Crohn's disease, NSAID-associated enteritis and enteric lymphoma is challenging.

We report the enteroscopic (capsule and device assisted) diagnostic process and management of a series of patients with CMUSE.

**Patients and methods** From November 2016 to November 2018, in all patients presenting a CMUSE-like endoscopic picture we have prospectively recorded: clinical data, enteroscopic, histologic and radiologic findings.

**Results** Among 561 enteroscopies (277 DBEs, 284 VCE) performed in 417 consecutive patients, the final diagnosis of CMUSE was made in 6 (5 males, median age 76 years, range 25–83 years) resulting in a prevalence of 1.5%. Indication to enteroscopy was iron deficiency anemia (IDA) (Hb 10.9 ± 2.7 g/

dl). At baseline, only one patient assumed NSAIDs (cardioaspirin). All patients underwent DBE and cross-sectional imaging (EnteroMR or EnteroCT or Small bowel-US). VCE was performed as first examination in 4 cases with one case of capsule retention (DBE retrieved). No transmural nor mesenteric involvement was reported by cross-sectional imaging. The DBE showed isolated small intestinal ulcers and stenotic lesions, confirming the findings of the previous investigations. The surrounding mucosa appeared normal. Five patients had an isolated lesion and 1 had multiple ones. In 5 patients stenosis were localized in the ileum, in 1 case in the jejunum. Histopathological reports were nonspecific (chronic flogosis). Over a mean follow-up of 18 months, systemic corticosteroids were the first-line treatment and 4 were referred to laparoscopic resective surgery.

**Conclusion** Our findings suggest that CMUSE is more frequent than previously reported. Stenotic ulcers are mostly isolated and located in the ileum. DBE and histopathology are pivotal to assess differential diagnosis.

### ePP105 CELIAC DISEASE AND DOUBLE-BALLOON ENTEROSCOPY: WHAT WE NEED FOR?

**Authors** Sirin G<sup>1</sup>, Erkan Duman A<sup>1</sup>, Hülalü S<sup>2</sup>

**Institute** 1 Gastroenterology, Kocaeli University, Kocaeli, Turkey; 2 Gastroenterology, Kocaeli University Faculty of Medicine, Kocaeli, Turkey  
DOI 10.1055/s-0039-1681648

**Aims** Indications to double-balloon enteroscopy (DBE) are currently not standardized in celiac disease (CD). We aimed to investigate the role and value of this modality in the diagnosis and treatment of CD and resistant celiac disease (RCD) prospectively.

**Methods** Appointed to Kocaeli University between June 2017 and May 2018, in total 26 of patients who have been examined for celiac disease and have not been diagnosed despite having a duodenal biopsy and 6 patients with RCD included in the study. All patients underwent oral DBE. Control biopsies were obtained from duodenum, jejunum and ileum. Biopsy specimens were examined according to Modified Marsh Scoring (MMS). Contribution of biopsies taken from the duodenum, jejunum and ileum via gastroscopy and DBE to the management of RCD and to the diagnosis of CD were compared.

**Results** When biopsy specimens were evaluated in terms of intraepithelial T lymphocyte count, no significant difference was detected between the two groups ( $p = 0,868$ ). In the evaluation performed with the MMS in terms of the diagnosis of CD, the results were significantly in favor of duodenal samples (0,002). Although there were no statistically significant differences between the first screening samples from duodenum and the samples taken with DBE from duodenum, jejunum and ileum it was seen that the duodenal specimens were histopathologically more positive comparison to the first duodenal sampling taken with gastroscopy (6/24). Four of these patients were diagnosed with CD. One of six RCD patients has stricturan Crohn disease in ileum and the other one has GIST in jejunoileal region.

**Conclusions** It seems to be an appropriate strategy to repeat the serological and histopathological examinations if complaints persist in patients with negative initial investigations for celiac disease. In individuals with RCD, DBE gives hope as a very important modality in medical management and treatment.

Friday, April 5, 2019  
ERCP stones

16:30 – 17:00  
ePoster Podium 4

### ePP106 SPYING BACK TO STONE AGE, PREPARING FOR THE FUTURE OF BILIARY STONES EXTRACTION – A DECADE LONG EXPERIENCE WITHOUT LIGHT BEAMS

**Authors** Sandru V<sup>1</sup>, Plotogea OM<sup>1</sup>, Ilie M<sup>2</sup>, Constantinescu A<sup>1</sup>, Ungureanu B<sup>3</sup>, Balan G<sup>4</sup>, Moroi I<sup>1</sup>, Rosianu C<sup>5</sup>, Oprita R<sup>6</sup>, Constantinescu G<sup>6</sup>

**Institute** 1 Interventional Endoscopy Unit, Clinical Emergency Hospital Bucharest, Bucharest, Romania; 2 Interventional Endoscopy Unit, UMF Carol Davila School of Medicine, Bucharest, Romania; 3 Universitatea de Medicina si Farmacie Craiova, Craiova, Romania; 4 UMF Grigore T. Popa Iasi, Iasi, Romania; 5 Interventional Endoscopy Unit, Clinical Hospital 'Sf. Maria', Bucharest, Romania; 6 UMF Carol Davila School of Medicine, Bucharest, Romania  
DOI 10.1055/s-0039-1681649

**Aims** To evaluate the efficacy of endoscopic extraction methods before the use of cholangioscopy assisted laser and electrohydraulic lithotripsy.

**Methods** We conducted a retrospective single center study over 10 years from 2009 to 2018. We included in the study 2865 patients with single or multiple bile duct stones submitted to ERCP. We analyzed each technique of extraction in correlation with the following parameters: mean diameter of the stone/stones (MDS), mean diameter of the common bile duct (MDCBD) and success rate (SR) defined by number of cases solved endoscopically vs. cases of residual lithiasis/referred to surgery. Colledata were processed in IBM SPSS Statistics 20.

**Results** Patients with choledocholithiasis underwent different endoscopic extraction techniques: basket, retrieval balloon, lithotripter, combined methods ± balloon dilator. Endoscopic success rate was 92%. 153 patients (5.3%) were referred to surgery because endoscopic techniques failed, while 60 patients (2%) had residual lithiasis after ERCP despite using more than 2 methods of extraction. This fact was statistically correlated to high values of MDS and MDCBD. Stones with a mean diameter of 6 mm were extracted only by using basket or retrieval balloon, while stones with a diameter of more than 14 mm were treated by surgery ( $p < 0.05$ ). The same situation was encountered for MDCBD, which was higher than 17 mm in the surgery group and lower than 13 mm in ERCP group. Between these values fitted in the groups of patients treated by combined endoscopic techniques.

**Conclusions** Stone extraction success rates were never 100% (92% in our study), and larger stones need combined techniques. Looking back at this decade long data, the new cholangioscopy assisted lithotripsy techniques used on a larger scale will make the difference and surgical treatment will be rare in the future.

### ePP107 ERCP IN BILIARY STONES DISEASE: WHAT RESULTS FOR ELDERLY PATIENTS?

**Authors** Mrabti S<sup>1</sup>, Seddik H<sup>1</sup>, Boutallaka H<sup>1</sup>, Sair A<sup>1</sup>, El koti I<sup>1</sup>, Sentissi S<sup>1</sup>, Benkirane A<sup>1</sup>

**Institute** 1 Gastroenterology II, Military Teaching Hospital of Rabat, Rabat, Morocco  
DOI 10.1055/s-0039-1681650

**Aims** The aim is to evaluate the indications and safety of ERCP in elderly subjects, and to compare the results with younger patients.

**Methods** From September 2002 to November 2018, we included 93 patients with biliary stones who underwent endoscopic drainage, in our department of Gastroenterology II. Patients older than 75 years were defined as elderly. Statistical analysis was performed by SPSS20 software.

**Results** Among 924 ERCP performed for biliary stones disease, 10.1% were over 75 years old ( $n = 93$ ). The sex ratio M/F was 0.9%. 23.7% had a history of cholecystectomy ( $n = 22$ ). 5.4% had already endoscopic biliary sphincterotomy ( $n = 5$ ). The indication for ERCP was acute biliary pancreatitis in 1.1% of cases

(n = 1), acute cholangitis in 23.7% of cases (n = 22), a multiple large stones in 61.3% (n = 57). The diverticular papilla was present in 21.5% of cases (n = 20). Endoscopic biliary sphincterotomy was performed in 93.5% of cases (n = 87). We used additional maneuvers in 31.3% of cases, namely a naso-biliary drain in 14% (n = 13), mechanical lithotripsy in 4.3% (n = 4), extracorporeal lithotripsy in 1.1% (n = 1), enlargement of endoscopic sphincterotomy in 1.1% (n = 1), sphincteroclasty in 5.4% (n = 5), an endoprosthesis was implanted in 5.4% (n = 5). The early complication rate post ERCP was 7.6%. The initial success rate was 62.4% (n = 58). The overall success rate was 88.2% (n = 82) compared to 92.3% for patients younger than 75 years of age ( $p = 0.1$ ).

**Conclusions** Our study confirms that ERCP is a safe procedure in elderly patients, and that there is no difference in efficacy compared to younger patients.

## ePP108 ENDOSCOPIC BILIARY LARGE BALLOON DILATION LITHOTRIPSY (“BALLOON LITHOTRIPSY”) FOR DIFFICULT BILE DUCT STONES REMOVAL

**Authors** Pereira Lima J<sup>1</sup>, Pereira Lima G<sup>2</sup>, Contin I<sup>3</sup>, Arciniegas ID<sup>3</sup>, Saul C<sup>2</sup>, Oliveira dos Santos CE<sup>4</sup>

**Institute** 1 Gastroenterology, UFCSPA, Porto Alegre, Brazil; 2 ULBRA, Porto Alegre, Brazil; 3 UFCSPA, Porto Alegre, Brazil; 4 Gastroenterology, Santa Casa, Bagé, Brazil

**DOI** 10.1055/s-0039-1681651

**Aims** Endoscopic removal of multiple, large or impacted stones, in which a lithotripter basket cannot be deployed or is unable to grasp the stone(s), is challenging, and inevitably leads to repeat procedures such as stent insertion and extra or intracorporeal lithotripsy. The aim of this study is to evaluate the safety and efficacy of “endoscopic biliary dilation balloon lithotripsy” (EBBD, a novel technique) for difficult stones, which were not amenable to basket or balloon retrieval after papillotomy and papillary large balloon dilation.

**Methods** We retrieved data from 1289 ERCPs from 2 prospective trials performed between 2014 and 2018 dealing with post ERCP pancreatitis prevention. Patients with difficult bile duct stones, in which a balloon dilator up to 18 mm was used to crush or increase the working space parallel to the stones in the common or hepatic duct, were included in the study.

**Results** From the 1289 ERCPs, 258 had difficult stones (> 1 cm, impacted or multiple Stones). EBBD was employed in 46 cases after endoscopic papillotomy and papillary large balloon dilation with failed attempted balloon or basket stone(s) extraction. Failure to clear the bile duct at 1st ERCP occurred in 4 cases (91.3% of success). There was 1 biliary perforation related to EBBD in a patient with a residual cholesterol stone that was successfully treated conservatively by stent insertion.

**Conclusions** Endoscopic biliary balloon dilation lithotripsy in order to crush the stones or make working room for baskets or balloons in the bile duct is a safe, effective and a low cost technique for impacted or multiple bile duct stones.

Friday, April 5, 2019

EUS therapeutic digestive tract

16:30 – 17:00

ePoster Podium 5

## ePP109V EUS-GUIDED DUODENO-JEJUNOSTOMY (EUS-DJ): A NOVEL ENDOSCOPIC ANASTOMOSIS FOR PALLIATION OF GASTRIC OUTLET OBSTRUCTION (GOO)

**Authors** Bazaga S<sup>1</sup>, Sánchez-Ocaña R<sup>1</sup>, Yaiza Carbajo A<sup>1</sup>, García-Alonso FJ<sup>1</sup>, de Benito M<sup>1</sup>, de la Serna Higuera C<sup>1</sup>, Pérez-Miranda M<sup>1</sup>

**Institute** 1 Hospital Universitario Rio Hortega, Valladolid, Spain

**DOI** 10.1055/s-0039-1681652

**Introduction** We describe EUS-DJ as a novel salvage endoscopic approach in a patient with native GI anatomy in whom attempts at both duodenal SEMS placement and EUS-guided gastroenterostomy were unsuccessful.

**Procedure** A patient with body-tail pancreatic cancer presented with GOO. A tight stricture was identified in the third duodenal portion. Despite multiple attempts, guidewire could not be passed beyond the stricture. In addition, EUS-gastroenterostomy failed because of inability to identify an appropriately dilated small bowel loop through the gastric wall. The echoendoscope was then advanced until the second portion of the duodenum, in the long route, so that the transducer abutted the upper margin of the stricture. A collapsed jejunal loop was identified endosonographically. A 22G needle was first used to puncture the jejunal loop in order to achieve initial saline distention, facilitating subsequent puncture with a 19G needle. Through the larger 19G needle, contrast was easily injected for enterography, confirming location within the small bowel and providing additional guidance. Methylene blue was injected immediately before free-hand access across the duodenal and jejunal walls with a cautery-enabled LAMS catheter. Following catheter insertion, a 20-mm diameter LAMS was placed with both distal and proximal flanges released inside the scope channel. No adverse events occurred. The patient was discharged home the following day and tolerates a full diet 3-months later.

**Conclusions** EUS-DJ with LAMS represents a novel palliative option in the treatment of GOO. This approach may be useful in patients with strictures distal to the ampulla, in which wire-guided canalization results difficult. Several tips may facilitate the procedure: graded injection with 22G needle for initial jejunal distension before puncture with a 19G needle; methylene blue injection immediately prior to catheter insertion to provide instant endoscopic confirmation of proper target access upon LAMS deployment; Intra-channel stent release to minimize chances of stent misdeployment.

## ePP110V TREATMENT OF AORTODUODENAL SYNDROME (ADS) WITH EUS-GUIDED GASTROENTEROSTOMY (EUS-GE)

**Authors** Pham KDC<sup>1,2</sup>, Flesland Havre R<sup>1</sup>

**Institute** 1 Medicine, Haukeland University Hospital, Bergen, Norway;

2 Clinical Medicine, University of Bergen, Bergen, Norway

**DOI** 10.1055/s-0039-1681653

ADS is a very rare condition characterized by nausea, vomiting, abdominal pain, malnourishment, and weight loss. ADS is caused by upper gastrointestinal obstruction due to an abdominal aorta aneurysm (AAA). Most patients are treated with open surgery with AAA repair and gastro-enteral anastomosis. EUS-GJ with lumen apposing metallic stents (LAMS) is a technique to create a fistula between the stomach and the jejunum, to relieve symptoms in case of gastric outlet obstruction. We describe the first case of ADS managed endoscopically with EUS-GE.

**Methods** The patient is an 80-year-old male with severely generalized arteriosclerosis, COPD GOLD III with home oxygen treatment and AAA measuring 56 mm in diameter. Twelve months prior to consultation, he had been admitted several times with respiratory failure and aspiration pneumonia. His complaints were constant satiety, nausea, abdominal pain, vomiting, and weight loss. CT scan revealed severe gastric and duodenal retention and enlargement of the horizontal duodenum, where an infrarenal AAA caused compression of the bowel.

The patient was deemed unfit for surgery. A naso-enteral tube was initially placed for decompression of the stomach after we could observe clinical improvement. After consent, we performed EUS-GE with a 15 mm LAMS (Hot Axios, Boston Scientific, USA) with freehand technique.

**Results** The procedure lasted 30 min in general anesthesia. The patient could start on liquid fluid after 24 hours. His condition gradually improved, and he was discharged within three days. During nine months follow-up, the patient experienced neither aspiration pneumonia nor relapse of respiration failure. CT scan of the abdomen showed normalization of the gastric and duodenal distention. This is the first known case of ADS which has been treated endoscopically.

**Conclusions** EUS-GE may be an option to treat patients with ADS who are unfit for surgery.

### ePP111V ENDOSCOPIC ULTRASONOGRAPHY GUIDED RECANALIZATION OF A COMPLETE POSTOPERATIVE RECTOSIGMOID ANASTOMOTIC OBSTRUCTION WITH A LUMEN-APPPOSING METAL STENT

**Authors** Mel Jurado L<sup>1</sup>, Vázquez Romero M<sup>1</sup>, Roales Gómez V<sup>1</sup>, Moral Villarejo G<sup>1</sup>, Fisac Vázquez J<sup>1</sup>, Redero Brioso L<sup>1</sup>, Moreno Sanguino C<sup>2</sup>, Rey Diaz-Rubio E<sup>1</sup>, Esteban López-Jamar JM<sup>1</sup>

**Institute** 1 Hospital Clínico San Carlos, Madrid, Spain; 2 Hospital Quirónsalud Sur, Madrid, Spain

**DOI** 10.1055/s-0039-1681654

**Aims** To demonstrate that recanalization of a complete postoperative recto-sigmoid anastomotic obstruction guided by endoscopic ultrasonography, with a lumen-apposing metal stent (LAMS) is possible.

**Methods** A 58-year-old male who underwent rectal surgery from adenocarcinoma in 2015, with a dehiscence of the colorectal anastomosis in the post-operative period, requiring a colostomy. Subsequently, reconstruction is performed maintaining a diverting ileostomy. 4 months later a rectoscopy showed complete obstruction of the colorectal anastomosis. It is referred to attempt endoscopic approach of the anastomosis. An endoscopic ultrasonography (EUS) guided recanalization of the obstruction was planned.

**Results** Attempt to access by ileostomy without reaching cecum with a colonoscope unable to introduce fluid into sigma to provide acoustic interface. In the rectum, a stump with surgical sutures is observed, without being identified with a linear echoendoscope sigmoid colon. Water and contrast are instilled in the ileum to progress to the distal colon and retry. 24 hours later the liquid administered previously wasn't identified in sigma with EUS or fluoroscopically. With a colonoscope advancing from ileostomy, air is introduced to dilate sigma prior the stenosis, identifying itself with a linear echoendoscope through the rectum. Puncture with a 19G needle is performed, introducing contrast in the sigma, a guidewire is advanced through sigma and cautery-enhanced LAMS 20 × 10 mm under fluoroscopic, endoscopic and EUS control. 24 hours later with colonoscope the stent is dilated up to 20 mm. The stent is maintained, with subsequent closure of the ileostomy and removal of the stent at 12 weeks with good results.

**Conclusions** The recanalization of the complete colorectal obstruction guided by EUS, using LAMS is an effective alternative, and it is feasible even when there is no previous window with liquid.

Friday, April 5, 2019

16:30 – 17:00

GI bleeding 5

ePoster Podium 6

### ePP112 THE ROLE OF INFLAMMATORY MARKERS IN EARLY RE-BLEEDING RATES IN PATIENTS PRESENTING WITH ACUTE PEPTIC ULCER BLEEDING REQUIRING ENDOSCOPIC HAEMOSTASIS

**Authors** Viazis N<sup>1</sup>, Keimali H<sup>1</sup>, Papanikolaou I<sup>2</sup>, Pontas C<sup>1</sup>, Varytimiadis L<sup>1</sup>, Sioulas A<sup>2</sup>, Triantafyllou K<sup>2</sup>, Smirniotis V<sup>3</sup>, Arkadopoulos N<sup>3</sup>, Mantzaris G<sup>1</sup>

**Institute** 1 Dept. of Gastroenterology, Evangelismos Hospital, Athens, Greece; 2 Hepato-Gastroenterology Unit, 2nd Dept. of Internal Medicine, Attikon University General Hospital, Athens, Greece; 3 4th Dept. of Surgery, Attikon University Hospital, Attikon University Hospital, University of Athens School of Medicine, Athens, Greece

**DOI** 10.1055/s-0039-1681655

**Aims** To identify the role of white blood cells, C-reactive protein and procalcitonin in the early re-bleeding rate of patients presenting with acute peptic ulcer bleeding that need endoscopic haemostasis.

**Methods** Prospective study conducted between February 2015 and February 2017 that included patients with active peptic ulcer bleeding, as confirmed by endoscopy, requiring endoscopic haemostasis. In order to test the correlation between inflammatory markers and early re-bleeding (up to 7 days following initial successful treatment), white blood cells (WBC), C-reactive protein (CRP) and procalcitonin (PCT) levels were analyzed before endoscopy (at admission day, day 0), and at days 3 and 7 after endoscopy.

**Results** The study sample consisted of 101 patients. The white blood cell count and the procalcitonin levels did not differ significantly between the 3 time points [F (1.898, 189.75)= 1.552, p=0.215 and F (1.999, 199.86) = 0.949, p=0.389] respectively]. However, the c-reactive protein levels were statistically significantly different between the 3 time points (F (1.990, 199.04)= 11.202, p<0.005). Re-bleeding rate, at day 7, was significantly higher in patients with elevated CRP (values >5 mg/dL) than those with normal CRP. 7 out of the 12 patients with early re-bleeding had elevated CRP as opposed to 21 out of the 89 patients that did not re-bleed during the first 7 days of admission, p = 0.011).

**Conclusions** CRP is significantly associated with re-bleeding in patients with peptic ulcer bleeding, within the first 7 days following endoscopic haemostasis and could therefore be tested as a screening indicator for predicting the risk or early re-bleeding in these patients.

### ePP113 IRRIGATION OF THE INCOMPLETE SILVER SALT OF POLYACRYLIC ACID CONTAINING SILVER NANOPARTICLES IN HAEMOSTASIS FOR INTRA-BIOPSY/ POLYPECTOMY COLONIC BLEEDING

**Authors** Viktor V<sup>1</sup>, Sergey S<sup>1</sup>, Olga O<sup>1</sup>

**Institute** 1 State Scientific Center of Coloproctology, Moscow, Russian Federation

**DOI** 10.1055/s-0039-1681656

**Aims** The endoscopic hemostasis techniques and tools growth in parallel with the new techniques of endoscopic surgery. Clinical endoscopist must be aware of all available hemostatic tool to optimize the management of bleeding in daily practice. This study aims to assess usefulness of the new irrigation technique for intraprocedural colonic bleeding.

**Methods** In this preliminary study, we investigated prospectively cases of intraprocedural bleeding occurred in our Department from 2016 to 2018, which applied the new technique of irrigation hemostasis. The bleeding area was irrigated 10–30 ml of the 1% fluid of the incomplete silver salt of polyacrylic acid containing silver nanoparticles (does not affect the function of systemic hemostasis, hemostatic effect achieved by forming a polymethacrylate membrane subsequently replaced by fibrin) through a spray-catheter inserted into the endoscope's instrumental channel, exposure time = 1–2 min. In case of continued bleeding additional hemostasis was carried out (mechanical or/and thermal hemostatic methods). Comparative analysis: Fisher's two-tailed exact test.

**Results** A total of 22 procedures were analyzed (9 intra-biopsy<sup>1</sup> group, 13 intrapolypectomy<sup>2</sup> group). No technique-related systemic side effects were observed.

Group 1: during the formation of the polymer complex occurs hemostasis in 9 cases, hemostatic effect achieved in 1–2 min, repeated bleeding was not existed, effectiveness – 100%.

Group 2: forming a smooth elastic surface didn't break visualization of the source of bleeding and convenient field for further effective hemostatic manipulations. Additional methods of hemostasis were performed significantly more often in the group 2 (F = 0.00552, p < 0.05). The method of polypectomy was not associated with the subsequent need for additional hemostasis.

**Conclusions** These data revealed the effectiveness of the new irrigation hemostasis technique for intra-biopsy bleeding. Further analysis is required to determine the capabilities of this irrigation technique in hemostasis for intrapolypectomy colonic bleeding.

## ePP114 EFFICACY OF PURASTAT IN UPPER AND LOWER ACUTE GASTROINTESTINAL BLEEDING: A DUAL CASE SERIES EXPERIENCE

**Authors** de Nucci G<sup>1</sup>, Reati R<sup>1</sup>, Dinelli M<sup>2</sup>, Redaelli D<sup>1</sup>, Morganti D<sup>1</sup>, Domenico Mandelli E<sup>1</sup>, Manes G<sup>1</sup>

**Institute** 1 Gastroenterology and Endoscopy Unit, ASST Rhodense, Garbagnate Milanese-Milano, Italy; 2 Gastroenterology and Endoscopy Unit, San Gerardo Hospital, Monza, Italy

**DOI** 10.1055/s-0039-1681657

**Aims** Gastrointestinal (GI) bleeding is a common cause for hospitalization, resulting in significant mortality and morbidity. Innovative topical hemostatic modalities have been developed for endoscopic use. Our aim is to demonstrate the efficacy, feasibility and safety of Purastat to control GI bleedings. Puramatrix is a synthetic, bioresorbable material used to produce Purastat, created to control venous/arteriolar bleedings, It's easy, quick and transparent allowing to continue the procedure/to use other haemostatic therapies.

**Methods** We report a case series of 25 patients (16 male, 9 women, median age 73 years) recovered to two endoscopy units (Garbagnate Milanese and Monza) for acute GI bleeding after failure of other hemostatic strategies (injection/clipping/thermal coagulation). 14/25 patients presented a lower GI haemorrhage from an oozing site after mucosectomy for non polypoid colon adenomas in different sites of the colon (8 pts from the right colon) 3 patients showed melena for duodenal bleeding from bulbar kissing ulcers, 3 patients with melena and anemization after duodenal mucosectomy for a laterally spreading tumor of the second part of the duodenum, 3 patients had ematemesis after Vater papilla's sphincterotomy, 1 patient showed progressive anemization for bleeding inside a pseudocyst after endoscopy ultrasound guided drainage and 1 patient presented with a massive rectal bleeding after a prostatic biopsy.

**Results** In all these patients, we tried to achieve a successful hemostasis first of all using an adrenaline injection and subsequently with clipping and/or argon plasma coagulator application without success. Finally we used a strate of Purastat applying 3 ml of gel, with a successful, stable hemostasis and a complete patients recovery in few days after the procedure, no pain and haemodinamical stability. No need to surgery or radiological haemostatic procedures.

**Conclusions** Purastat is a new, safe and feasible hemostatic device capable to control different types of GI haemorrhages even if the arteriolar massive ones.

Friday, April 5, 2019

16:30 – 17:00

Preparation: sedation 1

ePoster Podium 7

## ePP115 CAPNOGRAPHY DURING ENDOSCOPY – A VALUE-BASED HEALTHCARE PILOT IN A HIGH-VOLUME GASTROENTEROLOGY PRACTICE

**Authors** Bisschops R<sup>1</sup>, Demedts I<sup>1</sup>, Roelandt P<sup>1</sup>, Dooms C<sup>2</sup>, Hoffman I<sup>3</sup>, Weissbrod R<sup>4</sup>, Saunders R<sup>5</sup>, Buysschaert K<sup>1</sup>, Hiele M<sup>1</sup>, Van Assche G<sup>1</sup>

**Institute** 1 Gastroenterology and Hepatology/Endoscopy, University Hospitals Leuven, Leuven, Belgium; 2 Pneumology, University Hospitals Leuven, Leuven, Belgium; 3 Pediatrics, University Hospitals Leuven, Leuven, Belgium; 4 Medtronic, Medtronic, Jerusalem, Israel; 5 Coreva Scientific, Freiburg, Germany

**DOI** 10.1055/s-0039-1681658

**Aims** As part of a quality-improvement initiative in a high-volume university hospital GI department, the study evaluated the incidence of respiratory-related adverse events (AEs) and interventions occurring during sedation using World SIVA task force consensus definitions and the impact of capnography monitoring on these.

**Methods** We compared data for patients admitted for scheduled procedures performed in the department with standard of care monitoring (control) to

the data gathered for patients sequentially admitted for scheduled procedures that were monitored after full training with capnography both during the procedure and in recovery (intervention). Events were recorded during both the procedure and the recovery period. Collected data included the ASA risk score, type of procedure, procedure duration, clinician ID and any indicated SIVA defined AEs and interventions that occurred. Incidence rates and relative risks for events and interventions were determined. The primary quality improvement endpoint was the change in total incidence of mild oxygen desaturation, severe oxygen desaturation, bradycardia, and tachycardia with capnography monitoring.

**Results** Between February 2018-June 2018, 1,092 control and 1,044 intervention patients were included. In the control group there were on average 11.45 AEs per 100 procedures. In the intervention group there were on average 5.08 AEs per 100 procedures. The absolute difference between arms was -6.37 (95% [CI], -8.7 to -4.1) AEs per 100 procedures representing a 55.69% reduction ( $p = 0.0001$ ). The RR for a patient experiencing the primary outcome with use of capnography was: 0.43 (95% CI, 0.31 to 0.58). Nine escalations of care were reported in the control group with none reported in the intervention group. The relative risks of experiencing both AEs and interventions during recovery were reduced significantly in the capnography arm (0.17 and 0.15, respectively).

**Conclusions** Capnography significantly reduced the incidence of respiratory AEs in real life use at a university hospital GI procedure suite.

## ePP116 OUTCOMES OF COLONOSCOPY WITH NON-ANESTHESIOLOGIST ADMINISTERED PROPOFOL (NAAP)

**Authors** Alburquerque M<sup>1,2</sup>, Smarrelli A<sup>1</sup>, Chevarria J<sup>3</sup>, Ortega S<sup>4</sup>, Zaragoza A<sup>4</sup>, Vargas A<sup>1,2</sup>, Ledezma C<sup>1</sup>, Vidal L<sup>1</sup>, Figa M<sup>2,5</sup>, González-Huix F<sup>2,6</sup>

**Institute** 1 Gastroenterology, Hospital de Palamós, Palamós, Spain; 2 Gastroenterology, Clínica Girona, Girona, Spain; 3 Nephrology, Beaumont Hospital, Dublin, Ireland; 4 Nursing Department, Hospital de Palamós, Palamós, Spain; 5 Gastroenterology, Hospital Universitario Dr Josep Trueta, Girona, Spain; 6 Gastroenterology, Hospital Universitario Arnau de Vilanova, Lleida, Spain

**DOI** 10.1055/s-0039-1681659

**Aims** To determine the equivalence of adenoma detection rate (ADR) in colorectal cancer (CRC) screening colonoscopies performed with NAAP and performed with monitored anesthesia care (MAC).

**Methods** Single blind non-randomized controlled equivalence trial.

**Patients** Adults between 50 – 69 years old from National CRC screening program (CRCSF).

**Intervention** Patients were blindly assigned to undergo either colonoscopy with NAAP or MAC by CRCSF office according to the arrival of fecal occult blood test, patient's suitability for colonoscopy date and availability of places at endoscopy schedule (with NAAP or MAC).

**Main outcome measure** The ADR in CRCSF colonoscopies performed with NAAP.

**Results** We included 315 patients per group. Age:  $59.76 \pm 5.81$ y, 40.5% women. Two endoscopists ( $E_1$  and  $E_2$ ) with an experience over 1 year in CRCSF performed the colonoscopies. The cecal intubation rate (CIR) was 97%, adequate bowel preparation (ABP): 81.8%, withdrawal time  $>6$  min ( $WT_{6m}$ ): 98.7% and global exploration time (ET):  $24.25 \pm 8.86$  min (8 – 70 min). The ADR was 62.9%, advanced ADR (aADR): 37.3%, sessile serrated ADR (ssADR): 5.2% and mean adenomas per procedure (MAP):  $1.53 \pm 1.75$ . The complication rate (CR) was 0.6%. The  $E_1$  registered a superior CIR (98.41% vs. 91.34%,  $p = 0.01$ ) ADR (64.61% vs. 55.91%,  $p = 0.08$ ) and MAP ( $1.63 \pm 1.81$  vs.  $1.15 \pm 1.45$ ,  $p = 0.01$ ).

Analysis by intention to treat showed an ADR in colonoscopies performed with NAAP of 64.13% compared with 61.59% performed with MAC, difference ( $\Delta$ ADR): 2.54%, 95% confidence interval (95% CI): -0.10 to 0.05. Analysis by

per protocol showed an ADR in colonoscopies performed with NAAP of 62.98% compared with 61.94% performed with MAC.  $\Delta$ ADR: 1.04%, 95% CI: -0.09 to 0.07. There were no differences in the CR between NAAP and MAC in both analyses.

**Conclusions** The ADR in colorectal cancer screening colonoscopies performed with NAAP is equivalent to ADR in colonoscopies performed with MAC. Similarly, there is no difference in the complication rate.

### ePP117 THE EFFECTIVENESS OF ORAL PHLOROGLUCIN AS PREMEDICATION FOR NON-SEDATIVE ESOPHAGOGASTRODUODENOSCOPY: A DOUBLE BLINDED, PLACEBO-CONTROLLED, RANDOMIZED CONTROLLED TRIAL

**Authors** Cho KB<sup>1</sup>, Lee YJ<sup>1</sup>, Lee JY<sup>1</sup>, Lee HJ<sup>1</sup>, Park KS<sup>1</sup>

**Institute** 1 Keimyung University School of Medicine, Daegu, Korea, Republic of

**DOI** 10.1055/s-0039-1681660

**Aims** Antispasmodic agents are commonly injected before esophagogastroduodenoscopy (EGD) to inhibit gastrointestinal peristalsis. This study aimed to evaluate the effectiveness of oral Phloroglucin (Flospan) as premedication for non-sedative EGD.

**Methods** A Prospective, double-blinded, placebo-controlled, randomized controlled trial was conducted at a single tertiary hospital. Subjects who scheduled to undergo non-sedative EGD were randomly assigned to receive oral Phloroglucin (Flospan) or placebo at 10 minutes before EGD. The degree of peristaltic movement was evaluated at the beginning and the end of the procedure by independent investigators.

**Results** Overall, 140 subjects were included in the study (Phloroglucin 70, placebo 70). The degree of peristalsis in Phloroglucin group was significantly lower compared with that of placebo at the beginning of the procedure ( $p=0.02$ ) and tended to be lower at the end of the procedure, although it did not show statistical significance ( $p=0.064$ ). The difficulty of intragastric observation was significantly lower in Phloroglucin group compared with placebo at the both time period (beginning of the procedure:  $p=0.002$ , end of the procedure:  $p=0.009$ ). Both groups showed comparable adverse events, taste of the drug and willingness to take this premedication at the next examination.

**Conclusions** Overall, 140 subjects were included in the study (Phloroglucin 70, placebo 70, age mean  $\pm$  SD, 66.31  $\pm$  9.37, male 47.8%). The degree of peristalsis in Phloroglucin group was significantly lower compared with that of placebo at the beginning of the procedure ( $p=0.02$ ) and tended to be lower at the end of the procedure, although it did not show statistical significance ( $p=0.064$ ). The difficulty of intragastric observation was significantly lower in Phloroglucin group compared with placebo at the both time period (beginning of the procedure:  $p=0.002$ , end of the procedure:  $p=0.009$ ). Both groups showed comparable adverse events, taste of the drug and willingness to take this premedication at the next examination.

Friday, April 5, 2019  
Small bowel tumors

16:30 – 17:00  
ePoster Podium 8

### ePP118 THE ROLE OF ENTEROSCOPY IN THE PREOPERATIVE DIAGNOSIS OF BLEEDING GASTROINTESTINAL STROMAL TUMORS OF THE SMALL INTESTINE

**Authors** Seleznev DE<sup>1</sup>, Ivanova EV<sup>2</sup>, Yudin OI<sup>1</sup>, Tikhomirova EV<sup>3</sup>, Shumikhina MA<sup>3</sup>, Fedorov ED<sup>2</sup>

**Institute** 1 Medical Center 'Klinika K+31', Moscow, Russian Federation; 2 N.I. Pirogov Russian National Research Medical University, Moscow, Russian Federation; 3 Moscow University Hospital №31, Moscow, Russian Federation  
**DOI** 10.1055/s-0039-1681661

**Aims** Bleeding gastrointestinal stromal tumors (GISTs) of the small bowel (SB) previously were diagnosed late or required open surgery. Video capsule endoscopy (VCE) and balloon-assisted enteroscopy (BAE) change surgical approach for these patients.

**Methods** From II.2007 to XI.2018 we examined 223 patients with suspected SB bleeding and revealed 53 (23.8%) pts. with bleeding SB tumors, including 10 pts. with GISTs (m-4, f-6, ranged 25 – 70 years, mean age 48.7  $\pm$  18.4 years). The indication for examination of the SB in 9 (90.0%) pts. was obscure overt bleeding and in 1 (10%) – obscure occult bleeding. The duration of disease in 5/10 (50%) pts. was more than 3 years; in 5/10 (50%) – less than a year; recurrent bleeding was observed in 6/10 (60%) pts. VCE was carried out in 7/10 (70%) pts.; BAE in 8/10 (80%) pts. (5 – per orally, 2 – transanally and 1 intraoperatively).

**Results** GISTs were located in jejunum in 8/10 (80%) pts., in ileum in 2/10 (20%) pt. GISTs size ranged from 15 to 50 mm (mean size 28.2  $\pm$  11.2 mm). Solitary GISTs were found in all 10 (100%) pts.: in 2/10 (20%) pts. with extra intestinal type of tumor growth; in 1/10 (10%) pt. – intrainestinal type of growth, and in 7 (70%) pts. – intramural type of growth. Resection of the SB with GIST was applied in all 10 (100%) pts.; in 9 (90.0%) of them minimally invasive – laparoscopically (2) or laparoscopically assisted via the mini-laparotomy (7). We found no recurrent bleeding or GISTs in none of 10 patients in the long-term period.

**Conclusions** VCE and BAE considerably improved the diagnosis of bleeding SB GISTs, allowing not only to detect these tumors but to determine their exact localization. In turn, precise diagnosis gave the opportunity to resect SB with GIST laparoscopically or via the minilaparotomy in 90.0% of patients.

### ePP119 ENDOSCOPIC ISCHEMIC THERAPY FOR SMALL INTESTINAL POLYPS IN PATIENTS WITH PEUTZ-JEGHERS SYNDROME

**Authors** Sagara Y<sup>1</sup>, Yano T<sup>1</sup>, Sakamoto H<sup>1</sup>, Kobayashi Y<sup>1</sup>, Nagayama M<sup>1</sup>, Sekiya M<sup>1</sup>, Sunada K<sup>1</sup>, Lefor A<sup>1</sup>, Yamamoto H<sup>1</sup>

**Institute** 1 Department of Medicine, Division of Gastroenterology, Jichi Medical University, Shimotsuke, Tochigi, Japan  
**DOI** 10.1055/s-0039-1681662

**Aims** Most polyps in patients with Peutz-Jeghers syndrome (PJS) are pedunculated which is suited to snare polypectomy. To decrease the risk of bleeding or perforation, we perform selective ligation, so-called "ischemic therapy", using a detachable snare or clip placed endoscopically. Some polyps do not auto-amputate with a single treatment and the efficacy of this technique is unknown. The aim of this study is to determine the efficacy and safety of ischemic therapy.

**Methods** The records of 61 consecutive patients with PJS who underwent double-balloon enteroscopy (DBE) at Jichi Medical University Hospital from July 2004 to August 2017 were reviewed. Of 61 patients, nine who underwent multiple sessions of ischemic therapy and no other treatment were included. The median follow-up was 40 months (range 17 – 76). Primary outcome mea-

tures include the mean number of polyps >15 mm and maximum size of treated polyps in each session. Secondary outcomes included the need for laparotomy after the procedure and the incidence of adverse events.

**Results** The median number of sessions and DBEs per patient were 3 (2–5) and 6 (4–12, total 67), the median number of treated polyps per patient was 37 (5–164, total 359). The mean number of treated polyps larger than 15 mm per patient significantly decreased over time (first 6, second 2, third 1.5, fourth 1, fifth 1.5,  $P = 0.01$ ,  $R = -0.44$ , Spearman's rank correlation coefficient). The maximum size of polyps treated in each patient also significantly decreased (30 mm, 20 mm, 20 mm, 12.5 mm, 17.5 mm,  $P = 0.004$ ,  $R = -0.49$ ). No patient required laparotomy due to intussusception during the study period. No adverse events were observed in all 67 DBEs.

**Conclusions** Ischemic therapy for small intestinal polyps in patients with PJS is effective and safe, and avoids the needs for urgent laparotomy.

## ePP120 USE OF DOUBLE-BALLOON ENTEROSCOPY IN MANAGEMENT OF NEUROENDOCRINE SMALL BOWEL TUMOUR: CASE SERIES FROM NATIONAL TERTIARY REFERRAL CENTRE

**Authors** Telese A<sup>1</sup>, Murino A<sup>1</sup>, Lazaridis N<sup>1</sup>, Costa D<sup>1</sup>, Laskaratos F<sup>2</sup>, Luong T<sup>3</sup>, Koukias N<sup>1</sup>, Mandair D<sup>2</sup>, Toumpanakis C<sup>2</sup>, Caplin M<sup>2</sup>, Despott EJ<sup>1</sup>  
**Institute** 1 The Royal Free Hospital and University College London (UCL) Institute for Liver and Digestive Health, Royal Free Unit for Endoscopy, London, United Kingdom; 2 The Royal Free Hospital and University College London (UCL) Institute for Liver and Digestive Health, Neuroendocrine Tumour Unit, ENETS Centre of Excellence, London, United Kingdom; 3 The Royal Free Hospital and University College London (UCL) Institute for Liver and Digestive Health, Department of Cellular Pathology, London, United Kingdom  
**DOI** 10.1055/s-0039-1681663

**Aims** Small bowel (SB) neuroendocrine tumours (SBNETs) are heterogeneous neoplasms which may present good prognosis when identified at early stage. Prompt diagnosis is crucial for successful management however it may be challenging if the lesion is difficult to access. Double-balloon enteroscopy (DBE) enables direct small bowel mucosa visualisation and endotherapy allowing precise lesion sampling and histological diagnosis. The aim of this study was to evaluate the role of DBE in the assessment and management of SBNETs.

**Methods** Retrospective review of SBNETs evaluated and diagnosed using DBE at our institution (November 2016– November 2018). Demographic, endoscopic, histopathological data were collected and analysed.

**Results** A total of seven patients were included (mean age: 53 (S.D.±13.1) years) in the study. Six patients (85.7%) presented with obscure-overt mid-gut bleeding or iron deficiency anaemia, one patient was asymptomatic. Both anterograde (n=3) and retrograde (n=4) route enabled assessment of the lesions, which were all located in the ileum. A reference submucosal tattoo of sterile carbon ink was placed few cm close to the lesions and multiple biopsies were taken; histopathology was diagnostic in all cases. A total of 5 patients had surgery (n=4 small bowel resection, n=1 right hemicolectomy with distal pancreatectomy) and further analysis of the surgical specimens showed a total of 15 SBNETs (mean lesion dimension: 8.1 (S.D.±3.9) mm, mean number/patient: 3 (S.D.±1.8)). Histopathological analysis showed well-differentiated grade 1 SBNET (n=13; 86.6%), well-differentiated grade 2 SBNET (n=2; 13.3%).

**Conclusions** DBE is essential in SBNETs pre-surgical assessment allowing for lesion sampling and tattoo marking which may be useful to guide minimally invasive surgical resection.

Saturday, April 6, 2019  
Barrett therapy

10:30 – 11:00  
ePoster Podium 1

## ePP121 ENDOSCOPIC SUBMUCOSAL DISSECTION (ESD) FOR EARLY BARRETT'S NEOPLASIA – IS AGE A BARRIER?

**Authors** Arndtz S<sup>1</sup>, Subramaniam S<sup>1</sup>, Hossain E<sup>1</sup>, Abdelrahim M<sup>2</sup>, Bhandari P<sup>1</sup>  
**Institute** 1 Gastroenterology, Queen Alexandra Hospital, Portsmouth, United Kingdom; 2 Gastroenterology, Queen Alexandra Hospital, Portsmouth, United Kingdom  
**DOI** 10.1055/s-0039-1681664

**Aims** ESD is an established therapeutic option for early neoplasia, however it is thought to carry a higher complication rate. The aim of our study was to evaluate the safety and efficacy of ESD for Barrett's neoplasia in an ageing Western population.

**Methods** A retrospective analysis of all ESDs performed for Barrett's neoplasia within a single tertiary referral centre in the UK from 2012–2018. Older patients were defined as ≥75 years of age and younger patients <75 years of age at time of procedure.

**Results** 145 of 286 Barrett's resections were ESDs, of which 50 were ≥75 years and 95 <75 years. Overall age range was 41–94 and mean follow up was 3 years. Lesion characteristics were similar, except increased scarring in ≥75 group. R0 resection rate was 68% in ≥75 group and 75% in <75 group, with only 6.8% of ≥75 group and 4.9% of <75 group proceeding to surgery or chemoradiotherapy for residual or recurrent neoplasia. Complications occurred in 6.0% of ≥75 group (1 perforation, 2 bleeds) and 4.2% of <75 group (4 strictures), all of which were endoscopically managed. 4.5% of ≥75 group and 18.5% of <75 group proceeded to surgery following poor prognostic histology and overall 74% of all patients continued with sole endoscopic management.

Tab. 1 Lesion characteristics of the 145 ESDs

Age group	Mean age (years)	Mean lesion size (mm)	En-bloc resection n (%)	Previous resection (scarring) n (%)
≥75	82	34.2	47 (94)	15 (30)
<75	64	31.2	91 (96)	17 (18)
Total	72	32.8	138 (95)	32 (22)

**Conclusions** ESD is safe and effective in all ages. No significant difference was seen in complication rates between age groups and all adverse events were endoscopically treatable with no long term sequelae. We feel that age should not be a barrier to the use of ESD for Barrett's neoplasia.

## ePP122 OPTIMIZING HISTOPATHOLOGICAL EVALUATION OF ENDOSCOPIC MUCOSAL RESECTION SPECIMENS OF BARRETT'S ESOPHAGUS RELATED NEOPLASIA: A RANDOMIZED TRIAL OF THREE SPECIMEN HANDLING METHODS

**Authors** Overwater A<sup>1,2</sup>, van der Meulen KE<sup>1</sup>, Künzli HT<sup>1</sup>, Schoon EJ<sup>3</sup>, Bergman JJGHM<sup>4</sup>, Raicu GM<sup>5</sup>, Seldenrijk CA<sup>5</sup>, Weusten BLAM<sup>1,2</sup>  
**Institute** 1 Dept. of Gastroenterology and Hepatology, St. Antonius Hospital, Nieuwegein, Netherlands; 2 Dept. of Gastroenterology and Hepatology, University Medical Center Utrecht, Utrecht, Netherlands; 3 Dept. of Gastroenterology and Hepatology, Catharina Hospital, Eindhoven, Netherlands; 4 Dept. of Gastroenterology and Hepatology, Amsterdam University Medical Centers, Amsterdam, Netherlands; 5 Pathology DNA, St. Antonius Hospital, Nieuwegein, Netherlands  
**DOI** 10.1055/s-0039-1681665

**Aims** Endoscopic resection (ER) is the cornerstone in the treatment of Barrett's esophagus (BE) related neoplasia. However, accurate histopathological evaluation of ER specimens can be challenging and the preferred specimen handling method remains unknown. Therefore the aim of our study was to compare three different specimen handling methods for the assessment of all

clinically relevant histopathological parameters and for the time required for specimen handling.

**Methods** In this multicenter, randomized trial, endoscopic mucosal resection (EMR) specimens of BE related neoplasia with no suspicion of submucosal invasion during endoscopy were randomized to three specimen handling methods: pinning on paraffin, direct fixation in formalin, and the cassette technique. The histopathological evaluation scores were assessed by two dedicated gastrointestinal pathologists blinded for the handling method.

**Results** Of the 126 randomized EMR specimens, 45 were assigned to pinning on paraffin, 41 to direct fixation in formalin, and 40 to the cassette technique. The percentages of specimens with overall optimal histopathological evaluation scores were similar for the pinning method (98%) and for no handling (90%), but significantly lower for the cassette technique (64%,  $p < 0.001$ ). Time required for specimen handling was shortest when no handling method was used ( $p < 0.001$  vs. pinning and cassette).

**Conclusions** Both pinning on paraffin and direct fixation in formalin result in optimal histopathological evaluation scores in a high proportion of specimens, while the cassette technique performs significantly worse and its use in clinical daily practice should be discouraged. Given the significantly shorter handling time, direct fixation in formalin appears to be the preferred method over pinning on paraffin. However, the latter needs to be confirmed in larger studies with inclusion of all EMR specimens.

### ePP123 SINGLE-STEP TREATMENT WITH ENDOSCOPIC RESECTION AND CRYOBALLOON ABLATION IS FEASIBLE AND SAFE IN AN ESOPHAGEAL PORCINE MODEL

**Authors** Overwater A<sup>1,2</sup>, Brosens LAA<sup>3</sup>, Weusten BLAM<sup>1,2</sup>

**Institute** 1 Dept. of Gastroenterology and Hepatology, St. Antonius Hospital, Nieuwegein, Netherlands; 2 Dept. of Gastroenterology and Hepatology, University Medical Center Utrecht, Utrecht, Netherlands; 3 Dept. of Pathology, University Medical Center Utrecht, Utrecht, Netherlands

DOI 10.1055/s-0039-1681666

**Aims** Treatment of early Barrett's neoplasia currently consists of two steps: endoscopic resection (ER) of visible lesions with subsequent ablation of remaining Barrett's epithelium. However, extensive resection might hamper subsequent ablation due to stenosis. Combining both modalities in one session offers the potential advantages of preventing ablation in a strictured esophagus and reducing the number of treatments. Studies with ER and radiofrequency ablation (RFA) showed this strategy to be feasible, but unsafe. Cryoballoon ablation (CBA) differs from RFA in that it preserves the extracellular matrix which might protect the esophagus even with ablation deep into the esophageal wall. The aim of this study is to evaluate feasibility, safety and histopathological effects of single-step treatment with CBA and ER.

**Methods** Two single-step treatment regimens were evaluated in 3 pigs per regimen: 1) CRYO-ER: four adjacent cryoballoon ablations of 10 seconds followed by ER in the treated area; 2) ER-CRYO: ER followed by a 10-second ablation targeted on the ER wound. Primary outcomes were feasibility (technical success), and safety (perforations and clinically relevant strictures). Secondly, histopathological evaluation was performed of the CRYO-ER specimens and all esophageal resection specimens.

**Results** In total, 6 female pigs were treated (5 zones each) resulting in 15 areas per regimen. All ERs were technically successful. All pigs survived the aimed follow-up of 28 days. No perforations or clinically relevant stenosis occurred. Histopathological evaluation was feasible for all CRYO-ER specimens. Ablation effects were present throughout all layers of these specimens, while the architecture requisite for histopathological analysis remained intact. After 28 days, the esophageal specimens were evaluated for histopathological effects. For ER-CRYO, the submucosa was the deepest layer with post-treatment fibrosis and the muscularis propria for CRYO-ER (87% complete and 13% superficial involvement).

**Conclusions** Single-step treatment with limited endoscopic resection and cryoballoon ablation is feasible and safe in a porcine model and vindicates further evaluation in a clinical trial.

Saturday, April 6, 2019

10:30 – 11:00

Colon: resection 7

ePoster Podium 2

### ePP124 UNDERWATER ENDOSCOPIC MUCOSAL RESECTION FOR SMALL RECTAL NEUROENDOCRINE TUMORS

**Authors** Coutinho L<sup>1</sup>, Okazaki O<sup>2</sup>, Casamali C<sup>2</sup>, Lenz L<sup>2,3</sup>, Pennacchi C<sup>2</sup>, Baba E<sup>2</sup>, Gusmon C<sup>2</sup>, Martins B<sup>2</sup>, Cavalcante M<sup>2</sup>, Kawaguti F<sup>2</sup>, Ribeiro A<sup>2</sup>, Andrade G<sup>2</sup>, Simas M<sup>2</sup>, Uemura R<sup>2</sup>, Geiger S<sup>2</sup>, Maluf F<sup>2</sup>

**Institute** 1 Endoscopia, Instituto de Cnacer de Sao Paulo HC FMUSP, Sao Paulo, Brazil; 2 Endoscopia, Instituto de Câncer de São Paulo HC FMUSP, Sao Paulo, Brazil; 3 Fleury Medicina e Saúde, São Paulo, Brazil

DOI 10.1055/s-0039-1681667

**Aims** Neuroendocrine tumors arise from enterochromaffin cells. The rectum is one of the most commonly sites. Many techniques for resection of rNETs have been reported. UEMR is a technique in which the bowel lumen is filled with water and the lesion is then resected without requiring submucosal injection. Current published guidelines recommend local endoscopic resection for small rNETs with no risk factors for metastasis. However, no clear indications for type of endoscopic intervention exist. This study aimed to evaluate the efficacy and safety of UEMR in removing small rNETs.

**Methods** Retrospective study with patients who underwent UEMR in two centers between June/2015 and May/2018. UEMR was performed using a standard colonoscope. The rectal lumen was deflated and water was infused using an irrigation pump until complete filling of the lumen was achieved. All gas pockets in the operative field were evacuated. No submucosal injection was performed. Board-certified pathologists assessed histopathologic findings (histologic grade, status of resected margins, depth of invasion, lymphovascular invasions).

**Results** Over 23 months, 11 patients – 9 female (81%), mean age 55,81 years (range from 30 to 73 years) with 11 lesions (mean size 0,7 mm, range from 0,3 to 1,2 mm) underwent UEMR for small rNETs. 9 patients (81%) with G1 rNET and 2 patients with G2, all of them infiltrating the submucosa and only one restricted to mucosa. No patient had any vascular or perineural invasion. All lesions removed *en bloc*. 8 resections (80%) had free margins. Two patient had deep margin involvement; one of them had negative biopsies in the endoscopic surveillance. The other one lost to follow-up. No perforations or delayed bleeding occurred.

**Conclusions** In this small series, the results suggest that UEMR may be an effective and safe alternative method for small rNETs without adverse event and high *en bloc* and R0 resection rates.

### ePP125 ENDOSCOPIC FULL THICKNESS RESECTION OF COLORECTAL LESIONS WITH THE FULL THICKNESS RESECTION DEVICE: CLINICAL EXPERIENCE FROM TWO REFERRAL CENTERS IN GREECE

**Authors** Velegraki M<sup>1</sup>, Trikola A<sup>2</sup>, Vasiliadis K<sup>2</sup>, Fragaki M<sup>1</sup>, Mpitouli A<sup>1</sup>, Dimas I<sup>1</sup>, Giannikaki E<sup>3</sup>, Kapranou A<sup>4</sup>, Kordelas A<sup>4</sup>, Stefanidis G<sup>2</sup>, Paspatis GA<sup>1</sup>

**Institute** 1 Department of Gastroenterology, Venizeleio General Hospital, Heraklion, Greece; 2 Department of Gastroenterology, Athens Naval Hospital, Athens, Greece; 3 Department of Histopathology, Venizeleio General Hospital, Heraklion, Greece; 4 Department of Histopathology, Athens Naval Hospital, Athens, Greece

DOI 10.1055/s-0039-1681668

**Aims** Endoscopic full thickness resection (EFTR) is a novel invasive treatment for colorectal lesions not resectable by conventional endoscopic techniques.

This study is the first report of clinical experience with the Full Thickness Resection Device (FTRD) among referral centers in Greece, assessing EFTR efficacy and safety.

**Methods** We conducted a retrospective analysis of the first 15 patients treated with FTRD in Greece from October 2015 through September 2018. The indications included difficult adenomas (non-lifting and/or at difficult locations), early adenocarcinomas and subepithelial tumors. Primary endpoints were technical success (macroscopically complete, en bloc resection) and R0 resection (histologically complete resection).

**Results** Technical success and R0 resection were achieved in 12 of 15 procedures (80%). In 7 patients with difficult adenomas, technical success and R0 resection occurred in 85.7%. In the subgroup with carcinomas (n = 3), technical success and R0 resection rate was 66.6% while in the subgroup with subepithelial tumors (n = 5) the rate was 80%. In general, technical success and R0 resection were decreased significantly for lesions > 20 mm vs. ≤ 20 mm (33.3% vs. 91.6%) and/or localized in the rectum vs. distal and proximal colon (50% vs. 84.6%). No significant difference was observed between the lesions previously treated endoscopically and the ones non-treated. In 15 patients a total of three adverse events occurred (20%). One of the patients underwent laparoscopic appendectomy due to EFTR around the appendix. Recurrent abdominal pain of unknown cause and minor bleeding were additionally observed in 2 patients.

**Conclusions** Our study showed favorable results concerning EFTR feasibility, efficacy and safety among Greek patients, especially for lesions ≤ 20 mm and/or localized in distal and proximal colon. Technical success, R0 resection and adverse events rates are comparable with data reported in literature. Further larger studies are needed to define the clinical benefit and long-term outcomes of EFTR in selected patients.

## ePP126 UNDERWATER ENDOSCOPIC MUCOSAL RESECTION – A PROSPECTIVE COHORT STUDY

**Authors** Fernandes J<sup>1,2</sup>, Araújo T<sup>2</sup>, Ramos R<sup>1</sup>, Vicente C<sup>1</sup>, Tristan J<sup>1</sup>, Lucas F<sup>3</sup>, Canena J<sup>4</sup>, Lopes L<sup>2,5,6</sup>, Casteleiro C<sup>1</sup>

**Institute** 1 Gastroenterology, Centro Hospitalar Cova da Beira, Covilhã, Portugal; 2 Gastroenterology, Hospital de Santa Luzia, Viana do Castelo, Portugal; 3 Serviço de Medicina do Hospital de Cascais, Cascais, Portugal; 4 Gastroenterology, Nova Medical School/FCML da UNL, Lisbon, Portugal; 5 Life and Health Sciences Research Institute (ICVS), School of Medicine, University of Minho, Braga, Portugal; 6 ICVS/3B's – PT Government Associate Laboratory, Braga/Guimarães, Portugal

DOI 10.1055/s-0039-1681669

**Aims** Underwater endoscopic mucosal resection (uEMR) is a recent endoscopic technique in which water (exclusively) is instilled in the colon lumen, causing its distension. There is a submucosal floating effect and the *muscularis propria* stays away because of its greater density, which precludes the need for injection. With this study we intend to evaluate the efficacy and safety of uEMR in the resection of colonic lesions.

**Methods** This was a prospective study of 2 centers, between August 2016 and October 2017, including consecutive patients with colonic lesions referred for EMR. All the lesions were exclusively removed by uEMR. Patients underwent colonoscopy 4–6 months post uEMR. The main outcomes were technical success, complications and recurrence at short-term follow-up.

**Results** 32 patients, mean age = 71.90 (SD ± 9.72), 56.25% male (n = 18). 40 lesions were resected, mean size = 29.65 mm (min 10, max 70) of which 35% were located in the ascending colon and 22.5% in the rectum. The lesions were of type 0-IIa in 72.5% (n = 29) and the remainder of type 0-IIa+Is. uEMR was en-bloc in 14 lesions and piecemeal in the others. The technical success was 92.5% (n = 37). The mean duration of uEMR = 22.7 minutes (min 5, max 130). Histopathology showed 40% (n = 16) of lesions with high grade dysplasia, 7.5% (n = 3) with intramucosal adenocarcinoma foci and 1 patient with a focus of invasive adenocarcinoma. Five haemorrhages occurred during uEMR,

all treated endoscopically; no other adverse events occurred. In the endoscopic review of the 37 resected lesions 1 patient presented recurrence, which was managed successfully by endoscopy.

**Conclusions** EMR has been shown to be safe, easy to perform and effective in removing colonic lesions, and has a low rate of recurrence. This technique may be an alternative to conventional EMR, and randomized studies comparing the two techniques are needed.

Saturday, April 6, 2019

10:30 – 11:00

Colonic polyps: characterization

ePoster Podium 3

## ePP127 CAN WE APPLY THE "DETECT-AND-LEAVE" STRATEGY FOR DIMINUTIVE POLYPS OF THE RECTO-SIGMOID?

**Authors** Nakhli A<sup>1</sup>, Ennaifer R<sup>1</sup>, Hemdani N<sup>1</sup>, Bouchabou B<sup>1</sup>, Ben Romdhane H<sup>1</sup>, Ben Nejma H<sup>1</sup>

**Institute** 1 Gastroentérologie Hôpital Mongi Slim, Faculté de Médecine de Tunis, Tunis, Tunisia

DOI 10.1055/s-0039-1681670

**Aims** The size of colorectal polyps is one of the factors that determine colorectal cancer risk.

The prevalence of advanced histological signs (villous contingent, or high grade dysplasia, or cancer) in small polyps is relatively low. ESGE recommends a "detect-and-leave" strategy for very small (≤ 5 mm) polyps of the recto-sigmoid and whose appearance is suggestive of a hyperplastic polyp.

The aim of our study is to evaluate the feasibility of this strategy by investigating the prevalence of advanced histological signs in diminutive polyps of the recto-sigmoid.

**Methods** A retrospective study of 222 patients in a Tunisian center between 2010 and 2017 was performed. Patients records who had a colonoscopy with polypectomy were collected.

The histological features of diminutive polyps of the recto-sigmoid have been specified.

**Results** We included 222 patients with 322 polyps. The mean age was 61 years [22 – 90] with male predominance (SR H/F = 1.46). Main indications for colonoscopy were: chronic constipation and/or diarrhea (n = 110), rectal bleeding (n = 63) and abdominal pain (n = 42).

The colonoscopy was complete in 60%. The preparation was considered sufficient (Boston score ≥ 7) in 41% of cases. Depending on the size, polyps were classified: diminutive (≤ 5 mm, n = 216), small and medium (6 – 9 mm, n = 51), large (10 – 19 mm, n = 42), giants (≥ 20 mm, n = 13). Forty-eight polyps were diminutive and located on the rectosigmoid. They were adenomatous (60%, including 17% tubulo-villous) or hyperplastic 26% or carcinomatous (4%). Dysplasia was found in 60% of cases including 7% of high grade.

**Conclusions** Advanced histological signs within diminutive polyps of the recto-sigmoid are frequent. The "detect-and-leave" strategy can only be applied in expert centers where advanced endoscopy techniques are mastered.

## ePP128 CONCORDANCE AND ITS ASSOCIATED FACTORS BETWEEN ENDOSCOPIC AND PATHOLOGIC DIAGNOSIS IN PATIENTS WITH SUSPECTED SESSILE SERRATED ADENOMA/POLYP

**Authors** Kim HW<sup>1</sup>, Park SB<sup>1</sup>, Kang DH<sup>2</sup>, Choi CW<sup>1</sup>, Kim SJ<sup>1</sup>, Nam HS<sup>1</sup>, Ryu DG<sup>1</sup>

**Institute** 1 Pusan National University Yangsan Hospital, Yangsan-si, Korea, Republic of; 2 Pusan National University Yangsan Hospital, Division of Gastroenterology, Department of Internal Medicine, Yangsan-si, Korea, Republic of

DOI 10.1055/s-0039-1681671

**Aims** Sessile serrated adenoma/polyp (SSA/P) are known to be precancerous lesions with difficult detection. Endoscopic features of SSA/P are well presented in NICE and WASP classification, but they were often inconsistent with pathologic results. We aimed to evaluate the concordance and its associated factors between endoscopic and pathologic diagnosis in patients with suspected SSA/P.

**Methods** Among patients with endoscopic resection from January 2015 to June 2018 in PNUYH, 129 patients (175 lesions) with suspected SSA/P and  $\geq 10$  mm size were enrolled. We retrospectively evaluated clinical and endoscopic findings, pathologic diagnosis in these patients.

**Results** Concordance between endoscopic and pathologic diagnosis of SSA/P was 33.7% (59/175). SSA/Ps showed a significant difference in size ( $p < 0.0001$ ), shape ( $p < 0.0001$ ), diffuse nodular surface ( $p < 0.012$ ), focal nodular elevation ( $p < 0.023$ ), depression ( $p < 0.012$ ),  $\geq 2$  WASP criteria ( $p < 0.001$ ), NICE type ( $p < 0.002$ ), Kudo pit pattern ( $p < 0.0001$ ) compared to hyperplastic polyps.

**Conclusions** Our results show that discrepancy between endoscopy and pathology in diagnosis of SSA/P was high. Large size, polypoid shape, irregular surface patterns, NICE type 2 and Kudo III/IV pit pattern can be helpful in endoscopic diagnosis of SSA/P. For overcome of this discrepancy, communication with pathologist and systematic endoscopic evaluation should be needed.

### ePP129 SMALL COLORECTAL POLYPS: IS A SYSTEMATIC HISTOPATHOLOGICAL ASSESSMENT JUSTIFIED?

**Authors** Jlassi H<sup>1</sup>, Trad D<sup>1</sup>, Lassoued K<sup>1</sup>, Sabbah M<sup>1</sup>, Bibani N<sup>1</sup>, Elloumi H<sup>1</sup>, Ouakaa A<sup>1</sup>, Gargouri D<sup>1</sup>

**Institute** 1 Gastroenterology Department of Habib Thameur Hospital, Faculty of Medicine of Tunis, Tunis, Tunisia

**DOI** 10.1055/s-0039-1681672

**Aims** Small polyps constitute the vast majority of colorectal polyps. The prevalence of advanced adenomas in this group of lesions is low. The "Detect-and-leave" strategy is discussed for diminutive polyps ( $\leq 5$  mm), given the induced costs and the high proportion of non adenomatous lesions. The aim of this study is to determine the histopathological nature of resected diminutive ( $\leq 5$  mm) colorectal polyps and to evaluate the interest of a systematic histopathological assessment.

**Methods** Consecutive patients who underwent polypectomy for small colorectal polyps during a 12-month period (2017), were included in this retrospective study.

Two groups were defined: Group 1 for small polyps [range 6–10 mm] and group 2 for diminutive polyps. Endoscopic and histopathological data were analyzed.

**Results** During the year of the study, 116 colorectal polypectomies were performed for 74 patients with a mean age of 62 years [22–87 years] and a sex ratio (M/F) of 2.08. A single polyp was detected in forty-six patients (39.6%). Polyps sat mainly in the rectum (29.3%). They were sessile in 81.1% ( $n = 94$ ), pedunculated in 10.3% ( $n = 12$ ) and flat in 8.6% of cases ( $n = 10$ ). The average size of polyps was 4.59 mm [2–10]. Diminutive polyps were prevailing (71.5% of cases,  $n = 83$ ). In the first group; 28 polyps (84.8%), were adenomatous polyps referring to histopathological assessment. In the second group; 50 polyps (60.2%) were adenomatous and 30 (36.1%) were hyperplastic. The diagnosis of adenomas was less frequent in the group of diminutive polyps with a statistically significant difference ( $p = 0.001$ ).

**Conclusions** Our serie shows a significant rate of adenomas among diminutive polyps. Thus, the "detect-and-leave" strategy must be reserved for expert endoscopists with a high level of confidence using high definition endoscopy and chromoendoscopy techniques.

Saturday, April 6, 2019

Esophagus stenosis

10:30 – 11:00

ePoster Podium 4

### ePP130 CAUSTIC INGESTION: PREDICTORS OF CLINICAL AND ENDOSCOPIC SEVERITY

**Authors** Santos S<sup>1</sup>, Borges V<sup>1</sup>, Simões G<sup>1</sup>, Rocha M<sup>1</sup>, Gamelas V<sup>1</sup>, Carvalho DF<sup>1</sup>, Saiote J<sup>1</sup>, Esteves J<sup>1</sup>, Coimbra J<sup>1</sup>

**Institute** 1 Centro Hospitalar de Lisboa Central, E.P.E, Lisbon, Portugal

**DOI** 10.1055/s-0039-1681673

**Aims** Ingestion of caustic substances in adulthood carries a risk of necrosis and perforation of the digestive system, which may cause important morbidity and even mortality. We intended to study the relevance of clinical factors in the prediction of severity of caustic injury.

**Methods** We analysed a 7 year cohort of consecutive patients admitted to the emergency department after a caustic ingestion. Endoscopic severity (score  $\geq 1$ a according to Zargar classification), need for hospitalization and esophageal-gastric surgery were considered as outcomes. Statistical analysis was performed with SPSS.

**Results** A total of 118 patients were included, 54% ( $n = 64$ ) female, with a median age of 53 years. Caustic ingestion was voluntary in 53% ( $n = 62$ ); in 77% ( $n = 91$ ) the ingested substance was alkaline and in 18.6% ( $n = 20$ ) the intake exceeded 100 mL. Esophageal and/or gastric lesions classified as Zargar IIb/IIIa/IIIb were identified in 20% ( $n = 24$ ) of the cases. 41% ( $n = 48$ ) of the patients were admitted for surveillance/stabilization/treatment and 8.5% ( $n = 10$ ) required esophageal-gastric surgery. Death occurred in 2 patients. The following variables were statistically significant in the predicting endoscopic severity and hospitalization: voluntary ingestion, acid pH,  $> 100$  mL intake and presence of oropharyngeal lesions ( $p < 0.05$  for all comparisons). Moreover, the presence of dyspnea was a predictor of hospitalization. Acid intake,  $> 100$  mL and the presence of lesions in the oropharynx were significant predictors of esophagogastric surgery ( $p < 0.05$  for all comparisons).

**Conclusions** In this cohort, the clinical impact of caustic ingestion was mainly conditioned by the ingestion of acid content, amount of intake and oropharynx lesions. Since caustic esophagitis/gastritis is an entity with important morbidity and mortality, these are variables to be taken into account in the diagnostic approach and therapeutic strategy in the emergency department.

### ePP131 A RARE CAUSE OF HIGH DYSPHAGIA: PLUMMER VINSON SYNDROME; ABOUT 80 CASES

**Authors** Fissah M<sup>1</sup>, Oumnia N<sup>1</sup>

**Institute** 1 Algiers Hospital, Algiers, Algeria

**DOI** 10.1055/s-0039-1681674

**Aims** The aim of the study is to evaluate the characteristics of the patients and to analyze the results of dilation.

**Methods** this prospective study has included 80 patients treated during 14 years by Savary Gillard dilation. The mean age was 38 years (16–72). There were 73 females and 7 males. The patients have had a long standing history of slowly progressive dysphagia of solid food. Laboratory data and admission showed iron deficiency anemia. Radiographic esophagography revealed circumferential webs, at the level of cervical esophageal stricture caused by a smooth mucosal diaphragm; it was circumferential in 46 cases. Upper gastrointestinal endoscopy after dilation showed duodenal atrophy in 19 cases, with a positive histology of celiac disease. The 80 patients were treated with esophageal bougienage and iron supplementary. The dilation was realized with anesthesia in endoscopy room after IM diazepam premedication for the majority. Dilation Results were judged after 12 months follow up on evolution of dysphagia, weight, number of dilation and stenosis diameter.

**Results** the webs were easily disrupted without complications. The total number of dilation was 177. The average number of dilation was 1.8 (1–15). The patients dysphagia resolved shortly after the treatment, the anemia dis-

proved. The patients were examined periodically after the initial treatment and found to be in good general condition, with no recurrence during the 2 years period of follow up of 72 patients. A relapse of dysphagia was noted in 8. **Conclusions** Plummer Vinson syndrome is uncommon nowadays, it affects mainly a middle aged white women. This experience indicates that endoscopic bougienage is safe, effective and relatively easy to perform in patients with an esophageal cervical stenosis. This syndrome has been identified as a risk factor for developing squamous cell carcinoma of upper gastrointestinal tract and then we have to include these patients in surveillance program.

## ePP132V BOUGIE CAP IN THE TREATMENT OF ESOPHAGEAL PEPTIC STRICTURE

**Authors** Cortez Pinto J<sup>1</sup>, Mão de Ferro S<sup>1</sup>, Dias Pereira A<sup>1</sup>

**Institute** 1 Gastroenterology, Instituto Português de Oncologia de Lisboa Francisco Gentil, Lisboa, Portugal

**DOI** 10.1055/s-0039-1681675

**Introduction and aims** Various methods are available for endoscopic treatment of benign stenosis in the upper gastrointestinal tract. The most common is the sequential use of Savary-Gillard bougies after passing a guide-wire through the stenosis. The main problem of this method is the lack of direct visual control of the bougienage procedure. The Bougie caps are single use caps of different sizes that can be attached to an endoscope. The bougienage is carried out by advancing the endoscope through the stenosis while allowing good visualization of the surrounding tissue.

Our aim was to present our first experience of stricture dilation with the Bougie cap. We selected a 58-year-old male with a peptic stricture, already submitted to multiple dilations, with persistent dysphagia.

**Methods** Our patient presented an esophageal stenosis with an estimated luminal diameter of 4 mm that could not be passed with a 5,4 mm gastro-scope. The 8 mm Bougie Cap was attached to the 5,4 mm gastro-scope tip and placed proximally to the stricture. A nitinol guidewire was advanced through the cap surpassing the stricture. The bougienage was accomplished by advancing the scope through the stenosis using gentle rotations movements.

The procedure was sequentially repeated with a 10 mm Bougie cap (5,4 mm gastro-scope) and with a 12 mm Bougie cap (9,2 mm gastro-scope).

Inspection without Bougie Cap was done in the end of the procedure. The procedure completion with a 14 mm and 16 mm Bougie cap was scheduled 3 weeks later but a 5 mm stricture was recognized and the previous sequence was made (8, 10 and 12 mm Bougie caps).

**Results** There were no immediate or delayed complications in both procedures. Procedure time was 31 minutes in the first exam and 16 minutes in the last.

**Conclusions** Bougie cap is a safe and easy new therapeutic method for esophageal benign strictures under direct visualization.

Saturday, April 6, 2019

10:30 – 11:00

Leaks 1

ePoster Podium 5

## ePP133 ENDOSCOPIC SUTURING IS FEASIBLE FOR TREATMENT OF LOW COLORECTAL ANASTOMOTIC LEAK – EXPERIMENTAL STUDY

**Authors** Martinek J<sup>1,2</sup>, Hucl T<sup>1,2</sup>, Ryska O<sup>2,3</sup>, Kalvach J<sup>2,4</sup>, Hadac J<sup>2,4</sup>, Pazin J<sup>2,4</sup>, Foltan O<sup>2,5</sup>, Kristianova H<sup>2,5</sup>, Ptacnik J<sup>2,5</sup>, Juhasova J<sup>2</sup>, Juhas S<sup>2</sup>

**Institute** 1 Department of Hepatogastroenterology, Institute for Clinical and Experimental Medicine, Prague, Czech Republic; 2 Institute of Animal Physiology and Genetics, Czech Academy of Science, Libechev, Czech Republic; 3 Royal Lancaster Infirmary, University Hospitals of Morecambe Bay, NHS Foundation Trust, Lancaster, United Kingdom; 4 Surgery Department 2nd Faculty of Medicine, Charles University and Central Military Hospital, Prague,

Czech Republic; 5 1st Department of Surgery, The General University Hospital in Prague, Prague, Czech Republic

**DOI** 10.1055/s-0039-1681676

**Aims** The aim of our study was to assess the feasibility of endoscopic repair of anastomotic leak on animal model. Secondary aim was to evaluate whether this technique prevents intraabdominal sepsis.

**Methods** Model of low colorectal anastomotic leak was introduced in 28 male pigs. Laparoscopic low anterior resection was performed and the anastomosis created with 28 mm circular stapler after removing half of the staples.

Fourteen pigs had an endoscopic anastomotic repair with OverStitch™ 2 days later. A double-channel endoscope was introduced and defect closed with 2/0 prolene and secured with original knotless fixation. Three-grade scale (I – closed completely, II – closed with visible gaps, III – closure not possible) was used to assess the completion of closure. The signs of intraabdominal septic complications – IASC and anastomotic healing including burst test were assessed after animals being sacrificed on 9th postoperative day. Fourteen animals with no treatment were included in control group. Chi square test was used to compare both groups.

**Results** Endoscopic closure was technically possible in all 14 cases (gr. I – 11, gr. II – 3 and gr. III – 0) with mean procedure time of 31 (19 – 70) min. Two animals from suture group died due to peritonitis on 8th and 9th postoperative day. Overall IASC rate was however significantly lower compared to the control – 5/14 vs. 11/14 ( $p = 0,022$ ). The autopsy confirmed healed anastomosis with no visible defect in 10/14 case in Apollo vs. 2/14 in control group ( $p = 0,0023$ ). The burst test performed in 10 healed Apollo cases confirmed sufficient closure with mean pressure of 200 (80 – 300) mm Hg.

**Conclusions** OverStitch™ endoscopic suturing is technically feasible for repair of low colorectal anastomotic leak. This technique reduced the rate of intraabdominal septic complications.

Supported by AZV 16 – 31806A, MO 1012.

## ePP134 EFFICACY OF ENDOSCOPIC TREATMENT OF POST-SLEEVE GASTRECTOMY FISTULAS ACCORDING TO THE RADIOLOGICAL TYPE

**Authors** Sportes A<sup>1</sup>, Airinei G<sup>2</sup>, Kamel R<sup>2</sup>, Raynaud JJ<sup>2</sup>, Sabate JM<sup>2</sup>, Donatelli G<sup>3</sup>, Benamouzig R<sup>2</sup>

**Institute** 1 Gastroenterology, Institut Arnault Tzanck, Saint-Laurent-du-Var, France; 2 Gastroenterology, Hôpital Avicenne, Bobigny, France; 3 Hôpital Privé des Peupliers, Paris, France

**DOI** 10.1055/s-0039-1681677

**Aims** The originality of this study relies on the evaluation of the effectiveness of the endoscopic internal drainage (EID) according to the type of fistula.

**Methods** The type of fistula was classified initially according to a CT scan with oral opacification: fistula without a communicating abscess (Type I), fistula with a communicating abscess (Type II), fistula with an abscessed sub- and sus-diaphragmatic communicating collection (Type III). Treatment algorithm consisted of the insertion of a naso-jejunal feeding tube (NJFT) for Type I fistulas and the placement of a NJFT with EID with or without surgical drainage depending on the septic status for type II and III fistulas.

**Results** Forty-nine patients were included. The clinical success rate of the procedure with fistula healing was 100% in the group I, 96% in the group II and 12% for group III ( $p = 0,001$ ). Mean time for diagnosis of the fistula was significantly higher in type III compared to type I and type II ( $p = 0,04$ ).

The mean estimated size of the defect was higher in type II: 11.2 mm and III: 10 mm versus type I: 2.8 mm ( $p = 0,001$ ). The average number of scheduled endoscopic sessions were: 2, 2.7 and 5.2 for type I, II, and III, respectively ( $p = 0,001$ ). The number of unscheduled reinterventions was also significantly higher in type III ( $p = 0,03$ ). The NJFT was left in place for a significantly longer duration in type III (136 days) compared to type I (13,3) and II (49)  $p = 0,001$ .

**Conclusions** This study shows that proper characterization of the type of fistula before the endoscopic treatment of post-sleeve fistulas could improve the efficacy of the endoscopic treatment.

### ePP135 USE OF SELF-EXPANDING METALLIC STENTS IN THE MANAGEMENT OF ESOPHAGEAL LEAKS AFTER SURGERY

**Authors** Iglesias Jorquera E<sup>1,2</sup>, Egea Valenzuela J<sup>1</sup>, Serrano Jimenez A<sup>1</sup>, Carrilero Zaragoza G<sup>1,2</sup>, Ortega Sabater A<sup>1</sup>, Sánchez Velasco E<sup>1,3</sup>, Ruiz de Angulo D<sup>4</sup>, Munitiz V<sup>4</sup>, Parrilla Paricio P<sup>4</sup>, Alberca de las Parras F<sup>1</sup>

**Institute** 1 Digestive Diseases – Digestive Endoscopy, H. Virgen de la Arrixaca, Murcia, Spain; 2 Digestive Diseases, H. de la Vega Lorenzo Guirao, Cieza, Spain; 3 Digestive Diseases, H. Rafael Mendez, Lorca, Spain; 4 General Surgery, H. Virgen de la Arrixaca, Murcia, Spain

DOI 10.1055/s-0039-1681678

**Aims** Esophageal leaks are severe complications after surgery. The use of endoscopic self-expanding metallic stents is a valid option. Our aim was to evaluate the usefulness of the stents in a third level referral center.

**Methods** Retrospective study including patients with esophageal leaks after surgery who received self-expanding metallic stents (June 2011 to December 2017).

**Results** We included 36 stents in 24 patients. There were 13 men (54%). The mean age was 56,8 ± 17,6 years (25 – 86). The indications for surgery were: neoplasms (15; 62,5%), bariatric (7; 29,2%), antireflux (1; 4,2%) and paraesophageal hernia (1; 4,2%). The mean time between the diagnosis of the leak and stent placement was 1,52 ± 3,06 days (1 – 12). In 17 patients (71%) the stent was placed within the first 24 hours.

Resolution of the leak was observed in 19 cases after stent removal. The rest needed re-stenting.

The rate of successful endoscopic treatment was 83%. The mean number of stents needed was 1,47/patient. The mean time needed was 57 day/patient, and 41,7 days/stent.

We observed one complete distal migration (the stent was replaced endoscopically) as early complication (≤ 48 h). The rate of late complications (> 48 h) was 41,7% (15/36): 7 partial distal migrations (4 were replaced and 3 were removed because the leak was closed); 3 migrations into the stomach (2 were replaced and the leak was closed in the other one); 2 bleeding events due to ulcers secondary to the stent (the stents were removed and no additional therapy was needed); 2 cases of intrastent overgrowth (one was removed, the other remained); 1 migration into mediastinum (endoscopically replaced).

**Conclusions** Self-expanding metallic stents are useful in the management of esophageal leaks after surgery. In most of the cases the leak is solved and new surgeries are avoided. The main complication is distal migration, but endoscopic replacement or removal is feasible.

Saturday, April 6, 2019

10:30 – 11:00

Motility – Septa

ePoster Podium 6

### ePP136 WIRE AND MAGNET SEPTOTOME, A NEW METHOD FOR ENDOSCOPIC LEAK-FREE SECTION OF SEPTA IN THE GI TRACT: PRELIMINARY RESULT OF A PILOT ANIMAL STUDY

**Authors** Huberland F<sup>1</sup>, Sandersen C<sup>2</sup>, Bastin O<sup>1</sup>, Cauche N<sup>3</sup>, Delattre C<sup>3</sup>, Rio-Tinto R<sup>4</sup>, Delchambre A<sup>1</sup>, Devière J<sup>5</sup>, Blero D<sup>6</sup>

**Institute** 1 Bio, Electro and Mechanical Systems Department, Université Libre de Bruxelles, Brussels, Belgium; 2 Clinical Sciences, Faculty of Veterinary Medicine, Université de Liège, Liège, Belgium; 3 Brussels Medical Device Center, BMDC, Brussels, Belgium; 4 Gastroenterology Department, Champalimaud Foundation, Lisbon, Portugal; 5 Gastroenterology, Université

Libre de Bruxelles, Brussels, Belgium; 6 Gastroenterology, Erasme Hospital, Université Libre de Bruxelles, Brussels, Belgium

DOI 10.1055/s-0039-1681679

**Aims** Treatment of symptomatic mid- or distal- esophageal diverticulum is challenging. The rationale of the endoscopic treatment is its marsupialisation into the esophagus and/or treatment of underlying motility disorders. Section of the septum carries the risk of bleeding and perforation, the latter being potentially prevented by the use of magnets or sutures endoscopically performed at the bottom of the diverticulum.

**Methods** We developed a device made of two round shape magnets of 19 mm of diameter, linked by a self-retractable surgical wire of up to 15 cm. The magnets are implanted level with the bottom of the diverticulum on both sides of the septum, while the wire turns around the septum (figure 1). The self retractable wire induces a progressive ischemia, leading to a necrosis of the tissue and its progressive section.

**Results** We created surgically an artificial septum in the a pig stomach. Two weeks later, the magnets linked with the retractable wire were implanted. The following clinical evolution of the pig was uneventful. Seven days after implantation, an endoscopy confirmed that the progressive retraction of the wire had induced a nearly complete cut of the created septum by pressure necrosis induced by the magnets. The tissue was then explanted. The total length of the septum cut by the wire and the magnets is 25 mm long with no leakage at the bottom of the septum (see figure 2).

**Conclusions** This proof of concept animal testing shows that a new endoscopic device made of magnets linked with a retractable wire may allow tissue apposition and section by pressure necrosis using a single instrument placed over a single session. Besides esophageal diverticula, it might also find application in the creation of anastomosis.

### ePP137 DO WE NEED ENDOSCOPIC ULTRASONOGRAPHY FOR THE WORKUP OF PATIENTS WITH ACHALASIA?

**Authors** Barret M<sup>1</sup>, Oumrani S<sup>2</sup>, Roseau G<sup>2</sup>, Leblanc S<sup>2</sup>, Prat F<sup>2</sup>, Chaussade S<sup>2</sup>

**Institute** 1 Paris Descartes University, Paris, France; 2 Gastroenterology, Cochin Hospital, Paris, France

DOI 10.1055/s-0039-1681680

**Aims** To assess the clinical contribution of EUS findings in achalasia and other obstructive esophageal motility disorders.

**Methods** We conducted a single centre retrospective study at a tertiary referral centre. We included all patients with an endoscopic ultrasonography for the workup of a suspected secondary esophageal motility disorder from January 2012 to December 2017.

**Results** Sixty-nine patients were included, 52% were men, with a median (± SD) age of 61 ± 14 years. Median (± SD) Eckardt score at time of the EUS was 7 ± 2. Twenty patients had type I achalasia, 27 had type II achalasia and 9 had type III achalasia. Two patients had an esophagogastric junction outflow obstruction syndrome (EGJOS), 5 had a Jackhammer esophagus, 6 had distal esophageal spasm (DES). EUS was normal in 26 (38%) patients, and showed an esophageal wall thickening in 43 (62%) patients. The inner circular muscle layer was the most frequently thickened, with a mean (± SD) thickness of 2.8 ± 2 mm. Three cases of secondary achalasia were diagnosed: 2 esophageal carcinomas and one eosinophilic esophagitis, all three diagnosed at mucosal biopsies. Esophageal wall thickening was not significantly associated with the type of esophageal motility disorder or achalasia subtype, and there was no statistical correlation between the presence of a wall thickening at EUS and therapeutic outcomes after any of the achalasia treatments.

**Conclusions** In our work, the presence of an esophageal wall thickening was not predictive of achalasia subtype or treatment outcome. The contribution of endoscopic ultrasonography to the workup of esophageal motility disorders seems limited.

## ePP138 INEFFECTIVE ESOPHAGEAL MOTILITY IS ASSOCIATED WITH A WORST CLINICAL OUTCOME AFTER TRANSORAL INCISIONLESS FUNDOPLICATION

**Authors** Testoni PA<sup>1</sup>, Mazzoleni G<sup>1</sup>, Distefano G<sup>1</sup>, Testoni SGG<sup>1</sup>, Antonelli M<sup>1</sup>, Fanti L<sup>1</sup>, Passaretti S<sup>1</sup>

**Institute** 1 IRCCS San Raffaele Scientific Institute – Vita-Salute San Raffaele University, Milan, Italy

**DOI** 10.1055/s-0039-1681681

**Aims** Transoral incisionless fundoplication (TIF) for the treatment of gastro-esophageal reflux disease (GERD) can be performed with two different devices: Esophyx and, more recently, MUSE system. Aim of this study was to evaluate the relationship between the presence of ineffective esophageal motility (IEM) before TIF and the clinical outcome of the procedure, assessed by proton pumps inhibitors (PPI) consumption 6 months after TIF.

**Methods** All patients were evaluated before TIF by esophageal conventional manometry (CM) or high resolution manometry (HRM). The definition of IEM were respectively:  $\geq 30\%$  of swallows with amplitude  $< 30$  mm Hg or simultaneous with amplitude  $< 30$  mm Hg or dropped or failed, according to Castell et al., and  $\geq 50\%$  ineffective swallows (failed or weak: DCI  $< 100$  or  $450$  mm Hg\*s\*cm), according to Chicago v.3 Classification.

The clinical outcome 6 months after TIF was assessed by proton pumps inhibitors (PPI) consumption in 49 patients treated with Esophyx and 29 patients treated with MUSE.

The clinical outcome of TIF was compared between patients with IEM before TIF and patients with normal esophageal motility before TIF, using Fisher's exact test.

**Results** IEM was present before TIF in 18/49 (36.7%) patients treated with Esophyx and 9/29 (31%) patients treated with MUSE. In the IEM group 5/27 (18.5%) patients stopped PPI 6 months after TIF, while 22/27 (81.5%) patients halved PPI or assumed the same dose. In the group of patients with a normal esophageal motility before TIF, 23/51 (45.1%) patients stopped PPI 6 months after TIF, while 28/51 (54.9%) patients halved PPI or assumed the same dose ( $p = 0.019$ ).

**Conclusions** IEM before TIF is statistically associated with a worst clinical outcome after the procedure.

Saturday, April 6, 2019  
Preparation: sedation 2

10:30 – 11:00  
ePoster Podium 7

## ePP139 ANALGESIA WITH ENTONOX FOR COLONOSCOPY IN A COMMUNITY HOSPITAL

**Authors** Dabos K<sup>1</sup>, Koulaouzidis A<sup>2</sup>

**Institute** 1 Endoscopy Unit, East Lothian Community Hospital, Haddington, United Kingdom; 2 Endoscopy Unit, Royal Infirmary of Edinburgh, Edinburgh, United Kingdom

**DOI** 10.1055/s-0039-1681682

**Aims** Over the last few years Entonox, a mixture of nitrous oxide and oxygen, has been offered as an option for analgesia during colonoscopy at our community hospital. We assessed the usefulness of Entonox analgesia by comparing colonoscopy quality parameters in patients who received entonox and those who received alfentanil with or without an additional sedative.

**Methods** All colonoscopies performed between January 2017 and June 2018 were reviewed. Comfort scores during the procedure, caecal intubation rates (CIR) and polyp detection rates (PDR) were compared. Patients who started on Entonox but then required alfentanil to complete the procedure were deemed Entonox failures. We used chi-square tests to analyse the data.

**Results** 879 colonoscopies were assessed, performed by 5 experienced operators; 337 had Entonox only, 467 had alfentanil, 34 had Entonox plus alfentanil (Entonox failures) and 41 patients had colonoscopies without any medication hence excluded from the analysis.

Completion rates were similar in both groups (92.3% at the entonox group vs. 93.8% at the alfentanil group). Comfort scores were similar between the two groups. There were 26 failed colonoscopies in the entonox group and 28 in the alfentanil group. Only 2 patients without medication had incomplete colonoscopies. Of the 34 patients who received alfentanil after having tried entonox 26 completed the procedure and 8 did not. When completion rates were assessed there was a statistically significant difference in favour of the patients who received alfentanil (OR 4.84 CI 0.39 – 4.52  $p < 0.028$ ). Polyp detection rate in the Entonox group was 24.8% and in the alfentanil group was 32.4%. There was a trend towards higher detection rate with alfentanil ( $p = 0.078$ ).

**Conclusions** Patients opting for Entonox as analgesia should be aware that they might need additional analgesia and should have an established IV access. Furthermore Entonox should not be offered as a first line analgesia in non-screening colonoscopy.

## ePP140 THE EFFECT OF SEDATION ON THE QUALITY OF UPPER GASTROINTESTINAL ENDOSCOPY

**Authors** Storan D<sup>1</sup>, Sheridan J<sup>1,2</sup>, Cullen G<sup>1,2</sup>, Mulcahy H<sup>1,2</sup>, Doherty G<sup>1,2</sup>

**Institute** 1 Centre for Colorectal Disease, St. Vincent's University Hospital, Dublin, Ireland; 2 School of Medicine, University College Dublin, Dublin, Ireland

**DOI** 10.1055/s-0039-1681683

**Aims** Several performance measures for colonoscopy have been identified leading to a significant improvement in quality. The European Society of Gastrointestinal Endoscopy (ESGE) have proposed similar measures for oesophago-gastro-duodenoscopy (OGD). Two of the proposed measures include inspection time of  $\geq 7$  minutes, and photo documentation comprising  $\geq 10$  images. Patients' intolerance of the procedure could affect procedure length and limit thorough mucosal examination. We aimed to compare OGD performance measures in sedated and unsedated patients.

**Methods** OGD performance data from a tertiary teaching hospital was retrospectively collected from the electronic endoscopic reporting system from January 2013 to October 2016. Data was analysed using SPSS.

**Results** 10,482 procedures were included for analysis. 11.4% had accurate photo documentation ( $\geq 10$  images, target  $> 90\%$ ) with a median of 5 images. 75.35% had adequate inspection time ( $\geq 7$  minutes, target  $> 90\%$ ) with a median of 10 minutes.

Median inspection time for sedated procedures was 10 minutes vs. 8 minutes for unsedated procedures. 78% of sedated procedures met the target of 7 minute inspection time vs. 66% of unsedated procedures ( $p$ -value  $< 0.001$ ). Both groups had a median of 5 images recorded. 12% of sedated procedures recorded  $\geq 10$  images vs. 8% of unsedated procedures ( $p$ -value  $< 0.001$ ).

**Conclusions** The use of sedation is associated with significantly improved performance measures. One third of unsedated OGDs failed to meet the target inspection time. Adherence to the proposed performance measures would favour the use of sedation leading to increased use of resources.

## ePP141 FACTORS ASSOCIATED WITH SEDATION USE IN DIAGNOSTIC AND SCREENING PATIENTS $\geq 50$ YEARS OF AGE: OBSERVATIONS FROM THE EUROPEAN COLONOSCOPY QUALITY INVESTIGATION (ECQI) QUESTIONNAIRE

**Authors** Toth E<sup>1</sup>, Agrawal A<sup>2</sup>, Amaro P<sup>3</sup>, Brink L<sup>4</sup>, Fischbach W<sup>5</sup>, Hüniger M<sup>6</sup>, Jover R<sup>7</sup>, Kinnunen U<sup>8</sup>, Koulaouzidis A<sup>9</sup>, Ono A<sup>10</sup>, Patai Á<sup>11</sup>, Pecere S<sup>12,13</sup>, Petruzzello L<sup>12,13</sup>, Riemann JF<sup>14</sup>, Amlani B<sup>15</sup>, Spada C<sup>16</sup>

**Institute** 1 Skåne University Hospital, Lund University, Malmö, Sweden;

2 Doncaster Royal Infirmary, Doncaster, United Kingdom; 3 Coimbra University Hospital, Coimbra, Portugal; 4 Herlev Hospital, Herlev, Denmark; 5 Gastroenterologie und Innere Medizin, Aschaffenburg, Germany; 6 Private Practice for Internal Medicine, Würzburg, Germany; 7 Hospital General

Universitario de Alicante, Alicante, Spain; **8** Tampere University Hospital, Tampere, Finland; **9** The Royal Infirmary of Edinburgh, Edinburgh, United Kingdom; **10** Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain; **11** Markusovszky University Teaching Hospital, Szombathely, Hungary; **12** Fondazione Policlinico Universitario A. Gemelli IRCCS, Digestive Endoscopy Unit, Rome, Italy; **13** Università Cattolica del Sacro Cuore, Centre for Endoscopic Research Therapeutics and Training – CERTT, Rome, Italy; **14** Director em. Klinikum Ludwigshafen, Chairman, LebensBlicke Foundation for the Prevention of Colorectal Cancer, Ludwigshafen, Germany; **15** Norgine, Harefield, Middlesex, United Kingdom; **16** Fondazione Poliambulanza, Brescia, Italy

DOI 10.1055/s-0039-1681684

**Aims** To assess the factors associated with sedation use in diagnostic and screening patients  $\geq 50$  years of age using questionnaire responses from across Europe.

**Methods** The development of the procedure questionnaire, by the European Colonoscopy Quality Investigation (ECQI) Group, has been previously described in posters presented at UEGW, 2015 and 2016. Data collection is an ongoing process: we analysed data collected between 2/6/16 and 30/4/18 (n = 6445).

All screening and diagnostic colonoscopies in patients aged  $\geq 50$  years were identified in our dataset (n = 3365). Stepwise multivariable logistic regression analysis was conducted to determine the main factors associated with sedation use. Analysis was performed on the following variables: age in 10-year categories; body mass index (BMI) categories; gender; inpatient status; reason for procedure; time of day colonoscopy performed; previous total colonoscopy in last 5 years; Boston Bowel Preparation Score (BBPS)  $\geq 6$ ; retraction time categories; chromoendoscopy used; high-definition equipment used; assistive technology used; intended endpoint; and intended endpoint reached.

**Results** There were 1394 procedures where the results of all selected variables were known provided by 59 practitioners from 38 institutions: 71.0% of procedures used sedation. In order, the most associated variables were:

1. Use of high-definition equipment (76.3% vs. 55.5%,  $p < 0.0001$ ).
2. Use of assistive technology (59.0% vs. 72.8%,  $p < 0.0001$ ).
3. Female gender (78.8% vs. 62.2% male,  $p < 0.0001$ ).
4. Longer retraction time (83.9%  $> 10$  minutes vs. 65.1% 6 – 10 minutes and 66.7%  $< 6$  minutes,  $p < 0.0001$ ).
5. Use of chromoendoscopy (76.3% vs. 69.5%,  $p = 0.0051$ ).
6. Younger patient age (78.0% 50 – 59 years vs. 67.6% 60 – 69, 68.1% 70 – 79, 69.4%  $\geq 80$ ,  $p < 0.0001$ ).
7. Inpatient status (84.0% vs. 68.7% outpatient,  $p < 0.0001$ ).

**Conclusions** The use of sedation appears to be more associated with factors related to the equipment/techniques used during colonoscopy than patient characteristics.

Saturday, April 6, 2019

Third space

10:30 – 11:00

ePoster Podium 8

## ePP144V INCOMPLETE MYOTOMY DUE TO EXTRAMUSCULAR DISSECTION DURING THE POEM: DESCRIPTION AND DETECTION OF A PROCEDURE FAILURE

**Authors** Guarner-Argente C<sup>1</sup>, Murzi M<sup>1</sup>, Colan J<sup>1</sup>, Gordillo J<sup>1</sup>, Fernandez-Ananin S<sup>2</sup>, Balague C<sup>2</sup>, Targarona E<sup>2</sup>, Guarner C<sup>1</sup>

**Institute** 1 Servei de Patologia Digestiva, Hospital de la Santa Creu i Sant Pau, Barcelona, Spain; 2 Servei de Cirurgia General, Hospital de la Santa Creu i Sant Pau, Barcelona, Spain

DOI 10.1055/s-0039-1681685

**Aims** Incomplete myotomy is rare during the POEM for achalasia. An extramuscular dissection can lead to this technique failure. We present a videocase and analyze the images for its detection.

**Methods** Video review of a case of failed POEM in a patient with type 2 achalasia.

**Results** During the tunneling phase of POEM, intense spasticity was observed in the lower esophageal sphincter area. It hindered the mobilization of the endoscope and entailed an increased risk of mucosal tear. Therefore, the myotomy was started without completing the tunnel, in order to partially relax this spasticity. Within the spastic area, a complete myotomy was observed. Dissection was continued observing an open space, similar to the subcardial area, but with abundant fatty tissue, vascularization and friability. The procedure was terminated although doubts about complete myotomy were raised. Clinical follow-up was suggestive of uncomplete myotomy. Revision of the video recording detected unintentional extramuscular dissection and incomplete myotomy. The observation of the margins of the myotomy is critical to detect this incidence.

**Conclusions:**

1. Myotomy prior to complete tunneling of the submucosa may increase the risk of an extramuscular dissection.
2. Extramuscular dissection images can be misinterpreted as a complete myotomy.
3. The observation of the myotomy edges facilitates the detection of the extramuscular dissection.
4. Video documentation of all cases and revision of failed cases is crucial to analyzed failed POEM procedures.

## ePP142 DOES THIRD-SPACE ENDOSCOPY PROVIDE PROMISING RESULTS FOR THE REMOVAL OF UPPER GASTROINTESTINAL SUBMUCOSAL TUMORS?

**Authors** Aslan F<sup>1</sup>, Kocak E<sup>2</sup>, Sengun B<sup>2</sup>, Nafiz Karahan S<sup>2</sup>, Yilmaz O<sup>2</sup>, Cig Taskin O<sup>3</sup>, Agcaoglu O<sup>4</sup>

**Institute** 1 School of Medicine, Department of Internal Medicine, Koc University, Istanbul, Turkey; 2 School of Medicine, Koc University, Istanbul, Turkey; 3 Department of Pathology, Koc University Hospital, Istanbul, Turkey; 4 School of Medicine, Department of General Surgery, Koc University, Istanbul, Turkey

DOI 10.1055/s-0039-1681686

**Aims** Submucosal-tunneling endoscopic resection (STER) has been a promising technique for treating upper-gastrointestinal submucosal tumors (SMT) originating from the muscularis propria layer. In this study, we aim to present perioperative outcomes of 31 patients with SMTs who underwent STER procedure in a tertiary care center.

**Methods** Between 2015-October and 2018-October, patients who underwent STER for removal of esophageal or gastric SMTs, were analyzed retrospectively from a prospectively kept database. Clinical, pathological and complication data were assessed.

**Results** A total of 42 patients underwent STER and 30 were finally enrolled after excluding the patients who were lost to follow up. Female to male ratio was 11/19 and the mean age was 45.24 (25 – 65). Presenting symptoms included dyspepsia (47.6%), dysphagia (42.9%), and abdominal distention (9.5%).

Mean operative time was 61.7minutes (15 – 180). In terms of localization, 18 (60%) patients had SMTs in esophagus, 3 (10%) in the antrum, 8 (26.7%) in the cardia, and 1 (3.3%) in the corpus. En bloc resection was achieved in all (100%) of the tumors. The mean diameter was 33.3 mm (10 – 82 mm). Histopathological results revealed that 25 (83.3%) patients had leiomyoma, 2 (6.7%) had gastrointestinal stromal tumor, 2 (6.7%) had pancreatic heterotopia, and 1 (3.3%) had granular cell tumor. In terms of perioperative complications, pneumoperitoneum occurred in 2 (6.7%) patients, mucosal laceration occurred in 1 (3.3%) patient and subcutaneous emphysema occurred in 1 (3.3%) patient, all of which are successfully managed without surgery. Mean hospital stay was 2.86days (1 – 5days). No recurrence was observed during a mean follow-up of 25.4months (6 – 30months).

**Conclusions** According to this case series, STER appears to be a safe and effective method considering its low complication rates and favorable outcomes. Patients had a shorter hospital stay compared to surgical procedures and their long-term follow-up results have revealed no recurrence of pre-operative complaints or re-emergence of SMTs so far. This study suggests STER can be applied efficaciously for the treatment of SMTs though larger number of cases is needed for further research.

### ePP143 THE DOUBLE TUNNEL TECHNIQUE FOR SUCCESSFUL TRANSESOPHAGEAL REMOVAL OF A MOSTLY MEDIASTINALLY LOCATED CALCIFIED LYOMYOMA ORIGINATING FROM THE CIRCUMFERENTIAL ESOPHAGEAL MUSCULAR LAYER

**Authors** Hochberger J<sup>1</sup>

**Institute** 1 Gastroenterology, Vivantes Klinikum im Friedrichshain, Berlin, Germany

**DOI** 10.1055/s-0039-1681687

**Aims** A 52 year old patient was admitted for discussion of the resection of an oligosymptomatic 3.5 × 2.5 cm tumor of the esophagus located mostly at the level of the aortic arch (24–27 cm aborally). Leiomyoma was postulated. As the lesion was partially calcified a GIST tumor could not be excluded. Observation versus FNA versus surgical resection versus submucosal endoscopic tunnel enucleation (SET, SETE) of the tumor was discussed. Due to the size of the tumor and increasing operative risk with age the patient decided to have the tumor resected.

**Methods** The intervention was carried out in an operative setting with patient being bi-laterally intubated and in left lateral position. Surgical intervention was possible at any time of the intervention. An esophageal submucosal tunnel in POEM technique was created with entrance 5–7 cm cranially to the lesion. The whitish-yellow lesion could be completely separated from the overlying mucosa without any mucosal defect and be enucleated from the surrounding muscular layer. Astonishingly, there was no direct vision to the mediastinum after complete ESD enucleation of the tumor as the thin longitudinal esophageal muscle layer surrounded the tumor located mostly in the dorsal mediastinum. The cranial tunnel was first broadened to 2.5 cm and the tumor mobilized from its bed cranially. As a passage through the upper esophageal sphincter seemed to be traumatic a second tunnel was created caudally to the cardia and the mucosa opened from inside towards the esophageal lumen.

**Results** Using this technique the tumor could be transported to the stomach with intact capsule where it was cut into seven pieces and removed perorally. The enterences where the closed my clips and an esophageal vacuum sponge placed. The patient had an uneventful recovery two weeks later.

**Conclusions** The double tunnel technique facilitates the peroral removal of large sm esophageal tumors to big for primary transsphincteric extraction.

Saturday, April 6, 2019

13:00 – 13:30

Colon ESD 1

ePoster Podium 1

### ePP145 FEASIBILITY AND SAFETY OF ENDOSCOPIC SUBMUCOSAL DISSECTION FOR SUPERFICIAL NEOPLASMS IN PATIENTS WITH ULCERATIVE COLITIS

**Authors** Maehata T<sup>1</sup>, Fukuhara K<sup>2</sup>, Tsutsumi K<sup>1</sup>, Kiguchi Y<sup>1</sup>, Akimoto T<sup>1</sup>, Nakayama A<sup>1</sup>, Ochiai Y<sup>1</sup>, Kato M<sup>1</sup>, Iwao Y<sup>3</sup>, Yahagi N<sup>1</sup>

**Institute** 1 Cancer Center, Keio University, School of Medicine, Tokyo, Japan; 2 Center for Diagnostic and Therapeutic Endoscopy, Keio University, School of Medicine, Tokyo, Japan; 3 Center of Preventive Medicine, Keio University, School of Medicine, Tokyo, Japan

**DOI** 10.1055/s-0039-1681688

**Aims** In patients with ulcerative colitis (UC), sporadic neoplasms (SN) can also occur in addition to UC-associated colorectal cancer/dysplasia (UCAC). Recently, reports on endoscopic submucosal dissection (ESD) for UCAC and SN have been published. However, there is no consensus regarding ESD. We retrospectively evaluated the feasibility and safety of ESD for UCAC and SN.

**Methods** The subjects were 32 patients with 33 lesions who met the following criteria: diagnosed with a UC associated lesion; were in the remission phase and had well-circumscribed, single lesions with no dysplasia in the periphery. A comparative investigation by propensity score matching analysis was performed for investigating the

1. ESD treatment outcome, and
2. difference in treatment outcomes between the UC-ESD group (n = 33) and non-UC-ESD group (control: n = 751).

**Results:**

1. The rate of en bloc resection by ESD was 97%, R0 resection rate was 81.8%, mean tumour diameter was 28.4 mm, and mean procedure time was 70.6 min. The adverse events were perforation in 2 patients, and postoperative bleeding in 1 patient. Based on histopathological investigations after ESD, SN was confirmed in 25 lesions and UCAC was confirmed in 8 lesions. All the lesions suspected of being SN were indeed SN.
2. Using the propensity score matching analysis, 29 pairs were matched. Comparing treatment outcomes between the 2 groups, mean surgery time was significantly longer in the UC-ESD group (p = 0.0261). With respect to adverse events, although no significant difference was seen, the adverse events occurred only in the UC-ESD group.

**Conclusions** ESD for lesions with UC was feasible and safety. ESD is recommended as an optimal treatment for en bloc excision and accurate pathological diagnosis. However, compared to non-UC-ESD, UC-ESD is very difficult due to severe fibrosis. For these reasons, UC-ESD should be required to be performed by expert who has endoscopic technique both diagnosis and treatment.

### ePP146 A RISK SCORING MODEL FOR THE PREDICTION OF DELAYED BLEEDING AFTER COLORECTAL ENDOSCOPIC SUBMUCOSAL DISSECTION

**Authors** Byeon JS<sup>1</sup>, Song EM<sup>2</sup>, Seo M<sup>3</sup>, Cho JW<sup>4</sup>, Lee YJ<sup>4</sup>, Lee BI<sup>5</sup>, Kim JS<sup>6</sup>, Jeon SW<sup>7</sup>, Jang HJ<sup>8</sup>, Yang DH<sup>2</sup>, Ye BD<sup>2</sup>

**Institute** 1 Gastroenterology, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea, Republic of; 2 Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea, Republic of; 3 Konkuk University Chungju Hospital, Chungju, Korea, Republic of; 4 Presbyterian Medical Center, Jeonju, Korea, Republic of; 5 Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Seoul, Korea, Republic of; 6 Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Seoul, Korea, Republic of; 7 Kyungpook National University Chilgok Hospital, Daegu, Korea, Republic of; 8 Hallym University School of Medicine, Dongtan Sacred Heart Hospital, Hwaseong, Korea, Republic of  
**DOI** 10.1055/s-0039-1681689

**Aims** Delayed bleeding is an important adverse event after colorectal endoscopic submucosal dissection (ESD). We aimed to investigate the incidence and risk factors of delayed bleeding after colorectal ESD, and to develop a risk scoring model for predicting delayed bleeding.

**Methods** This retrospective multicenter study was performed at 5 centers. The derivation and validation cohorts comprised 1189 patients from 1 center and 415 patients from the other 4 centers. We investigated the incidence and risk factors of delayed bleeding. Then, we developed a risk scoring model for predicting delayed bleeding using the data of the derivation cohort. We validated the scoring system in the validation cohort.

**Results** Delayed bleeding occurred in 34 (2.9%) patients in the derivation cohort. In multivariate analysis, the risk factors of delayed bleeding were tumor location in the rectosigmoid colon (odds ratio [OR] 6.49, 95% confi-

dence interval [CI] 1.96 – 21.42;  $P = 0.002$ ), large tumor ( $\geq 30$  mm; OR 2.10, 95% CI 1.01 – 4.40;  $P = 0.048$ ), and use of antiplatelet agents except for aspirin alone (OR 4.04, 95% CI 1.44 – 11.30;  $P = 0.008$ ). These 3 factors were incorporated into a risk scoring model for prediction of delayed bleeding as the points of 2, 1, and 1, respectively. The area under the ROC curve for the risk score in the derivation cohort was 0.726 (95% CI 0.645 – 0.808), implying good discrimination ability. As the total score based on this system increased, the incidence of delayed bleeding increased in the validation cohort. When patients in the validation cohort were categorized into low- and high-risk groups, the incidence of delayed bleeding after colorectal ESD was higher in the high-risk group than in the low-risk group (4.2% vs. 1.9%).

**Conclusions** The risk scoring model incorporating tumor location, tumor size, and use of antiplatelet agents can quantitatively predict the risk of delayed bleeding after colorectal ESD.

### ePP147 DIAGNOSTIC ABILITY OF BLUE LIGHT IMAGING FOR PREDICTING DEEP SUBMUCOSAL INVASION IN COLORECTAL LESIONS

**Authors** Neumann H<sup>1</sup>, Grimminger P<sup>2</sup>, Rahman KF<sup>1</sup>, Thieringer F<sup>1</sup>, Galle PR<sup>1</sup>, Zimmermann T<sup>1</sup>, Mönkemüller K<sup>3</sup>, Kreft A<sup>4</sup>, Tontini GE<sup>5</sup>

**Institute** 1 Interdisciplinary Endoscopy, University Medical Center Mainz, Mainz, Germany; 2 Department of Surgery, University Medical Center Mainz, Mainz, Germany; 3 Department of Gastroenterology, Helios Frankenwald, Kronach, Germany; 4 Institute of Pathology, University Medical Center Mainz, Mainz, Germany; 5 Gastroenterology and Endoscopy Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy  
DOI 10.1055/s-0039-1681690

**Aims** Blue Light Imaging (BLI) was recently introduced as a novel imaging technology allowing for enhanced visualization of the mucosal surface and vascular pattern morphology. Data regarding the applicability of BLI for prediction of deep submucosal invasion of colorectal lesions is missing.

Main study objective was to assess the potential of BLI for prediction of deep submucosal invasion of colorectal lesions.

**Methods** Consecutive patients undergoing screening or surveillance colonoscopy were prospectively evaluated using a high-definition endoscope with BLI capability. Circumscribed lesions were examined with BLI before taking biopsy specimens or performing endoscopic resection. BLI images were graded according to surface and vascular pattern morphology and correlated with conventional histopathology in a prospective and blinded fashion.

**Results** 120 cases were included. BLI yielded high-quality images in all cases. Based on pit pattern and vascular alterations BLI could predict the presence of deep submucosal invasion with high sensitivity (95%), specificity (91%) and accuracy (93%). Positive and negative predictive values of BLI for in vivo diagnosis of deep submucosal invasion were 88% and 95%, respectively.

**Conclusions** BLI is a novel diagnostic tool allowing for real-time prediction of deep submucosal invasion of colorectal lesions with high accuracy. This becomes of crucial importance in clinical practice and could lead to an optimized and rapid diagnosis of neoplastic changes during ongoing endoscopy and an individualized management approach.

Saturday, April 6, 2019

13:00 – 13:30

Colon: resection 4

ePoster Podium 2

### ePP148 PROSPECTIVE RANDOMIZED CONTROLLED TRIAL OF TWO DIFFERENT WIRE TECHNIQUES FOR COLD SNARE POLYPECTOMY

**Authors** Huber Y<sup>1</sup>, Thieringer F<sup>1</sup>, Sivanathan V<sup>1</sup>, Galle PR<sup>1</sup>, Kreft A<sup>2</sup>, Mönkemüller K<sup>3</sup>, Neumann H<sup>1</sup>

**Institute** 1 Interdisciplinary Endoscopy, University Medical Center Mainz, Mainz, Germany; 2 Institute of Pathology, University Medical Center Mainz,

Mainz, Germany; 3 Department of Gastroenterology, Helios Frankenwald, Kronach, Germany

DOI 10.1055/s-0039-1681691

**Aims** Cold snare polypectomy has shown its effectiveness for treatment of colorectal polyps and is increasingly being used. However, dedicated snares for cold snare polypectomy are still rare and no comparison of different wire techniques for this indication has yet been performed.

Primary objective of the study was to compare the efficacy of two different wire techniques (coiled wire versus monofilament) for cold-snare polypectomy in a prospective randomized controlled trial.

**Methods** Consecutive patients undergoing screening or surveillance colonoscopy were included. Once a polyp  $< 12$  mm in size was detected, cold snaring was performed. Eligible polyps were randomized (1:1) to be treated with either monofilament or coiled wire technique. Primary endpoint was histologically confirmed en bloc resection rate. Second endpoints include complication rate (bleeding and perforation) and satisfaction rates of the endoscopist and assisting nurse.

**Results** Polyp size, histology and location did not significantly differ between the different groups. Mean size of lesions resected with coiled wire technique was 5.4 mm (Range 2 – 11 mm), with monofilament wire technique 5.2 mm (Range 2 – 10 mm),  $p = 0.7$ . The overall rates of en bloc resection were 100% for both wire techniques. Satisfaction rates of endoscopist and assisting nurse were not significantly different between both groups. Also cold-snare polypectomy was easy to perform for inexperienced endoscopists.

**Conclusions** Cold snare polypectomy is exceptional effective for resecting colorectal polyps. This prospective randomized trial shows for the first time that no differences between various wire techniques exist. Therefore, both coiled and monofilament wires can successfully being used for cold snare polypectomy.

### ePP149 ENDOCUFF VISION ASSISTED VERSUS STANDARD POLYP RESECTION IN THE COLORECTUM: A PROSPECTIVE RANDOMIZED STUDY (EVASTA STUDY)

**Authors** Hasenöhr M<sup>1</sup>, Figura G von<sup>2</sup>, Haller B<sup>3</sup>, Abdelhafez M<sup>2</sup>, Schlag C<sup>2</sup>, Schmid RM<sup>2</sup>, Delius S von<sup>4</sup>, Klare P<sup>5</sup>

**Institute** 1 Klinikum rechts der Isar der Technischen Universität München, Munich, Germany; 2 Klinik und Poliklinik für Innere Medizin II, Klinikum rechts der Isar der Technischen Universität München, Munich, Germany; 3 Institut für Medizinische Informatik, Statistik und Epidemiologie, Klinikum rechts der Isar der Technischen Universität München, Munich, Germany; 4 Medizinische Klinik II, RoMed Klinikum Rosenheim, Rosenheim, Germany; 5 Klinik für Innere Medizin II, Klinikum rechts der Isar der Technischen Universität München, Munich, Germany

DOI 10.1055/s-0039-1681692

**Aims** Cap assisted colonoscopy (CAC) is frequently used in order to facilitate adenoma detection during endoscopy. However, data on how cap assistance influences resection of polyps is scarce. We aimed to evaluate the impact of a cap assistance (Endocuff vision device, EVD) on the resection time of colorectal polyps in patients undergoing routine colonoscopy.

**Methods** A randomized, prospective trial in a university hospital in Germany was performed. A total of 250 patients were randomly assigned 1:1 to receive either a colonoscopy with the EVD (*EVD arm*) or standard colonoscopy without the use of a cap (*standard arm*). Primary outcome was duration of polypectomy. Secondary outcomes were adenoma detection rate, cecum and ileum intubation time, procedural complications, patient satisfaction, and propofol dosage.

**Results** The usage of an EVD led to a significant reduction of the polypectomy time (81 vs. 54 seconds in *standard* vs. *EVD arm*;  $p = 0.001$ ). The polyp and adenoma detection rate did not differ between both study groups. Endocuff assistance also resulted in a shorter cecum intubation time compared to the

standard group (7.4 vs. 9.6 minutes;  $p=0.04$ ). In contrast, no difference in withdrawal time or total colonoscopy duration was observed.

**Conclusions** Endocuff vision assisted colonoscopy reduces duration of polypectomy. The observed effect is assumed to be due to stable scope positions during resection. Further studies should investigate whether comparable effects can be considered with respect to other interventions such as clipping or biopsy sampling.

### ePP150 APPLICATION OF TWO SCORES TO PREDICT AND STRATIFY THE RISK OF RESIDUAL OR RECURRING ADENOMA AFTER PIECEMEAL EMR OF NON-PEDUNCULATED COLORECTAL POLYPS

**Authors** Alexandrino G<sup>1</sup>, Dias Domingues T<sup>2</sup>, Martins Figueiredo L<sup>1</sup>, Lourenço LC<sup>1</sup>, Carvalho R<sup>1</sup>, Reis J<sup>1</sup>

**Institute** 1 Hospital Prof. Doutor Fernando Fonseca, Amadora, Portugal; 2 CEAUL, Centro de Estatística e Aplicações da Universidade de Lisboa, Lisbon, Portugal

**DOI** 10.1055/s-0039-1681693

**Aims** In 15–20% of colorectal EMR residual or recurring adenoma (RRA) is found at follow-up colonoscopy. The SERT score was recently developed to identify lesions most likely to recur. The SMSA score predicts difficulty in achieving endoscopic success after polypectomy. Our aim was to evaluate and compare prospectively the efficacy of these scores in identifying individually for each lesion the risk of RRA.

**Methods** Consecutive piecemeal EMR of non-pedunculated colorectal polyps  $\geq 15$  mm performed between Mar/2017-Mar/2018 were included. For each lesion, SMSA and SERT scores were calculated. Patients underwent follow-up colonoscopy within 3–6 months. The efficacy of the scores to predict RRA at follow-up colonoscopy was calculated using chi-square and AUROC tests.

**Results** 158 piecemeal EMRs. Average lesion size: 25 mm (maximum:50). RRA found in 17 (10.8%). Of these, 13 (76.5%) were successfully endoscopically treated. The AUROC scores for the presence of relapse were: SERT: 0.730 ( $p=0.002$ ); SMSA: 0.723 ( $p=0.003$ ). The negative predictive value of SMSA 2 for RRA was 100% and of the SERT 0 was 94%. It was possible to stratify the risk of RRA as low (SMSA 2–3 and SERT 0–1) and high (SMSA 4 and SERT 2–4).

**Conclusions** The SERT and SMSA scores are easy instruments to apply and effective to identify the individual risk of RRA for each lesion. The main value of these scores is the possibility to identify low-risk lesions, which could safely be monitored later ( $>6$  months), with a reduction in costs and burden for the patient.

Saturday, April 6, 2019

13:00 – 13:30

ERCP

ePoster Podium 3

### ePP151 COMPARISON OF EFFICACY AND SAFETY OF ERCP PROCEDURES IN PATIENTS OLDER VS. YOUNGER THAN AGE OF 80 YEARS BASED ON THE HUNGARIAN ERCP REGISTRY

**Authors** Orbán-Szilágyi Á<sup>1</sup>, Bakucz T<sup>1</sup>, Pécsi D<sup>2</sup>, Gódi S<sup>3</sup>, Altorjay I<sup>4</sup>, Czákó L<sup>5</sup>, Pakodi F<sup>3</sup>, Patai Á<sup>6</sup>, Szepes Z<sup>5</sup>, Hegyi P<sup>2</sup>, Vincze Á<sup>3</sup>, Gyökeres T<sup>1</sup>

**Institute** 1 Medical Centre Hungarian Defence Forces, Department of Gastroenterology, Budapest, Hungary; 2 University of Pécs, Institute for Translational Medicine, Medical School, Pécs, Hungary; 3 University of Pécs, Division of Gastroenterology, First Department of Medicine, Pécs, Hungary; 4 University of Debrecen, Division of Gastroenterology, Second Department of Medicine, Debrecen, Hungary; 5 University of Szeged, First Department of Medicine, Szeged, Hungary; 6 Markusovszky University Teaching Hospital, Department of Gastroenterology and Medicine, Szombathely, Hungary

**DOI** 10.1055/s-0039-1681694

**Aims** Aging patients have several co-morbidities that might increase the risk of failure and complications of endoscopic retrograde cholangiopancreatography (ERCP). We have limited data on the efficacy and safety of ERCP in the elderly. In this study, we compared the success and complications of ERCPs in patients over and under the age of 80 years, based on the data of Hungarian ERCP Registry.

**Methods** It prospectively collects data on every major aspect (indication, cannulation, success, complications) of ERCPs performed in the contributing centers and contains a 30-day follow-up period.

**Results** Until now the registry contains 356 ERCPs performed in 289 patients over the age of 80 and 1459 ERCPs of 1134 patients in the younger group (mean age 85y vs. 61y). The rate of naive papilla was 66.1% vs. 66.2%. Majority of the ERCPs were performed because of biliary obstruction (36.7% vs. 35.7%), cholangitis (52.2% vs. 35.1%) and biliary stone disease (33.9% vs. 39.2%). Deep cannulation was achieved in 95.1% vs. 94.8% of all ERCPs. Complete clearance rate of ( $<10$  mm) biliary stone extraction was 88.1% vs. 84.3%. Success of stent implantation in subhilar biliary stenosis was 98.3% vs. 98.5%. None of these showed significant difference.

Intraprocedural bleeding that needed endoscopic intervention was observed in 3.37% vs. 4.8% ( $p=0.318$ ). The rate of endoscopic perforation was 1.69% vs. 1.37% ( $p=0.622$ ). Pancreatitis occurred in 0.84% vs. 1.85% ( $p=0.24$ ), cholangitis in 2.81% vs. 2.33% ( $p=0.567$ ) and cholecystitis in 0.28% vs. 0.75% ( $p=0.480$ ). Minor intraprocedural cardiovascular event occurred in 5.34% vs. 2.88% ( $p=0.031$ ). The 30-day mortality rate related to complications was 0.84% vs. 0.07% ( $p=0.026$ ).

**Conclusions** Based on our data, we can conclude that in the elderly ERCP is efficient and the rate of complications is not worse compared to the younger but the complications can potentially have a more serious outcome in the elderly.

### ePP152 CORRELATION OF OBSTRUCTIVE SYMPTOMS AND RADIOLOGICAL FINDINGS WITH THE PRESENCE OF DUODENAL STENOSIS ON SIDE VIEWING ENDOSCOPY IN PATIENTS WITH MALIGNANT OBSTRUCTIVE JAUNDICE

**Authors** Dodmani M<sup>1</sup>, Patil P<sup>1</sup>, Kale A<sup>1</sup>, Mehta S<sup>1</sup>

**Institute** 1 Tata Memorial Hospital, Homi Bhabha National Institute, Gastroenterology, Mumbai, India

**DOI** 10.1055/s-0039-1681695

**Aims** ERCP may not be feasible due to duodenal stenosis (DS) in some patients with malignant obstructive jaundice (OJ). Predicting likelihood of DS can help anticipate and prepare for an alternative biliary drainage method like EUS-BD at the same sitting. We correlated the symptoms and radiological findings suggestive of gastric outlet obstruction (GOO) in these patients with DS on side viewing endoscopy (SVE).

**Methods** We retrospectively analysed our endoscopy database at a referral cancer centre in India. 65 patients with malignant OJ referred for an ERCP and who had clinico-radiological suspicion of DS underwent a pre-ERCP SVE as per unit protocol over 30 months.

**Results** Gallbladder was the commonest primary site in 36 patients (55%). SVE was normal in 11 patients (17%), showed DS in 35 (54%) and 19 (29%) had duodenal infiltration or extrinsic compression without stenosis.

32 patients (49%) had symptoms of GOO (any one of vomiting, postprandial fullness or early satiety) of which 22 (69%) had DS on SVE. 51 (78%) had radiological signs suspicious for GOO (loss of fat planes with the duodenum-37, duodenal infiltration-8, gastric dilatation-6) of which 28 (55%) had DS. 23 patients had both symptoms and radiological signs of which 17 (74%) had DS. Symptoms of GOO significantly correlated with DS on SVE ( $P=0.0089$ , Chi-Square). Suspicious radiological findings did not correlate with DS ( $P=0.42$ , Chi-square). Presence of both symptoms as well as radiological findings also significantly correlated with DS ( $P=0.0098$  Chi-Square).

**Conclusions** Clinical symptoms suggestive of GOO predicted DS in patients with malignant OJ. Radiological suspicion alone without clinical symptoms was not significantly associated with DS. 54% of patients with clinico-radiological suspicion of DS had DS on SVE precluding an ERCP. Assessment of clinico-radiological features suggestive of GOO can help anticipate non-feasibility of ERCP so that one can be prepared for alternative method for biliary drainage.

### ePP153 ENDOSCOPIC TRANSPAPILLARY GALLBLADDER DRAINAGE FOR MANAGEMENT OF THE PATIENT WITH ACUTE CALCULUS CHOLECYSTITIS WHO WAS UNSUITABLE FOR URGENT CHOLECYSTECTOMY

**Authors** Kim TH<sup>1</sup>, Chon HK<sup>1</sup>

**Institute** 1 Wonkwang University College of Medicine and Hospital, Iksan, Korea, Republic of

**DOI** 10.1055/s-0039-1681696

**Aims** Endoscopic transpapillary gallbladder drainage (ETGBD) is useful modality for patients who are no candidate for urgent cholecystectomy. We aim to evaluate the safety and efficacy of ETGBD by using either endoscopic transpapillary gallbladder stenting (ETGBS) or endoscopic nasogallbladder drainage (ENGBD) for managing acute cholecystitis (AC).

**Methods** From July 2014 to November 2018, 171 patients (77 females; mean age 72.8 ± 14.1 years) with AC who tried to perform ETGBD were retrospectively reviewed. Their technical success rate, clinical success rate, adverse event, clinical progress was evaluated. In ETGBS group, long term stent patency, recurrence of AC or occurrence of cholelithiasis were also analyzed.

**Results** The technical success rates and clinical success rate for ETGBD was 94.2% (161/171), and 99.3% (160/161), respectively. The adverse event rates occurred 6.4% (mild pancreatitis:7, post EST bleeding:3, bile duct hemorrhage:1), but all were treated by conservative management and endoscopic hemostasis. The clinical courses of all patients were as follows: two (1.1%) died of pneumonia aggravation, fifty-nine (34.5%) of interval cholecystectomy, the remaining of 110 (64.4%) were subsequently treated conservatively. ETGBS group (n = 89, mean age 78.4 ± 11.6) had more severe comorbidities with dementia, less performing cholecystectomy, and older than ENGBD (n = 72, mean age 65.9 ± 14.2) group. In ENGBD group, 4 patients successfully received ETGBS conversion and 45 patients underwent cholecystectomy. Thirty-one patients with prior percutaneous transhepatic gallbladder drainage (PTGBD) was subsequently performed ETGBS due to their surgical high risk. There was no stent dislodgement in ETGBS group, but one patient recurred AC immediately after PTGBD removal and six patient occurred acute cholangitis with cholelithiasis. Twenty-four patients were followed up without ETGBS removal for more than 6 months and their median complication-free interval was 303 days [IQR 267 – 413] by the Kaplan Meier method.

**Conclusions** ETGBD is technically feasible and effective therapy for patients who are not candidate for urgent cholecystectomy. Successful ETGBS patients had rarely developing cholelithiasis but fewer recurrences of AC. And also, ETGBS may be useful alternative treatment option for high-risk patients with severe comorbidities after PTGBD.

Saturday, April 6, 2019

13:00 – 13:30

ESD

ePoster Podium 4

### ePP156 RISK OF RECURRENCE AFTER ENDOSCOPIC SUBMUCOSAL DISSECTION FOR ADVANCED COLORECTAL NEOPLASIA: SINGLE CENTER EXPERIENCE

**Authors** Kim H<sup>1</sup>, Ko BM<sup>1</sup>, Goong HJ<sup>1</sup>, Lee MS<sup>1</sup>

**Institute** 1 Department of Internal Medicine, SoonChunHyang University School of Medicine, Bucheon, Korea, Republic of

**DOI** 10.1055/s-0039-1681697

**Aims** Endoscopic submucosal dissection (ESD) is known as a curative treatment option for colorectal tumor. A limited number of studies have evaluated the recurrence rates of ESD for advanced colorectal neoplasia. The aim of this study was to evaluate the recurrence rates and risk factors of recurrence after ESD for advanced colorectal neoplasia.

**Methods** Colorectal ESD was performed on 299 colorectal tumor in 290 patients at SoonChunHyang Bucheon Hospital between March 2003 and December 2014. We defined advanced colorectal neoplasia including high grade dysplasia adenoma (HGD) and early-stage colorectal cancer (ECC). Excluding the patients without first follow-up colonoscopy, we totally enrolled 125 patients who underwent colorectal ESD for HGD and ECC, excluding the patients without first follow-up colonoscopy. First follow-up colonoscopy was performed after 3 – 6 months in cases of complete resection and after 3 months in cases of incomplete resection. We retrospectively analyzed clinical outcomes and recurrence rates and risk of recurrence after colorectal ESD for HGD and ECC.

**Results** The overall rates of en bloc resection, histologic complete resection, and curative resection (CR) rates were 85.6%, 76.8%, and 68.8%, respectively. During the follow-up period (42.9 ± 36.9 months, mean ± S.D), all enrolled patients remained free of distant metastasis. Local recurrence occurred in 2 patient (1.6%) undertaken non-CR. In addition, piecemeal resection and deep margin positivity showed statistically significant risk factors of local recurrence.

**Conclusions** Colorectal ESD is effective and safe for resection of colorectal tumor with advanced histology, with a favorable long term outcome. However, en bloc resection and curative resection is necessary to reduce local recurrence for colorectal tumor with advanced neoplasia.

Saturday, April 6, 2019

13:00 – 13:30

EUS therapeutic miscellaneous

ePoster Podium 5

### ePP157 EUS-GUIDED TRANS-RECTAL TREATMENT FOR SYMPTOMATIC PELVIC COLLECTIONS: PUNCTURE/ASPIRATION OR DRAINAGE? RESULTS FROM A LARGE MONOCENTRIC STUDY

**Authors** Gonzalez JM<sup>1</sup>, Guingand M<sup>1</sup>, Gasmi M<sup>1</sup>, Barthet M<sup>1</sup>

**Institute** 1 Gastroenterology, Hôpital Nord, AP-HM, Aix-Marseille Université, Marseille, France

**DOI** 10.1055/s-0039-1681698

**Aims** Abdomino-pelvic symptomatic collections have recently been managed endoscopically by EUS-guided transrectal drainage (EUS-TRD). We present the result of our experience. The main objective was to elucidate the acute efficacy of EUS-TRD (symptoms resolution). The secondary objectives were to document the morbidity, the recurrence (after one month), and to identify predictive factors for failure (persisting of symptomatic collection despite drainage +/- need for surgery).

**Methods** This was a retrospective monocentric observational study conducted from 2004 to 2018 in a tertiary center. The patients referred for pelvic symptomatic collection (pain or abscess) confirmed by imaging (CT-scan or MRI), whom underwent EUS-TRD were included.

The procedures were realized with therapeutic linear EUS-scopes under CO<sub>2</sub>, performing either a aspiration + antibiotics injection, or drainage.

**Results** 73 patients were included and divided in two groups: 1/patients undergoing puncture/aspiration/Amikacin injection (n = 30; 41%); 2/patients undergoing a drainage (n = 43; 58.9%) with plastic stents/drain (95.3%) or metal stents (4.6%).

The mean age was 42.5 years [12 – 87]. The collection was peri-rectal in 67%, perianal in 28% and perisigmoid in 3.2%. In 55%, the abscess was post-operative and in 45% due to medical diseases. The mean size of the collections was 48.9 mm [8 – 120]. It was 33 +/- 17 mm in group 1 versus 67 +/- 21 mm in group 2 (p < 0,0001), influencing probably the choice of method.

The technical success was 100%. The clinical success was achieved in 95.8% of patients (70/73). It was 82.3% (28/30) in group 1 versus 97.7% (42/43) in group 2 (NS). There was no per or post operative complication. During a median follow-up of 7.5 years [4.4 – 8.9], no patient had any recurrence of the collection.

**Conclusions** EUS-TRD in treatment of pelvic abscesses is highly effective and safe, whatever the approach applied (aspiration or drainage) without recurrence during long term follow-up.

### ePP158 MULTICENTER RETROSPECTIVE CASE SERIES ASSESSING ADVERSE EVENTS ASSOCIATED TO THE INDWELL AND STENT RETRIEVAL OF LUMEN APPOSING METAL STENTS

**Authors** Bazaga S<sup>1</sup>, Yaiza Carbajo A<sup>1</sup>, Javier García-Alonso F<sup>1</sup>, Martí D<sup>2</sup>, Sánchez Soler V<sup>2</sup>, Martínez Moreno B<sup>3</sup>, Ramón Aparicio Tormo J<sup>3</sup>, Pedraza Sanz R<sup>4</sup>, Villanueva Hernández R<sup>5</sup>, Vila Costas J<sup>6</sup>, Vázquez Sequeiros E<sup>7</sup>, Jordán Castro A<sup>8</sup>, Jiménez Palacios M<sup>9</sup>, Pérez-Miranda M<sup>1</sup>

**Institute** 1 Hospital Universitario Rio Hortega, Valladolid, Spain; 2 Hospital Clínico Universitario de Valencia, Valencia, Spain; 3 Hospital General Universitario de Alicante, Alicante, Spain; 4 Hospital General Universitario Castellón, Castellón, Spain; 5 Hospital de Ávila, Ávila, Spain; 6 Complejo Hospitalario de Navarra, Pamplona, Spain; 7 Hospital Ramón y Cajal, Madrid, Spain; 8 Hospital del Bierzo, Ponferrada, Spain; 9 Hospital Universitario de León, León, Spain

DOI 10.1055/s-0039-1681699

**Aims** The primary aim was to describe all LAMS related adverse events presenting during stent indwell and retrieval. Secondary aims were describing the relationship between indwell time, therapeutic target and adverse events.

**Methods** Multicenter retrospective case series using standardized case report forms including all consecutive patients who received a LAMS (Axios) to reach extraluminal structures from January to December 2017.

**Results** We included 179 patients from 7 centers (range 4 – 68 cases/center), 122 (68.2%) men, mean age 64.3 years (SD: 15.8).

Pancreatic fluid collections (walled-off necrosis 32.4% and pseudocysts 17.3%) were the most frequent indications as shown in table 1, which also includes the proportion of stents retrieved, indwell time and adverse events during stent retrieval.

During stent indwell adverse event appeared in 19 (10.9%) patients, 8 stent obstructions, 7 (3.9%) gastrointestinal bleeds, including one death in hepatic artery pseudoaneurism presenting 9 months after placing a gallbladder drainage, 2 perforations and 2 symptomatic migrations. There were another 6 asymptomatic migrations.

LAMS were not removed in 86 patients (48%), mostly in permanent intended stents, 46 (53.5%), and patients lost to follow-up, 18 (20.9%). Stents were retrieved in 93 patients. We observed 5 (5.4%) adverse events during stent retrieval, 3 hemorrhages managed endoscopically and 2 perforations, one managed endoscopically with OTSC clip, and one requiring surgical treatment. We did not observe an association between indwell time and the presence of adverse events (p = 0.67).

Tab. 1 Indications

Indication	N° of procedures n (%)	Removed stents n (%)	Delay until stent retrieval (weeks) med (IQR)	Complications during retrieval n (%)
Pancreatic fluid collections	89 (49.7%)	70 (78.7%)	8.7 (4.9 – 13.3)	3 (4.3%)
Gallbladder-drainage	26 (14.5%)	4 (15.4%)	3.5 (2.7 – 8.7)	1 (25%)
Gastrojejunostomy	16 (8.9%)	2 (12.5%)	0	1 (50%)
Choledocoduodenostomy and Hepaticogastrostomy	26 (14.5%)	4 (15.4%)	1.4 (1.1 – 36)	0

**Conclusions** Our study presents a low risk of LAMS related adverse events, despite extended indwell time compared to current recommendations in pancreatic fluid collections.

### ePP159 THE EFFECTIVENESS OF EARLY ENDOSCOPIC ULTRASOUND-GUIDED DRAINAGE FOR POSTOPERATIVE FLUID COLLECTION AFTER PANCREATOBILIARY SURGERY

**Authors** Lee SS<sup>1</sup>, Lee H<sup>1</sup>, Oh D<sup>1</sup>, Song TJ<sup>1</sup>, Park DH<sup>1</sup>, Lee SK<sup>1</sup>, Kim MH<sup>1</sup>

**Institute** 1 Gastroenterology, University of Ulsan College of Medicine, Asan Medical Center, Seoul, Korea, Republic of

DOI 10.1055/s-0039-1681700

**Aims** Postoperative abdominal fluid collection (PAFC) is a potentially fatal complication. Recently, EUS-guided drainage has been shown an effective way to treat PAFC more than 4 weeks old. The aim of this study was to assess the usefulness of earlier drainage of PAFC by using EUS-guidance.

**Methods** The data of patients who had undergone EUS-guided PAFC drainage between July 2008 and January 2018 was retrospectively analyzed. Data of EUS-guided PAFC drainage was obtained from prospective collected EUS database of our institute and reviewed of patients' clinical parameters based on electrical medical record.

**Results** A total of 48 patients who has undergone EUS-guided PAFC drainage within 4 weeks after surgery were enrolled. The indications of the procedure were abdominal pain (n = 27), fever (n = 18), leukocytosis (n = 2), increased size during external tube drainage (n = 1). Technical success rate was 100% (48/48), clinical success rate was 95.8% (46/48). Four patients underwent second procedures. Median period from surgery to EUS-guide drainage was 14 days (6 – 31) and from procedure to resolution was 23.5 days (0 – 113). Adverse event reported in one patient was bleeding occurred in fifth day after the procedure and was improved by left gastric artery embolization.

**Conclusions** EUS-guided PAFC drainage within 4 weeks after pancreatobiliary surgery is a safe and useful treatment option for PAFC.

Saturday, April 6, 2019

New technologies

13:00 – 13:30

ePoster Podium 6

### ePP160 FULL-FIELD OPTICAL COHERENCE TOMOGRAPHY OF THE NORMAL DIGESTIVE MUCOSA: A PROMISING TOOL FOR THE STUDY OF THE DIGESTIVE BARRIER

**Authors** Quénéhervé L<sup>1,2</sup>, Olivier R<sup>2,3</sup>, Mosnier JF<sup>4</sup>, Brochard C<sup>2,5</sup>, Bossard C<sup>4</sup>, Neunlist M<sup>2</sup>, Coron E<sup>1,2</sup>

**Institute** 1 Digestive Disease Institute (IMAD), University Hospital of Nantes, Nantes, France; 2 Inserm U 1235 The Enteric Nervous System in Gut and Brain Disorders, Nantes University, Nantes, France; 3 Gastroenterology Department, University Hospital of Poitiers, Poitiers, France; 4 Department of Pathology, University Hospital of Nantes, Nantes, France; 5 Department of Digestive Functional Explorations, University Hospital of Rennes, Rennes, France

DOI 10.1055/s-0039-1681701

**Aims** Full-field optical coherence tomography (FF-OCT) is a non-invasive imaging technique, based on interferometry, allowing dynamic acquisition of images of *ex vivo* specimens on a microscopic scale. The aim of this study was to demonstrate the feasibility of imaging normal digestive biopsies using FF-OCT.

**Methods** We enrolled adult subjects scheduled for an endoscopy with biopsies, who had no history of digestive disease. We *a posteriori* excluded patients, whose biopsies showed abnormal aspects at pathological examination. Four biopsies were sampled in each patient, 2 for pathological examination, 2 for immediate FF-OCT analysis, from 5 different locations: esophagus, gastric antrum, gastric fundus, duodenum or colon. Fresh biopsies were scanned using the LL-Tech benchtop scanner in order to perform optical slicing beneath the tissue surface at selected depths (static mode) and a measurement of intracellular activity data (dynamic mode). Biopsies were then fixed in formaldehyde, sliced in a longitudinal plane parallel to the surface and stained

using hematoxylin-eosin. FF-OCT images and pathological slides were then reviewed with the assistance of a senior pathologist.

**Results** We enrolled 25 patients with normal biopsies of the esophagus (n = 5), gastric fundus (n = 10), gastric antrum (n = 10), duodenum (n = 7) and colon (n = 6). Specific histological structures of each organ were clearly identified in 100% of FF-OCT images. For instance, the cellular structure of esophageal squamous epithelium with papillae, gastric crypts and glands, duodenal villi and colonic crypts was clearly seen at a 1 µm resolution.

**Conclusions** FF-OCT allows a morphological and functional analysis of digestive tissues on fresh routine endoscopic biopsies, at a subcellular scale. It is a promising tool for the study of the digestive barrier.

## ePP162V ENDOSCOPIC SIGMOIDOPEXY AS A TREATMENT FOR RECURRENT SIGMOID VOLVULUS IN FRAIL PATIENTS

**Authors** Quénéhervé L<sup>1</sup>, Coron E<sup>1</sup>

**Institute** 1 Digestive Disease Institute, University Hospital of Nantes, Nantes, France

**DOI** 10.1055/s-0039-1681702

Sigmoid volvulus is a common cause of colonic obstruction in old and frail patients. Its standard management includes the endoscopic detorsion of the colonic loop, followed by an elective sigmoidectomy to prevent recurrence. However, these patients are often poor candidates for surgery. In frail patients, other options such as endoscopic sigmoidopexy must be developed.

By analogy with the caecostomy procedure, sigmoidopexy procedure consists in anchoring the sigmoid to the abdominal wall and placing a Chait catheter tube in the colonic lumen to perform antegrade enemas.

As a mini-invasive, reversible technique, endoscopic sigmoidopexy might be a promising treatment of recurrent sigmoid volvulus, when surgery appears to be at risk. Efficacy and safety need to be validated in prospective cohorts.

Saturday, April 6, 2019

13:00 – 13:30

SB Capsule 1

ePoster Podium 7

## ePP163 RESULTS OF A SPANISH NATIONAL SURVEY OF CAPSULE ENDOSCOPY

**Authors** Carretero C<sup>1</sup>, Lujan M<sup>2</sup>, Sanjuan M<sup>3</sup>, Argüelles F<sup>4</sup>, Fernandez-Urien I<sup>5</sup>, Gonzalez B<sup>6</sup>, Perez-Cuadrado Robles E<sup>7</sup>, Sanchez F<sup>8</sup>, Valle J<sup>9</sup>, Nogales O<sup>10</sup>, Pons V<sup>11</sup>, Capsule endoscopy and enteroscopy working group of the Spanish Society of Digestive Endoscopy

**Institute** 1 Gastroenterology, University Clinic of Navarra, Pamplona, Spain; 2 Gastroenterology, Consorcio Hospital General Universitario de Valencia, Valencia, Spain; 3 Gastroenterology, Hospital Universitario Nuestra Señora de Candelaria, Santa Cruz de Tenerife, Spain; 4 Gastroenterology, Hospital Virgen Macarena, Sevilla, Spain; 5 Gastroenterology, Complejo Hospitalario de Navarra, Pamplona, Spain; 6 Gastroenterology, Hospital Clinic de Barcelona, Barcelona, Spain; 7 Gastroenterology, Hospital Saint Luc, Bruselas, Spain; 8 Gastroenterology, Hospital Clínico San Carlos, Madrid, Spain; 9 Gastroenterology, Complejo Hospitalario de Toledo, Toledo, Spain; 10 Gastroenterology, Hospital Gregorio Marañón, Madrid, Spain; 11 Gastroenterology, Hospital La Fe, Valencia, Spain

**DOI** 10.1055/s-0039-1681703

**Aims** To compare the use of capsule endoscopy in Spain with the ESGE technical review recommendations.

**Methods** Online survey including 42 items.

**Results** 153 capsule readers answered the survey, 60.1% experienced (>5 years) and 60.2% having attended a dedicated capsule course. 49.7% lack specific reading time within their working schedule.

The mean reading speed is 11 fps, with 57.5% of readers reading faster than the recommended speed (10 fps).

49% of readers recommend a low fiber diet+liquid diet the day before ingestion and 46.4% recommend the use of laxatives before capsule ingestion. 46.3% use 2 liters of PEG and 26.8% PEG+ascorbic acid.

9.3% use prokinetics in their daily practice and 24.7% recommend the use of antifoaming routinely.

In 54.1% of cases, patients are allowed to start liquid diet 2 h after capsule ingestion, and 49.7% are allowed to start solid diet 4 h after capsule ingestion. 42.5% offers patency capsule only when there is risk of capsule retention, meaning an overuse of patency capsule in 57.5% of cases.

If capsule hasn't reached the cecum within battery lifetime, excretion should be confirmed. We found that 59.5% of readers are used to contact the patient to check capsule egestion and 29.1% directly recommend an abdominal x-ray. ESGE recommend the use of standardized scores, when possible. We have asked about the use of CEST (Capsule Endoscopy Structured Terminology) and only 29.4% use CEST, with 7.8% not knowing what CEST is. Among the CEST users, 66% have attended to a capsule dedicated course (p < 0.05).

**Conclusions** The use of capsule in Spain have room for improvement regarding ESGE recommendations, especially in the use of laxatives, antifoaming agents, patency capsule and use of standardized scores.

## ePP164 THE EFFECT OF SMALL BOWEL TRANSIT TIME ON THE DIAGNOSTIC YIELD OF PATIENTS WITH SUSPECTED SMALL BOWEL CROHN'S

**Authors** Ahmed H<sup>1</sup>, Al-Rifaie A<sup>1</sup>, Uddin B<sup>1</sup>, Kapur K<sup>1</sup>, Said E<sup>1</sup>

**Institute** 1 Barnsley District General Hospital, Gastroenterology Department, Barnsley, United Kingdom

**DOI** 10.1055/s-0039-1681704

**Aims** Small Bowel capsule endoscopy has a mentionable role in diagnosing and confirming small bowel crohn's disease. Small bowel transit time varies from minutes to hours between different individuals. We aimed to assess capsule endoscopy (CE) diagnostic yield (DY) and it's relation to small bowel transit time (SBTT) among patients undergoing the test for suspected small bowel (SB) crohn's.

**Methods** We retrospectively reviewed and analysed the CE reports of all patients underwent CE test for suspected SB crohn's between April 2011 and April 2017. Tests with unknown SBTT were excluded. We assessed demographics, complications, SBTT and positive diagnostic yield (PDY) among the cohort. PDY was defined as tests with results which could represent crohn's disease. Data were analysed using SPSS.

**Results** Ninety six CE test were done. Three tests were excluded due to unavailable SBTT on report. One patient (1%) had retained small bowel capsule due to stricture in spite of passage of pre-test patency capsule. The stricture improved with steroid therapy allowing the CE to pass. Ninety two CE reports were analysed. While mean SBTT for patients with PDY was insignificantly higher compared to those without PDY (273.5 min +/- 104.7 vs. 238.4 min +/- 89.6, p Value = 0.09), the mean age was similar on both groups (40.2 yrs +/- 15.3 vs. 43.7 yrs +/- 16, p Value = 0.3). PDY was insignificantly higher in males compared to females (44.8 vs 37.1%, p Value = 0.22). Overall DY among all patients test was 35.9%.

**Conclusions** CE is a safe, non-invasive and feasible test to investigate the small bowel for suspected crohn's disease. Even though our study suggests that prolonged SBTT may be associated with increased DY, we recommend that large multi-centre study to be carried out to further evaluate this association.

## ePP165 PATENCY CAPSULE IN CROHN'S DISEASE – IS IT SAFE?

**Authors** Silva M<sup>1</sup>, Peixoto A<sup>1</sup>, Gomes S<sup>2</sup>, Santos AL<sup>1</sup>, Moreira P<sup>1</sup>, Corte Real Nunes A<sup>1</sup>, Lopes S<sup>1</sup>, Macedo G<sup>1</sup>

**Institute** 1 Gastroenterology, Centro Hospitalar de São João, Porto, Portugal; 2 UCSP Rio Maior – ACES Lezíria, Rio Maior, Portugal

DOI 10.1055/s-0039-1681705

**Aims** Videocapsule endoscopy (VCE) is a non-invasive method for examining the small bowel. VCE retention is the most feared complication of these devices and a patency capsule (PC) may be used to safely perform VCE.

Our aim was to assess the safety of PC in patients with Crohn's disease (CD) or suspected CD, in routine clinical practice.

**Methods** Retrospective single-centre study including patients with CD or suspected CD with clinical indication for VCE, between 2011 – 2017. PC detection was performed 30 hours after ingestion with radiofrequency identification scanner. Symptomatic PC retention was defined as the presence of typical obstructive abdominal symptoms (postprandial abdominal pain, bloating, nausea, or vomiting).

**Results** 608 PC were performed (52% of cases had a definitive diagnosis of CD and 48% of cases had a clinical/imagiological suspicion of CD. The PC retention rate at the 30 hours' evaluation was 27% (29% in CD cases vs. 25% in suspected CD,  $p=0.298$ ). Additionally, 31 (5%) patients excreted the PC intact 30 – 72 hours later. Overall, in 475 (78%) patients the small bowel patency was established (75% of CD vs. 81% of suspected CD,  $p=0.064$ ) and performed VCE, without incidents. Considering the safety issues, 12 (2%) patients presented a symptomatic PC retention (9 (3%) with CD and 3 (1%) with suspected CD,  $p=0.249$ ). Two (0.3%) patients with CD were admitted for small-bowel obstruction following PC, which was successfully managed with corticosteroids. Furthermore, 9 patients, in whom the PC was not detected at the 30 hours' evaluation, presented mild abdominal pain (4 with CD and 5 with suspected CD,  $p=0.722$ ).

**Conclusions** The PC test has proven to be a safe modality for securing small bowel patency prior to VCE, with reduced frequency of symptomatic retention, which occurred mostly in patients with a previous diagnosis of CD.

Saturday, April 6, 2019

13:00 – 13:30

Zenker

ePoster Podium 8

## ePP166V ENDOSCOPIC TREATMENT OF ZENKER'S DIVERTICULUM WITH LIGASURE: SIMPLE, SAFE AND EFFECTIVE

**Authors** Díez Redondo P<sup>1</sup>, Núñez Rodríguez H<sup>1</sup>, de Benito Sanz M<sup>1</sup>, Torres Yuste R<sup>1</sup>, Pérez-Miranda M<sup>1</sup>

**Institute** 1 Gastroenterology, Hospital Rio Hortega, Valladolid, Spain

DOI 10.1055/s-0039-1681706

Zenker's diverticulum may cause disabling symptoms, especially in the elderly. Treatment has changed in recent decades from open surgery to management with flexible endoscopy, resulting in lower morbidity and mortality.

**Study** We present the largest series, with the longest follow-up, of patients with Zenker's diverticulum receiving outpatient treatment with flexible endoscopy using a diverticuloscope and Ligasure (Covidien, Minneapolis, USA), a device that allows tissue sealing and coagulation of vessels before cutting the septum between the diverticulum and esophagus.

**Results** We performed 79 diverticulotomies in 69 patients (65.2% male, mean age 73.4 years). The mean diverticulum size was 2.8 cm. In three cases with a diverticulum  $\leq 1.5$  cm, the diverticuloscope could not be placed. The technical success was 95.83% and the clinical success 96.7%: 84% of the 56 patients followed for a mean of 34.6 months (24 – 64 months) had no dysphagia. The recurrence rate was 10.4%, with a good response to a second diverticulotomy at 12 months (IQR: 11.5 – 17) in most cases. The most severe complications

were two microperforations, resolved with conservative treatment, and one case of delayed bleeding endoscopically-controlled with a clip.

**Conclusions** Diverticulotomy of the esophageal-diverticular septum with Ligasure is an outpatient endoscopic technique that is simple, effective in the long term and very safe for the treatment of patients with Zenker's diverticulum. In symptomatic recurrences, a second procedure was equally safe and effective in most patients.

## ePP167 A NOVEL ENDOSCOPIC TECHNIQUE IN TREATING PATIENTS WITH ZENKER'S DIVERTICULUM

**Authors** Nedoluzhko I<sup>1</sup>, Pavlov I<sup>1</sup>, Shishin K<sup>1</sup>, Shumkina L<sup>1</sup>

**Institute** 1 Operative Endoscopy, Moscow Clinical Scientific Center n.a. A.S. Loginov, Moscow, Russian Federation

DOI 10.1055/s-0039-1681707

**Aims** To show the advantages of endoscopic cryopharyngoesophagomyotomy using a novel technique in the treatment of patients with Zenker's diverticulum.

**Methods** Our novel technique is the combination of the standard and tunnel endoscopic methods. One of the best features of the standard procedure was the possibility to make the initial incision and work directly in the middle of the cricopharyngeal fold, which is more comfortable. Thus, we started our procedure as a standard one. After the complete intersection of the cricopharyngeal muscle, the tunnel stage begins, the purpose of which is to perform an upper esophageal myotomy. Afterwards, the mucosa was cut in the directions of diverticulum cavity and esophagus. This is the key to successful application of clips and hermetic closure of the mucosa.

From June to November 2018 in our center a new combined technique was used in eighteen patients. The average age of patients was sixty-two (from 35 to 80 years). The time of surgical intervention averaged 40 minutes.

**Results** The results of the novel technique are equal to the tunnel interventions considering time of procedure and patients' recovery.

**Conclusions** Combined endoscopic surgery for Zenker's diverticulum allows to perform an adequate myotomy in comfortable conditions.

## ePP168 A NEW OPTION IN ZENKER'S DIVERTICULUM ENDOSCOPIC TREATMENT

**Authors** Cunha I<sup>1</sup>, Amaro P<sup>1</sup>, Gravito-Soares E<sup>1</sup>, Gravito-Soares M<sup>1</sup>, Tomé L<sup>1</sup>

**Institute** 1 Gastroenterology, Centro Hospitalar e Universitário de Coimbra, Coimbra, Portugal

DOI 10.1055/s-0039-1681708

**Aims** The endoscopic treatment of Zenker's diverticulum (ZD) consists in the division of the septum that separates the diverticulum from the cervical oesophagus, a structure that includes the cricopharyngeal muscle. This septotomy is not yet standardized and may be performed using a variety of techniques and devices, from coagulation with argon-plasma to incision with forceps or diathermic knives, with variable efficacy, rate of complications and symptomatic recurrence. The aim of this study is to assess the efficacy and safety of a new endoscopic option in ZD treatment.

**Methods** Prospective case series of patients who underwent cricopharyngeal myotomy using the ClutchCutter, a novel grasping-type scissors. Procedural details, complications, technical and clinical success rates were recorded. Clinical success was defined according to a score evaluating the weekly frequency of ZD-related symptoms (dysphagia, regurgitation, diurnal and/or nocturnal respiratory symptoms). A clinical score  $\geq 2$  after treatment defines clinical failure (until 6 months) or recurrence (after 6 months).

**Results** 11 patients (82% men; mean age of  $74 \pm 10$  years-old), 5 naïve-ZD patients and 6 symptomatic relapses after primary treatment with grasping-forceps (Hotclaw) were treated with ClutchCutter. Mean size of ZD before the treatment was  $32 \pm 7$  mm for naïve-ZD and  $13 \pm 0.5$  mm for symptomatic relapses. All procedures were performed without complications. During a

short-term follow-up ( $4 \pm 2$  months) only one patient, with several previous failed treatments, had symptomatic failure.

**Conclusions** The ClutchCutter was developed for submucosal dissection of superficial neoplasms of the gastrointestinal tract. Our results suggest that this electrosurgical device may also be applied in flexible endoscopic Zenker's diverticulotomy, either treatment-naïve or patients with recurrence, as an easy, fast, safe and efficient alternative endoscopic modality. These results must be validated in a larger series with a longer follow-up.

Saturday, April 6, 2019

13:30 – 14:00

Colon ESD 2

ePoster Podium 1

### ePP169 ENDOSCOPIC SUBMUCOSAL DISSECTION IN LARGE RECTAL ADENOMAS AND EARLY CANCER: INITIAL RESULTS IN A BICENTRIC SERIES

**Authors** de Frutos D<sup>1</sup>, Conde B<sup>1</sup>, Agudo B<sup>1</sup>, Hernández M<sup>1</sup>, López M<sup>1</sup>, González CE<sup>1</sup>, Santiago J<sup>1</sup>, González Partida I<sup>1</sup>, González-Haba M<sup>1</sup>, Garrido A<sup>1</sup>, Matallanos P<sup>1</sup>, Blazquez E<sup>1</sup>, Bote M<sup>1</sup>, Sol Delgado M<sup>1</sup>, García P<sup>1</sup>, Calleja JL<sup>1,2</sup>, Herreros de Tejada A<sup>1,2</sup>

**Institute** 1 Puerta de Hierro – Majadahonda University Hospital, Gastroenterology and Hepatology, Majadahonda, Spain; 2 MD Anderson Cancer Centre Madrid, Gastroenterology and Hepatology, Madrid, Spain  
DOI 10.1055/s-0039-1681709

**Aims** To evaluate ESD for the treatment of large rectal adenomas and early cancer (LRAEC) in two Spanish centers.

**Methods** Prospective registry of consecutive LRAEC cases with ESD carried out in 2 Spanish centers. All procedures were performed by the same endoscopist (AH). All rectal ESD of LRAEC from the first case in November 2012 to March 2018 were analysed. Recurrence analysis excluded 10 cases due to several reasons: surgery due to non-curative ESD (4), less than 12 months of surveillance (3) or missing data (3). To estimate the influence of the learning curve in rectal ESD we compare the dissection speed between de first 10 procedures (group 1) and the last 10 procedures (group 2).

**Results** A total of 32 ESD of LRAEC were registered, male proportion 53%, mean age 65.9 y/o (SD 12). The mean size of LRAEC was 55.8 mm, with 31% prevalence of submucosal fibrosis (F1 or F2). Technical results and complications are summarized in Table 1. Most complications observed were mild and were successfully controlled endoscopically or with medical treatment.

Tab. 1 Main Results

Mean diameter, mm (Range)	55.8 (10 – 120)	R0 (%)	28 (88)
Groups 3 and 4 of the Vienna Classification (%)	28 (87)	Complications (%): bleeding (%), perforation (%)	7 (22): 2 (6), 4 (13)
Group 5 of the Vienna Classification (%)	4 (13)	Surgery due to complications (%)	0 (0)
En-bloc (%)	31 (97)	Recurrence (12 months) (%)	0 (0)

In group 1 the dissection speed was 6.3 (SD 2.7) min/cm<sup>2</sup> whereas in group 2 was 5.2 (SD 3.7) min/cm<sup>2</sup> not reaching statistical significance ( $p = 0.288$ ). There were no case of severe complication requiring surgery.

**Conclusions** Results of our series of ESD in LRAEC are similar to those reported in Asian series, highlighting the excellent en-bloc resection rate for LRAEC over 5 cm on average, with no local recurrence after 1-year follow-up. Higher dissection speed might reflect a progression in the learning curve, although no significant differences could be reached.

### ePP170 COLONIC ESD: IS IT EASY WITH COUNTERTRACTION BY CLIP AND RUBBER BAND? A PROSPECTIVE STUDY

**Authors** Jacques J<sup>1</sup>, Albouys J<sup>1</sup>, Rivory J<sup>2</sup>, Legros R<sup>1</sup>, Ponchon T<sup>2</sup>, Sautereau D<sup>1</sup>, Pioche M<sup>2</sup>

**Institute** 1 CHU Dupuytren, Limoges, France; 2 Edouard Herriot University Hospital, Lyon, France

DOI 10.1055/s-0039-1681710

**Aims** ESD in the colon is more challenging technically than other locations. New systematic strategy by countertraction by clips and rubber band considerably facilitate the procedure. Here, we report a large prospective case series of colon ESD using This strategy.

**Methods** Prospective consecutive study of all colonic ESD performed prospectively two experts centers from April 2017 (First Colonic ESD with clips and rubber band) to November 2018. Since the first case of colonic ESD with clips and rubber band in April 2017, all cases of colonic ESD were performed using this strategy.

Primary Endpoint: Monobloc, R0 and curative resection rate.

Secondary Endpoints: Perforation rate, risk factors in multivariate analysis of Perforation, R0 resection and Optimal ESD (defined by R0 resection without perforation and faster than 20 mm<sup>2</sup>/min).

**Results** 440 colorectal ESD were performed in the study period. 286 cases were included in the study (Exclusion of rectal cases) performed by 4 operators.

Lesions were SMSA 4 in 82% of cases with a mean size of 55 mm. Mean duration procedure was 80 min with a min speed of resection at 34,1 mm<sup>2</sup>/min. 70% of the lesions were located above the splenic flexure.

Primary Endpoint: Monobloc, R0 and curative resection rate were respectively 96%, 81,2% and 74%.

Secondary Endpoint:

- Perforation rate was 4,3%
- predictive factors of optimal ESD were one operator (OR 3,92;  $p = 0,0002$ ) and no F2 fibrosis (OR 4,23,  $p = 0,037$ ) in multivariate analysis
- predictive factors of non R0 resection was only a location on the ileocecal valvular (OR 4,32;  $p = 0,025$ ) in multivariate analysis
- no predictive factors of perforation was individualized in multivariate analysis.

**Conclusions** Systematic countertraction using a double clip and rubber band facilitates colon ESD. This strategy should become the standard for colon ESD and feeds the debate between pEMR and ESD for the treatment of large colonic superficial lesions.

### ePP171 EFFICACY OF THE DOUBLE CLIP COUNTERTRACTION METHOD FOR RESIDUAL OR LOCALLY RECURRENT LESIONS IN COLONIC ENDOSCOPIC SUBMUCOSAL DISSECTION

**Authors** Faller J<sup>1</sup>, Jacques J<sup>2</sup>, Legros R<sup>2</sup>, Rivory J<sup>1</sup>, Ponchon T<sup>1</sup>, Pioche M<sup>1</sup>

**Institute** 1 Hôpital Edouard Herriot, Lyon, France; 2 Hôpital Dupuytren, Limoges, France

DOI 10.1055/s-0039-1681711

**Aims** Endoscopic submucosal dissection (ESD) for the resection of scarred colonic lesions is a feasible but challenging technique because of submucosal fibrosis. We previously reported an internal traction method using two clips and a rubber band and making ESD easier.

This study aimed to evaluate the efficacy and security of ESD using this countertraction technique in case of residual or locally recurrent colonic lesions.

**Methods** We retrospectively analyzed all residual or locally recurrent colonic lesions, DSM treated, in two french expert center, between august 2017 and October 2018. The countertraction technique has been systematically used.

The primary endpoint was the curative resection rate. Secondary endpoints were technical success rate, degrees of fibrosis, tumor diameter, procedure time, resection speed, secondary surgical treatment, and complication rate.

**Results** Among the 29 patients included, there were 18 (72%) locally recurrent colonic lesions and 11 (44%) residual lesions after a primary endoscopic resection. Severe submucosal fibrosis was observed in 25 patients (86%) and intermediate fibrosis in 4 patients (14%).

Mean resected tumor diameter, procedure time and resection speed were 41 mm [25 – 70 mm], 57 min [13 – 230 min], and 22mm<sup>2</sup>/min [6 – 60mm<sup>2</sup>/min], respectively. The successful resection rate was 90% (3 piecemeal mucosal resection conversion at the beginning of the study). This rate increased to 100% for the last twenty lesions because of the progression curve. The en bloc resection rate was 83%, but only 68% had negative margins (R0) mostly because of damaged lesions during the dissection. Only one patient has needed secondary surgical treatment but there was no residual neoplasm.

Complication included three (10%) small intraoperative perforations endoscopic treated. There was no secondary perforation or bleeding.

**Conclusions** In cases with scarred colonic lesions, ESD with double-clip counter traction allows curative resection with low complication risk. This technique is an alternative to Full thickness resection (FTRD) particularly for large lesions over 3 cm.

Saturday, April 6, 2019

13:30 – 14:00

Colon: resection 5

ePoster Podium 2

### ePP172 EFTR WITH OTSC IN COLORECTUM: WHAT HAPPENS WHEN THE LESION IS TRAPPED IN THE OVER-THE-SCOPE-CLIP AND IS NOT RESECTED

**Authors** Uchima H<sup>1,2</sup>, Barquero D<sup>3</sup>, Esteban JM<sup>4</sup>, Espinos JC<sup>2,5</sup>, Marin JC<sup>6</sup>, Rosón P<sup>7</sup>, Fernandez Cadenas F<sup>8</sup>, Palacio Galan MA<sup>8</sup>, Puig I<sup>9</sup>, Rodriguez-Sanchez J<sup>10</sup>, Fraile M<sup>8</sup>, Ortega A<sup>11</sup>, Arribas J<sup>6</sup>, Mel L<sup>4</sup>, Sabado F<sup>12</sup>, García Lledó J<sup>13</sup>, Fernandez A<sup>3</sup>, Mata A<sup>2,3</sup>, Albeniz E<sup>14</sup>, Spanish Group of Endoscopic Resection (GSEED de Resección Mucosa)

**Institute** 1 Gastrointestinal Endoscopy, Hospital Universitario Doctor Josep Trueta de Girona, Girona, Spain; 2 Gastrointestinal Endoscopy, Centro Medico Teknon, Barcelona, Spain; 3 Hospital Sant Joan Despi-Moises Broggi, Barcelona, Spain; 4 Hospital Clinico San Carlos, Madrid, Spain; 5 Hospital Mutua Terrassa, Terrassa, Spain; 6 Gastroenterology, Hospital Universitario 12 de Octubre, Digestive System Service, Madrid, Spain; 7 Hospital Quiron Salud Málaga, Málaga, Spain; 8 Hospital Universitario Central de Asturias, Oviedo, Spain; 9 Althaia, Xarxa Assistencial Universitària de Manresa, Digestive System Service, Manresa, Spain; 10 Gastrointestinal Endoscopy, Hospital General Universitario Ciudad Real, Ciudad Real, Spain; 11 Hospital Quiron Salud Malaga, Málaga, Spain; 12 Consorcio Hospitalario Provincial Castellón, Castellón, Spain; 13 Hospital Universitario Gregorio Marañón, Madrid, Spain; 14 Complejo Hospitalario de Navarra, Digestive System Service, Endoscopy Unit, Pamplona, Spain

DOI 10.1055/s-0039-1681712

**Aims** Endoscopic full-thickness resection (EFTR) in the colorectum using the FTRD may be difficult sometimes due to poor traction or losing of the resection plane, and part of the lesion or the whole of it might get trapped inside the over-the-scope clip (OTSC).

Our aim was to study the outcomes of these patients with the lesion trapped in the OTSC.

**Methods** Clinical, endoscopic and histological data were collected prospectively in all cases of EFTR performed in 10 centers of Spain using the FTRD kit (Ovesco Endoscopy, Tübingen, Germany) during the period from June 2015 to July 2018.

Cases of technical failure with part or the entire lesion trapped inside the OTSC were analyzed.

**Results** 68 cases of EFTR were evaluated.

In 10 cases, the lesion was trapped in the OTSC and could not be resected properly.

The mean age of the patients was 71 years, being men 80%.

Indications were: non-lifting sign recurrent lesions (6 cases), non-lifting sign untreated lesions (1), incomplete resection with non-lifting sign (2), appendicular lesions (1).

Location were appendix (1 case), stump (1), right colon (1), transverse colon (2), left colon (2), sigma (2), rectosigmoid junction (1).

The mean diameter of the lesion was 19 mm.

In 8 cases there was a partial resection of the lesion (mean diameter of the lesion 18 mm), and in 2 cases only biopsies were taken.

Final histology: LGD (4 cases), HGD (2), intramucosal adenocarcinoma (1), SSP (2), advanced adenocarcinoma >sm2 (2).

In the follow-up, three lesions underwent surgery (appendicular lesion and advanced adenocarcinoma), 3 residual lesions were treated endoscopically and in 4 cases the scar showed no residual tissue.

**Conclusions** In some cases of intended EFTR, residual tissue trapped inside the OTSC might be easily treated endoscopically and sometimes might be treated by the OTSC itself, if the residual lesion is small.

### ePP173 COLD SNARE POLYPECTOMY VS HOT SNARE POLYPECTOMY VS ARGON PLASMA COAGULATION (APC) FOR 5 – 9MM LEFT-SIDED COLORECTAL POLYPS: A PROSPECTIVE RANDOMIZED TRIAL

**Authors** Varytimiadis L<sup>1</sup>, Viazis N<sup>1</sup>, Papastergiou V<sup>2</sup>, Kyriakopoulos G<sup>3</sup>, Argyrakos T<sup>3</sup>, Pontas C<sup>1</sup>, Papanikolaou I<sup>4</sup>, Arkadopoulou N<sup>5</sup>, Smirniotis V<sup>5</sup>, Mantzaris C<sup>1</sup>

**Institute** 1 Gastroenterology, Evangelismos Hospital, Athens, Greece; 2 Gastroenterology, "Konstantopoulou" General Hospital, Athens, Greece; 3 Department of Pathology, Evangelismos Hospital, Athens, Greece; 4 Hepato-Gastroenterology Unit, 2nd Department of Internal Medicine, Attikon University Hospital, University of Athens School of Medicine, Athens, Greece; 5 4th Department of Surgery, Attikon University Hospital, University of Athens School of Medicine, Athens, Greece

DOI 10.1055/s-0039-1681713

**Aims** The optimal technique for the removal of small colorectal polyps is debatable. We aimed to compare the recurrence rates among three endoscopic treatment modalities for 5 – 9 mm left-sided colorectal polyps.

**Methods** Consecutive adults referred for elective colonoscopy (1/2015 – 1/2018) who had at least one polyp of eligible size (5 – 9 mm) located distally to the splenic flexure were randomly assigned (1:1:1) to one of three treatment modalities: 1) Cold Snare Polypectomy (CSP), 2) Hot Snare Polypectomy (HSP) and 3) APC ablation (50 – 60W, flow: 2lt/min). The polyp site was marked with endoscopic tattoo and a follow-up colonoscopy with scar biopsies was performed 6 – 18months after the index procedure. Outcomes were the polyp recurrence rate and the occurrence of complications.

**Results** A total of 119 patients were enrolled, of which 7 dropped out because of non follow-up. Eventually they were included 112 patients (62.5% males, mean age 61.1 ± 9.9 years) with 121 polyps (CSP: 39, HSP: 45, APC: 37) who returned for follow-up colonoscopy. The mean polyp size was 6.7 ± 0.91 mm, 58% were located in the sigmoid, 33% in the rectum and 8% in the descending colon. The majority of polyps resected by CSP or HSP were histopathologically proven to be neoplastic (tubular adenomas: 25.9%, tubulovillous adenomas: 11.1%, sessile serrate adenomas/polyps: 17.5%). No cases of delayed bleeding or perforation occurred in the study. Scar biopsies at follow-up colonoscopy (performed after a mean interval of 13.4 ± 3.8 months) revealed a total of 7 (5.8%) cases of polyp recurrence, showing no significant difference among the three treatment groups [CSP: 3/39 (7.7%), HSP: 1/45 (2.2%), APC: 2/37 (5.4%), P = 0.51].

**Conclusions** CSP, HSP and APC ablation are effective and safe treatment modalities for 5 – 9 mm left-sided colorectal polyps. The present randomized

study could not detect any differences in the polyp recurrence rates among the three endoscopic techniques.

### ePP174 SCAR-ENGAGED COLORECTAL LESIONS: ENDOSCOPIC SUBMUCOSAL DISSECTION (ESD) VERSUS A HYBRID RESECTION TECHNIQUE (ENDOSCOPIC UNSCARRING MUCOSAL RESECTION – EUMR)

**Authors** Azzolini F<sup>1</sup>, Cecinato P<sup>2</sup>, Calabrese F<sup>1</sup>, Dell'Anna G<sup>1</sup>, Esposito D<sup>1</sup>, Francesco Bonura G<sup>1</sup>, Zecchini R<sup>2</sup>, Iori V<sup>2</sup>, Sereni G<sup>2</sup>, Cavina M<sup>2</sup>, Grillo S<sup>2</sup>, Viale E<sup>1</sup>, Fanti L<sup>1</sup>, Ianniello A<sup>2</sup>, Testoni PA<sup>1</sup>, Sassatelli R<sup>2</sup>

**Institute** 1 IRCCS San Raffaele Scientific Institute – Vita-Salute San Raffaele University, Milan, Italy; 2 Arcispedale Santa Maria Nuova-IRCCS, Reggio Emilia, Italy

DOI 10.1055/s-0039-1681714

**Aims** Scar-engaged colorectal lesions are characterized by absent or inadequate submucosal lifting, posing a serious challenge for curative resection with need for surgery. We propose a hybrid resection technique that we called Endoscopic Unscarring Mucosal Resection consisting in marking, incision, partial dissection, creation of mucosal flaps and snaring until complete removal of the lesion (en bloc or piecemeal depending on size).

**Methods** We conducted a retrospective analysis on 74 scar-engaged lesions treated at “Santa Maria Nuova”, Reggio Emilia or “San Raffaele”, Milan, Italy by a single experienced endoscopist. Depending on morphology, size and location of the lesions EUMR (n = 47) or ESD (n = 27) was preferred.

**Results** EUMR was performed on 27 colonic and 20 rectal lesions with a median size of 3 (1–8) cm; ESD on 4 colonic and 23 rectal lesions, median size 3 (1–7) cm. Mean procedural time was 80 (20–204) min and 80 (27–250) min, respectively. We experienced 1 case (2.1%) of delayed bleeding and 1 (2.1%) post-resection stricture in the EUMR group. No case of bleeding, 2 (7.4%) intraprocedural and 1 delayed perforation (3.7%) in the ESD group. A complete resection was obtained in all cases in both groups with 23 en-bloc ESD (85.2%). The most prevalent histological diagnosis was high-grade dysplasia in both (53 vs. 44%) with 4 cases (14.9%) of adenocarcinoma in the ESD group and no cases in the EUMR. Available up to 60 months follow-up data for 44 lesions in the EUMR and 23 in the ESD group revealed 4 cases (9%) vs. no evidence for recurrence respectively. 2 of 4 recurrence cases were successfully retreated with EUMR without further recurrence.

**Conclusions** When compared to ESD, EUMR is an effective technique for the treatment of scar-engaged colorectal lesions with similar results but a better safety profile.

Saturday, April 6, 2019

13:30 – 14:00

ERCP cannulation 1

ePoster Podium 3

### ePP175 ERC CLIP WITH LINE – A GERMAN PILOT SERIES

**Authors** Horn A<sup>1</sup>, Meves V<sup>1</sup>, Hochberger J<sup>1</sup>

**Institute** 1 Gastroenterology, Vivantes Klinikum Berlin Friedrichshain, Berlin, Germany

DOI 10.1055/s-0039-1681715

**Aims** Duodenal diverticulum (DD) is a frequent condition that is described in up to 20% of endoscopically retrograde cholangiopancreatography (ERCP)<sup>1</sup>. Large DD with intradiverticular located Papilla Vateri (PV) have a lower incidence<sup>2</sup>, but the exploration and treatment of biliary tract (BT) can be difficult and shows significantly higher complication rates<sup>2</sup>. In 2016 the ERC Clip With Line Technique (ECLT) developed by our group as part of a method transfer from the ESD<sup>3</sup> and was present for the first time in 2016. To visualize the PV in cases of large DD we attached dental floss via a haemoclip to the papillary roof and the line was pulled out via the mouth. Traction on the diverticular collum makes it easier to visualize/cannulate the PV.

**Methods** Therapy success and complication rate of ECLT, as a feasibility study. Retrospective case series review of the ECLT accomplished in our center between 24.8.16 and 27.4.18.

**Results** ECLT was used in 5 patients (3 women) with large DD, where the primary cannulation of BT was not feasible with standard techniques. Mean patient age 74.6 years (min 59yr, max 88yr, SD 12.5). Average examination time 125 min (min 30 min, max 235 min, SD 87.9). Mean hospitalization after ECLT 4 days (min 2 d, max 5 d, SD 1.4). The cannulation of BT succeeded in all cases. There were no complications. Very experienced (more than 10,000 ERCs) and less experienced investigators performed ECLT.

**Conclusions** ECLT proves to be a safe method. ECLT is easy to perform/learn. It is a cost effective way to visualize/treat the PV for large DD. Despite the positive trend, a larger number of examinations is required and the procedures needs to be performed according to a standardized protocol in order to be sure about success rates, complications and possibly shortened procedure time.

### ePP176 DIFFICULT BILIARY CANNULATION IN PATIENTS WITH DISTAL MALIGNANT BILIARY OBSTRUCTION: AN UNDERESTIMATED PROBLEM?

**Authors** Anderloni A<sup>1</sup>, D'Amico F<sup>1</sup>, Fugazza A<sup>1</sup>, Troncone E<sup>1</sup>, Donato G<sup>2</sup>, Occhipinti P<sup>2</sup>, Amato A<sup>3</sup>, Radaelli F<sup>3</sup>, Mogavero G<sup>3</sup>, Tarantino I<sup>4</sup>, Amata M<sup>4</sup>, Ligresti D<sup>4</sup>, Spadaccini M<sup>1</sup>, Cravioito V<sup>1</sup>, Lamonaca L<sup>1</sup>, Belletrutti P<sup>5</sup>, Repici A<sup>1</sup>

**Institute** 1 Humanitas Clinical and Research Center, Rozzano (MI), Italy;

2 Azienda Ospedaliero Universitaria Maggiore della Carità, Novara, Italy;

3 Valduce Hospital, Como, Italy; 4 IRCCS-ISMETT, Palermo, Italy; 5 University of Calgary, Calgary, Canada

DOI 10.1055/s-0039-1681716

**Aims** To date, there are no available data on rates of difficult biliary cannulation (DBC) in the specific setting of patients (pts) with distal biliary malignant obstruction (DBMO). Aim of the study was to investigate the incidence and outcome of DBC in patients undergoing ERCP for DBMO.

**Tab. 1** Total adverse events in patients with distal malignant biliary obstruction

Adverse events	non DBC Group 27/245 (11,2%)	DBC Group 55/277 (19,8%)	p value = 0,005632
PEP/Bleeding	9 (3,7%)/2 (1%)	15 (5,4%)/14 (5%)	
Cholangitis/Stent migration	8 (3,3%)/2 (1%)	10 (3,6%)/5 (1,8%)	
Others	6 (2,4%)	11 (3,9%)	

**Methods** Retrospective multicentric analysis of all consecutive pts with DBMO that underwent ERCP from 09/2014 to 10/2017. The primary outcome was to evaluate the rate of DBC (according to ESGE guidelines), secondary outcome was the rate of adverse events (AEs)(according to ASGE lexicon).

**Results** A total of 522 pts (48.6% female; mean age 73.05) were included. DBC occurred in 277 pts (53%). The technique performed were: fistulotomy in 191 pts (69%), double guidewire technique in 10 (3,6%), transpancreatic sphincterotomy in 25 (9%); more than one of these techniques combined in 15 pts (5,4%); deep biliary cannulation after several attempts with sphincterotomy and guide wire in 15 pts (5,4%). Failure of biliary cannulation occurred in 53 pts (10,1%) requiring: EUS-guided biliary drainage in 36 pts (67,9%), EUS guided rendez-vous with transpapillary stent placement in 2 (3,8%), percutaneous transhepatic biliary drainage in 8 (15,1%), second successful ERCP after pre-cut in 6 (11,3%), surgical bypass in 1 (1,9%).

Overall AEs rate was 15,7%(82/522 pts): 19,8%(55/277) in DBC Group vs. 11,02%(27/245) in non DBC group (p value = 0,005632).

**Conclusions** Patients with DBMO have a high rate of DBC (53%) requiring alternative techniques for biliary drainage. This translates to higher rates of AEs in patients with DBC. Further prospective multicentric studies are needed to confirm these data and to evaluate the best approach for biliary drainage in this specific subgroup of patients.

## ePP177 IS THERE AN ASSOCIATION BETWEEN THE MAJOR PAPILLA MORPHOLOGY AND THE SIZE OF THE TERMINAL COMMON BILE DUCT? – A PROSPECTIVE COHORT STUDY

**Authors** Fernandes J<sup>1,2</sup>, Moreira M<sup>1</sup>, Araújo T<sup>1</sup>, Costa I<sup>3</sup>, Fonseca J<sup>4</sup>, Ribeiro H<sup>1</sup>, Giestas S<sup>1</sup>, Lucas F<sup>5</sup>, Libânio D<sup>1,6</sup>, Martínez-Ares D<sup>1</sup>, Alexandrino G<sup>7</sup>, Horta D<sup>7</sup>, Lourenço L<sup>7</sup>, Reis J<sup>7</sup>, Ramada J<sup>1</sup>, Certo M<sup>8</sup>, Canena J<sup>7,9</sup>, Lopes L<sup>1,3,4</sup>

**Institute** 1 Gastroenterology, Hospital de Santa Luzia, Viana do Castelo, Portugal; 2 Gastroenterology, Centro Hospitalar Cova da Beira, Covilhã, Portugal; 3 Life and Health Sciences Research Institute (ICVS), School of Medicine, University of Minho, Braga, Portugal; 4 ICVS/3B's – PT Government Associate Laboratory, Braga/Guimarães, Portugal; 5 Serviço de Medicina do Hospital de Cascais, Cascais, Portugal; 6 Gastroenterology, Instituto Português de Oncologia do Porto, Porto, Portugal; 7 Gastroenterology, Hospital Amadora Sinta, Amadora, Portugal; 8 Hospital de Braga, Braga, Portugal; 9 Gastroenterology, Nova Medical School/FCML da UNL, Lisbon, Portugal  
**DOI** 10.1055/s-0039-1681717

**Aims** In endoscopic retrograde cholangiopancreatography (ERCP), the risk of adverse events during precut is increased when the terminal bile duct (tBD) is not dilated. Some studies suggest that the major papilla morphology, particularly its width is determined by the prominence of the supra- and intraduodenal portion of the tBD. The study aim was to assess if the terminal bile duct diameter can be determined by inspecting the major papilla morphology/width during duodenoscopy.

**Methods** Between July 2017 and January 2018, in 3 hospitals, all consecutive patients with naïve papilla referred for ERCP were eligible for enrollment. The transverse diameter (tD) of the papilla was measured using a comparative measurement technique (biopsy forceps) and a novel software (validity and reliability tested). The papilla morphology was classified into one of 4 groups: non-prominent, prominent, bulging, distorted. The tBD's diameter was measured in the distal 1 cm (cholangiogram acquired in supine/prone) in a workstation, by an independent researcher. Main outcome was evaluated using a Pearson correlation.

**Results** 137 patients were included; 57 males (41.61%), median age of 78 years (26–99). The median tD of the papilla was 6 mm (IQR = 3 mm) and the median tBD's diameter was 8.07 mm (IQR = 4.87 mm). Half (50%) of the papillas were non-prominent (tBD median = 7.66 mm; IQR = 4.473), 32.08% prominent (tBD median = 8.05 mm; IQR = 4.869), 12.26% bulging (tBD median = 8.978 mm; IQR = 5.814) and 5.66% distorted (tBD median = 7.533 mm; IQR = 0.832);  $p$ -value [C2 = 2.237] > 0.6923. The correlation between tD and tBD diameters was 0.0245.

**Conclusions** Despite what is suggested in the literature, the morphology and the width of the major papilla don't have any association with the diameter of the tBD, and consequently these two dimensions should not be taken into account when deciding for a cannulation technique.

Saturday, April 6, 2019

13:30 – 14:00

ESD 2

ePoster Podium 4

## ePP178 PREDICTORS OF FAILURE OF EN BLOC RESECTION OR PERFORATION IN ENDOSCOPIC SUBMUCOSAL DISSECTION FOR ESOPHAGEAL NEOPLASIA

**Authors** Nagami Y<sup>1</sup>, Ominami M<sup>1</sup>, Sakai T<sup>1</sup>, Fukunaga S<sup>1</sup>, Yamagami H<sup>1</sup>, Tanigawa T<sup>1</sup>, Watanabe T<sup>1</sup>, Fujiwara Y<sup>1</sup>

**Institute** 1 Department of Gastroenterology, Osaka City University Graduate School of Medicine, Osaka, Japan  
**DOI** 10.1055/s-0039-1681718

**Aims** Endoscopic submucosal dissection (ESD) is accepted as the standard treatment for early-stage esophageal neoplasia. However, esophageal perforation may occur, leading to mediastinitis and pneumothorax, which sometimes require emergency surgery. In addition, failure of en bloc resection causes local recurrence. Until now, few studies have reported on predictors of failure of en bloc resection or perforation during ESD. Thus, we evaluated the predictors of failure of en bloc resection or perforation in ESD for esophageal neoplasia.

**Methods** This was a retrospective observational study conducted at a single institution. Between May 2004 and March 2016, 543 consecutive patients with 927 esophageal lesions were treated with ESD. Patients with metachronous esophageal neoplasia or missing data were excluded. The primary outcome was determining the predictors of failure of en bloc resection or perforation in patients who underwent esophageal ESD. Perforation was defined as a visible hole in the esophageal wall, exposing the mediastinal cavity.

**Results** A total of 543 patients with 736 lesions were evaluated. Failure of en bloc resection occurred in 6 patients (1.1%) with 6 lesions, and perforation occurred in 11 patients (2.0%) with 11 lesions (1.5%). Lesion diameter [odds ratio (OR), 1.05; 95% confidence interval (CI): 1.02–1.07;  $p < 0.001$ ], wider tumor circumference (OR, 9.80, 95% CI: 1.61–59.5;  $p = 0.01$ ), and previous chemoradiotherapy for esophageal cancer (OR, 3.87; 95% CI: 1.19–12.53;  $p = 0.02$ ) were associated with failure of en bloc resection or perforation according to crude logistic regression analysis. Multivariate logistic regression analysis showed that lesion diameter (OR, 1.04; 95% CI: 1.02–1.06;  $p < 0.001$ ) and previous chemoradiotherapy (OR, 5.24; 95% CI: 1.52–18.06;  $p = 0.009$ ) were independent predictive factors.

**Conclusions** Larger lesions and previous chemoradiotherapy for esophageal cancer increased the risk of failure of en bloc resection or perforation in patients who underwent esophageal ESD.

## ePP179 EFFECTIVENESS OF THE ALGORITHM OF DEPTH DIAGNOSIS FOR SUPERFICIAL BARRETT'S ADENOCARCINOMA

**Authors** Yoshinaga S<sup>1</sup>, Oda I<sup>1</sup>, Furutani K<sup>1,2</sup>, Hihara D<sup>1</sup>, Koga M<sup>1</sup>, Ito T<sup>1</sup>, Cho H<sup>1</sup>, Yamada M<sup>1</sup>, Abe S<sup>1</sup>, Nonaka S<sup>1</sup>, Suzuki H<sup>1</sup>, Saito Y<sup>1</sup>, Daiko H<sup>3</sup>, Katai H<sup>4</sup>, Taniguchi H<sup>5</sup>, Sekine S<sup>5</sup>

**Institute** 1 Endoscopy Division, National Cancer Center Hospital, Tokyo, Japan; 2 Department of Gastroenterology, Tokyo Teishin Hospital, Tokyo, Japan; 3 Esophageal Surgery Division, National Cancer Center Hospital, Tokyo, Japan; 4 Gastric Surgery Division, National Cancer Center Hospital, Tokyo, Japan; 5 Pathology Division, National Cancer Center Hospital, Tokyo, Japan  
**DOI** 10.1055/s-0039-1681719

**Aims** Although the depth of invasion is the important factor to make a decision in treatment, little is known about the correlation between endoscopic feature and invasion depth of superficial Barrett's adenocarcinoma (SBA). We aimed to investigate the endoscopic findings indicating deep submucosal invasion of SBA and develop the algorithm of depth diagnosis.

**Methods** First, we investigated endoscopic findings of indicating deep submucosal invasion (SM2; more than 500  $\mu$ m). This derivation study included 59 SBAs in 57 patients confined to mucosa or submucosa. Five expert endoscopists, who were blinded to histology independently, reviewed the endoscopic images. According to previous studies, they selected macroscopic type (0-Ip, 0-Is, mix (0-IIa+IIc or 0-IIc+IIa) or others), estimated lesion size (1~10 mm, 11~20 mm, 21~30 mm or 31 mm~), and determine present or absent of remarkable redness, uneven surface, margin elevation, ulceration, and enlarged folds. If more than 3 of 5 endoscopists pointed out, such finding was defined as the "positive" finding. Then, we evaluated the relationship between "positive" findings and SM2, and assumed the algorithm to estimate the depth using those "positive" findings. For validation, five novice endoscopists, who were blinded to histology independently as well, reviewed the endoscopic

images, and we evaluated their individual diagnosis of SM2, compared with their diagnosis using the assumed algorithm.

**Results** After the derivation study, estimated tumor size (more than 11 mm), uneven surface and margin elevation had significant relationships with SM2 after multivariate analysis. In this derivation results, we assumed the algorithm using these 3 findings. Using this assumed algorithm, specificities and accuracies of SM2 of 3 novice endoscopists were improved compared with their individual diagnosis significantly, and positive predictive values (PPV) of 4 novice endoscopists were increased.

**Conclusions** Using this algorithm, the specificity and accuracy of novice endoscopists in depth estimation of SBAs increased. PPV likely increased as well.

Saturday, April 6, 2019  
EUS therapeutic pancreas

13:30 – 14:00  
ePoster Podium 5

### ePP181 EUS-GUIDED DRAINAGE OF PERIPANCREATIC FLUID COLLECTIONS BY LUMEN-APPPOSING METAL STENTS VERSUS SELF-EXPANDING METAL STENTS VERSUS PLASTIC STENTS: SINGLE CENTER EXPERIENCE OVER 6 YEARS

**Authors** Drepper M<sup>1,2</sup>, Pérez-Cuadrado-Robles E<sup>1</sup>, Deprez PH<sup>1</sup>

**Institute** 1 Hepatogastroenterology, Cliniques Universitaires Saint-Luc; Université Catholique de Louvain, Bruxelles, Belgium; 2 Gastroenterology, Hôpital de La Tour, Meyrin, Switzerland

DOI 10.1055/s-0039-1681720

**Aims** Comparing outcome after peripancreatic fluid collection (PFC) drainage by plastic double pigtail stents versus self-expanding metal stents (SEMS) versus the recently developed lumen-apposing metal stents (LAMS).

**Methods** We retrospectively analyzed our local endoscopic database from January 2012 up to November 2017 in patients who underwent EUS-guided drainage for symptomatic PFC. Exclusion criteria were post-surgical peripancreatic collections and follow-up of less than 30 days. Technical and clinical success, adverse events and mortality as well as re-intervention and recurrence rates were assessed.

**Results** 73 patients (mean age: 48 ± 17, 73% males) underwent endoscopic drainage of 75 pancreatic fluid collections (57 pancreatic pseudocysts/PP and 18 walled-off necrosis/WON) by plastic stents (n = 47, 62.7%), SEMS (n = 5, 6.7%) or LAMS (n = 23, 30.7%) using a transgastric (94.7%) or transduodenal (5.3%) approach.

Overall technical and clinical success was 94.7% and 84% respectively. Technical success was higher in plastic stents (100%) and SEMS (100%) compared to LAMS (82.6%) (p = 0.008). However, there was no significant difference in terms of clinical success between the three groups (87.2% vs. 82.6% vs. 60%, p = 0.281).

Intraoperative complication rate was 9.3% (4 bleedings, 3 stent dislodgements) and significantly differed between plastic (n = 1, 2.1%), SEMS (n = 2, 40%) and LAMS (n = 4, 17.4%) (p = 0.006). There was no difference in 30-days complication rate. PFCs treated with SEMS had a higher re-intervention rate (80%) compared to plastic (14.9%) and LAMS (4.3%) (p < 0.001). Similarly, recurrence rate after stent removal was higher in SEMS (60%) compared to plastic stents (14%) and LAMS (13%) (p < 0.028) during the median follow-up of 16.6 months.

**Conclusions** Our results suggest equal clinical efficacy of plastic stents and LAMS in PFC drainage. Despite the small number of patients, SEMS seem nevertheless to be inferior to plastic stents and LAMS. Major advantage of LAMS appears to be a significantly lower re-intervention rate, thereby potentially reducing patient's procedure-induced burden.

### ePP182 EUS-GUIDED PLACEMENT OF NEW GOLDEN FIDUCIAL MARKERS IN STEREOTACTIC BODY RADIATION THERAPY IN LOCALLY ADVANCED PANCREATIC CANCER: PRELIMINARY RESULTS OF FEASIBILITY AND SAFETY

**Authors** Auriemma F<sup>1</sup>, Di Leo M<sup>2</sup>, Comito T<sup>3</sup>, Lamonaca L<sup>2</sup>, Fugazza A<sup>2</sup>, Anderloni A<sup>2</sup>, Bossi P<sup>4</sup>, Maselli R<sup>2</sup>, Chiara Ferrara E<sup>2</sup>, Alessia Galtieri P<sup>2</sup>, Scorsetti M<sup>3</sup>, Repici A<sup>2</sup>, Carrara S<sup>2</sup>

**Institute** 1 Gastroenterology and Digestive Endoscopy Unit, Humanitas Mater Domini, Castellanza (VA), Italy; 2 Digestive Endoscopy Unit, Division of Gastroenterology, Humanitas Clinical and Research Center, Rozzano (Milan), Italy; 3 Department of Radiotherapy and Radiosurgery, Humanitas Clinical and Research Center, Rozzano (Milan), Italy; 4 Department of Pathology, Humanitas Clinical and Research Center, Rozzano (Milan), Italy

DOI 10.1055/s-0039-1681721

**Aims** Radiation therapy plays an emerging role in the multi-modal treatment of locally advanced pancreatic cancer (LAPC). Stereotactic body radiation therapy (SBRT) is an innovative radiation technique, characterized by high prescription dose delivered in few fractions and increased local control rate. Endoscopic ultrasound (EUS)-guided fiducials placement allows to accurately evaluate the target motion during SBRT delivery.

**Methods** Patients with LAPC treated with induction chemotherapy according to FOLFIRINOX or Gemcitabine-Abraxane schedules were treated with ablative dose of SBRT (54 Gy in 6 daily fractions) in a prospective phase II study (NCT03158779).

Gold markers were implanted under EUS-guidance into the tumor, at the opposite extremities. Fluoroscopy was used to confirm the position. A new dedicated needle was used: a 22G needle preloaded with 4 gold fiducials (0.43 mm width for 5 mm length), EchoTip Ultra Fiducial Needle (Cook Medical).

Prior to fiducial placement the patients received iv antibiotic prophylaxis and rectal Indometacine.

**Results** From May 2017 to Nov 2018, 8 patients (mean age 66.5 years), were enrolled. After adjuvant CT, at restaging the disease was still locally advanced, with no distant progression. Tumor mean size was 31 mm.

In all but one patient 2–4 markers were placed. In 3 of 8 patients procedure had no technical difficulties. In 5 patients, fiducial placement was made difficult due to: increased hardness of lesion, nearest vessels, poor control in the first marker release. Patients started the SBRT protocol 10.2 days (range 6–19) after simulation CT-scan. A minimal migration of one fiducial (<3 mm) occurred in 1 patient. No severe adverse events occurred, and all procedures were performed in an outpatient setting.

**Conclusions** This preliminary evaluation demonstrated the feasibility and safety of the EUS-guided fiducial placement using the new dedicated preloaded needle. Only minor technical difficulties did not affect the correct placement of the fiducials.

### ePP183 IMMEDIATE DIRECT ENDOSCOPIC NECROSECTOMY FOLLOWING ONE-STEP EXCHANGE FREE EUS-GUIDED DRAINAGE OF WALLED OFF PANCREATIC NECROSIS

**Authors** Ligresti D<sup>1</sup>, Utzeri E<sup>2</sup>, Cipolletta F<sup>3</sup>, Amata M<sup>1</sup>, Barresi L<sup>1</sup>, Granata A<sup>1</sup>, Traina M<sup>1</sup>, Tarantino I<sup>1</sup>

**Institute** 1 Endoscopy Service, Department of Diagnostic and Therapeutic Services, Istituto Mediterraneo per i Trapianti e Terapie ad alta specializzazione (IRCCS-ISMETT), Palermo, Italy; 2 Department of Medical Science, University of Cagliari, Cagliari, Italy; 3 Endoscopy Service, Ospedale del Mare, Naples, Italy

DOI 10.1055/s-0039-1681722

**Aims** EUS-guided drainage with Lumen Apposing Metal Stents (LAMS) and direct endoscopic necrosectomy (DEN) is an effective miniminvasive treatment of infected or symptomatic WOPNs. It revealed a lower complication and mortality rate compared to surgery or percutaneous approach. The aim of our study is to evaluate efficacy and safety of EUS-guided drainage of infected WOPNs with a LAMS and immediate DEN in a consecutive cohort of patients.

**Methods** All consecutive patients with infected or symptomatic WOPN from February 2014 to June 2018 were retrospectively reviewed. All patients underwent electrocautery-enhanced LAMS (EC-LAMS) placement with the “one-step exchange-free” technique. Immediate DEN with hydrogen peroxide irrigation was performed following stent placement in all patients. DEN was then repeated until resolution of the WOPN. The primary outcomes were to evaluate survival rate and clinical success. Secondary outcomes included: technical success, adverse events (AEs) and number of procedures per patient.

**Results** 45 patients were treated in the study period. Clinical success was of 88,8%. Survival rate was 91 and 88,8% at 1 and 3 months, respectively. Technical success was achieved in 97,7% of patients and no procedure-related AEs occurred. Mean number of procedure per patient was 3,7. In the follow-up time (mean of 687 days) pseudocyst formation was observed in two cases, successfully treated by endoscopic therapy.

**Conclusions** Immediate DEN following EUS-guided one-step exchange-free EC-LAMS placement is an effective and safe treatment for infected or symptomatic WOPNs.

Saturday, April 6, 2019

13:30 – 14:00

Pediatric 1

ePoster Podium 6

## ePP184 ENDOSCOPIC SPHINCTEROTOMY IN RECURRENT AND CHRONIC GENETIC PANCREATITIS IN CHILDREN

**Authors** Faraci S<sup>1</sup>, Balassone V<sup>1</sup>, Rea F<sup>1</sup>, Torroni F<sup>1</sup>, Romeo EF<sup>1</sup>, Caldaro T<sup>1</sup>, Contini AC<sup>1</sup>, Tambucci R<sup>1</sup>, Angelino G<sup>1</sup>, Federici G<sup>1</sup>, De Angelis P<sup>1</sup>, Dall'Oglio L<sup>1</sup>

**Institute** 1 Digestive Endoscopy and Surgery Unit, Bambino Gesù Children's Hospital, Rome, Italy

DOI 10.1055/s-0039-1681723

**Aims** Recurrent and chronic pancreatitis in children have a greater association with genetic mutations, such as mutations of the cationic trypsinogen protease serine 1 (*PRSS1*), serine protease inhibitor, Kazal type 1 (*SPINK1*), cystic fibrosis transmembrane conductance regulator gene (*CFTR*), and chymotrypsin C (*CTRC*). Little literature to support endoscopic sphincterotomy, it usually is indicated in patients with higher burden of attacks.

In our series we evaluate how ERCP with sphincterotomy and stent placement can improve symptoms and reduce episodes of pancreatitis in genetic pancreatitis in children.

**Methods** From 2012 to 2017, a total of 42 patients with recurrent and chronic pancreatitis with genetic mutations were identified and stratified in our centre. Sex, age, genetic mutation type, radiological investigations, endoscopic retrograde cholangiopancreatography (ERCP), sphincterotomy, stent placement, clinical outcome post-endoscopic sphincterotomy (n°/pancreatitis with hospitalization) were evaluated.

**Results** We enrolled 42 patients (F/M 21/21; mean age 17 ys), 24 patients (57%; F/M 10/14 mean age 17 ys) underwent to endoscopic sphincterotomy; of these a stent was placed in 15 (63%) patients, instead 9 (37%) patients had only sphincterotomy. The remaining 18 patients (43%; F/M 11/7; mean age 13 ys) never had ERCP.

All patients presented genetic mutations: 35 *CFTR*-related, 5 *PRSS1*, 2 *SPINK1*. All patients had Ultrasound and Magnetic Resonance Cholangio-Pancreatography (MRCP) which documented Wirsung dilatation and dis-homogeneous pancreatic parenchyma.

Comparing patients that had sfinterotomy and patients never had endoscopy with a good disease course, we observed a reduction in the number of attacks and hospitalization (19/24 – 79% vs. 14/18 – 77%; OR 1,09; BR 1,02); in particular patients who placed pancreatic stent improved their quality of life.

**Conclusions** Endoscopic sphincterotomy is a valid treatment strategy to improve clinical symptoms and reducing attacks and hospitalizations.

## ePP185 ERCP IN INFANTS, CHILDREN, AND ADOLESCENTS – DIFFERENT ROLES OF THE METHODS IN DIFFERENT AGE GROUPS

**Authors** Keil R<sup>1</sup>, Drábek J<sup>1</sup>, Lochamnová J<sup>1</sup>, Štoviček J<sup>1</sup>, Koptová P<sup>1</sup>, Wasserbauer M<sup>1</sup>, Frybová B<sup>2</sup>, Šnajdauf J<sup>2</sup>, Rygl M<sup>2</sup>, Kotalová R<sup>3</sup>, Hlava Š<sup>1</sup>

**Institute** 1 Endoscopic Unit, Internal Department, University Hospital Motol, Prague, Czech Republic; 2 Department of Pediatric Surgery, University Hospital Motol, Prague, Czech Republic; 3 Pediatric Department, University Hospital Motol, Prague, Czech Republic

DOI 10.1055/s-0039-1681724

**Aims** Endoscopic retrograde cholangiopancreatography (ERCP) is seldom used in children, and published series have limited numbers of pediatric patients. The aim of this retrospective, long-term, observational study was to assess the efficacy and safety of pediatric ERCP in a large group of children.

**Methods** Data were evaluated from 626 children with biliopancreatic disorders admitted to University Hospital Motol, Prague, between January 1999 and January 2018. Clinical data were obtained by retrospective evaluation of our database of pediatric ERCP procedures and from clinical records.

**Results** We performed 856 ERCPs on 626 pediatric patients; of these procedures, 59% were therapeutic and 41% were diagnostic. We achieved 96% technical success. Indications for ERCP and pathological findings differed in different age groups. The main role of ERCP was in excluding biliary atresia in those aged less than one year. In children aged 1 to 6 years, the most frequent diagnoses were choledochal cyst followed by choledocholithiasis. In children aged 7 to 12 years and 13 to 19 years, the most frequent diagnoses were choledocholithiasis followed by pancreatic pathology. The overall complication rate found in this study was similar to rates observed in adult populations.

**Conclusions** Our study shows the efficacy and safety of diagnostic and therapeutic ERCP in a large series of infants and children with technical success and complication rates comparable to those in adults. Our data show that ERCP had different roles in different age groups of children.

## ePP186V ENDOSCOPIC TREATMENT OF PERSISTENT GASTROGASTROUS FISTULA COMBINED WITH TRICHLORACETIC ACID. DESCRIPTION OF A NEW THERAPEUTIC METHOD

**Authors** Souza de Macedo F<sup>1</sup>, Andrade Franco Neto J<sup>1</sup>, Diniz Carvalho S<sup>1</sup>, Souto Bittencourt PF<sup>1</sup>, Nunes Arantes V<sup>1</sup>, Rodrigues Ferreira A<sup>2</sup>

**Institute** 1 Alfa Institute, Federal University of Minas Gerais, Belo Horizonte, Brazil; 2 Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

DOI 10.1055/s-0039-1681725

**Aims** Persistent gastrocutaneous fistula is a complication after the removal of the gastrostomy tube. It is reported in 1/3 of patients. Persistent gastrocutaneous fistula is defined by the non-closure of gastrostomy opening after one month. This situation results on abdominal skin burning by the gastric secretion and decreasing quality of life for those patients. This study describes a new method of endoscopic closure of persistent gastrocutaneous fistula using combined endoscopic techniques with trichloroacetic acid.

**Methods** This is a descriptive study of two pediatric patients followed up at a tertiary center in Minas Gerais from August 2017 to August 2018 who underwent endoscopic treatment to close the gastrocutaneous fistula with the use of argon plasma scarification, cauterization with trichloroacetic acid and placement of metal clips.

**Results** Two patients were aged between 7 and 17 years. These patients had a gastrocutaneous fistula after 6 and 8 months of gastrostomy removal, with daily gastric drainage. The endoscopic treatment was performed with two sessions of trichloroacetic acid application, combined with the use of argon plasma coagulation and placement of metal clips, presenting good results. Both patients presented fistula closure, with no drainage of the gastric content some days after procedure and without complications.

**Conclusion** Endoscopic therapy for the closure of persistent gastrocutaneous fistulas with the combined use of trichloroacetic acid has been proven effective. This combination is not described in the endoscopic literature. In some studies this technique was already used for the closure of fistulas in bronchoscopy.

Saturday, April 6, 2019

13:30 – 14:00

SB Capsule 2

ePoster Podium 7

### ePP187 OUTCOMES AND MANAGEMENT STRATEGIES FOR CAPSULE RETENTION: A KOREAN CAPSULE ENDOSCOPY NATIONWIDE DATABASE REGISTRY STUDY

**Authors** Lim YJ<sup>1</sup>, Lee HS<sup>2</sup>, Jeon SR<sup>3</sup>, Jang HJ<sup>4</sup>, Park JJ<sup>5</sup>, Chun J<sup>6</sup>, Kang SH<sup>7</sup>, Nam SJ<sup>8</sup>, Jung Y<sup>3</sup>, Kim KO<sup>9</sup>, Lee YJ<sup>10</sup>, Boo SJ<sup>11</sup>, Kim JH<sup>12</sup>, Yang CH<sup>13</sup>, , Research Group for Capsule Endoscopy/Small Bowel Endoscopy

**Institute** 1 Dongguk University Ilsan Hospital, Goyangsi Kyunggido, Korea, Republic of; 2 Department of Internal Medicine-GI/Hepatology, Kyungpook National University, Daegu, Korea, Republic of; 3 Soonchunhyang University College of Medicine, Seoul, Korea, Republic of; 4 Hallym University College of Medicine, Dongtan, Korea, Republic of; 5 Yonsei University College of Medicine, Seoul, Korea, Republic of; 6 Seoul National University College of Medicine, Seoul, Korea, Republic of; 7 Chungnam National University College of Medicine, Daejeon, Korea, Republic of; 8 Kangwon National University School of Medicine, Chuncheon, Korea, Republic of; 9 Yeungnam University College of Medicine, Daegu, Korea, Republic of; 10 Keimyung University School of Medicine, Daegu, Korea, Republic of; 11 Jeju National University School of Medicine, Jeju, Korea, Republic of; 12 Inje University College of Medicine, Pusan, Korea, Republic of; 13 Dongguk University, Gyeongsangbuk-do, Korea, Republic of

DOI 10.1055/s-0039-1681726

**Aims** The most concerning complication of capsule endoscopy (CE) is capsule retention (CR) in the gastrointestinal tract although clinical outcome and management of patients with CR are still uncertain. The aim of this study was to investigate clinical outcomes and management of CR.

**Methods** The CR results in multicenters between October 2002 and April 2018 were retrospectively reviewed. Data on patients' demographics, CE indication, findings, and details of management were analyzed.

**Results** A total of 2419 consecutive small bowel CE were performed. CR was detected in 18 cases (0.7%). The almost sites of CR were the small bowel (17 cases) followed by the esophagus (1 cases). Capsule removal was performed by surgery in 9 cases and endoscopically in 4 cases. Two retained capsule dislodged after steroid treatment, 1 case of CR resolved with stopping to take NSAIDs, 2 case of CR resolved without any intervention.

**Conclusions** This large multicenter study shows that CR is a rare complication with a favorable clinical outcome. About half of patients with CR were managed with non-surgical intervention.

### ePP188 INCOMPLETE SMALL BOWEL CAPSULE ENTEROSCOPY: STILL ROOM FOR IMPROVEMENT?

**Authors** Magalhaes R<sup>1,2,3</sup>, Boal Carvalho P<sup>1,2,3</sup>, Rosa B<sup>1,2,3</sup>, Joao Moreira M<sup>1,2,3</sup>, Cotter J<sup>1,2,3</sup>

**Institute** 1 Gastroenterology, Hospital Senhora da Oliveira, Guimarães, Portugal; 2 Life and Health Sciences Research Institute (ICVS), School of

Medicine, University of Minho, Braga, Portugal; 3 ICVS/3B's, PT Government Associate Laboratory, Guimarães/Braga, Portugal

DOI 10.1055/s-0039-1681727

**Aims** Small bowel capsule enteroscopy (SBCE) is considered incomplete when the dispositive does not reach the cecum during battery time. Incompletion rates go up to 15%, as described in several cohorts. Acknowledging risk factors is imperative to determine individual hazards and implement protocols that could reduce this limitation.

**Primary:** To identify predictive factors that lead to incomplete SBCE.

**Secondary:** To assess a department protocol for SBCE.

**Methods** Retrospective, single center study, including consecutive patients that underwent SBCE for mixed indications, from June 2016 to August 2018. We applied a department protocol that includes real time viewer, prokinetic usage and upper endoscopy SBCE relocation.

The correlation towards the outcome variable (incomplete SBCE) was assessed with univariate and multivariate analysis, using SPSS – p value <0.05 was considered statistically significant.

**Results** We assessed 310 patients, of whom 209 (67.4%) were female, and a mean age of 49 years old. Iron deficient anemia (124; 40%) and suspected Crohn's disease (CD) (120; 38.7%) were the main indications for SBCE.

We observed a 6.5% rate of incomplete SBCE, a total of 20 incomplete procedures.

Variables like patient's lack of autonomy, bedridden, hospitalization at the time of the procedure, previous abdominal surgery, usage of anticholinergics and opioid drugs, age and Charlson score were significantly correlated with Incomplete SBCE (p < 0.005).

**Conclusions** We report an incomplete SBCE rate inferior to several cohorts previously studied, acknowledging the efficacy of the department protocol. However, the limitation still persists, being important to distinguish variables directly associated with incomplete procedures, for further optimization of SBCE protocols, aiming at a 100% completion rate.

### ePP189 INTER-OBSERVER AGREEMENT IN BROTZ CLEANING SCALES FOR CAPSULE ENDOSCOPY

**Authors** Sousa M<sup>1</sup>, Pinho R<sup>1</sup>, Ponte A<sup>1</sup>, Rodrigues A<sup>1</sup>, Silva J<sup>1</sup>, Gomes C<sup>1</sup>, Carvalho J<sup>1</sup>

**Institute** 1 Centro Hospitalar de Vila Nova de Gaia e Espinho, Vila Nova de Gaia, Portugal

DOI 10.1055/s-0039-1681728

**Aims** The diagnostic yield of capsule endoscopy (CE) depends on the adequate visualization of the mucosa. As with colonoscopy, cleaning scales should be described in the report in order to better interpret results. In 2008, Brotz et al proposed and validated 3 different cleansing scales. The aim of this study was to evaluate the inter-observer variability of this cleaning scales.

**Methods** A hundred CE videos (Mirocam) were reviewed by 2 authors at a fixed frame rate of 100 frames per second in quadruple view (Miroview Client). The CE were evaluated according to the Brotz scales:

1. Overall adequacy assessment (adequate/inadequate)
2. Qualitative scale (excellent, good, fair, poor) and
3. Quantitative scale (0 – 10 score, graded from 0 – 2 visualization of the mucosa, fluids, bubbles, bile and luminosity).

The kappa coefficient was used to calculate the inter-observer agreement in overall adequacy assessment and the intra-class correlation coefficient was used to evaluate the concordance of the qualitative and quantitative scales.

**Results** In overall adequacy assessment, the quality of intestinal small bowel preparation was classified as adequate by observer 1 in 67% and by observer 2 in 73%, with an inter-observer kappa index of 0.76 (p > 0.001) suggesting strong agreement.

In the qualitative scale, most of the intestinal small bowel preparations were considered reasonable (40% observer 1 vs. 36% observer 2), with an intra-class coefficient of 0.89 (p < 0.001).

In the quantitative scale, the mean score of the two observers was 6.5 and 6.7, resulting in an intra-class agreement of 0.78 ( $p < 0.001$ ).

**Conclusions** The optimization of the quality of the intestinal small bowel preparation and the diagnostic yield of the CE requires, first, a well-validated cleaning scale. Brotz's rating scales have strong inter-observer agreement. The qualitative scale is easier to apply and has better inter-observer agreement.

Saturday, April 6, 2019

13:30 – 14:00

Sedation

ePoster Podium 8

### ePP190 SAFETY AND EFFICACY OF NON-ANESTHESIOLOGIST ADMINISTERED SEDATION (NAS) IN GASTROINTESTINAL ENDOSCOPY: A PROSPECTIVE, MONOCENTRIC STUDY OF 9380 PROCEDURES

**Authors** Deiana S<sup>1</sup>, Gabbani T<sup>1</sup>, Soriani P<sup>1</sup>, Mirante V<sup>1</sup>, Manno M<sup>1</sup>

**Institute** 1 Digestive Endoscopy Modena Northern Area, Carpi and Mirandola Hospital, AUSL Modena, Carpi, Italy

**DOI** 10.1055/s-0039-1681729

**Aims** Sedation is an integral part of gastrointestinal endoscopy, but the best sedation strategy is still a matter of debate. Non-anesthesiologist (NAS) propofol-based-sedation (PBS) remains controversial because of concerns about safety. The aim of the study was to evaluate safety and efficacy of NAS, comparing traditional sedation with PBS.

**Methods** We prospectively collected data of endoscopic exams consecutively performed at our Endoscopy Unit during 17 months. Procedures were classified into two groups: traditional sedation with midazolam and/or fentanyl (group1) and PBS (group2). All gastroenterologists and nurses were trained accordingly to the ESGE position paper. Safety was evaluated in terms of adverse events requiring medical interventions, while efficacy in terms of cecal intubation. Continuous data are expressed as a p value less than 0.05 was considered statistically significant.

**Results** Among 10624 patients, 9380 (mean age 61.2 ± 14.7 years) underwent endoscopies in NAS: 62.3% (5845) were colonoscopy, 33.7% (3157) esophago-gastro-duodenoscopy, 1.4% (133) echoendoscopy and 0.05% (5) were push-enteroscopy. The majority of procedures were performed in out-patient setting (8176, 87.2%) and in most cases they were diagnostic procedures (8780, 93.6%). Group 1 was composed by 1999 patients (21.3%), while group 2 by 7381 patients (78.7%). Twenty-one (0.22%) minor adverse events (17 transitory hypotension/bradichardia and 4 transitory oxygen desaturation) were registered, 3 in group 1 and 18 in group 2. No major complications (i.e. hospitalization, tracheal intubation or death) occurred. No differences between groups in terms of rate of adverse events were registered (0,15% vs. 0,24%; pNS). Cecal intubation rate during colonoscopy was higher in PBS group (99.2% in group1 and 100% in group2;  $p < 0.05$ ), while 9 colonoscopy in group1 was stopped for intolerance.

**Conclusions** The study adds new favourable data on the safety of NAS with PBS in digestive endoscopy with specifically trained staff. Moreover, propofol sedation increases the endoscopic examination effectiveness, avoiding failure for patients intolerance.

### ePP191 CAPNOGRAPHY MONITORING IS BENEFICIAL BY ESTIMATING ETCO2 INSTABILITY DURING ENDOSCOPIC SUBMUCOSAL DISSECTION (ESD)

**Authors** Kim SH<sup>1</sup>, Keum B<sup>1</sup>, Jeon HJ<sup>1</sup>, Jang SH<sup>1</sup>, Kim JH<sup>1</sup>, Choi SJ<sup>1</sup>, Kim SH<sup>1</sup>, Lee JM<sup>1</sup>, Choi HS<sup>1</sup>, Kim ES<sup>1</sup>, Jeon YT<sup>1</sup>, Lee HS<sup>1</sup>, Chun HJ<sup>1</sup>, Kim CD<sup>1</sup>

**Institute** 1 Division of Gastroenterology and Hepatology, Department of Internal Medicine, Korea University College of Medicine, Seoul, Korea, Republic of

**DOI** 10.1055/s-0039-1681730

**Aims** Endoscopic submucosal dissection (ESD) requires deeper sedation than mucosal resection. This may lead to adverse ventilation problems. Capnography measures end-tidal CO<sub>2</sub> (EtCO<sub>2</sub>) levels and it is known to detect depressed respiratory activity prior to the incidence of hypoxic events. However, its usefulness during endoscopy has been disputed. Considering that absolute EtCO<sub>2</sub> value monitoring would not be as effective as that of general anesthesia due to belching or body movements during endoscopy, we herein introduced a concept of 'EtCO<sub>2</sub> instability', and studied whether it is correlated with higher chance of hypoxia.

**Methods** Between January 2017 and June 2018, 98 patients scheduled to ESD had received pulmonary function tests before the procedure. All patients received capnographic monitoring in addition to conventional monitoring. EtCO<sub>2</sub> level was recorded every 1 minute. Sedation Index was calculated by assessing M/OAAS (Modified Observer's Assessment of Alertness/Sedation) score, tachypnea and spontaneous body movements. Patients were later grouped into 'Normal' and 'Hypoxia' groups according to intra-procedural presence of hypoxia and their demographic, procedural characteristics were comparatively analyzed.

**Results** By multivariate logistic regression, we analyzed several factors that influenced the incidence of hypoxic events, and EtCO<sub>2</sub> instability (OR 2.427, P-value 0.001) was among them. Hypoxia and EtCO<sub>2</sub> instability have been shown to share same causal factors such as high Mallampati score, intra-procedural oral respiration and lower baseline SpO<sub>2</sub>.

**Conclusions** EtCO<sub>2</sub> instability is related to incidence of hypoxic events during ESD. Monitoring EtCO<sub>2</sub> is helpful since increased instability of EtCO<sub>2</sub> on the monitor may precede a potential hypoxic event, so that clinicians can respond more promptly. In groups of patients who have high Mallampati score or obstructive lung function it may be beneficial to be routinely monitored by EtCO<sub>2</sub> when performing ESD.

### ePP192 ADVERSE EVENTS ASSOCIATED WITH DRUGS USED FOR ENDOSCOPIC SEDATION: A NATIONWIDE ASSESSMENT

**Authors** Lee JK<sup>1</sup>

**Institute** 1 Internal Medicine, Dongguk University Ilsan Hospital, Goyang, Korea, Republic of

**DOI** 10.1055/s-0039-1681731

**Aims** Currently, most endoscopic procedures are performed with sedation. Although endoscopic sedation is considered safe generally, cases of adverse events (AEs) occur inevitably. This study tried to analyze the patterns of AEs associated with drugs used for endoscopic sedation.

**Methods** Case records of AEs for fentanyl, alfentanil, remifentanil, ketamine, etomidate, propofol, meperidine/pethidine, diazepam, midazolam and dexmedetomidine were reviewed reported voluntarily to the Korea Adverse Event Reporting System database from 2007 to 2017. The causality of each case was assessed based on the WHO-UMC criteria. The seriousness was determined based on the International Conference on Harmonization on E2D Guideline.

**Results** During the study period, there were 94,084 cases associated with drugs used for endoscopic sedation from 535,826 overall AEs, in which cases 66.5% were female and 35.8% over 60 years old. The most common drug associated with AEs was fentanyl (n=57,265) followed by meperidine (n=23,928), midazolam (n=4,702), remifentanil (n=2,490), diazepam (n=2,267), propofol (n=1,452), ketamine (n=753), alfentanil (n=742), dexmedetomidine (n=312) and etomidate (n=173). Nausea was most common AEs in fentanyl (51%), remifentanil (43%), alfentanil (39%), meperidine (30%) and propofol (25%). Stupor was most common AEs in midazolam (35%). Drowsiness was the most common AEs in diazepam (10%). Vomiting was the most common AEs in ketamine (21%). Hypotension was the most common AEs in dexmedetomidine (45%) and etomidate (25%). Serious AEs occurred in 2,936 (3%) cases, from which etomidate (31.2%) was the most

common drug (31.2%) and hypotension (23.2%) was the most common AE. The reports have increased annually.

**Conclusions** Fentanyl was associated with AEs the most commonly, followed by meperidine and midazolam. Etomidate needs special attention since it was the most common drug related with severe AEs.

Saturday, April 6, 2019

14:00 – 14:30

Colon ESD 3

ePoster Podium 1

### ePP193 RISK FACTOR OF LYMPH NODE METASTASIS IN ENDOSCOPICALLY RESECTED T1 COLORECTAL CANCER

**Authors** Song GA<sup>1</sup>, Baek DH<sup>1</sup>, Park EY<sup>1</sup>, Park JW<sup>1</sup>, Lee SH<sup>1</sup>

**Institute** 1 Gastroenterology, Pusan National University Hospital, Busan, Korea, Republic of

**DOI** 10.1055/s-0039-1681732

**Aims** Early colorectal cancer is defined as a carcinoma confined to the submucosa, regardless of lymph node (LN) status. The risk of LN metastasis in early colon cancer is ranging from 6.3% to 17%, and submucosal invasion more than 1000um, lymphovascular invasion (LVI), poor differentiation and tumor budding are well-known risk factor. We aimed to clarify the risk factors for LN metastasis in early colorectal cancer.

**Methods** We retrospectively analyzed the clinicopathologic features of endoscopically resected 262 submucosal invasive colon cancers from 2007 to 2017. Of them, we analyzed 141 tumors which underwent subsequent colectomy with lymph node dissection because of unfavorable pathologic findings.

**Results** The overall LN metastasis rate was 18.4% (26/141). In the univariate analysis, LVI ( $p=0.017$ ) and tumor budding ( $p=0.008$ ) were associated with LN metastasis. In the multivariate analysis, LVI and tumor budding were significantly associated with LN metastasis (odds ratio [OR], 3.824; confidence interval [CI], 1.146 – 12.824;  $p=0.029$  and OR..., respectively) and moderately-differentiated adenocarcinoma was also associated with LN metastasis (OR, 2.808; CI, 1.047 – 7.529);  $p=0.040$ ). Submucosal depth was not associated with LN metastasis both in univariate and multivariate analysis.

**Conclusions** In this study, LVI, tumor budding, and moderately-differentiated adenocarcinoma were associated with LN metastasis in endoscopically resected submucosal invasive colorectal cancer which underwent subsequent radical colectomy with LN dissection. Submucosal invasion depth was not associated with LN metastasis.

### ePP194 LONG-TERM OUTCOMES OF COLORECTAL ENDOSCOPIC SUBMUCOSAL DISSECTION: EXPERIENCE IN A WESTERN CENTRE

**Authors** Arribas Anta J<sup>1</sup>, Cañete Ruiz Á<sup>1</sup>, Álvarez-Nava Torregro T<sup>1</sup>, Piedracoba Cadahía C<sup>1</sup>, De la Cruz Esteban DR<sup>1</sup>, Rodríguez Carrasco M<sup>1</sup>, Romero Romero E<sup>1</sup>, Del Pozo García A<sup>1</sup>, Díaz Tasende JB<sup>1</sup>, Marín Gabriel JC<sup>1</sup>

**Institute** 1 Gastroenterology, University Hospital Doce de Octubre, Madrid, Spain

**DOI** 10.1055/s-0039-1681733

**Aims** To analyze long-term follow-up after endoscopic submucosal dissection (ESD) and to compare recurrence rates according to different variables.

**Methods** Prospective data from ESD performed were collected on an "intention to treat" basis, from September 2008 to December 2015. When ESD was not possible to achieve, KAR was performed, either "en bloc" or piecemeal (pKAR). Kaplan-Meier survival curves were used to assess the 5 years recurrence rate and results were compared according to different factors (type of resection, en bloc vs. piecemeal resections, R0 vs. R1resections, lateral margins (LM) involvement, histology and location) using log-rank test.

**Results** 89 patients were initially included. 20 were excluded: 11 for having less than 6months follow-up and 9 because of the need of surgery (3 for

delayed perforations, 2 for technical difficulties and 4 because the histology showed deep submucosal invasion).

Finally, 69 patients were included. ESD was performed in 31 of these patients, KAR in 11 and pKAR in 27. Median follow-up was 27 months (range 6 – 60). "En bloc" rate was 60,9% and R0 rate 31,0%. Histology according to Vienna classification was: 33, 3% Vienna 3, 65,2% Vienna 4 and 1,5% Vienna 5 (sm1). Recurrence rate at 5year was 19%. The average number of endoscopies needed to eliminate recurrence was 2 (range 2 – 7) and no patient needed surgery for this reason.

Recurrence rate was significantly higher in piecemeal resections vs. en bloc resections (27,2% vs. 15,7%,  $p=0,036$ ) and R1 resections vs. R0 resections (26,3% vs. 0%  $p=0,034$ ). The presence of affected or unknown lateral margins in "en bloc" resections without other poor prognosis factors had higher recurrence rates without statistical significant differences (28% vs. 0%  $p=0,09$ ).

**Conclusions** In our study the 5 year disease free survival rate was 81% and no patient needed surgery during follow-up. Piecemeal and R1 resections had significantly higher recurrence rates and LM involvement showed higher recurrence rates without statistical significance.

### ePP195 OUTCOMES OF ENDOSCOPIC SUBMUCOSAL DISSECTION (ESD) AT THE ANO-RECTAL JUNCTION AND ILEOCECAL VALVE

**Authors** Iacopini F<sup>1</sup>, Grossi C<sup>1</sup>, Saito Y<sup>2</sup>, Elisei W<sup>1</sup>, Gotoda T<sup>3</sup>, Costamagna G<sup>4</sup>

**Institute** 1 UOC Gastroenterology & Endoscopy, Ospedale dei Castelli, Ariccia, Rome, Italy; 2 Endoscopy Department, National Cancer Center Hospital, Tokyo, Japan; 3 Division of Gastroenterology and Hepatology, Nihon

University School of Medicine, Tokyo, Japan; 4 Surgical Endoscopy Unit, Policlinico Gemelli Foundation IRCCS, Catholic University Rome, Roma, Italy

**DOI** 10.1055/s-0039-1681734

**Aims** Endoscopic resection difficulty of superficial neoplasms at the perineal rectum is related to the narrowness of the anal canal and high intraoperative bleeding. Resection at the ileocecal valve (ICV) is difficult due to the variable anatomy and the possible neoplasm extension into the terminal ileum. Aim was to assess ESD outcomes of neoplasms at the perineal rectum and ICV.

**Methods** Prospective study (January 2012 to March 2018) in a single center. All consecutive superficial neoplasms > 20 mm in the perineal rectum (margin < 30 mm from the anorectal junction, ARJ) and on ICV lips scheduled for ESD were included. Controls: neoplasms > 20 mm in the pelvic rectum and cecum/ascending colon, respectively. ESD was performed by the standard technique. Follow-up was scheduled at 3 and every 6 months.

**Results** Perineal Rectum. 32 neoplasms in the perineal rectum were compared to 63 controls. ARJ involvement was observed in 14 (44%) perineal cases; a circumferential extension  $\geq 50\%$  in 15 (47%) perineal cases and 4 (7%) controls ( $P < 0.0001$ ).

ICV: 14 neoplasms at ICV were compared to 96 and 39 in the ascending colon and cecum, respectively. Neoplastic ileal extension was observed in 5 (36%) ICV cases. ESD technical and clinical outcomes are reported in the Table. Adverse events were not different according to location. Perforations occurred in 1 (2.5%) case in the cecum, 2 (2%) in the ascending colon, and 2 (3%) in the pelvic rectum. Residual rate for neoplasms at the ICV and in the cecum was significantly higher than in the ascending colon ( $P=0.014$  and  $P=0.064$ , respectively). Residual rate for neoplasms in the perineal rectum was higher than in pelvic rectum ( $P=0.072$ ).

**Conclusions** ESD at the ICV and perineal rectum is effective but R0 resection rate are < 80% in the cecum and in the perineal rectum. A careful endoscopic follow-up is mandatory.

### ePP196 FACTORS ASSOCIATED WITH DIFFICULTY IN PROPHYLACTIC CLIP CLOSURE AFTER ENDOSCOPIC MUCOSAL RESECTION OF LARGE COLORECTAL POLYPS

**Authors** Ortiz O<sup>1</sup>, Pellise M<sup>2</sup>, Rex DK<sup>3</sup>, Grimm IS<sup>4</sup>, Moyer MT<sup>5</sup>, Hasan MK<sup>6</sup>, Pleskow D<sup>7</sup>, Elmunzer BJ<sup>8</sup>, Kashab MA<sup>9</sup>, Sanaei O<sup>9</sup>, Al-Kawas FH<sup>10</sup>, Gordon S<sup>11</sup>, Mathew A<sup>5</sup>, Levenick JM<sup>5</sup>, Aslanian HR<sup>12</sup>, Antaki F<sup>13</sup>, Von Renteln D<sup>14</sup>, Crockett SD<sup>4</sup>, Rastogi A<sup>15</sup>, Gill JA<sup>16</sup>, Law RJ<sup>17</sup>, Elias P<sup>8</sup>, Mackenzie TA<sup>18</sup>, Pohl H<sup>19</sup>

**Institute** 1 Hospital Clinic de Barcelona, Barcelona, Spain; 2 Gastroenterology, Hospital Clinic de Barcelona, Barcelona, Spain; 3 Indiana University School of Medicine, Indianapolis, United States; 4 Division of Gastroenterology and Hepatology, University of North Carolina School of Medicine, Chapel Hill, United States; 5 Division of Gastroenterology and Hepatology, Penn State Hershey Medical Center, Hershey, United States; 6 Center for Interventional Endoscopy, Florida Hospital, Orlando, United States; 7 Division of Gastroenterology, Beth Israel Deaconess Medical Center, Boston, United States; 8 Division of Gastroenterology and Hepatology, Medical University of South Carolina, Charleston, United States; 9 Division of Gastroenterology and Hepatology, Johns Hopkins Hospital, Baltimore, United States; 10 Division of Gastroenterology and Hepatology, Johns Hopkins University, Washington DC, United States; 11 Department of Gastroenterology and Hepatology, Dartmouth Geisel School of Medicine, Lebanon, United States; 12 Section of Digestive Diseases, Yale-New Haven Hospital, New Haven, United States; 13 Division of Gastroenterology, John D. Dingell Veterans Affairs Medical Center and Wayne State University, Detroit, United States; 14 Division of Gastroenterology, University of Montreal Medical Center (CHUM) and Research Center (CRCHUM), Montreal, Canada; 15 Division of Gastroenterology, Hepatology and Motility, University of North Carolina School of Medicine, Chapel Hill, United States; 16 Division of Gastroenterology James A. Haley VA, University of South Florida, Tampa, United States; 17 Division of Gastroenterology and Hepatology, University of Michigan, Ann Arbor, United States; 18 Department for Biomedical Data Science, The Dartmouth Institute, Lebanon, United States; 19 Section of Gastroenterology and Hepatology, Dartmouth Geisel School of Medicine, White River Junction, United States

DOI 10.1055/s-0039-1681735

**Aims** Evaluate factors associated with inability to achieve prophylactic complete clip closure of the mucosal defect after endoscopic mucosal resection (EMR) of large ≥ 20 mm non-pedunculated colorectal polyps.

**Methods** This is a post-hoc analysis of a multicenter, randomized trial (CLIP study – NCT01936948) and included all patients that were randomized to the clip arm. Main outcome was complete versus incomplete closure (partial or no closure). The defect was considered completely closed when there was no remaining visible mucosal defect and clips were less than 1 cm apart. Factors associated with clip closure were evaluated in multivariate analysis.

**Results** 458 patients (age 65, 58% men) with 494 large polyps were included. Complete clip closure of the resection defect was possible for 338 polyps (68.4%) and was not achieved for 156 (31.6%) polyps; 90 (18.2%) had partial and 66 (13.4%) no closure. Inability to completely close the resection defect was associated with polyp size, adenomatous vs. serrated histology, difficulties of establishing polyp access, incomplete submucosal lifting, and piecemeal resection (Table). Other factors evaluated such as patient characteristics, polyp location, polyp morphology according to Paris, type of submucosal injectate, cautery setting, or ablation of the resection margin were not associated with clip closure.

Tab. 1 150

	Complete closure N = 338 polyps N = 313 patients	No complete closure. N = 156 polyps N = 145 patients	Adjusted OR (95% CI)	p (adjusted)
Characteristics	25 (20.31)	35 (25.5)	0.95 (0.93 – 0.97)	<0.001
Size.	28.5 (12.9)	38.4 (16.6)	(per mm increase)	0.04
*Median (IQR)	92 (86.8)	14 (13.2)	1.00	
*Mean (SD)	246 (63.4)	142 (36.6)	0.37 (0.19 – 0.73)	
Histology				
*Serrated, n (%)				
*Adenomatous, n (%)				
Access difficulty	323 (70.7)	134 (29.3)	1.00	0.001
*Easy or moderate n (%)	15 (40.5)	22 (59.5)	0.26 (0.11 – 0.58)	
*Severe, n (%)				
Mucosal-Lifting	290 (73.8)	103 (26.2)	1.00	0.05
*Complete, n (%)	45 (46.4)	52 (53.6)	0.45 (0.26 – 0.78)	
*Incomplete, n (%)				
Piecemeal resection	46 (95.8)	2 (4.2)	1.00	0.010
*No, n (%)	292 (65.5)	154 (34.5)	0.13 (0.03 – 0.61)	
*Yes, n (%)				

**Conclusions** In this multicenter study incomplete closure of the mucosal defect after EMR of large colorectal polyps was associated with polyp and procedure characteristics that reflect more difficult resections. Expertise in clipping of such lesions and investigation in improving clipping technique is needed to maximize clip closure and minimize bleeding risk of EMR.

### ePP197 SHOULD WE USE THE SMSA AND SERT SCORES TO PREDICT OUTCOMES IN COLONIC PIECEMEAL EMR?

**Authors** Taveira F<sup>1</sup>, Areia M<sup>1</sup>, João M<sup>1</sup>, Elvas L<sup>1</sup>, Alves S<sup>1</sup>, Brito D<sup>1</sup>, Saraiva S<sup>1</sup>, Cadime AT<sup>1</sup>

**Institute** 1 Portuguese Oncology Institute of Coimbra, Coimbra, Portugal  
DOI 10.1055/s-0039-1681736

**Aims** Predicting outcomes after piecemeal endoscopic mucosal resection (pEMR) is a major concern with the development of scores such as SMSA, predicting the complexity of excision, or SERT predicting the negative risk for recurrence after pEMR. We intended to apply both scores to a pEMR cohort and understand if SMSA and SERT have clinical applicability in this setting.

**Methods** Single center, prospective cohort of pEMR of colon lesions ≥ 20 mm, since 2009, with retrospective application of SMSA and SERT scores. Evaluation of patients and lesions characteristics, risk factors for endoscopic recurrence and relation with score result with recurrence (SMSA = 4 in favor, SERT = 0 against). Statistical analysis included descriptive statistics, Qui<sup>2</sup> test and multi-variable regression.

**Results** Analyzed 302 lesions, in 296 patients, 58% men with median age of 70 years. Lesions had a median size of 30 mm (IQR 15), in the right colon in 51%. Paris classification Is in 51% and IIa in 24%; LST granular type in 86%. Median SMSA score was 12; SMSA = 4 in 46% (n = 138 lesions); SERT = 0 in 38% (115 lesions). Complications occurred in 7,3% (n = 23), mostly bleeding (n = 20).

Endoscopic recurrence of 18,5% (n = 56) at first surveillance and 7% (n = 17) late recurrence. In univariate analysis, SMSA = 4 (p < 0.001), high-grade dysplasia (p = 0.003) and size > 40 mm (p < 0.001) but not intraprocedural bleeding (p = 0.09) were significant factors for recurrence. Multivariable analysis confirmed SMSA = 4 as predictor of recurrence (OR 3.8; IC95% 1.8 – 7.9); In the other hand, SERT = 0 is a predictor for no recurrence (OR 0.3; IC95% 0.1 – 0.8). No relation was found between higher SMSA score and the occurrence of complications (OR 1,3; IC95% 0,5 – 3,2).

**Conclusions** SMSA and SERT scores have applicability in the management of follow-up after colonic pEMR. We recommend closer surveillance in SMSA = 4 lesions, while the first surveillance exam in SERT = 0 lesions might be delayed.

## ePP198V HYBRID-BIOPSY ENDOSCOPIC MUCOSAL RESECTION: AN EFFECTIVE AND SIMPLE TECHNIQUE FOR FLAT COLORECTAL LESIONS

**Authors** Fraile-López M<sup>1,2</sup>, Jawhari A<sup>2</sup>, Sansone S<sup>2</sup>, Budihal S<sup>2</sup>, Parra-Blanco A<sup>2</sup>

**Institute** 1 Gastroenterology, Hospital Universitario Central de Asturias (HUCA), Oviedo, Spain; 2 NIHR Nottingham Biomedical Research Centre, Nottingham University Hospitals NHS Trust and University of Nottingham, Nottingham, United Kingdom

**DOI** 10.1055/s-0039-1681737

Hybrid resection techniques (Hybrid EMR-Hybrid ESD) have been described to facilitate complete removal of flat lesions. They may be useful in cases when the snare slips, which may happen in Laterally-Spreading lesions of the non-granular type (LST-NG), fibrosis due to previous resection attempts, and fatty tissue in the submucosa among other factors. However, endoscopists not experienced in ESD may not feel confident doing a circumferential incision with a dedicated knife or the tip of a snare, and it would not be safe if they are not adequately trained in this technique.

Here we report a new hybrid EMR technique especially useful when the snare slips when closed by the operator. After submucosal injection, a circumferential incision is made using a biopsy forceps, with subsequent bites around the target lesion. This incision allows to fit the snare avoiding slippage when it is squeezed. The lesion is finally cut with cold or hot technique. We have applied this technique in three colonic cases: 1) 7-mm flat lesion, slippage of snare was likely related to abundant fatty tissue in the submucosa; 2) 15-mm LST-NG flat lesion. 3) 15-mm residual lesion (IIa Paris Classification), slippage was related to fibrosis secondary to an incomplete previous ESD. In this case, a semi-circumferential incision was made with the tip of a K-snare (Pentax), and then it was completed with a biopsy forceps; finally, a 'piecemeal' resection with cold snare was successfully done (Video 1). Histology in all cases showed tubular adenomas with low grade dysplasia.

Hybrid-biopsy EMR is a simple method, to complete removal of flat lesions, devices needed are widely available, the cost is low, and it could be done safely by endoscopists not experienced in ESD. Improved design of biopsy forceps with rotability could make this technique even easier to apply.

Saturday, April 6, 2019

ERCP cannulation 2

14:00 – 14:30

ePoster Podium 3

## ePP202V ENDOSCOPIC TRANSPAPILLARY ANTEGRADE SPHINCTEROTOMY

**Authors** Dovbenko O<sup>1</sup>

**Institute** 1 Endoscopic Surgery, Odessa National Medical University, Odessa, Ukraine

**DOI** 10.1055/s-0039-1681738

ERCP has become the "Gold" standard in the diagnostics and management of pancreaticobiliary diseases. The possibilities in treating the entire spectrum of diseases of this zone are increasing. However, the level of major complications of ERCP remains high (from 5.4% to 23.0% and the overall mortality from 0.1 to 1%). The vast majority of them related to interventions on the sph Oddi. The aim of the research has become to create a sphincterotome and a method that takes into account the anatomical structure of the sph Oddi. Sph. Oddi consists of a longitudinal and circular smooth muscle layers. Circular muscle fibers form the pancreatic and duodenal parts. Anatomical justification was cutting of only the circular layer of sph Oddi by special sphincterotome. Papillary stenosis and stenosis terminal part of common bile duct due to damage only circular layer sph Oddi. Anterograde direction and hooked form of sphincterotome (endoscopic antegrade sphincterotomy- EASD) allows to capture only need layer and control depth. Also EASD was performed patient with SOD (I-III) with preservation of the longitudinal muscular layer sph Oddi

and septum of papilla. 273 patient underwent EASD within 7 years (age is  $44.3 \pm 12.7$  years, 43.8% male, 65,7% in urgent cases). Postoperative bleeding and perforation wasn't. 5 (1,83%) cases of postEASD pancreatitis manifested by increased blood enzymes and abdominal pain, successfully cured medication for 3 days. The use of EASD with preservation of the closure function of the sph. Oddi allowed to avoid cholecystectomy in 71.2%. ASD can be performed with a standart or a new design of sphincterotome. It takes into account the anatomical structure of sph. Oddi and is recommended as an alternative to standard sphincterotomy, balloon dilatation and drainage interventions (RR 0,55 [95% CI 0,18 to 1,67]). EASD must be performed by an endoscopist with experience in transpapillary intervention.

## ePP203 PAPILLARY CANNULATION FACILITATED BY SUBMUCOSAL SALINE INJECTION INTO THE INTRADIVERTICULAR PAPILLA

**Authors** Park SM<sup>1</sup>

**Institute** 1 Internal Medicine, Chungbuk National University Hospital, Cheongju, Korea, Republic of

**DOI** 10.1055/s-0039-1681739

**Aims** Endoscopic retrograde cholangiopancreatography (ERCP) of the intradiverticular papilla with an invisible orifice remains challenging. Several techniques have been introduced for everting the papillary opening to facilitate cannulation.

**Methods** The submucosal injection of 2–4 mL of normal saline at single or multiple points enables intradiverticular papillary eversion. The important step is selecting the best inflation point to preserve the bile duct opening and to keep papillary eversion.

**Results** A 79-year-old woman received ERCP for bile duct stones, which revealed that the papilla was located inside a large diverticulum and it tended to rotate inward on a trial of papillary cannulation. The submucosal injection of 3 cc of normal saline was done on 3 and 9 o'clock of the papilla. Eversion and fixation of a papilla in the diverticulum by this technique allowed selective cannulation of the biliary tree. After cannulation into biliary tree, stones were retrieved after endoscopic papillary balloon dilation without complications. She had an uneventful post procedural course.

**Conclusions** Our findings suggest that submucosal saline injection technique is safe and effective for selective cannulation and could be recommended in the condition, which cannulation is very difficult because of intradiverticular papilla.

## ePP204V "HITCH AND RIDE" TECHNIQUE FOR BLIND PANCREATIC DUCT CANNULATION

**Authors** Vila JJ<sup>1</sup>, González G<sup>1</sup>, Aburruza L<sup>1</sup>, Carvalho J<sup>2</sup>, Costa J<sup>3</sup>, Carrascosa J<sup>1</sup>, Fernández-Urién I<sup>1</sup>, Albéniz E<sup>1</sup>, Pueyo A<sup>1</sup>

**Institute** 1 Endoscopy Unit. Gastroenterology Dpt., Complejo Hospitalario de Navarra, Pamplona, Spain; 2 Gastroenterology Dpt., Hospital Lisboa Norte, Lisboa, Portugal; 3 Gastroenterology Dpt., Hospital de Braga, Braga, Portugal  
**DOI** 10.1055/s-0039-1681740

**Case** A 72 year old patient suffered a biliary pancreatitis with wall-off pancreatic necrosis endoscopically drained and solved after two sessions of endoscopic necrosectomy. Biliary sphincterotomy was performed for suspected common bile duct stones. The transmural stent was retrieved and from then on the patient complained of epigastric pain with elevation of acute phase reactants. CT showed two new peripancreatic collections with mild dilation of the pancreatic duct, suggesting pancreatic duct disruption. Pancreatic ERCP was planned but the duodenal folds were edematous with stenosis of the duodenal lumen, precluding identification of the ampulla. The duodenoscope was placed facing the theoretical location of the ampulla under fluoroscopic control. Injecting contrast we could see a depression in the wall corresponding to the ampulla with the sphincterotomy which was blindly cannulated. Since we could see the biliary guidewire exiting the duodenoscope, a cannula with a

preloaded guidewire and a slit on the tip was snapped onto the biliary guidewire and advanced over it ("hitch and ride" technique) until the theoretical location of the ampulla with fluoroscopic control. Once there, the preloaded guidewire was advanced exiting the cannula tip more caudally because of the slit, in a more convenient orientation for pancreatic duct cannulation. After a couple of attempts and blind adjustments of the cannula position we could easily cannulate the pancreatic duct with the second guidewire only under fluoroscopic control. Pancreatic ductography confirmed pancreatic duct disruption and a pancreatic stent was placed into the fistulous tract. The patient clinical status improved and was discharged asymptomatic (Video).

**Conclusion** The "hitch and ride" technique was initially described to facilitate biliary cannulation during EUS-guided rendezvous. After getting some experience in this setting we could successfully use it to cannulate blindly the pancreatic duct in this case of smoldering pancreatitis with difficult management.

Saturday, April 6, 2019

14:00 – 14:30

GERD

ePoster Podium 4

### ePP205 ENDOSCOPIC TRANSORAL FUNDOPLICATION WITH MUSE FOR GASTROESOPHAGEAL REFLUX DISEASE: RESULTS OF A SINGLE CENTER STUDY

**Authors** D'Aversa F<sup>1</sup>, Familiari P<sup>2</sup>, Landi R<sup>1</sup>, Mangiola F<sup>1</sup>, Bove V<sup>1</sup>, Perri V<sup>1</sup>, Gasbarrini A<sup>3</sup>, Costamagna G<sup>1</sup>

**Institute** 1 Fondazione Policlinico Universitario A. Gemelli IRCCS, Roma, Italy; 2 UOC Endoscopia Digestiva, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy; 3 Dipartimento Dipartimento Meidcna Interna, Gastroenterologia e Oncologia Medica, Fondazione Policlinico Universitario A. Gemelli, Roma, Italy

DOI 10.1055/s-0039-1681741

**Aims** This retrospective, chart review of prospectively collected data evaluates the clinical outcomes of patients who were treated with MUSE for GERD in a single center.

**Methods** All patient who underwent MUSE at our endoscopy center between May 2015 and June 2018 were retrospectively identified from a prospective database, collected and analyzed. The procedure was offered to patients with GERD who required and responded to pharmacological therapy. Symptoms were evaluated with a validated clinical score – GERD-HRQL score – and by monitoring the use and dosage of PPI. Clinical success was defined by ≥50% reduction of the dosage of PPI and by the GERD HRQL score (≥50% reduction compared to baseline or normalization [ $< 10$ ] of the score).

**Results:**

Tab. 1 Results

patients (19)	Baseline 19 patients with f/u	Last follow-up (mean 14 months) 19 patient	p
PPI usage	100%	32%	< 0.0001
median GERD-HRQL (SD)	30.3 (± 7.5)	16.3 (± 11.2)	< 0.0001
median % TRT (SD)	14.7% (± 9.81)	6.24% (± 7.05)	< 0.05
median DeMeester Score (SD)	50.17 (± 40.49)	30.34 (± 42.6)	0.17

A total of 25 patients underwent MUSE during the study period (mean age 52 [± 13], 64% males). Five patients did not complete the minimum 6-month follow-up and were excluded from analysis. One patient was lost to follow-up immediately after treatment. A median follow-up of 13.9 (6 – 36) months was available for 19 patients. At the date of the last visit, clinical success was achieved in 69% of patients (11 patients discontinued PPI and 2 patients take < 50% of the initial dosage). GERD-HRQL score was normalized or improved by ≥50% compared to baseline in 11 patients (58%). % TRT score was normal in 10/15 patients (66.6%) with post-operative pH-monitoring study.

**Conclusions** Our study confirms the safety and efficacy of the MUSE procedure for the treatment of GERD.

### ePP206 ULTRASOUND-GUIDED TRANSORAL FUNDOPLICATION FOR THE TREATMENT OF GASTROESOPHAGEAL REFLUX DISEASE: RESULTS UP TO 24 MONTHS FROM A SINGLE-CENTER PROSPECTIVE STUDY

**Authors** Testoni PA<sup>1</sup>, Mazzoleni G<sup>1</sup>, Distefano G<sup>1</sup>, Testoni SGG<sup>1</sup>, Antonelli M<sup>1</sup>, Fanti L<sup>1</sup>, Passaretti S<sup>1</sup>

**Institute** 1 IRCCS San Raffaele Scientific Institute – Vita-Salute San Raffaele University, Milan, Italy

DOI 10.1055/s-0039-1681742

**Aims** Transoral incisionless fundoplication (TIF) with the MUSE system is a new ultrasound-guided intervention for the treatment of gastroesophageal reflux disease (GERD). Aim of this study was to assess the safety of TIF with MUSE and its effects on clinical, pathophysiological and endoscopic results.

**Methods** TAF with MUSE was performed in a series of consecutive patients (pts) with symptomatic GERD, in a single-center study. All pts underwent GERD-Related Quality of Life (GERD-HRQL) and Reflux Symptom Index (RSI) questionnaires, upper gastrointestinal endoscopy, 24 h esophageal pH-impedance recording and high-resolution esophageal manometry (HRM) before, 6 months and 12 months after TIF (HRM only before and 6 months after). Symptoms questionnaires and proton pump inhibitors (PPIs) consumption were also investigated at 24 months. Data were compared to baseline using Fisher test for frequencies and Wilcoxon test for nonparametric data.

**Results** Thirty-seven pts underwent TIF. In two cases it wasn't possible to perform esophageal intubation with the endostapler and perforation occurred in two cases. Clinical follow-up was completed in 29, 23 and 16 pts at 6, 12 and 24 months, respectively. Compared to baseline, median symptoms scores and PPIs consumption were significantly improved after TIF. Endoscopic follow-up was completed in 28 and 22 pts at 6 and 12 months, with 5 and 4 pts who had esophagitis, respectively. Pathophysiological follow-up was completed in 19 and 15 pts at 6 and 12 months, respectively. Compared to baseline, 6 months after TIF there were a significantly lower number of acid, proximal and total refluxes, detected by esophageal impedance and a significantly increase of lower esophageal sphincter length, esophagogastric junction contractile integral (EGJ-CI) and of peristaltic waves rate, detected by HRM.

**Conclusions** Our data showed TIF by MUSE safe and effective, allowing a significant improvement of symptoms scores and a significant reduction of PPIs consumption and refluxes number, detected by esophageal impedance.

### ePP207 ANTI-REFLUX MUCOSECTOMY (ARMS) IN THE TREATMENT OF REFRACTORY GASTRO-ESOPHAGEAL RELFUX (GERD): PILOT STUDY EVALUATING THE FEASIBILITY AND SAFETY

**Authors** Gonzalez JM<sup>1</sup>, Irarrazaval R<sup>1</sup>, Basile P<sup>1</sup>, Le Mouel JP<sup>1</sup>, Barthet M<sup>1</sup>

**Institute** 1 Gastroenterology, Hôpital Nord, AP-HM, Aix-Marseille Université, Marseille, France

DOI 10.1055/s-0039-1681743

**Aims** There is no validated endoscopic treatment of GERD. Esophageal mucosectomy is a reference technique, and induce a tissular shrinking at the esogastric junction (EGJ). Thus, we propose a pilot study to evaluate the feasibility and the safety of the ARMS procedure in refractory GERD, and to document its efficacy (disappearance of the main symptom and RDQ score).

**Methods** This was a monocentric retrospective study of consecutive patients with GERD refractory to PPI's, without motility disorder, treated by ARMS. Patients with esophagitis or a hiatal hernia > 2 cm were excluded. The procedures were performed in ambulatory, with a therapeutic gastroscope, CO2 insufflation, and using the Duette system (Cook Endoscopy, USA). A mucosectomy of the 3/4 of the circumference of the EGJ was performed, extended

to both esophageal and gastric sides. The patients received oral PPI for one month and were evaluated every 3 months.

**Results** 19 patients were included, aged of 53 years old [32 – 88]. The main symptom was pyrosis in 74% of cases (n = 14), the others being regurgitations, thoracic pain, recurrent cough/sinusitis.

The procedure was feasible in 100% of the cases. There were no acute complications. Six patients (30%) had moderate dysphagia at one month, three of them requiring one single endoscopic dilatation (12 mm).

The follow-up was 6 to 18 months, and five patients were lost on follow-up. Among the 14 other, the efficacy on the main symptom was complete in 57.4% of cases, partial in 7.1% and absent in 35.5% of the cases. A significant decreasing of RDQ was observed after the treatment  $41,2 \pm 6,7$  vs.  $20,1 \pm 5,1$  ( $p = 0,0026$ ).

**Conclusions** ARMS for treating refractory GERD is simple, feasible and safe, and could be realized in ambulatory. The efficacy rate was 64.5%, but has to be clarified, after a technical standardization of the procedure and rigorous selection of patients.

Saturday, April 6, 2019

14:00 – 14:30

Leaks 2

ePoster Podium 5

### ePP208 EFFICACY OF ENDOSCOPIC VACUUM ASSISTED CLOSURE TREATMENT FOR POSTOPERATIVE ANASTOMOTIC LEAK OF GASTRIC CANCER

**Authors** Park JC<sup>1</sup>, Choi SI<sup>1</sup>, Kim EH<sup>1</sup>, Shin SK<sup>1</sup>, Lee SK<sup>1</sup>, Lee YC<sup>1</sup>

**Institute** 1 Internal Medicine, Yonsei University College of Medicine, Seoul, Korea, Republic of

DOI 10.1055/s-0039-1681744

**Aims** Endoscopic vacuum assisted closure (EVAC) has been attempted as new non-surgical treatment option for anastomotic leakage. We evaluate the clinical outcomes of EVAC and compare efficacy with self-expandable metallic stents (SEMS) in post-gastrectomy leakage.

**Methods** Between Jan 2010 and Feb 2018, total 39 cases of anastomotic leak after gastrectomy for treatment of gastric cancer were reviewed. Twenty-eight patients were treated with SEMS only, 7 patients were treated with EVAC after SEMS failure, and 4 patients were treated with EVAC only. We compared clinical characteristics and therapeutic outcomes between EVAC (N = 11) and SEMS (N = 28).

**Results** Median follow up duration of EVAC and SEMS were 17 months (range, 0 – 48). All cases treated with EVAC were healing successfully (100%) and did not occurred mortality. Two cases of treatment failure (7.1%) including 1and case of mortality (3.6%) were occurred in patients who treated with SEMS. Median duration of EVAC treatment (15 days [6 – 47]) was shorter than SEMS (36 days [7 – 108];  $p < 0.001$ ). Relatively larger size leakage was treated successfully with EVAC (median 2.1 cm [1.5 – 3.3] in EVAC and 1.0 cm [0.2 – 2.5] in SEMS;  $p < 0.001$ ). Median weight loss at first outpatient department visit after treatment was 8 kg (-3 to 15) in EVAC and 9 kg (2 to 20) in SEMS. The duration of antibiotics use was similar between two groups as median 27.5 days (10 – 94) and 23.5 days (0 – 79). After EVAC therapy, 1 case of anastomotic stenosis was occurred at 147 days after EVAC removal. (9.1%). In SEMS therapy, 4 cases (14.3%) of anastomotic stenosis occurred at median 102 days (29 – 319).

**Conclusions** EVAC can be effective endoscopic treatment option for post-gastrectomy anastomotic leak. Considering of the leak size may be important when determining treatment options. Further large number randomized controlled trials are needed to define efficacy of EVAC.

### ePP209 COMBINATION ENDOSCOPIC THERAPY USING ENDOSPONGE AND OVER-THE-SCOPE-CLIP FOR THE THERAPY OF COMPLEX GASTROINTESTINAL LEAKS AND DEHISCENCES

**Authors** Martinez-Alcala A<sup>1</sup>, Gutierrez JP<sup>2</sup>, D'Assuncao MA<sup>2</sup>, Kroener PT<sup>3</sup>, Mönkemüller K<sup>1</sup>

**Institute** 1 Gastroenterologie, Frankenwald Klinik, Kronach, Germany;

2 Gastroenterology, Basil Hirschowitz Endoscopic Center of Excellence, Birmingham, United States; 3 Mayo Clinic, Jacksonville, United States

DOI 10.1055/s-0039-1681745

**Aims** To evaluate the success, safety and complications rates of an endoscopic approach using sponge and over-the-scope clips to close large endoluminal GI defects.

**Methods** Retrospective, observational study at two institutions during a 24-months period. The following over-the-scope clips were used preferentially 12/6t, and 12/6gc and 14/6t. The sponge (Braun Melsungen, Germany) was used as manufactured or adapted to the size of the defect.

**Results** During the study period we treated a total of 13 patients (9 male, 4 female, mean age 58.9 years; range 38 to 73) with large fistulae or perforations. The mean ASA score was 3.5, range 3 – 4. Seven patients were critically ill at the time of consultation, with large perforation or intrabdominal abscess. The etiology of the GI defects involving the esophagus (n = 3), stomach (n = 3), small bowel (n = 2) and colon (n = 5), including Boerhaave's syndrome n = 2, leak after gastric sleeve n = 2, colorectal anastomotic leak n = 5, lung abscess with tracheoesophageal fistula (n = 1), combined retroperitoneal and pleural abscess (n = 1), enterocutaneous fistula in Crohn's (n = 1), radiation-induced rectovesical fistula (n = 1). The defects were treated sequentially by endoscopic lavage and debridement, followed by insertion of sponge. Once the cavity decreased in size the sponge was exchanged or removed and the smaller diameter defect was closed using one or more over-the-scope clips. The mean number of procedures was 3, range 2 – 5. Successful closure of the GI defect and resolution of the abscess was achieved in eight patients (61%). There were no adverse events related.

**Conclusions** The use of combination sponge and over-the-scope clip appears promising for the treatment of complex GI endoluminal defects, especially when patients are poor surgical candidates and are critically ill. In up to 60% of patients the therapy was successful, suggesting that this approach should be added to the armamentarium of the advanced endoscopist.

### ePP210 STANDARDIZED PROACTIVE ENDOSCOPIC AND SURGICAL INTERVENTIONS FOR MANAGEMENT OF PATIENTS WITH BOERHAAVE SYNDROME TO REDUCE MORTALITY: A RETROSPECTIVE ANALYSIS

**Authors** Wichmann D<sup>1</sup>, Herrmann L<sup>1</sup>, Mothes B<sup>1</sup>, Schweizer U<sup>1</sup>,

Königsrainer A<sup>1</sup>, Schempf U<sup>2</sup>, Goetz M<sup>2</sup>, Steger V<sup>3</sup>, Loske G<sup>4</sup>, Stueker D<sup>1</sup>

**Institute** 1 Department of General, Visceral and Transplantation Surgery, University of Tübingen, Tübingen, Germany; 2 Department of

Gastroenterology, Hepatology, and Infectiology, University of Tübingen,

Tübingen, Germany; 3 Department of Cardiothoracic and Vascular Surgery,

University of Tübingen, Tübingen, Germany; 4 Department for General,

Abdominal, Thoracic and Vascular Surgery; Interdisziplinäre Endoscopy,

Marienhospital Hamburg, Hamburg, Germany

DOI 10.1055/s-0039-1681746

**Aims** Boerhaave Syndrome (BS) is a post emetic transmural rupture of the oesophagus. It is a devastating event associated with a high morbidity and mortality rate. Enteric leakage into the thoracic or abdominal cavity causes mediastinitis, sepsis and multisystem organ failure. New strategy combining minimal invasive tools and interdisciplinary therapy was introduced to treat patients with a rupture of the oesophagus following a standard operating procedure.

**Methods** We review treatment results of BS patients treated in a 10 year period started in 2007 at our university hospital.

**Results** 12 patients with BS were detected during this period. All BS-patients were treated at intensive care units. One patient died within 72 days of the oesophageal rupture. Patients treated following the interdisciplinary strategy survived sepsis and recovered independently of latency between start of symptoms and start of therapy.

**Conclusions** Proactive interdisciplinary approach following the SOP in patients with BS was associated with a mortality rate of 8.33% and a 30-days-mortality of 0% respectively. We present this successful treatment strategy for patients with BS.

---

Saturday, April 6, 2019  
Pediatric 2

14:00 – 14:30  
ePoster Podium 6

### ePP211 ENDOSCOPIC BALLOON DILATATION IN CHILDREN WITH PARTIAL GASTRIC OUTLET OBSTRUCTION

**Authors** Voroniak D<sup>1</sup>, Kolomoiets I<sup>1</sup>, Dubrovin O<sup>2</sup>

**Institute** 1 Diagnostic, National Specialized Children's Hospital 'OHMATDYT', Kyiv, Ukraine; 2 Pediatric Surgery, Bogomolets' National Medical University, Kyiv, Ukraine

**DOI** 10.1055/s-0039-1681747

**Aims** To demonstrate our own experience with endoscopic balloon dilatation (EBD) in children with partial GOO caused by after ulcerous stenosis of the antral part of the stomach.

**Methods** From June 2013 to November 2018 we treated six children with diagnosis "GOO" caused by after ulcerous stenosis of the antrum. We offered EBD as an alternative to surgery. Endoscopic balloon dilatation was performed under general anesthesia using endoscopes Olympus and through-the-scope esophageal/pyloric dilating balloons Boston Scientific and Balton with variable diameters from 6 to 12 mm.

**Results** Surgical resection of the antral-pyloric region was performed to one child because her parents wanted. The other five children were successfully applied EBD. Patients underwent 1 – 10 dilating sessions (mean 4.8/patient). Estimated antrum diameter prior to dilation ranged from 2 mm to 6 mm (mean 3.0). Following dilation, diameter of the antrum increased to 10 to 12 mm (mean 11.0) at final endoscopy. In patients requiring a single dilating session (n=1), predilation antrum size was 6 mm, which increased to of 10 mm. In patients requiring multiple dilating sessions (n=4), pre-dilation antrum size was a mean of 2.25 mm (range 2 – 3 mm), which increased to a mean of 11.25 mm (range 10 – 12 mm). All patients had good long-term response, with follow-up of 2 – 62 months (mean 27.4). To get sustainable results in maintaining patency of the gastric outlet is necessary to conduct a series of repeated EBD, the amount of which depends on the individual characteristics of the child.

**Conclusions** Endoscopic balloon dilatation is an effective method of restoring patency output of the stomach, which avoids surgery. It can be recommended as a method of choice for children with partial GOO caused by after ulcerous stenosis.

### ePP213 WATER-AIDED PEDIATRIC COLONOSCOPY: A PILOT FEASIBILITY AND SAFETY STUDY

**Authors** Granata A<sup>1</sup>, Curcio G<sup>1</sup>, Ligresti D<sup>1</sup>, Barresi L<sup>1</sup>, Tarantino I<sup>1</sup>, Traina M<sup>1</sup>

**Institute** 1 Endoscopy Service, ISMETT – IRCCS – UPMC ITAY, Palermo, Italy

**DOI** 10.1055/s-0039-1681748

**Aims** Water-aided methods for adult colonoscopy have received renewed attention in the literature in recent years. Published studies evaluating water exchange (WE) colonoscopy have shown a reduction in procedural pain and postprocedural discomfort, with a higher completion rate. This pilot study

aimed to evaluate feasibility and safety of water-aided methods for adult colonoscopy performed in pediatric patients.

**Methods** From August 2015 to December 2016, 10 consecutive pediatric patients who underwent a total of 11 colonoscopies were enrolled for the study. All adverse events were recorded. All quantitative variables were recorded, including procedure time, cecal insertion time and withdrawal time, the average colonoscope length following cecal insertion, and sedation dosage.

**Results** Comparison between infused and aspirated water was made to evaluate a correct application of WE technique. The WE method improved the mean bowel cleansing. No adverse events were recorded during the procedure, or in the next 24 hours.

**Conclusions** This pilot study showed that a complete WE colonoscopy is feasible in children, appearing to be a useful and safe method. Though no conclusions can be drawn on the basis of this study alone, our results should reasonably prompt future randomized prospective studies.

---

Saturday, April 6, 2019  
SB Capsule 3

14:00 – 14:30  
ePoster Podium 7

### ePP214 PREVALENCE OF SMALL BOWEL POLYPS IN PATIENTS WITH ACROMEGALY BY USING CAPSULE ENDOSCOPY

**Authors** Blanco-Velasco G<sup>1</sup>, Palos-Cuellar R<sup>1</sup>, Solorzano-Pineda OM<sup>1</sup>, Hernandez-Mondragon OV<sup>1</sup>

**Institute** 1 Endoscopy, CMN Siglo XXI, IMSS, Mexico City, Mexico

**DOI** 10.1055/s-0039-1681749

**Aims** The prevalence of colonic polyposis is higher in acromegalic patients compared to normal population. Only one study shows an increased prevalence of polyps in small bowel in acromegalic population.

The objective of this study is to assess the prevalence of polyps in the small bowel in acromegalic patients using capsule endoscopy (CE).

**Methods** A prospective, comparative, observational study was performed in patients with acromegaly. The presence of polyposis was evaluated in this population, comparing it against patients with CE due to other causes (abdominal pain, chronic diarrhea and anemia). Gastric transit time (GTT) and intestinal transit time (ITT) of the CE, incomplete visualization and complications were also analyzed.

**Results** There were included 61 patients per group, acromegalic patients (AC) had a median age of 55.9 years old (IQR 46, 64) and 37.7% were female, non-acromegalic patients (NAC) had a median age of 56 years (IQR 37, 69) and 62.3% were female. The CE GTT of the AC was 26 min (IQR 10, 96) and 23 min (IQR 12, 51) in the NAC group (p=0.844). The CE ITT of the AC was 302.26 min (±115.35) and 263.37 (±102.68) in the NAC (p=0.019). The small bowel incomplete visualization in the AC was of 9 cases (14.8%) and 11 cases (18%) in the NAC. There were 6 (9.8%) patients with polyps found in the CE of the AC group and 1 patient with polyps (1.6%) in the NAC group, with an odds ratio of 6.54 (95% CI, 0.76 – 56.10, p=0.052). There were no complications in either group.

**Conclusions** Patients with AC showed a higher CE ITT and more small bowel polyps with a statistical significance tendency.

## ePP215 IS IT POSSIBLE TO PREDICT THE INFLAMMATORY ACTIVITY OF SMALL BOWEL CROHN'S DISEASE IN CAPSULE ENDOSCOPY USING THE ICCE CRITERIA?

**Authors** Gomes AC<sup>1</sup>, Pinho R<sup>1</sup>, Ponte A<sup>1</sup>, Rodrigues A<sup>1</sup>, Rodrigues J<sup>1</sup>, Sousa M<sup>1</sup>, Silva JC<sup>1</sup>, Carvalho J<sup>1</sup>

**Institute** 1 Gastroenterology, Centro Hospitalar de Vila Nova de Gaia e Espinho, Vila Nova de Gaia, Portugal

**DOI** 10.1055/s-0039-1681750

**Aims** A score to predict the indication for small bowel capsule endoscopy (SBCE) in patients with suspected small bowel Crohn's disease (CD) was proposed in 2006 at the International Conference on Capsule Endoscopy (ICCE). The Lewis score and the Capsule Endoscopy Crohn's Disease Activity Index (CECDAI) scores are the most used endoscopic scores to evaluate the inflammatory activity in SBCE. The authors aimed to evaluate the usefulness of the ICCE criteria to predict the severity of small bowel CD in SBCE.

**Methods** Retrospective, single center study, including 49 SBCE of patients with small bowel CD. The ICCE criteria of each patient and LS and CECDAI scores of SBCE were evaluated and compared.

**Results** The mean age was 42.4 years (+13.4). 59.2% of patients were females and 65.3% fulfill the ICCE criteria for SBCE. The median LS and CECDAI scores were 565 and 9.0 (IQR: 2251386 and 6.016.5), respectively. Patients without ICCE criteria had median [IQR] LS of 1012.0 [266.5 – 1354.0] and CECDAI of 12 [8.5 – 17.5] compared to 395.0 [225.0 – 1510.0] ( $p=0.4$ ) and 9.0 [4.5 – 15.0] ( $p=0.3$ ) in patients with ICCE criteria. No correlation between the sum of items evaluated by the ICCE criteria with the LS ( $p=0.5$ ) and CECDAI ( $p=0.5$ ) was found. A good correlation between the LS and CECDAI was confirmed ( $Rho=0.875$ ,  $p<0.001$ ).

**Conclusions** Although the ICCE criteria are useful to select patients with suspected CD to perform SBCE, these criteria are not useful to predict the severity of small bowel inflammatory activity in patients with established CD. Although the LS is more widely used, CECDAI is easier to calculate and has good correlation with LS.

## ePP216 DIAGNOSTIC YIELD AND ACCURACY OF SMALL BOWEL ULTRASONOGRAPHY COMPARED TO CAPSULE ENTEROSCOPY FOR THE DIAGNOSIS OF SMALL BOWEL DISEASES

**Authors** Elli L<sup>1</sup>, Centorriro E<sup>2</sup>, Orlando S<sup>1</sup>, Costantino A<sup>1</sup>, Fraquelli M<sup>1</sup>, Vecchi M<sup>1,3</sup>

**Institute** 1 IRCCS Ca Granda Ospedale Maggiore Policlinico, Milano, Italy; 2 Università degli Studi di Milano, Milano, Italy; 3 Dipartimento di Fisiopatologia Medico-Chirurgica e dei Trapianti, Università degli Studi di Milano, Milano, Italy

**DOI** 10.1055/s-0039-1681751

**Aims** Capsule enteroscopy (VCE) is considered the reference standard for the assessment of small bowel disorders since it has the highest diagnostic yield for the detection of luminal and mucosal alterations. There are no studies comparing VCE with small bowel ultrasonography (B-US): the aim of this study was to compare the diagnostic yield of VCE and B-US in the diagnosis of small bowel disorders.

**Methods** We retrospectively enrolled 159 patients undergoing VCE and B-US for the following indications: obscure gastrointestinal bleedings, suspect or follow-up of known complicated celiac disease, chronic diarrhoea or malabsorption syndromes. The interval between the two exams had to be inferior to one year. We evaluated the diagnostic yields of the two techniques. The accuracy of small bowel ultrasonography was determined using VCE as the reference standard.

**Results** The diagnostic yields calculated in the whole sample were 55% for VCE and 33% for B-US ( $P<0.05$ ). The subgroups analysis showed that VCE

ability to detect pathological signs is higher; there was a statistical significant difference between the diagnostic performances of the two techniques in patients with OGIB (62% vs. 14%,  $P<0.05$ ) and suspect or known complicated celiac diseases (55% vs. 35%,  $P<0.05$ ), while the difference was not statistically significant among patients with chronic diarrhoea and malabsorption syndromes (51% vs. 46%,  $P=0.8$ ).

**Conclusions** Compared to B-US, VCE is more accurate to detect lesions in patients with OGIB and suspect or known complicated celiac disease. B-US could have a role in the screening of celiac disease complications, as it was able to detect patients with severe complications (RCD II, EATL, adenocarcinoma). In patients with chronic diarrhoea and malabsorption syndromes the use of VCE should be proposed earlier in the diagnostic process for its ability to detect clinically relevant lesions.

Saturday, April 6, 2019

Complications

14:00 – 14:30

ePoster Podium 8

## ePP199 APP (AMBERG-PERFORATION-PROJECT) – DEVELOPMENT AND EVALUATION OF AN INTERDISCIPLINARY, SYSTEMATIC APPROACH FOR ENDOSCOPIC MANAGEMENT OF IATROGENIC PERFORATION IN A GERMAN SECONDARY REFERRAL CENTER

**Authors** Decassian T<sup>1</sup>, Dauer M<sup>1</sup>, Groß V<sup>1</sup>

**Institute** 1 Klinikum St. Marien Amberg, Amberg, Germany

**DOI** 10.1055/s-0039-1681752

**Aims** In recent years there has been a shift of paradigm in the management of iatrogenic gastrointestinal perforations from surgical towards primary endoscopic management. In order to establish and evaluate this concept in our own hospital, we developed the Amberg-perforation-Project.

**Methods** All perforations occurring in more than 18.000 consecutive gastrointestinal endoscopies in our department from I/2014 until IV/2017 were recorded, evaluated, and followed-up prospectively. In-house SOPs were designed and communicated with all physicians in our hospital. Primary goal was endoscopic closure of the perforation.

**Results** In total, we observed 24 perforations in 18.627 consecutive endoscopies (0,13%):

- EGD + push-enteroscopy: 7/9.508 (0,07%) (4 therapeutic/3 diagnostic)
- colonoscopy + sigmoidoscopy, diagnostic: 3/6.958 (0,04%)
- polypectomy (including EMR/ESD): 4/1.577 (0,25%)
- ERCP: 9/1.537 (0,59%)
- EUS: 1/642 (0,16%)

In addition, 24 cases of extraluminal gas without detectable perforation could be identified: 12 post-polypectomy and 12 following ERCP (Stapfer-4). Diagnosis of perforation could be established within 12 hours in 95,8% (23/24) (in 20 cases during endoscopy). Initial therapeutic approach was surgical in 3 cases, conservative in 3 cases, and endoscopic in 17 cases (4x Clips, 10x OTSC, 3x SEMS). In 1 case no therapy could be performed (outpatient with delayed admittance to our emergency unit). Mortality was 4,2% (1/24). In 3 cases, patients had to be operated on secondary to endoscopic therapy. Endoscopic treatment showed a technical and a clinical success rate of 94,1% (16/17) and 87,5% (14/16) respectively.

**Conclusions** Primary endoscopic management of iatrogenic gastrointestinal perforations is safe and highly successful in everyday practice of a secondary referral center. Based on the findings of our study, we established a system for documentation and management of endoscopic complications („KEMS“), that was successfully integrated in our IT-based patient management system (KIS).

## ePP201 DIGESTIVE PERFORATIONS RELATED TO ENDOSCOPY PROCEDURES BEFORE AND AFTER ESGE GUIDELINES: A LOCAL MANAGEMENT CHARTER BASED ON LOCAL EVIDENCE AND EXPERTS OPINION

**Authors** Pioche M<sup>1</sup>, Bertrand G<sup>2</sup>, Rivory J<sup>3</sup>, Saurin JC<sup>4</sup>, Robert M<sup>5</sup>, Valette PJ<sup>6</sup>, Rostain F<sup>2</sup>, Ponchon T<sup>2</sup>

**Institute** 1 Gastroenterology and Endoscopy, Edouard Herriot Hospital, Belmont d'Azergues, France; 2 Gastroenterology and Endoscopy, Edouard Herriot Hospital, Lyon, France; 3 Edouard Herriot University Hospital, Lyon, France; 4 Edouard Herriot Hospital, Lyon, France; 5 Digestive Surgery, Edouard Herriot Hospital, Lyon, France; 6 Radiology, Edouard Herriot Hospital, Lyon, France

**DOI** 10.1055/s-0039-1681753

**Aims** Perforations are a known side effect of endoscopic procedures. A proposal for appropriate management should be available in each center and shared with radiologists and surgeons as recommended by ESGE. The objective of our study was to analyze retrospectively the results of perforation management in our center before and after 2016, in order to create a management charter based on local evidence and opinion of local experts.

**Methods** Patients were included if they underwent partial or complete perforation, during an endoscopy. We compared the management and its results in two different periods before (2008–2015) and after the creation of a comprehensive local database (2016–2018). With these results, a panel of experts was questioned to propose a consensual management charter.

**Results** 105 patients with digestive perforation were included (51 between 2008 and 2015 and 54 after 2016). Perforations occurred mainly during therapeutic procedures (86.7%), with a significant increase since 2016 (96.3 versus 76.5%) ( $p=0.002$ ). Totally, 78 (74.3%) perforations were diagnosed immediately and closed during the procedure, with a clinical success of 88.5%. Closure was more effective in therapeutic (90.9%) than in diagnostic procedures (75.0%,  $p=0.06$ ). For perforations <0.5 cm, regardless of location, endoscopic closure was effective in 97.4%, compared to 76.5% beyond 0.5 cm ( $p<0.05$ ). For perforations <0.5 cm, systematic CT scan, antibiotics or surgical evaluation did not improve results.

**Conclusions** The detection of perforations and their closure during the procedure clearly improves the prognosis of patients with much less recourse to salvage surgery. Detection of perforations could become a quality criterion for endoscopy procedures. For incomplete (target sign) and complete perforations <0.5 cm, endoscopic closure is almost always effective and therefore, the surgical evaluation, antibiotic therapy and CT scan could not be systematic but only in case of symptoms of leakage.

## ePP200 COLON POLYPECTOMY: PROSPECTIVE ANALYSIS OF RISK FACTORS FOR MAJOR COMPLICATIONS

**Authors** Taveira F<sup>1</sup>, Areia M<sup>1</sup>, João M<sup>1</sup>, Elvas L<sup>1</sup>, Alves S<sup>1</sup>, Brito D<sup>1</sup>, Saraiva S<sup>1</sup>, Cadime AT<sup>1</sup>

**Institute** 1 Portuguese Oncology Institute of Coimbra, Coimbra, Portugal

**DOI** 10.1055/s-0039-1681754

**Aims** Endoscopic excision of lesions in the colon is generally safe and decisively contributes for avoiding colorectal cancer. Complications such bleeding or perforation are well established. We intend to study the complications after colon polypectomy at our unit and to understand the risk factors associated.

**Methods** Prospective cohort study with registration of all polypectomies between October 2013 and October 2018, in a single center. Evaluation of patients' characteristics (comorbidities, medication), lesions' characteristics (location, size, morphology, SMSA score), complications and outcomes. Statistical analysis included descriptive statistics, Qui<sup>2</sup> test and multivariable regression.

**Results** Performed 3732 polypectomies, in 1761 patients, median age 66 years (IQR 8). Use of antiaggregant in 8% ( $n=299$ ), direct-acting oral antic-

agulants (DOAC) in 5% ( $n=186$ ), warfarin in 3% ( $n=120$ ). Lesions were mostly sessile/flat (70%,  $n=2640$ ), in the left colon (55%,  $n=2069$ ), median size 10 mm (IQR 5). Median SMSA score was 6, with 9.6% scoring SMSA $\geq$ 3. Cold snare used in 30% and EMR in 9% of the lesions.

Complications occurred in 2.4% ( $n=91$ ), mostly bleeding (2%,  $n=75$ ) with mean time for delayed bleeding 6 days ( $\pm 0.5$ ). Four perforations and 12 post-polypectomy electrocoagulation syndrome. Readmission needed in 2.6% ( $n=46$ ), generating 183 days in hospital, 12 blood units transfused, surgery in 2 of the 4 perforations. No all-cause mortality registered. Risk factors for complications in multivariable regression were SMSA $\geq$ 3 (OR 7.6, IC95% 3–20) and use of DOAC (OR 5, IC95% 1.1–23) for delayed bleeding; EMR (OR 9, IC95% 3–28) and SMSA $\geq$ 3 (OR 4, IC95% 1.2–14) for post-polypectomy electrocoagulation syndrome. No risk factors were found for perforation.

**Conclusions** Complications in our unit occurred within recommended thresholds, although complex polyps have higher risks for complications recommending the use of the SMSA score for risk stratification. Patients under DOAC need extra caution in their management and might deserve further study.

## ESGE Days 2019 ePosters

Friday, April 5, 2019

09:00 – 17:00

Clinical Endoscopic Practice

ePosters

### eP2 VALIDATION OF A SCORE PREDICTING INADEQUATE BOWEL PREPARATION BEFORE COLONOSCOPY IN HOSPITALIZED PATIENTS

**Authors** Triantafyllou K<sup>1</sup>, Gkolfakis P<sup>1</sup>, Skamnelos A<sup>2</sup>, Diamantopoulou G<sup>3</sup>, Dagas A<sup>4</sup>, Tziatzios G<sup>1</sup>, Thomopoulos K<sup>3</sup>, Potamianos S<sup>4</sup>, Christodoulou D<sup>2</sup>

**Institute** 1 Hepatogastroenterology Unit, Second Department of Internal Medicine – Propaedeutic, Research Institute and Diabetes Center, Medical School, National and Kapodistrian University of Athens, "Attikon" University General Hospital, Athens, Greece; 2 Division of Gastroenterology, University Hospital & Faculty of Medicine, School of Health Sciences, University of Ioannina, Ioannina, Greece; 3 Division of Gastroenterology, Department of Internal Medicine, University Hospital of Patras, Patras, Greece; 4 Department of Gastroenterology, Faculty of Medicine, School of Health Sciences, University of Thessaly, Larisa, Greece

**DOI** 10.1055/s-0039-1681755

**Aims** Dik score\* has been evaluated in the Netherlands to predict inadequate bowel preparation before colonoscopy among in- and out- patients. We aimed to validate it using a cohort of Greek inpatients.

**Methods** Post-hoc cohort analysis of the data from inpatients undergoing colonoscopy in 4 tertiary greek centers. Dik Score is calculated taking into account patient's ASA Score, history of tricyclic antidepressants or opioid ingestion, history of diabetes mellitus, history of abdominal or pelvic surgery, history of inadequate bowel preparation and current hospitalization. The Area Under the Curve (AUROC) was used to calculate Dik score's discriminative ability. For each cut-off we determined its sensitivity, specificity, positive (PPV) and negative prognostic value (NPV).

**Results** We enrolled 261 patients (161 ambulatory, 140 men, 70.7 $\pm$ 15.4 years old). In 89/261 (34.1%) patients bowel preparation was considered inadequate (BBPS<6). Dik Score showed a sufficient discriminative ability for the entire cohort [AUROC (95% CI)=0.69 (0.62–0.76)], while it performed better among bedridden compared to ambulatory patients [0.75 (0.65–0.85) vs. 0.58 (0.48–0.68), respectively]. In the entire cohort sensitivity, specificity, PPV and NPV for score  $\geq$ 2 and  $\geq$ 3 were 81.6%, 44.3%, 43.3%, 82.2% and 59.8%, 68.9%, 50%, 76.7%, respectively. Among bedridden and ambulatory patients sensitivity, specificity, PPV and NPV for score  $\geq$ 2 were 95.7%, 21.2%,

52.3%, 84.6% and 65%, 54.8%, 33.3%, 81.8%, respectively and for score  $\geq 3$  89.4%, 51.9%, 62.7%, 84.4% and 25%, 76.5%, 27%, 74.6%, respectively.

**Conclusions** In a cohort of Greek hospitalized patients Dik score  $\geq 2$  predicts sufficiently those with inadequate bowel preparation before colonoscopy. Moreover, among bedridden patients Dik score  $\geq 3$  can be used to further increase sensitivity without affecting specificity.

\*Dik et al. Predicting inadequate bowel preparation for colonoscopy in participants receiving split-dose bowel preparation... *Gastrointestinal Endoscopy* 2012.

#### eP4 ESOPHAGEAL RETENTION OF RESIDUE FROM N-ACETYL-CYSTEINE CAPSULE IN PATIENTS UNDERGOING UPPER GASTROINTESTINAL ENDOSCOPY

**Authors** Park JM<sup>1</sup>, Lee SH<sup>1</sup>, Lee SJ<sup>1</sup>, Park SC<sup>1</sup>, Kang CD<sup>1</sup>, Nam SJ<sup>1</sup>

**Institute** 1 Kangwon National University School of Medicine, Chuncheon, Korea, Republic of

**DOI** 10.1055/s-0039-1681756

**Aims** N-acetylcysteine (NAC) is a mucolytic agent, and NAC solution has been used to improve visibility during upper gastrointestinal (UGI) endoscopy. On the other hand, NAC capsule may leave a residue in the esophagus and interfere clear mucosal visualization. This study aimed to assess the frequency of esophageal retention of residue from NAC capsule during UGI endoscopy.

**Methods** From January 2017 to December 2017, a total of 153 patients had 156 UGI endoscopy performed while taking NAC capsules. The endoscopic findings were reviewed retrospectively.

**Results** Esophageal retention of NAC capsule residue was observed in seven cases (4.5%). The mean age of patients was  $66.0 \pm 23.2$  years old and four patients were female (57.1%). A patient underwent three endoscopic examinations during the study period, and the residue was observed only when the patient took the NAC capsule. Primary endoscopic diagnoses were sloughing esophagitis in 3 cases (42.9%) and only one case was correctly diagnosed as residue from NAC capsule (14.3%).

**Conclusions** Residue from NAC capsule, which may stay in the esophagus, interferes clear mucosal visualization and it can be misdiagnosed as esophagitis.

#### eP5 FOCAL MYOSITIS AFTER ENDOSCOPIC MUCOSAL RESECTION OF COLON LST

**Authors** Yang JI<sup>1</sup>, Jeon H<sup>1</sup>

**Institute** 1 Good Gang-An Hospital, Pusan, Korea, Republic of

**DOI** 10.1055/s-0039-1681757

**Aims** Gastrointestinal endoscopic mucosal resection (EMR) is a procedure to remove early-stage cancer and precancerous growths from the lining of the digestive tract. Post-polypectomy coagulation syndrome, thermal injury, bleeding, perforation, peritonitis, appendicitis could happen after EMR. Myositis following EMR was focused on this study.

**Methods** 58-year-old male was diagnosed with 2 cm-sized cecal LST (laterally spreading tumor). He was referred to our hospital and admitted for treatment. He had a history of surgery for left colon cancer and ampulla of Vater cancer. EMR was performed, and 8 h after the procedure, the patient experienced severe right inguinal pain with fever of 38.2°C. Laboratory test revealed a WBC count of 33910/mm<sup>3</sup>, neutrophil count for 26720/mm<sup>3</sup>, CRP level of 10.6 independently leading to inflammatory response.

Whole abdomen CT was performed, and there was an abnormally swelling of right iliacus muscle with perimuscular fluid collection. Notably, there was no abnormality in the right colon at the site where EMR was performed on CT. Myositis of the right iliacus muscle was diagnosed. Intravenous antibiotics (piperacillin/tazobactam) was initiated on the next day after EMR, and massive fluid therapy with crystalloid was performed. After administrating antibiotics for 3 days, there was no longer fever and laboratory test revealed a WBC count of 14470/mm<sup>3</sup> and CRP level of 5.12. The patient got improved and

discharged on 8th post-polypectomy day. Pathological analysis revealed a cecal tubular adenoma with moderate dysplasia.

**Results** Several predictable causes can exist such as post-polypectomy coagulation syndrome (PPCS), transmural burn syndrome, infection after submucosal saline injection. Also, it is possible that more than one mechanism contributes to the inflammatory process.

**Conclusions** Here, we reported a case of focal myositis following EMR of a cecal LST, which was successfully treated with antibiotics. Myositis of the iliacus muscle following EMR is extremely rare and cecal EMR may be rare cause of myositis.

#### eP6 INFLUENCE OF ENDOSCOPIST EXPERIENCE, COMORBIDITIES AND PATIENTS AGE ON THE COMPLICATIONS AND DOSE OF SEDATION ON ENDOSCOPIC ULTRASOUND

**Authors** Razpotnik M<sup>1</sup>, Bota S<sup>1</sup>, Essler G<sup>1</sup>, Weber-Eibel J<sup>1</sup>, Peck-Radosavljevic M<sup>1</sup>

**Institute** 1 Department of Internal Medicine and Gastroenterology (IMUG), Hepatology, Endocrinology, Rheumatology and Nephrology and Emergency Medicine (ZAE) with Centralized Endoscopy Service, Klinikum Klagenfurt am Wörthersee, Klagenfurt am Wörthersee, Austria

**DOI** 10.1055/s-0039-1681758

**Aims** To investigate the influence of endosonographer experience and patient related factors on the complications and dose of sedation by EUS.

**Methods** Our retrospective study included EUS investigations performed between 01/2015 – 10/2018. An experienced endosonographer has performed at least 150 EUS examinations including 50 interventions. Sedation related complications were defined as cardiorespiratory instability with oxygen saturation drop below 85% and/or prolonged hypotonia.

**Results** 469 EUS were analyzed (39.3% interventional). The median dose of Propofol and Midazolam were: 140 (30 – 540) mg and (1 – 7) mg, respectively. Sedation related complications were documented in 1.5% of cases. All patients had a transient, non fatal respiratory insufficiency. 57.2% of the patients who developed complications were >75 years. Cardiac and/or pulmonary comorbidities were present in 85.7% of patients with complications. The endosonographer experience did not influence the complications rate (57.1% vs. 42.9%,  $p = 0.99$ ). The Propofol dose was significantly higher in interventional vs. diagnostic EUS: 200 (30 – 480) mg vs. 120 (30 – 540) mg,  $p < 0.0001$ . The Midazolam dose was similar: 3 (1 – 7) mg vs. 3 (2 – 7) mg,  $p = 0.06$ . In both diagnostic and interventional EUS, patients with comorbidities and older age received significant less sedation. Experienced endosonographers used less sedation than trainees (Table 1).

**Tab. 1** Factors influencing dose of sedation by EUS

Factor	EUS-Diagnostic Propofol (mg)	EUS-Interventional Propofol (mg)	EUS-Diagnostic Midazolam (mg)	EUS-Interventional Midazolam (mg)
A: Male, B: Female	A: 120 (30 – 540) B: 110 (30 – 400) $p = 0.52$	A: 200 (30 – 480) B: 185 (50 – 420) $p = 0.09$	A: 3 (1 – 7) B: 2 (1 – 5) $p = 0.009$	A: 3 (0 – 7) B: 3 (0 – 6) $p = 0.30$
Age (years) A: < 50, B: 50 – 75, C: > 75	A: 125 (60 – 540) B: 120 (30 – 400) C: 100 (30 – 340) Avs.C: $p = 0.001$ Bvs.C: $p = 0.0001$	A: 225 (120 – 420) B: 200 (60 – 480) C: 130 (30 – 380) Avs.C: $p = 0.001$ Bvs.C: $p < 0.0001$	A: 4 (2 – 5) B: 3 (1 – 7) C: 2 (1 – 5) Avs.B: $p = 0.01$ Avs.C: $p < 0.0001$ Bvs.C: $p < 0.0001$	A: 5 (2 – 7) B: 3 (0 – 7) C: 2 (0 – 5) Avs.B: $p = 0.0023$ Avs.C: $p < 0.0001$ Bvs.C: $p = 0.0022$
Comorbidity A: No, B: Pulmonary, C: Cardiac D: Pulmonary+Cardiac	A: 120 (30 – 540) B: 100 (40 – 250) C: 100 (30 – 290) D: 90 (50 – 170) Avs.C: $p = 0.008$	A: 205 (60 – 480) B: 170 (60 – 340) C: 160 (30 – 370) D: 155 (60 – 320) Avs.C: $p = 0.0039$	A: 3 (2 – 5) B: 2 (1 – 5) C: 2 (1 – 7) D: 3 (1 – 5) Avs.C: $p = 0.003$	A: 3 (0 – 7) B: 3 (0 – 5) C: 3 (2 – 5) D: 2.5 (2 – 5) Avs.B: $p = 0.011$ Avs.C: $p = 0.008$
A: Trainee, B: Experienced	A: 120 (30 – 540) B: 110 (30 – 340) $p = 0.03$	A: 220 (70 – 480) B: 175 (30 – 420) $p = 0.0008$	A: 3 (1 – 6) B: 3 (1 – 7) $p = 0.50$	A: 3 (0 – 7) B: 3 (2 – 7) $p = 0.03$

**Conclusions** Endosonographer experience, patients age and comorbidities had a significant influence on sedation dose. Sedation-related complications occurred only in 1.5% of cases.

## eP7 PROPOFOL SEDATION IN COLONOSCOPY: FROM SATISFIED PATIENTS TO IMPROVED QUALITY INDICATORS

**Authors** Abu Baker F<sup>1</sup>, Gal O<sup>2</sup>, Mari A<sup>1</sup>, Feldman D<sup>1</sup>, Ovadia B<sup>1</sup>, Kopelman Y<sup>1</sup>  
**Institute** 1 Hillel Yaffe Medical Center, Hadera, Israel; 2 Gastroenterology and Hepatology, Hillel Yaffe Medical Center, Hadera, Israel  
**DOI** 10.1055/s-0039-1681759

**Aims** Propofol mediated sedation (PMS) is safe and is clearly associated with increased patient satisfaction. However, whether it results in a favourable effect on colonoscopy outcomes and performance compared to standard sedation with benzodiazepines/opiates remains unclear. This current study aims to determine the effect of PMS on colonoscopy quality measures compared to traditional sedation.

**Methods** A large cohort of 44,794 patients who underwent sedated colonoscopies over a 15-year period were included. Colonoscopy quality indicators including polyp detection rate (PDR), cecal intubation rate (CIR) as well as terminal ileum intubation rate (TIR) were examined in benzodiazepines/opiates sedated patients and compared with PMS group. Within PMS group a dose-dependent effect was assessed, and outcome of endoscopist directed PMS procedures were compared with anaesthesia provider PMS ones. Adjustment for potential confounders such as age, sex, quality of bowel preparation, procedural setting and indication was performed.

**Results** Patients who received PMS were more likely to have an enhanced PDR (22.8% vs. 20.9%;  $P < 0.001$ ), as well as CIR (90.4% vs. 87.3%;  $P < 0.001$ ), and TIR (6.4% vs. 1.6%;  $P < 0.001$ ). In multivariate analysis, these findings were maintained, as PMS use was significantly associated with improved PDR (OR = 1.08, 95% CI = 1.03 – 1.13;  $P = 0.029$ ), CIR (OR = 1.33, 95% CI = 1.25 – 1.42;  $P < 0.001$ ) and TIR (OR = 4.72, 95% CI = 4.19 – 5.31;  $P < 0.0001$ ). In the PMS group, a clear dose dependent effect was demonstrated. In the same group anaesthesiology-provider administered PMS was associated with an increased PDR (26.3% vs. 22.5%;  $P < 0.01$ ), but not with an improved CIR (84.1% vs. 91%;  $P < 0.01$ ) or TIR (6.6% vs. 3.8%;  $P < 0.01$ ).

**Conclusions** Propofol mediated sedation during colonoscopy is associated, in a dose-dependent manner, with a better examination performance and improved outcomes. Further prospective or randomised trials to support these findings are warranted.

## eP8 USE OF MOBILE PORTABLE ENDOSCOPY UNIT FOR GASTRO-INTESTINAL DISEASES IN RESOURCE LIMITED RURAL REGION OF INDIA: WHAT WERE THE OUTCOMES?

**Authors** Chaudhari H<sup>1</sup>, Chaudhari Y<sup>1</sup>, Chaudhari S<sup>1</sup>, Chaudhari M<sup>1</sup>, Zagde S<sup>2</sup>, Sawdatkar S<sup>3</sup>, Salok A<sup>2</sup>, Atriwal V<sup>4</sup>, Atriwal A<sup>4</sup>, Atriwal B<sup>4</sup>, Badhe P<sup>1</sup>, Badhe P<sup>1</sup>  
**Institute** 1 Shobha Hospital and Superspeciality Gastroenterology Center, Jalgaon, India; 2 Sahyog Hospital, Buldhana, India; 3 Sawdatkar Hospital, Buldhana, India; 4 Atriwal Hospital, Khandwa, India  
**DOI** 10.1055/s-0039-1681760

**Aims** The aim of this study was to evaluate the role of mobile portable endoscopy unit in patients with gastro-intestinal diseases in resource limited areas of rural India.

**Methods** The current study is a retrospective cohort study which included patients from rural areas of central part of country in two states from four centers during period of May 2017 to September 2018. Endoscopic procedures were performed in patients with gastrointestinal complaints either for outpatients or admitted inpatients, using portable mobile endoscopy unit (TELE PACK X GI by Karl Storz Endoskope, Germany).

**Results** Total 256 endoscopic procedures were performed in 248 patients. Endoscopic procedures were performed for both inpatients and out patients were 22.3% (57/256) and 77.7% (199/256) respectively. Of the 256 procedures, 162 were males, and 86 were females. Upper GI endoscopy (UGIE) was performed in 184 and Colonoscopy in 72 patients. Dyspepsia (27%) and

altered bowel habits (20.6%) was the most common symptom for performing upper GI endoscopy and colonoscopy. Reflux esophagitis (44.6%) was the most common finding in UGIE performed. The incidence of esophageal varices – 22.8%, hiatus hernia and gastric varices – 9.8%, the incidence of carcinoma esophagus was more than carcinoma that is, 2.1% and 1.1% respectively. Incidence of colonic polyp was 7.2%. Therapeutic procedures during UGIE 28.3% (52/184) and colonoscopy 11.1% (08/82) were also performed under propofol sedation and monitored by trained anesthesiologist. No procedure or sedation related complications occurred. Endoscopic variceal band ligation and polypectomy were the most common therapeutic procedures performed in 56.6% and 11.6 respectively.

**Conclusions** Reflux esophagitis was the most common finding in diagnostic study and variceal band ligation was most common therapeutic procedure performed. Performing both diagnostic and therapeutic endoscopy using mobile portable endoscopy unit is safe and carries significant positive health impact on population in resource limited rural areas.

## eP9 ENDOSCOPY FOR PATIENTS PRESENTING WITH ACUTE UPPER GASTROINTESTINAL BLEEDING ON A DEDICATED SATURDAY IN-PATIENT LIST

**Authors** Ahmed H<sup>1</sup>, Thoufeeq M<sup>1</sup>  
**Institute** 1 Gastroenterology Department, Northern General Hospital, Sheffield, United Kingdom  
**DOI** 10.1055/s-0039-1681761

**Aims** We aimed to investigate patients' outcomes and the impact on services following establishment of a Saturday in-patient endoscopy list in our center.

**Methods** We retrospectively reviewed and analysed upper Gastro-Intestinal (UGI) endoscopy reports for all patients presenting with UGI bleeding patients who were scoped on Saturday in-patient list between 01/07/2017 & 21/04/2018. We assessed patients' demographics, time interval between referral & test, length of stay (LOS) post procedure, 4 weeks post procedure morbidity/mortality and the use of therapeutic interventions among the patients.

**Results** 72 gastroscopies were done for AUGIB within the selected period. 7 patients (10.6%) needed repeat gastroscopy within 4 weeks after the initial procedure (6 patients due to suspected re-AUGIB), while 5 patients (8%) died within 4 weeks. 1 patient's death was related to AUGIB. Two patients died after 4 weeks secondary to non AUGIB related cause. 7 patients were then excluded due to prolonged hospital stay post gastroduodenoscopy because of non AUGIB reasons.

A subgroup consisting of the remaining 58 patients who were discharged was further analysed. Mean age is 65.9 +/- 18.4 years. The mean time interval between referral and having the test was 1.05 +/- 0.83 days. The median LOS post procedure was 3 days (IQR: 25%= 2, 75%= 5.25). Mortality rate & number of patients requiring endoscopic therapy was higher among the group who had the test within 24 hours of referral compared to other patients; (9.1% Vs 0.00%,  $p$  Value = 0.33) & (24.4% Vs 11.8%,  $p$  Value = 0.48) respectively. 13 patients (22%) were discharged over the weekend.

**Conclusions** Establishing a dedicated elective Saturday in-patient endoscopy list is safe, feasible and beneficial. It has shortened the hospital stay for a good portion of patients. AUGIB patients who get scoped within 24 hours of presentation will likely need therapeutic intervention.

## eP10 CLINICAL AND ENDOSCOPIC ASPECTS OF METASTASES TO THE GASTROINTESTINAL TRACT

**Authors** Haendchen Bento L<sup>1</sup>, Kazuyoshi Minata M<sup>1</sup>, Pires Batista C<sup>1</sup>, Scomparin R<sup>1</sup>, Lenz Tolentino LH<sup>1</sup>, Costa Martins B<sup>1</sup>, Shiguehissa Kawaguti F<sup>1</sup>, Ryoka Baba E<sup>1</sup>, Simas de Lima M<sup>1</sup>, Naschold Geiger S<sup>1</sup>, Simioni Pennacchi CMP<sup>1</sup>, Andrade de Paulo G<sup>1</sup>, Sato Uemura R<sup>1</sup>, Gusmon de Oliveira CC<sup>1</sup>, Vaz Safatle-Ribeiro A<sup>1</sup>, Ribeiro-Junior U<sup>1</sup>, Maluf-Filho F<sup>1</sup>  
**Institute** 1 Instituto do Cancer do Estado de São Paulo, São Paulo, Brazil  
**DOI** 10.1055/s-0039-1681762

**Aims** Characterize the endoscopic aspects of metastases to the gastrointestinal tract and analyze the survival rate of this patients.

**Methods** A retrospective, single center, observational study, between January 2009 to December 2017. All patients with metastatic lesions to the GI tract with histological confirmation were included. Hematologic cancers, Kaposi sarcoma and tumors with direct invasion were excluded.

**Results** In this period, 54,478 endoscopic exams were performed and 95 patients had diagnosis of GI metastasis (GIMs). There were 49 men and 46 women, with a mean age of 58.9 years. The principle indication for endoscopy were abdominal pain (31.6%) and the most common primary malignancy was melanoma (25.3%), followed by lung (15.8%) and breast cancer (14.7%). The incidence of GIMs in patients with melanoma was 2.2%, in lung cancer was 0.4% and in breast cancer was 0.15. The most common site of metastasis in the GI tract was the stomach (63.2%) and the most common endoscopic presentation was a solitary, ulcerated lesion in the gastric body. The overall mean and median survival rates were respectively 13.3 months (CI 95% 8.2 – 18.3), and 4.7 months (CI 95% – 3.7 – 5.6). The mean and the median survival rates for patients that received palliative treatment (68 patients) were higher compared with the patients that just received supportive care (27 patients). Mean survival rate: 14.62 versus 7.98 months; median 5.47 versus 1.46 months. The comparison of the Kaplan-Meier survival curves between these two groups is different with chi-square test of 6.85 and Log Rank p value = 0.009.

**Conclusions** Melanoma, breast and lung cancer were the most common metastasis to the GIT. The stomach was the main site of the metastatic lesions. The patients that received palliative treatment before the diagnosis of the GI metastasis had a longer survival rate than patients that received only supportive care.

## eP11 ERCP WITH THE PENTAX ED34-I10T2 WITH DISPOSABLE ELEVATOR CAP VERSUS STANDARD DUODENOSCOPE

**Authors** Straulino F<sup>1</sup>, Genthner A<sup>1</sup>, Kangalli S<sup>1</sup>, Reiffenstein I<sup>1</sup>, Eickhoff A<sup>1</sup>

**Institute** 1 Medizinische Klinik II, Klinikum Hanau, Hanau, Germany

**DOI** 10.1055/s-0039-1681763

**Aims** The germ-free processing of endoscopes is a central issue regarding patient safety in endoscopy. Especially duodenoscopes with the additional mechanism of the albaran lever are critical. With the ED34-i10T2 Pentax Medical introduced a new duodenoscope. It is almost identical to the standard duodenoscope but it contains a disposable elevator cap which has to be changed after every use.

**Methods** We investigated the ED34-i10T2 in routine clinical practice and compared it to the standard duodenoscope regarding time to the papilla duodeni, time until intubation of the common bile duct and time for the manual pre-cleaning of the endoscope. Furthermore the examiner and the endoscopic nurse were questioned about the subjective handling during endoscopy and the cleaning of the endoscope. Complications were recorded.

**Results** We did 37 ERCPs with the standard duodenoscope and 34 ERCPs with the ED34-i10T2. The average time to the papilla duodeni was similar with 73.5 vs. 81.2 seconds. The time until intubation of the common bile duct was on average 745.7 seconds vs. 391.3 seconds. The mean time for the manual pre-cleaning was 305 seconds vs. 324.9 seconds. Because of heterogenous individual values there was no statistical significance. With the standard duodenoscope there was one bleeding after papillotomy and two patients with a post-ERCP pancreatitis. With the ED34-i10T2 there was one bleeding and one post-ERCP pancreatitis. The feeling from the examiner was that with the disposable elevator cap the fixation of the guidewire and use of the fiberoptic cholangioscope was easier. The cleaning was subjective more comfortable with the ED34-i10T2 because of the disposable elevator cap.

**Conclusions** In summary there was no significant difference between the new ED34-i10T2 with the disposable elevator cap and the standard duodenoscope

regarding handling, complications and time for the examination or cleaning in clinical practice.

The risk of cross-contamination with potential infectious germs could be reduced.

## eP12 WHO SHOULD ADMINISTER SEDATION DURING ERCP – ANESTHESIOLOGIST, INTENSIVIST OR ENDOSCOPIST? A COMPARATIVE PROSPECTIVE STUDY

**Authors** Albuquerque M<sup>1</sup>, Vargas García A<sup>1,2</sup>, Zaragoza Velasco N<sup>3</sup>, Pechkova M<sup>1</sup>, Miñana Calafat J<sup>3</sup>, Figa M<sup>1</sup>, Ballester Clau R<sup>3</sup>, Planella De Robinat M<sup>4</sup>, Reñe Espinet JM<sup>3</sup>, González-Húix Lladó F<sup>1,3</sup>

**Institute** 1 Clínica Girona, Girona, Spain; 2 Hospital de Palamós, Palamós, Spain; 3 Hospital Arnau de Villanova, Lleida, Spain; 4 Hospital Arnau de Villanova, Girona, Spain

**DOI** 10.1055/s-0039-1681764

**Aims** To compare safety and effectiveness of sedation during ERCP (sERCP) regarding which medical doctor directs it.

**Methods** A comparative prospective non-randomized study done in daily practice. Consecutive patients who underwent to ERCP were collected at two centers. January 2017-May 2018. Sedation was directed either by an endoscopist (endoscopist-directed propofol: EDP), on Monday or by an intensivist (intensivist-administered propofol: IAP), on Wednesday or by an anesthesiologist (monitored anesthesia care: MAC), on Thursday. The safety was measured by the appearance of serious adverse events (SAE) and the effectiveness, by the cancelled ERCP rate, sedation time and patient position that determined ease of ERCP and quality of radiologic images.

**Results** 454 patients (Age: 72.7 ± 15.7y; women: 54.63%): 147 into EDP group, 137, IAP group and 170, MAC group. The endoscopist had the largest experience in sERCP (> 100 procedures): 98%, p = 0.000 and he administered only propofol in 81.9%, the intensivist administered propofol plus midazolam in 78.7% and anesthesiologist, propofol plus other agents (i.e. opioids, ketamine) in 86.2%, p = 0.000. The sedation was deepest in MAC, Observers's (OAA/S): 5.19 ± 0.6, p = 0.000. The SAE rate was 8.6%, lowest in EDP: 4.8%, p = 0.042. The SpO<sub>2</sub> < 70% was the most frequent SAE: 4.5%, highest in MAC: 6.1%, p = 0.085 and it had required more respiratory resuscitation measures (chin-lift maneuver, increasing of FIO<sub>2</sub> or Guedel airway insertion) in MAC and IAP than EDP, p = 0.003. The tracheal intubation was most frequent in MAC: 1.8%, p = 0.074. Concerning effectiveness, the highest cancelled ERCP rate was observed in MAC: 2.9%, p = 0.015. Similarly, in this group the lateral decubitus position was most frequent (31.6%, p = 0.000), which determined the worst radiologic image (17.8%, p = 0.000). The sedation time was shortest in IAP: 44.4 ± 1.8 min, p = 0.023.

**Conclusions** Our data suggest that sERCP is safer and more effective when is administered by an expert nursing team directed by an endoscopist.

## eP14 ENDOSCOPIC REMOVAL OF A MIGRATED ENDOSCOPIC DUODENOJEJUNAL BYPASS (ENDOBARRIER) WHICH HAD EMBEDDED ITS BARBWIRE INTO THE ANGLE OF TREITZ

**Authors** Martínez-Alcala A<sup>1</sup>, Kroener PT<sup>2</sup>, D'Assuncao MA<sup>1</sup>, Peter S<sup>3</sup>, Mönkemüller K<sup>1</sup>

**Institute** 1 Gastroenterologie, Frankenwald Klinik, Kronach, Germany; 2 Mayo Clinic, Jacksonville, United States; 3 Gastroenterology, Basil Hirschowitz Endoscopic Center of Excellence, Birmingham, United States  
**DOI** 10.1055/s-0039-1681765

**Aims** A 56-year-old patient with obesity (BMI 55) underwent placement of a duodenojejunal bypass (Endobarrier). Nine months after the procedure he presented complaining of severe abdominal pain and hematemesis.

**Methods** A nasogastric tube was placed. A CT scan of the abdomen showed acute pancreatitis and migration and incarceration of the Endobarrier to the distal duodenum (Figure, Video). After the patient was stabilized, including

transfusion of one unit of blood, endoscopy was performed under general anesthesia.

**Results** The stomach was filled coffee ground material and food rests. Reaching the migrated Endobarrier was impossible with a gastroscope. Thus a colonoscope was used. The metallic barbs were seen but they were anchored against the mucosa, causing lacerations and bleeding. Therefore, the scope was removed and a “colon” overtube (US Endoscopy) with a pediatric colonoscope was inserted into the stomach. The third duodenum was reached. Fluoroscopy assistance was necessary to locate the overtube, scope and also the metal barbs of the Endobarrier. Once the anchor site was reached we were able to collapse the anchor using the grasper and always under Fluoroscopy for visualization. The barbs were slowly but steadily pulled into the overtube and the device was detached from its embedded site and gradually brought into the stomach (Figure, Video). Once in the stomach we continued to pull the whole anchor into the overtube. We checked with both endoscopic and fluoroscopic views to ensure everything was safely in the tube and fully removed the device out of the esophagus. Relook endoscopy showed no active bleeding. A through-the-scope water-soluble contrast enterography demonstrated luminal integrity without leaks or perforation. The patient’s clinical status improved and he was discharged home two days later.

**Conclusions** This case demonstrates a severe complication of endoscopic duodenojejunal bypass device (Endobarrier) and its endoscopic resolution using techniques and measures from the “extreme endoscopy toolbox”.

### eP15 RISK STRATIFICATION AT THE FRONT DOOR FOR NON-VARICEAL GI BLEEDS AND ITS EFFECT ON GI REFERRAL AND ENDOSCOPIC ASSESSMENT

**Authors** Grzelka M<sup>1</sup>, Robertson AR<sup>1</sup>, Lockman KA<sup>1</sup>

**Institute** 1 Royal Infirmary of Edinburgh, Edinburgh, United Kingdom

DOI 10.1055/s-0039-1681766

**Aims** Upper gastrointestinal bleeding (UGIB) has high inpatient mortality and so early risk-stratification is essential. We seek to establish the impact of non-specialist risk stratification with Glasgow-Blatchford score (GBS) on timing of specialist referral and endoscopy. An electronic proforma had been introduced to the emergency and medical departments to improve this process.

**Methods** 40 patients admitted to a university hospital between January and July 2018 with non-variceal UGIB were identified. The following information was collected: the score (or retrospectively calculated score if not done by the admitting clinician), time to referral to specialty, time to endoscopy.

**Results** GBS was documented in 25%. Those with GBS of 0–1 were discharged without referral to specialty or inpatient investigations more often. 67% of low risk patients were referred within 24 h if GBS was not calculated. When GBS was not calculated, 33% with scores 0–1 had a next day endoscopy. When GBS was calculated 0% with score 0–1 underwent endoscopy.

**Conclusions** The electronic tool was practically not used and only a quarter of patients on admission were risk-stratified using a GBS score. There seems to be excess referrals for specialty assessment for low risk patients when there is no subjective risk assessment. Whether GBS was calculated or not, the referral time to the GI team does not seem to correlate with the score. This implies that the application of GBS may not be well understood among non-specialist clinicians. There might be factors such as time of the assessment (in- vs. out-of-hours when the GI team are not on site), co-morbidities (e.g. ongoing sepsis or the patient is too frail for endoscopy) and subjective assessment of the risk instead of an objective one that guide the admitting clinician to the referral and need for a scope.

### eP16 KEEPING UP WITH THE TIMES: USE OF ADJUVANT TECHNOLOGY BY IRISH GASTROENTEROLOGY TRAINEES

**Authors** Harkin G<sup>1</sup>, Moran C<sup>1</sup>, McGettigan N<sup>1</sup>, Hussey M<sup>1</sup>, Harewood G<sup>1</sup>, Cheriyan D<sup>1</sup>, Boland K<sup>1</sup>, O’Toole A<sup>1</sup>, Patchett S<sup>1</sup>

**Institute** 1 Gastroenterology, Beaumont Hospital, Dublin, Ireland

DOI 10.1055/s-0039-1681767

**Aims** Use of accessory devices and additional techniques in upper and lower endoscopy is always evolving. Incorporating this equipment into routine practice requires initiative often depending on the budget of the unit and the endoscopy department itself.

The aim was to establish the availability and use of specialised equipment and accessory devices readily available to trainees in Ireland.

**Methods** A survey was distributed to gastroenterology trainees working in Ireland over a four week period. Use of foot pump, scope guide, CO<sub>2</sub>, simeticone, endocuff, cap, NBI, and chromo-endoscopy was explored in addition to patient repositioning.

**Results** There were 31 respondents; 29 were included for analysis. Responses were identified from 10 hospital sites. Only 48% of trainees have a formal training list and 52% have been scoping for 4 years or more. Typically 39% of trainees use a *foot pump* and 38% use a *scope guide* for colonoscopy. Lack of availability (82%, 47% respectively) was frequently cited among non-users. Only 38% typically use CO<sub>2</sub> during colonoscopies while just 10% use *simeticone*. 78% reported CO<sub>2</sub> wasn’t always available to them, whereas trainees don’t find simeticone useful (35%). To aid polyp detection 68% typically *reposition* the patient. Trainees that don’t report they don’t find repositioning useful (56%). Almost two thirds of trainees typically use NBI. Those who don’t report lack of confidence (33%). Only 18% typically use a *cap* for polypectomy. Among non-users, 35% haven’t been taught how to use it. Only 11% typically use endocuff. Among non-users, 36% said it wasn’t readily available to them. Only 26% typically use chromo-endoscopy (methylene blue/acetic acid).

**Conclusions** Many newer accessory devices and technology are not utilised among trainees mainly due to lack of availability or training. Addressing these issues may improve quality of endoscopy training in Ireland.

### eP17 USE OF ENDOSCOPIC CLASSIFICATIONS AMONGST TRAINEES IN IRELAND

**Authors** Harkin G<sup>1</sup>, McGettigan N<sup>1</sup>, Hussey M<sup>1</sup>, Moran C<sup>1</sup>, Harewood G<sup>1</sup>, Cheriyan D<sup>1</sup>, Boland K<sup>1</sup>, O’Toole A<sup>1</sup>, Patchett S<sup>1</sup>

**Institute** 1 Beaumont Hospital, Gastroenterology, Dublin, Ireland

DOI 10.1055/s-0039-1681768

**Aims** Use of classifications to describe endoscopic findings in a standardised fashion is recommended. Their use is advocated for both upper and lower endoscopy. Incorporating them into routine practice is advised but requires education and initiative.

The aim was to establish if Irish trainees are including standardised classifications and scoring systems in endoscopy reports.

**Methods** A survey was distributed to gastroenterology trainees working in Ireland over a four week period. Routine incorporation of Mayo Endoscopic Score, NICE, Paris and Prague classifications into endoscopy reporting was established.

**Results** There were 31 respondents; 29 were included for analysis. Response rate was 50.5%. Among respondents 60% were male and the median age 31.5 years (range 28–43). Responses were identified from 10 of the 16 hospital sites surveyed. Only 48% of trainees have a formal training list and 52% have been scoping for 4 years or more. To describe polyps 50% of trainees typically use the Paris Classification; 18% never use it. Among non-users, 31% don’t find it useful and 31% forget to use it. Typically 29% use the NICE Classification whereas 29% never use it. Of those who don’t use the NICE classification 37% forget to use it and 26% don’t find it useful. Notably 11% are not sure what the NICE classification is. When reporting IBD findings 85% typically use stan-

standardised reporting scores. Among non-users 67% report that they forget to use them and 33% report it takes too much time. The majority at 96% always use the Prague Classification to describe Barrett's.

**Conclusions** Frequently trainees don't utilise endoscopic classifications. Improved education and awareness will help improve current practice.

### eP18 USE OF REPORTING DATABASE FOR QUALITY ASSURANCE

**Authors** Hernández L<sup>1</sup>, Vásquez M<sup>1</sup>

**Institute** 1 Gastroenterology Unit, Hospital Santos Reyes, Aranda de Duero, Spain

**DOI** 10.1055/s-0039-1681769

**Aims** Quality assurance is been a major priority in endoscopy of late. The endoscopy reports databases that we use are capable of asserting most of the quality performance measures proposed by ESGE.

We aimed to set the database so the key performance measures from the 2017 ESGE guidelines could be obtained automatically.

**Methods** After setting the database we obtained the key performance measures from all the colonoscopies from January 1<sup>st</sup> 2018 to October 31<sup>st</sup> 2018.

**Results** We evaluated 1054 colonoscopies. Overall, the rate of adequate bowel preparation 95.4%, the cecal intubation rate was 97.3%, the adenoma detection rate was 44.6%, the appropriate polypectomy technique was 99.9%, complication rate was 0.1% and patient experience was good or excellent in 90% of patients. We could not assess the appropriate post-polypectomy surveillance recommendations.

**Conclusions** Once the report database is correctly set, the obtention of the key quality performance measure is easy and fast. This can help endoscopy units and endoscopist obtain accreditation.

### eP19 INFLUENCE FACTORS ON CECAL INTUBATION RATE AS A QUALITY AND PERFORMANCE MEASUREMENT IN COLONOSCOPY

**Authors** Mateescu R<sup>1</sup>, Ionita Radu F<sup>1</sup>, Jinga M<sup>2</sup>, Nuta P<sup>1</sup>, Costache R<sup>1,2</sup>, Macadon B<sup>1</sup>, Patrascu M<sup>1,2</sup>, Popescu A<sup>1</sup>, Balaban V<sup>1</sup>, Calin R<sup>1</sup>, Bucurica S<sup>1,2</sup>

**Institute** 1 SUUMC, Bucharest, Romania; 2 UMF Carol Davila School of Medicine, Bucharest, Romania

**DOI** 10.1055/s-0039-1681770

**Aims** Colonoscopy is a common performed procedure in Gastroenterology, and it's widely used for diagnosis, treatment and surveillance of a wide range of conditions and symptoms. Properly performed, it's generally safe, more accurate than a virtual colonoscopy and well-tolerated by patients. The completion of a colonoscopy is defined by cecal intubation with the visualization of colonic mucosa and distal terminal ileum when it's possible.

**Methods** We reviewed retrospectively all consecutive endoscopies database of the lower digestive tract, done over a period from 2014 – 2017 in our clinic. The recommended completion based on the latest guidelines range from 90 – 95% completion rate according to the indication.

**Results** 11214 consecutive colonoscopies were done. Over-all cecal intubation was successful in 9456 procedures (87.3%). If we exclude the interventional procedures (414 procedures), where cecal intubation was not necessary, the main reasons of non-intubation were due to intolerance of the patients (388 patients), followed on the second place by patients with obstructive cancer (299 patients). The presence of diverticulosis, poor preparation for colonoscopy and post-surgical adhesions were significant findings in non-successful procedures.

**Conclusions** In normal daily practice, colonoscopy is completed in 88.01% of the procedures but we think that this result will stimulate the efforts to incorporate more quality measures and time in our endoscopy laboratory, by applying Quality Improvement Measures.

### eP20 EVALUATION OF DOSE RADIATION IN ENDOSCOPIC UNIT

**Authors** Lefort C<sup>1</sup>, Napoléon B<sup>1</sup>, Gincul R<sup>1</sup>, Fumex F<sup>1</sup>, Lepilliez V<sup>1</sup>

**Institute** 1 Hôpital Privé Jean Mermoz, Lyon, France

**DOI** 10.1055/s-0039-1681771

**Aims** To evaluate our mean radiation exposure during endoscopic procedures.

**Methods** We randomized between september 2017 and june 2018, 255 endoscopic procedures realized under fluoroscopy. 5 experienced endoscopist work in 2 rooms (one with GE system, the other with Siemens system). The Kerma-area product (KAP) was retrospectively evaluated and classified according to the type of procedure.

**Results** Our global mean KAP differs between the two rooms (13 vs. 21 Gy-cm<sup>2</sup>). We independently analyzed the results for each type of procedures: for difficult ERCP procedure the difference persists (14 vs. 27) when the mean KAP was the same in the 2 rooms for bile duct stone removal (12 Gy-cm<sup>2</sup>). The mean KAP was the same for the two rooms for prosthesis removal (6 Gy-cm<sup>2</sup>), and evaluated only in room 1 for dilation (7 Gy-cm<sup>2</sup>), and digestive prosthesis (9 Gy-cm<sup>2</sup>).

**Conclusions** Our mean KAP were globally close to the more recent dose level reference. It differs between two rooms and the difference may be explained by different procedures in the both rooms. Usually the dose level reference are pooling in "therapeutic ERCP" which may induce different results depending on kind of procedures realized in the center. We propose a more precise mean value dose level reference to evaluated (taking into account also a standard situation especially results given for patients of 70 – 75 kg). In our center, this evaluation was done before a training in radiation exposure and will be repeated each year to verify the continuation of optimization.

### eP21 ENDOSCOPIC MANAGEMENT OF EUS RELATED DUODENAL PERFORATION

**Authors** El Bacha H<sup>1,2</sup>, Leblanc S<sup>3</sup>, Bordacahar B<sup>3</sup>, Brieau B<sup>3</sup>, Barret M<sup>3</sup>, Prat F<sup>3</sup>

**Institute** 1 Medecine b, Hopital Ibn-Sina, Rabat, Morocco; 2 Faculte de Medecine, University Mohammed V, Rabat, Morocco; 3 Gastro Enterologie, Hopital Cochin, Paris, France

**DOI** 10.1055/s-0039-1681772

**Aims** Endoscopic ultrasonography (EUS) has a wide application in upper gastrointestinal and biliopancreatic disorders assessment.

EUS experience low complication rate. Perforation is one of the most deemed complication. Surgery allows simultaneous treatment of the perforation and of the biliary disorder. However, surgery is still an invasive treatment carrying its own morbidity and mortality. The aim of our study is to assess feasibility and safety of conservative treatment with over the scope clips (OTSC) in EUS related GI perforation.

**Methods** We performed a retrospective study of patients with EUS related iatrogenic perforation from 2011 to 08/2018.

We included patients with EUS related perforation, with immediate diagnosis, and a conservative endoscopic management. Patient with initial surgical management were excluded.

**Results** 12 perforations in 8504 EUS procedure occurred (0.14%).

1 patient was ruled out due to a delayed diagnosis and initial surgical management.

A total of 11 patients were included, all women. The mean patient age was 75 (range 68 – 88) years. 8/11 (72.7%) perforations were due to a radial scope. All procedures were performed at a diagnostic end.

Perforations were located in the superior flexure of the duodenum in 9/11 (81%), in the descending part of the duodenum 1/11 (9%), and in the inferior duodenal flexure 1/11 (9%). The size of the defect was ranged from 10 – 15 mm.

All clipping procedures experienced a technical and clinical success.

3/11 (27%) had a stay in intensive care unit for less than 72 h, total hospital stay ranged from 3–22 days.

**Conclusions** Proper indication is mandatory for EUS procedure in elderly people. Conservative endoscopic treatment with OTSC clips represent a feasible and safe treatment for EUS related duodenal perforation.

## eP22 THE GASTROPACK SYSTEM, A NOVEL METHOD TO ACCESS TO GASTROENTEROLOGICAL CARE: RESULTS OF THE UPPER GASTROINTESTINAL SYMPTOM POPULATION

**Authors** Ceroni L<sup>1</sup>, Lodato F<sup>1</sup>, Tubertini P<sup>2</sup>, Fabbri C<sup>3</sup>, Buonfiglioli F<sup>1</sup>, Ferrara F<sup>1</sup>, Alberani A<sup>1</sup>, Polifemo A<sup>1</sup>, Tosetti C<sup>4</sup>, Lenzi A<sup>4</sup>, Mondini S<sup>4</sup>, Veduti V<sup>4</sup>, Cennamo V<sup>1</sup>

**Institute** 1 Gastroenterology and Inteventional Endoscopy, AUSL Bologna Bellaria-Maggiore Hospital, Bologna, Italy; 2 Process Reengineering, AUSL Bologna, Bologna, Italy; 3 Engineering, University of Bologna, Bologna, Italy; 4 Department of Primary Care, AUSL Bologna- Distretto Appennino Bolognese, Bologna, Italy

**DOI** 10.1055/s-0039-1681773

**Aims** Open-access system allows General Practitioners (GP) to directly schedule endoscopic procedures for their patients. A previous Italian multicentric study showed a rate of inappropriate EGD of 22.9% (29.4% with prescriptions from GP and 12.9% from specialists). This study aims to evaluate if the GASTROPACK SYSTEM (GS) may reduce not appropriate EGD.

**Methods** In GS, patient's diagnostic work-up, including clinical consultations and/or abdominal ultrasound and/or endoscopic procedures, is scheduled on the basis of a multidisciplinary agreement between GP and gastroenterologists during a preliminary contact. GS has been implemented in a Hospital of a mountain area of Bologna AUSL, with 57.156 inhabitants, where open-access system was previously used. Patients (pts) characteristics, diagnostic work-up, time to first access and time to diagnosis were recorded. Prospective data of upper GI symptoms were analyzed in this study and compared with the open-access literature.

**Results** 1817 pts (M:F = 752:1065, mean age 61 ± 15.8) with upper GI symptoms were admitted to GS. Among them, 255 (M:F = 99:156, mean age 33 ± 8.7) were young (<45 years) and 1562 (M:F = 653:909, mean age 65.8 ± 11.6) were old (>45 years). 68% (173/255) of young and 56% (877/1562) of old pts had EGD. According to ASGE criteria, we observed a rate of inappropriate EGD of 6.6% (70/1050): 18% (32/173) in young and 4% (38/877) in old pts. 37% (12/32) of inappropriate EGD in young and 50% (19/38) in old pts had a clinical significant endoscopic finding (CSEF), with an overall rate of 44% (31/70) CSEF. Mean time to diagnosis for CSEF was 29 ± 35 days, while for cancer was 7 ± 14 days. Overall waiting time to first access was 25 ± 21 days for CSEF, while for cancer was 17 ± 16 days.

**Conclusions** GS could reduce the rate of not appropriate EGD compared to previous data of open-access studies, increasing the prescriptive appropriateness of both GP and gastroenterologists.

## eP24 ENDOSCOPIC MANAGEMENT OF POUCH STRICTURES AFTER ILEO-ANAL POUCH ANASTOMOSIS (IPAA)

**Authors** Emmanouil T<sup>1</sup>, Kontorabdis N<sup>2</sup>, Papanikolaou IS<sup>3</sup>, Evangelides P<sup>4</sup>, Baratsis S<sup>2</sup>

**Institute** 1 Gastroenterology-Hepatology, Metropolitan Hospital, Athens, Greece; 2 Surgical Unit, Metropolitan Hospital, Athens, Greece; 3 Hepatogastroenterology Unit, Attikon University General Hospital, Athens, Greece; 4 Anaesthesiology, Metropolitan Hospital, Athens, Greece

**DOI** 10.1055/s-0039-1681774

**Aims** Strictures are one of the most common complications after IPAA (3–17%). There may be at the site of ileo-anal anastomosis or at the pouch inlet due to fibrosis or local ischemia. They may result in evacuation problems,

pouch dilatation and bacterial overgrowth. Most of them are webs that can be treated by finger dilation or the use of dilators.

**Methods** We present clinical outcome and treatment strategy of patients with IPAA who developed post surgery pouch strictures of variable severity. In a total series of 670 patients with IPAA we investigated 65 patients with anastomotic strictures (9, 7%) and 6 patients with pouch inlet strictures (1,08%). Based on patients symptoms and digital examination we ordered pouchography, pouchoscopy and in selected cases CT/MRI enterography. Finally, different treatment modalities were applied.

**Results** 65 patients with anastomotic strictures presented with symptoms like increased frequency (95%), incontinence (84%), urgency (73%) and perianal irritation (58%). 55 were treated with digital dilatation under endoscopic view (mean 2,1 times). In 10 patients Hegar/Savary dilators were applied (mean 3,2 times) to achieve satisfactory dilatation. In 2 tight stricture cases corticoid injection and kneedle knife cutting of circular fibrotic tissue was used and in 2 other cases endoscopic dilatation was possible after intubation of the efferent loop (rendez-vous). In most cases there was no need of hospitalization or systemic use of major analgesics. 6 patients with pouch inlet stricture presented mainly with abdominal pain (80%) and increased frequency (22%). All were treated surgically by local excision and anastomosis or by stricture bypass. Crohn's disease was diagnosed in 2 patients.

**Conclusions** Anastomotic strictures after IPAA are relatively common but usually can be treated safely endoscopically by digital dilatation on ambulatory basis. Rarely, when pouch inlet strictures are developed surgical treatment is applied.

## eP25 PREDICTIVE MODEL TO DETERMINE THE NEED OF REPEATING ERCP AFTER ENDOSCOPIC TREATMENT OF BILIARY LEAKS

**Authors** Silva JC<sup>1</sup>, Rodrigues J<sup>1</sup>, Pinho R<sup>1</sup>, Proença L<sup>1</sup>, Fernandes C<sup>1</sup>, Sousa M<sup>1</sup>, Gomes AC<sup>1</sup>, Carvalho J<sup>1</sup>

**Institute** 1 Gastroenterology, Centro Hospitalar de Vila Nova de Gaia e Espinho, Vila Nova de Gaia, Portugal

**DOI** 10.1055/s-0039-1681775

**Aims** Endoscopic retrograde cholangiopancreatography (ERCP) is the first-line procedure to iatrogenic biliary leaks approach. In patients who have undergone biliary stenting, the timing and optimal method of stent removal (ERCP/esophagogastroduodenoscopy) is controversial. The present study aimed to evaluate ERCP efficacy in biliary leaks treatment and identify patients in whom repetition of ERCP may be unnecessary.

**Methods** Retrospective, unicentric analysis of patients who underwent ERCP with sphincterotomy and biliary stent placement between 2008–2017 due to iatrogenic biliary leaks. All patients were repeated ERCP with removal of the stent(s). Factors associated with the outcome, resolution of the biliary leak and absence of another pathology in reevaluation ERCP, were identified.

**Results** 43 patients were included, 62.8% (n = 27) female, mean age 58.2 ± 17.2 years. Most common etiology of biliary leaks was laparoscopic cholecystectomy (56.8%) and the most common location the cystic duct stump (53.5%). Technical success was 93.3%, with resolution of the biliary leak in 92.9%. On multivariate analysis, elective iatrogenic procedure (OR = 209.1, 95% CI 2.18–2050.8), normal total bilirubin (OR = 138.9, 95% CI 1.19–1627.2), ERCP performed in ≤ 7 days (OR = 32.9, 95% CI 1.08–1004.8) and removal of the stent in ≤ 12 weeks (OR = 40.7, 95% CI 1.11–1634.9) were independently associated with resolution of the biliary leak and absence of another pathology (p < 0.05; r<sup>2</sup> = 0.71). The area under the ROC curve of these criteria for outcome prediction was 0.93 (p < 0.001). When ≥ 3 criteria were present (42.9%), the model presented specificity of 100%, sensitivity of 58.1%, positive predictive value of 100% and negative predictive value of 45.8% in outcome prediction.

**Conclusions** We identified criteria that allow selection of 43% of patients in whom repetition of ERCP may be unnecessary. Biliary stents can be removed

by esophagogastroduodenoscopy, increasing safety and efficiency of health-care resources utilization.

## eP26 ENDOSCOPIC FINDINGS IN PATIENTS WITH BOWEL WALL THICKENING ON EMERGENCY ROOM CT SCANS

**Authors** Adnan Mohiuddin S<sup>1</sup>, Al Kaabi S<sup>1</sup>, Anjilivelil Joseph J<sup>1</sup>

**Institute** 1 Gastroenterology, Hamad Medical Corporation, Doha, Qatar

**DOI** 10.1055/s-0039-1681776

**Aims** Patients presenting to the Emergency Room with abdominal pain, fever or blood in stools often undergo an urgent CT scan, often revealing bowel wall thickening (BWT). The aim of the current study is to evaluate the significance of such BWT and assess predictors of significant pathology.

**Methods** Patients referred to gastroenterology service from the emergency department at Hamad Medical Corporation, Qatar between July 2015-July 2017 with BWT were retrospectively analyzed. Apart from the CT features, the correlation of endoscopic findings to the clinical presentation, inflammatory markers and histopathology were studied. Patients with known GI pathology, evidence of luminal obstruction, strictures and luminal mass on CT were excluded.

**Results** 109 of 160 patients referred were enrolled in the data analysis. Endoscopic appearance was normal in 37/109 (33.9%) of patients. 41/109 patients (37.6%) had significant chronic pathology – 21 IBD (19.1%) of which 13 CD (11.9%), 8 UC (7.3%), 9 TB (8.3), 11 Malignancy (10.1%). 31/109 (28.4%) had mucosal abnormalities but normal or acute inflammation on histopathology.

Symptoms of diarrhea or pain >2 weeks were the strongest predictor of significant findings on endoscopy. Other features such as blood in stool, fever and weight loss were also associated with having significant pathology.

Laboratory parameters such as mean WBC, Hb, ESR, Albumin and CRP do not differ significantly. Mean Calprotectin was significantly higher in patients with IBD and TB (199.5 ± 299.8 vs. 809.8 ± 540.8; P < 0.001).

**Conclusions** One Third of the patients in the study had significant pathology (IBD/TB/Malignancy). Patients with upper GI BWT have low likelihood of significant pathology compared to lower GI BWT. Until further prospective data becomes available, endoscopic assessment may be warranted in most patients with bowel wall thickening on CT scans.

## eP27V ENDOSCOPIC VACUUM THERAPY FOR AN ESOPHAGEAL PERFORATION AFTER FOREIGN BODY INGESTION: RESOLUTION AFTER A SINGLE SESSION

**Authors** Morais R<sup>1</sup>, Vilas-Boas F<sup>1</sup>, Silva M<sup>1</sup>, Pereira P<sup>1</sup>, Macedo G<sup>1</sup>

**Institute** 1 Gastroenterology, Centro Hospitalar São João, Porto, Portugal

**DOI** 10.1055/s-0039-1681777

A 70-year old man was admitted to the Emergency Department due to persistent chest pain after foreign body ingestion (chicken bone) five days before. He referred fever but denied dyspnea or other symptoms. Chest computed tomography revealed in the thoracic esophagus, in the same plane of the left cardiac atrium, a linear and dense formation with 30 mm, with esophageal perforation and presence of an adjacent collection (23 × 31 × 61 mm). After multidisciplinary discussion it was decided to try to remove the foreign body and close the esophageal defect endoscopically. Upper endoscopy was performed and revealed presence of a foreign body penetrated in the esophageal wall. The adjacent mucosa was congestive and purulent drainage was noticed. Foreign body was removed with forceps and a luminal defect with 5 mm was observed, compatible with esophageal perforation. Considering the associated presence of an adjacent collection it was decided to perform endoscopic vacuum therapy (EVT) to try to close the defect and treat the collection simultaneously. The sponge was placed in the lumen with an overtube. The patient was admitted on total parenteral nutrition, antibiotics and antifungal. Five days after, upper endoscopy was repeated with removal of the sponge.

On inspection, it was observed granulation tissue on the previous location of the defect, with apparent resolution of the perforation. Chest CT was repeated, with no contrast extravasation and significant improvement of the collection dimensions (27 × 17 mm). The patient completed antibiotic course, initiated oral diet and was discharged. He remains well in the follow-up.

EVT is a promising approach for treatment of esophageal perforations. In this case only one session was necessary, with no need for sponge replacement, highlighting the efficacy and potential role of this technique for treating esophageal defects with associated collections.

## eP28 UTILITY OF GASTROSCOPY AT THE TIME OF COLONOSCOPY IN PATIENTS WITH IRON-DEFICIENCY ANEMIA REFERRED TO A COLORECTAL CANCER DETECTION PROGRAM

**Authors** Murzi-Pulgar M<sup>1</sup>, Cuyàs Espí B<sup>1</sup>, Bazaga Perez de Rozas S<sup>1</sup>, Iborra Muñoz C<sup>1</sup>, González-Juan D<sup>1</sup>, Gordillo Abalos J<sup>1</sup>, Colan J<sup>1</sup>, Concepción Martín M<sup>1</sup>, Trias M<sup>1</sup>, Brujats A<sup>1</sup>, Gonzalez Gonzalez L<sup>1</sup>, Gomez Oliva C<sup>1</sup>, Sáinz Sáez-Torre S<sup>1</sup>, Guarnier Aguilar C<sup>1</sup>, Guarnier-Argente C<sup>1</sup>

**Institute** 1 Patología Digestiva, Hospital de la Santa Creu i Sant Pau, Barcelona, Spain

**DOI** 10.1055/s-0039-1681778

**Aims** Gastrointestinal lesions are present in 40% of patients with iron deficiency anemia (IDA). The utility of upper endoscopy and its timing are not well defined in guidelines. We aimed to assess the usefulness of a gastroscopy at the moment of colonoscopy in patients with IDA.

**Methods** Retrospective review of patients with IDA referred to our department in a colorectal cancer detection program from January to December 2015.

**Results** We evaluated 97 patients (50.5% men, age 74 ± 12, hemoglobin 104 ± 18 g/L). Colonoscopy alone was performed in 36 (37.1%), gastroscopy alone in 1 (1%), and both in 60 (61.9%). Gastroscopy preceded colonoscopy in 51, and was delayed in 9. The etiology of anemia was diagnosed in 55.7%. Colonoscopy detected lesions in 43 (44.8%) and gastroscopy in 12 (19.7%). Colorectal cancer was detected in 30 (31.3%). Gastric cancer was detected in 4 (6.6%). Gastroscopy was useful in 33.3% of patients without lesions detected by colonoscopy, but only in 7.4% of patients with lesions (p = 0.03). In patients with colorectal cancer gastroscopy was not of use in any case. Biopsies were obtained only in 13 (21.3%) gastroscopies (12 gastric; 4 duodenal). *Helicobacter Pylori* were detected in 6. No case of celiac disease was diagnosed. Biopsies were taken in 33.3% of the delayed gastroscopies and in 19.2% when performed before colonoscopy (p = 0.34).

**Conclusions** The combination of colonoscopy and gastroscopy was diagnostic in 54,6% of patients with IDA referred to a colorectal cancer detection program. Gastroscopy was not useful in patients diagnosed with colorectal cancer and its usefulness was low if other possible causes of IDA were detected at the time of colonoscopy. A negative colonoscopy for lesions related to IDA could encourage the endoscopist to perform systematic upper biopsies. In consequence, we suggest the colonoscopy should precede the gastroscopy.

## eP29 DIAGNOSTIC YIELD OF ENDOSCOPY FOR PREDICTION OF ACUTE GRAFT VERSUS HOST DISEASE IN THE UPPER GASTROINTESTINAL TRACT

**Authors** Schulze L<sup>1</sup>, Kreft A<sup>2</sup>, Mönkemüller K<sup>3</sup>, Galle PR<sup>1</sup>, Neumann H<sup>1</sup>

**Institute** 1 Interdisciplinary Endoscopy, University Medical Center Mainz, Mainz, Germany; 2 Institute of Pathology, University Medical Center Mainz, Mainz, Germany; 3 Department of Gastroenterology, Helios Frankwald, Kronach, Germany

**DOI** 10.1055/s-0039-1681779

**Aims** Intestinal graft-versus-host disease (GvHD) is a frequent complication after hematopoietic progenitor cell transplantation (HSCT) and biopsies are recommended for diagnosis. However, the best biopsy sites have yet not been

clearly established and final histology results are often delayed as specific staining is required.

We aimed to assess the diagnostic yield of endoscopy for prediction of GvHD of the upper gastrointestinal tract. In addition, we aimed to determine the best sites for obtaining biopsies for diagnosis of GvHD.

**Methods** A large scaled retrospective cohort study was conducted. Patients diagnosed with acute GvHD in the upper gastrointestinal tract were included. Details included symptoms at time of referral for endoscopy, type of procedure performed, macroscopic findings on endoscopy, and histologic findings of biopsies obtained. Biopsies were graded with the Lerner score. Sensitivity, specificity, positive predictive value (PPV), and negative predictive values (NPV) were calculated.

**Results** A total of 101 patients (mean age 50.24, 44% female) underwent upper endoscopy and were diagnosed with intestinal GvHD. Mean Lerner-score was 2.0, 1.5, 1.5, and 1.8 for the esophagus, antrum, corpus and duodenum, respectively. Sensitivity, specificity, PPV and NPV for endoscopic prediction of GvHD were inconclusive and not significantly ( $P > 0.05$ ) different between the esophagus (Sensitivity = 54%, Specificity = 62%, PPV = 45%, NPV = 70%), antrum (Sensitivity = 53%, Specificity = 66%, PPV = 42%, NPV = 75%), corpus (Sensitivity = 50%, Specificity = 54%, PPV = 40%, NPV = 64%) and duodenum (Sensitivity = 58%, Specificity = 83%, PPV = 83%, NPV = 58%).

**Conclusions** The diagnostic yield of endoscopy for prediction of acute GvHD in the upper gastrointestinal tract is considerable low and cannot replace histopathological evaluation. No specific biopsy side showed superior prediction of GvHD. Therefore, we recommend a stepwise biopsy-protocol for patients undergoing upper endoscopy for diagnosis of GvHD.

### eP30V ENDOSCOPIC TREATMENT OF BOERHAAVE'S SYNDROME IN A PATIENT WITH PREVIOUS HELLER'S MIOTOMY AND GASTRIC BYPASS: "CHIKEN SOUP IS NOT GOOD FOR THE HEART"

**Authors** Baptista A<sup>1</sup>, Guzman M<sup>1</sup>, Salinas A<sup>1</sup>

**Institute** 1 Hospital de Clinicas Caracas, Caracas, Venezuela

**DOI** 10.1055/s-0039-1681780

**Aims** Boerhaave's Syndrome or spontaneous rupture of the esophagus is a critical event with high mortality if untreated in the first 24 hours. Endoscopic management has been described.

**Methods** We present a case of a 66 year old male patient who had Heller's Myotomy for Achalasia 15 years ago and gastric bypass for morbid obesity 1 year before the current event. After an episode of overindulgence in food (Chicken soup) presented vomiting followed by dyspnea, retrosternal chest pain and diaphoresis. Was admitted in poor clinical conditions with pneumothorax, large left Pleural effusion, mediastinal collection and contrast leakage at distal esophagus in CT Scan. Under general anesthesia and endotracheal intubation, CO<sub>2</sub> Upper Endoscopy was performed using a 9.8 mm gastroscope. An orifice greater than 1 cm was identified communicating to the mediastinum. The endoscope was advanced through it and endoscopic drainage completed (450 ml of chicken soup and rest of solids). Ribs, collapsed lung and heart were fully recognized and flushed with saline to complete cleansing of the area. In the mean time the thoracic surgeon placed a chest tube. Double pig-tail 10 Fr stents were placed between mediastinum and gastric pouch. A 12 cms partially covered Self-expanding esophageal metal stent was placed from distal esophagus to the gastric pouch. A naso-yeyunal feeding tube was advanced.

**Results** Immediate adequate clinical response was observed. Naso-yeyunal feeding tube was removed at 7 days. Chest tube was removed at 9 days and discharge from hospital was decided after 11 days. Upper endoscopy allowed pig-tail stents removal at 3 weeks and SEMS removal at 6 weeks achieving complete healing of the perforation. The patient has been followed up for two years and remains asymptomatic.

**Conclusion** Endoscopic drainage combined with self-expanding stent and adequate thoracic drainage is an alternative for Boerhaave's Syndrome.

### eP31V ENDOSCOPIC MANAGEMENT OF COMPLICATIONS AFTER ESOPHAGECTOMY AND GASTRIC TRANSPOSITION

**Authors** Baptista A<sup>1</sup>, Bravo C<sup>1</sup>, Rodriguez J<sup>1</sup>, Guzman M<sup>1</sup>

**Institute** 1 Hospital de Clinicas Caracas, Caracas, Venezuela

**DOI** 10.1055/s-0039-1681781

**Aims** Esophagectomy with gastric transposition or gastric pulled-up is indicated in some cases of esophageal carcinoma, and severe caustic esophagitis. Serious complications include necrosis, torsion, delayed emptying of the gastric tube and leakage of anastomosis. Surgical reoperation is complex (35% mortality for leaks and 90% in necrosis.). Endoscopic management in selected cases could be an alternative.

**Methods** A series of 7 complicated patients managed endoscopically between 2009 and 2015 is presented. In 2 patients with gastric necrosis endoscopic necrosectomy was performed and covered stents were placed for 2 months. Two patients with torsion of the gastric tube were treated with covered stents for 3 months. Two patients with esophagogastric anastomosis leak were treated with partially covered stents for 6 weeks. In one of them the thorax was approached endoscopically by the leak allowing collection drainage and partial pulmonary decortication. In 1 patient with vagal lesion and delayed gastric emptying GPOEM was performed.

**Results** The 2 patients with gastric necrosis developed refractory stenosis after the Stent, managed with dilatation, mitomycin and additional Stents for 9 and 6 months.. The first patient (cardiac carcinoma) remains asymptomatic 3 years after the second stent. The second patients with severe caustic injury presented rupture of the trachea due to erosion of the SEMS and fatal outcome due to sepsis. The 2 patients with twisted gastric conduit were asymptomatic post Stent (follow-up 6 months and 1 year). The rest of the patients evolved satisfactorily.

**Conclusions** In severe Complications post esophagectomy and gastric transposition, endoscopic management is possible. However, devastating adverse events related to endoscopic intervention are not ruled out.

Friday, April 5, 2019

09:00 – 17:00

Colon and rectum

ePosters

### eP32 CLINICAL AND ENDOSCOPIC FINDINGS ASSOCIATED WITH DYSPLASIA IN SESSILE SERRATED ADENOMA/POLYP

**Authors** Kim HW<sup>1</sup>, Park SB<sup>1</sup>, Kang DH<sup>1</sup>, Choi CW<sup>1</sup>, Kim SJ<sup>1</sup>, Nam HS<sup>1</sup>, Ryu DG<sup>1</sup>

**Institute** 1 Pusan National University Yangsan Hospital, Yangsan-si, Korea, Republic of

**DOI** 10.1055/s-0039-1681782

**Aims** Sessile serrated adenoma/polyp (SSA/P) are considered to develop dysplasia by the serrated neoplasia pathway. Dysplastic portions in SSA/P can be difficult to detect and are often incompletely resected. We aimed to evaluate the clinical and endoscopic findings associated with dysplasia in SSA/P.

**Methods** Among patients with endoscopic resection from 2015 to 2018 in PNUYH, patients with SSA/P in pathologic diagnosis and  $\geq 10$  mm in size were enrolled. We retrospectively evaluated clinical and endoscopic findings, pathologic diagnosis in these patients.

**Results** A total of 59 SSA/Ps were assessed in 51 patients. Median size was 15.0 mm (interquartile range 10 – 25), and 79.7% were in the right side of the colon. Thirty of 59 SSA/Ps (50.9%) had dysplasia at histopathology (21 low-grades, 8 high-grades, 1 carcinoma in situ). SSA/P with dysplasia was significantly different in age ( $p < 0.0001$ ), size ( $p < 0.0001$ ), NICE type ( $p < 0.0001$ )

and Kudo pit pattern ( $p < 0.0001$ ), but not location, morphology, surface patterns and  $\geq 2$  WASP criteria compared to SSA/P without dysplasia. In multivariate analysis, dysplasia was significantly associated with age (OR 1.123,  $p < 0.005$ ), size (OR 1.188,  $p < 0.008$ ) and shape (OR 0.138,  $p < 0.05$ ).

**Conclusions** Dysplasia in SSA/P was frequently combined, especially old age and large size, and SSA/P with IIb morphology was inversely correlated with dysplasia. Therefore, SSA/P with these clinical and endoscopic findings should be completely resected for the prevention of local recurrence and interval cancer.

### eP33 LEARNING CURVE FOR COLORECTAL ESD

**Authors** Khalin K<sup>1</sup>, Agapov M<sup>1</sup>, Zvereva L<sup>1</sup>, Ryzhkov E<sup>1</sup>

**Institute** 1 Vladivostok Regional Clinical Railway Hospital, Vladivostok, Russian Federation

**DOI** 10.1055/s-0039-1681783

**Aims** To analyze the learning curve of endoscopic submucosal dissections (ESD) for colorectal tumors.

**Methods** The results of the first 170 ESD for colorectal tumors from 09.2007 till 09.2018 have been analyzed. ESD speed, number of complications, rate of en-block resections and snare assistances have been evaluated. All patients were divided into two groups (85 patients each). Age –  $61.8 \pm 0.73$  years, (F – 94, M – 76).

**Results** Rectum – 76 lesions, 55 – in the left colon and 39 – in the right colon. 108 were benign, 62 – malignant (13 of them with submucosal invasion). Tumors were polypoid in 35, non-polypoid in 135 cases (LST-G – 100, NG – 35). The mean tumor size was  $14.9 \pm 1.7$  cm<sup>2</sup>. En-block resection was achieved in 149 cases (87.6%). Average ESD speed was 12.7 mm<sup>2</sup>/min (average time for 1 cm<sup>2</sup> was 12.9 min). There were 30 cases with snare assistance (17.6%), 20 perforations (11.7%) and 3 cases of delayed bleeding (1.7%). In the first 85 ESD group there were more rectal and less right-sided tumors than in the second 85 ESD group (45 vs. 31,  $p = 0.03$ , and 14 vs. 25,  $p = 0.04$ ). Tumor size did not significantly differ (12.3 cm<sup>2</sup> vs. 17.5 cm<sup>2</sup>,  $p = 0.14$ ). En-block resections and perforation rates were similar in both groups (71 vs. 78,  $p = 0.16$  and 6 vs. 14,  $p = 0.09$ ). There were less cases of snare assistance in the second group (20 vs. 10,  $p = 0.04$ ). ESD was faster in the second group: mean time of ESD for 1 cm<sup>2</sup> was 14.7 min vs. 11.4 min ( $p = 0.04$ ); mean ESD speed was 11 mm<sup>2</sup>/min vs. 14.6 mm<sup>2</sup>/min ( $p = 0.01$ ).

**Conclusions** ESD speed significantly improved after 85 operations. Snare assisted ESD were less often in the second group. Absence of significant difference in perforation rate can be explained by significant increase of right-sided tumors in the second group.

### eP35 MORE LESIONS PER PATIENT DETECTED WITH HIGH-QUALITY VERSUS ADEQUATE CLEANSING: A POST HOC ANALYSIS OF UNIFORM SEGMENTAL CLEANSING SCORES USING THE BOSTON BOWEL PREPARATION SCALE

**Authors** Jover R<sup>1</sup>, Manning J<sup>2</sup>, Mokashi S<sup>3</sup>, Hassan C<sup>4</sup>

**Institute** 1 Servicio de Medicina Digestiva, Hospital General Universitario de Alicante, Alicante, Spain; 2 Borders General Hospital, Berwickshire, United Kingdom; 3 Medical Affairs, Norgine, Harefield, United Kingdom; 4 Gastroenterology and Endoscopic Unit, Ospedale Nuovo Regina Margherita, Rome, Italy

**DOI** 10.1055/s-0039-1681784

**Aims** Effective colonoscopy requires colon cleansing success which is usually based on the least clean colon segment; one poorly cleansed segment triggers an overall failure. This complicates the analysis of cleansing quality vs. lesion detection. We therefore analysed the relative lesion detection in patients who had the same cleansing score in all three colon segments.

**Methods** Three similar phase 3 randomised clinical trials assessed the colon cleansing efficacy and safety of 1L NER1006 (PLENVU) versus standard bowel

preparations. Cleansing quality was assessed by treatment-blinded central readers using colonoscopy videos and the validated Boston Bowel Preparation Scale (BBPS). Trial results were pooled for this post hoc analysis, which excluded patients without fully documented segmental cleansing scores and lesion counts. The mean number of polyps (MPP) and adenomas (MAP) per patient were calculated in patients with uniform segmental scores ranging from zero (failure) to three (high-quality). One-sided t-tests assuming equal variance assessed MPP and MAP of BBPS 3+3+3 versus lower score groups.

**Results** Among 1749 patients included in this analysis, 1178 had uniform segmental BBPS scores (Table). BBPS 3+3+3 demonstrated a higher MPP vs. BBPS 2+2+2 (1.67 vs. 1.03;  $P < 0.001$ ). MAP was improved with BBPS 3+3+3 vs. BBPS 2+2+2 (0.86 vs. 0.53;  $P = 0.001$ ) or BBPS 1+1+1 (0.86 vs. 0.50;  $P = 0.041$ ). Only 8 patients had uniform BBPS scores of zero.

**Tab. 1** Uniform segmental BBPS scores vs. lesion detection

Uniform segmental BBPS score	High-quality 3+3	Adequate 2+2+2	Failure 1+1+1	Failure 0+0+0
Sample size, N	166	950	54	8
Polyps per patient, Mean (SD); P-value vs. BBPS 3+3+3	1.67 (3.12)	1.03 (1.99) $P < 0.001$	0.98 (1.57) $P = 0.061$	0.75 (1.75) $P = 0.205$
Adenomas per patient, Mean (SD); P-value vs. BBPS 3+3+3	0.86 (1.41)	0.53 (1.29) $P = 0.001$	0.50 (1.02) $P = 0.041$	0.75 (1.75) $P = 0.414$

**Conclusions** Despite variable sample sizes, higher MPP and MAP were demonstrated for high-quality versus adequate cleansing success and a consistent trend was observed towards improved lesion detection with higher cleansing quality.

### eP36 PREVALENCE OF INFLAMMATORY BOWEL DISEASE (IBD) IN A COLORECTAL CANCER POPULATION SCREENING PROGRAM

**Authors** Bezzio C<sup>1</sup>, Arena I<sup>1</sup>, de Nucci G<sup>1</sup>, della Corte C<sup>1</sup>, Devani M<sup>1</sup>, Redaelli D<sup>1</sup>, Omazzi B<sup>1</sup>, Reati R<sup>1</sup>, Domenico Mandelli E<sup>1</sup>, Manes G<sup>1</sup>, Morganti D<sup>1</sup>, Saibeni S<sup>1</sup>

**Institute** 1 Gastroenterology and Endoscopy Unit, ASST Rhodense, Garbagnate Milanese-Milano, Italy

**DOI** 10.1055/s-0039-1681785

**Aims** IBD are diagnosed in subjects with gastrointestinal symptoms and a diagnostic delay is often observed. IBD may also be present in asymptomatic subjects. In these cases, diagnosis may be further delayed or missed.

**Methods** we analyzed an electronic database of a regional colorectal cancer screening program offered to subjects from 50 to 70 years old.. From september 2013 to August 2018, among subjects who underwent colonoscopy in a single hospital, we identified subjects with endoscopic findings suggestive of IBD. We retrieved histological findings and information on other examinations and possible therapeutic decisions.

**Results** 2062 subjects undergoing to colonoscopy were enrolled. In 33 (1.6%) subjects (18 men, mean age  $\pm$  SD  $60.8 \pm 7.4$  years) endoscopic findings suggestive of IBD were present: 23 of CD and 10 of UC; none of these subjects were taking oral anticoagulants or NSAIDs and reported gastrointestinal symptoms. After a median follow-up of 13 months (range 2 – 59), a definitive diagnosis of IBD was done in 10 subjects (0.5%). 3 already underwent to colonoscopy in the context of the same program and 1 showed familiarity for IBD. 7 were diagnosed with CD (6 men,  $61.3 \pm 7.1$  years) and 3 with UC (2 men,  $55.8 \pm 3.0$  years). In CD population, 4 patients showed colonic, 3 ileal and 1 ileo-colonic location; 1 was treated with steroids and then with vedolizumab, 1 with steroids and then with azathioprine, 1 with 5-ASA while 4 did not receive any therapy. In UC population, 2 patients showed extension limited to rectum and 1 to rectum and sigmoid colon; all patients started therapy with 5-ASA.

**Conclusions** Prevalence of IBD in a colorectal cancer population screening program is 0.5%. IBD diagnosis can be missed but only 1 out of 3 subjects with endoscopic findings suggestive of IBD is eventually diagnosed as affected by CD or UC.

### eP37 A QUANTITATIVE INSIGHT ON PRECLINICAL AND CLINICAL YEAR LEBANESE MEDICAL STUDENTS' KNOWLEDGE AND ATTITUDE TOWARDS COLORECTAL CANCER SCREENING

**Authors** Hussein Kamareddine M<sup>1</sup>, Alam W<sup>2</sup>, Ghosn Y<sup>2</sup>, Jabbour G<sup>3</sup>, Khoury S<sup>4</sup>, Cortas G<sup>3</sup>, Bedran K<sup>3</sup>, Farhat S<sup>2</sup>

**Institute** 1 University of Balamand, Medicine and Medical Sciences, Beirut, Lebanon; 2 Saint George Hospital University Medical Center, Beirut, Lebanon; 3 Saint George Hospital University Medical Center, Gastroenterology, Beirut, Lebanon; 4 Saint George Hospital University Medical Center, Gastroenterology, Beirut, Lesotho

**DOI** 10.1055/s-0039-1681786

**Aims** Colorectal cancer is one of the leading cancers worldwide, with early screening leading to a large reduction in mortality and morbidity, yet screening efforts in Lebanon remain inadequate and a large number of cases present in advanced stages. Health care providers in training, such as medical students, play an important role in raising awareness and educating the public on the importance of CRC screening. Assessing these students' knowledge and attitudes is the aim of this study.

**Methods** A total of 189 medical students (41.8% preclinical and 58.2% clinical) participated in a cross-sectional survey. Data was collected using self-administered questionnaires.

**Results** 94.7% of participants had a positive attitude towards CRC screening. Participants were most knowledgeable about how colonoscopy is done (90% and 98% of preclinical and clinical students respectively). 77.5% of clinical students knew at what age CRC screening is recommended versus 31.8% of preclinical students with a p-value of <0.01. Additionally, only 37.3% of preclinical students knew the frequency of colonoscopy for CRC screening in eligible patients versus 74.7% of clinical students with a p-value of <0.01. There was a significant difference in knowledge concerning possible signs and symptoms of colorectal cancer, between clinical and preclinical students with a p-value of <0.01. Even with clinical students' superior knowledge, the percentage of correct answers given by clinical students was still inadequate.

**Conclusions** The inadequate knowledge levels among preclinical and clinical students may be one of the barriers affecting CRC screening. Enhancing medical students' knowledge about CRC screening through curricular modification and constant general health education should be considered as primary tools to try and promote CRC screening and prevention.

### eP38V INTRAMURAL COLONIC HEMATOMA: A RARE COMPLICATION OF ENDOSCOPIC SUBMUCOSAL DISSECTION

**Authors** Soriani P<sup>1</sup>, Gabbani T<sup>1</sup>, Deiana S<sup>1</sup>, Giorgio Mirante V<sup>1</sup>, Manno M<sup>1</sup>

**Institute** 1 Digestive Endoscopy Unit, Azienda USL Modena, Carpi and Mirandola Hospitals, Carpi, Italy

**DOI** 10.1055/s-0039-1681787

Intramural colonic hematoma represents a rare complication, following blunt trauma, therapeutic intervention or accompanying diseases with bleeding diathesis.

Here we report the case of a 50-year-old man referred to our unit to perform endoscopic resection of a 35 mm non-polypoid lesion (non-granular lateral spreading tumor 0-IIa, according to Paris classification) of the descending colon, because of previous positive hemocult test for colo-rectal cancer screening. The patient didn't refer any comorbidities and an endoscopic submucosal dissection (ESD) was scheduled according to the ESGE guidelines

[Endoscopic submucosal dissection: European Society of Gastrointestinal Endoscopy (ESGE) Guideline; Endoscopy 2015; 47 (09): 829 – 854].

ESD was challenging due to persistent bleeding trend, from many submucosal vessels, treated using coagulation with knife (Hybrid-knife T-type, ERBE GmbH), through-the-scope (TTS) clips, epinephrine injection, hemostatic monopolar forceps and finally with hemostatic idrogel (Purastat).

Three hours after the procedure, the patient became hemodynamically unstable, with copious enterorrhagia. So, after initial resuscitation, urgent colonoscopy was performed, showing arterial bleeding from resection bed, stopped by TTS clips deployment. However, a voluminous 8 cm intramural hematoma has been developed; so, an urgent surgical intervention was required.

Laparotomy confirmed intramural hematoma along the descending colon and sigma, starting distal to the resection bed, with hemoperitoneum from colon fissuration. Surgical resection was performed and the patient was discharged home one week later. However, during surgical intervention, a hemorrhagic trend was observed. Further analysis revealed deficit factor V Leiden.

In conclusion, intramural hematoma is a rare but potentially life-threatening complication after endoscopic resections, especially in high-risk procedures (ESD) or patients (i.e. patients with bleeding diathesis or with ongoing anti-thrombotic therapies). Before therapeutic procedures, we advise to accurately investigate any possible signs of bleeding diathesis (i.e. frequent epistaxis).

### eP39 A PREDICTIVE MODEL IDENTIFIES PATIENTS LESS LIKELY TO HAVE ADENOMAS AFTER A COLON CANCER

**Authors** Frazzoni L<sup>1</sup>, Scagliarini M<sup>2</sup>, Laterza L<sup>3</sup>, Trovato C<sup>4</sup>, Mussetto A<sup>5</sup>, De Bellis M<sup>6</sup>, Paggi S<sup>7</sup>, Spada C<sup>8,9</sup>, Petrella L<sup>2</sup>, Smania V<sup>1</sup>, De Bortoli N<sup>10</sup>, Bazzoli F<sup>1</sup>, Ricciardiello L<sup>1</sup>, Radaelli F<sup>7</sup>, Hassan C<sup>11</sup>, Fuccio L<sup>1</sup>

**Institute** 1 Department of Medical and Surgical Sciences, University of Bologna, Bologna, Italy; 2 Department of Statistics, University of Bologna, Bologna, Italy; 3 Endoscopy Unit, AUSL Reggio Emilia, Reggio Emilia, Italy; 4 Division of Endoscopy, European Institute of Oncology, Milan, Italy; 5 Division of Gastroenterology, S. Maria delle Croci Hospital, Ravenna, Italy; 6 Department of Abdominal Oncology, Istituto Nazionale Tumori – IRCCS – Fondazione G. Pascale, Naples, Italy; 7 Division of Digestive Endoscopy and Gastroenterology, Valduce Hospital, Como, Italy; 8 Gemelli University Hospital, Rome, Italy; 9 Fondazione Poliambulanza, Brescia, Italy; 10 Department of Translational Research and New Technologies in Medicine and Surgery, University of Pisa, Pisa, Italy; 11 Endoscopy Unit, Nuovo Regina Margherita Hospital, Rome, Italy

**DOI** 10.1055/s-0039-1681788

**Aims** Patients with prior colorectal cancer (CRC) are at slightly increased risk of metachronous colorectal neoplasms, therefore endoscopic surveillance is indicated. Current recommendations of repeating examinations at 1, 3 and 5 years after surgery, are not tailored according to risk stratification. Our aim was to find predictive factors of colorectal neoplasms to build a predictive model, to spare colonoscopies for low-risk patients.

**Tab. 1** Predictive model for developing metachronous colorectal adenomas at 2nd surveillance colonoscopy

Variable	Beta coefficient	Adjusted OR (95% CI)	P Value
Age > 65 y.o.	0.44	1.56 (0.99 – 2.47)	0.056
Left colon resection	0.70	2.01 (1.23 – 3.27)	0.01
≥ 1 advanced adenoma at index colonoscopy	0.74	2.10 (1.13 – 3.90)	0.02
≥ 1 adenoma at 1st surveillance colonoscopy	0.94	2.56 (1.60 – 4.09)	< 0.01

**Methods** Multicenter retrospective study including patients with colon carcinoma surgically resected from 2001 to 2008 (training cohort) and from 2009 to 2013 (validation cohort). A predictive model for neoplasms occurrence at second surveillance colonoscopy was developed and externally validated.

**Results** 396 and 131 patients were included in training and validation cohort, respectively. Patients with  $\geq 1$  adenoma at 2nd surveillance colonoscopy were 113/396 (28.5%) and 21/131 (16.5%) in the two groups. In validation cohort, 3 cancers were found.

Four variables identified the low-risk patient's profile of developing metachronous colorectal adenomas: age  $\leq 65$  years old, right colectomy, no advanced adenoma at basal colonoscopy and no adenoma at first surveillance colonoscopy. The predictive model showed fair discrimination, with an area under the ROC curve of 0.69 and 0.64, in training and validation cohort.

In validation group, If patients with a low-risk profile skip the 2nd surveillance colonoscopy, 25/131 (19.1%) exams would be saved while missing 2/21 (9.5%) patients with  $\geq 1$  adenoma; no advanced adenoma nor cancer would be missed.

**Conclusions** We provided a risk-stratification tool for adenoma occurrence after colon surgery, which could prove cost-effective to select patients who could skip the second surveillance colonoscopy.

#### eP40 COLORECTAL CANCERS DETECTED FOLLOWING SURGERY AT ANASTOMOSES OR OTHER COLORECTAL LOCATIONS DURING COLONOSCOPY SURVEILLANCE: A SYSTEMATIC REVIEW AND META-ANALYSIS

**Authors** Fuccio L<sup>1</sup>, Rex D<sup>2</sup>, Ponchon T<sup>3</sup>, Frazzoni L<sup>1</sup>, Dinis-Ribeiro M<sup>4</sup>, Bhandari P<sup>5</sup>, Dekker E<sup>6</sup>, Pellisé M<sup>7</sup>, Correale L<sup>1</sup>, van Hooft J<sup>6</sup>, Jover R<sup>8</sup>, Libanio D<sup>4</sup>, Radaelli F<sup>9</sup>, Alfieri S<sup>10</sup>, Bazzoli F<sup>1</sup>, Senore C<sup>11</sup>, Regula J<sup>12</sup>, Seufferlein T<sup>13</sup>, Rösch T<sup>14</sup>, Sharma P<sup>15</sup>, Repici A<sup>16</sup>, Hassan C<sup>17</sup>

**Institute** 1 Department of Medical and Surgical Sciences, University of Bologna, Bologna, Italy; 2 Division of Gastroenterology/Hepatology, Indiana University School of Medicine, Indianapolis, United States; 3 Edouard Herriot University Hospital, Lyon, France; 4 CIDES/CINTESIS, Faculty of Medicine, University of Porto, Porto, Portugal; 5 Queen Alexandra Hospital, Portsmouth, United Kingdom; 6 Academic Medical Center, University of Amsterdam, Amsterdam, Netherlands; 7 Gastroenterology Department, Hospital Clínic de Barcelona, Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBERehd), Institut d'Investigacions Biomediques August Pi i Sunyer (IDIBAPS), Universitat de Barcelona, Barcelona, Spain; 8 Service of Digestive Medicine, Alicante Institute for Health and Biomedical Research (ISABIAL-FISABIO Foundation), Alicante, Spain; 9 Department of Gastroenterology, Valduce Hospital, Como, Italy; 10 Digestive Surgery Department, Catholic University, Rome, Italy; 11 AOU Città della Salute e della Scienza, CPO Piemonte, Turin, Italy; 12 The Maria Skłodowska-Curie Memorial Cancer Centre and Institute of Oncology, Warsaw, Poland; 13 Department of Internal Medicine I, University of Ulm, Ulm, Germany; 14 Department of Interdisciplinary Endoscopy, University Hospital Hamburg-Eppendorf, Hamburg, Germany; 15 Division of Gastroenterology & Hepatology, Department of Internal Medicine, University of Kansas Medical Center, Kansas City, United States; 16 Digestive Endoscopy Unit, Division of Gastroenterology, Humanitas Research and University Hospital, Rozzano, Italy; 17 Endoscopy Unit, Nuovo Regina Margherita Hospital, Rome, Italy  
DOI 10.1055/s-0039-1681789

**Aims** Outcomes of endoscopic surveillance following surgery for colorectal cancer (CRC) vary with the incidence and timing of CRC detection, at anastomosis or elsewhere in the colorectum. We performed systematic review and meta-analysis to evaluate the incidence of CRCs identified during surveillance colonoscopies of patients with previous CRC surgery.

**Methods** We searched PubMed, EMBASE, SCOPUS, and the Cochrane Central Register through January 1, 2018 to identify studies investigating rates of CRCs at anastomoses or other colorectal locations after curative surgery for primary CRC. We collected data from randomized controlled, prospective, and retrospective cohort studies. Data were analyzed by multivariate meta-analytic models.

**Results** From 2,373 citations, we selected 27 studies with 15,803 index CRCs (89% stage I-III CRCs). Overall, 296 CRCs at non-anastomotic locations were reported over time periods of more than 16 years (cumulative incidence, 2.2% of CRCs; 95% CI, 1.8%-2.9%).

The risk of non-anastomotic CRC significantly decreased after 36 months or more from resection, compared with that before this timepoint (odds ratio for non-anastomotic CRCs at 36–48 months vs. 6–12 months after surgery, 0.61; 95% CI, 0.37–0.98;  $P=.031$ ); 53.7% of all non-anastomotic CRCs were detected within 36 months from surgery.

One hundred fifty-eight anastomotic CRCs were detected over more than 16-years follow-up (cumulative incidence of 2.7%; 95% CI, 1.9%-3.9%). The risk of anastomotic CRCs was significantly lower after 24 months or more from resection than before (odds ratio for CRCs at anastomoses at 25–36 months after surgery vs. 6–12 months, 0.56; 95% CI, 0.32–0.98;  $P=.036$ ); 90.8% of anastomotic CRCs were detected within 36 months from surgery.

**Conclusions** After surgery for CRC, the highest risk of anastomotic and non-anastomotic CRCs is highest during 36 months after surgery – risk decreases thereafter. Patients who have undergone CRC resection should be evaluated by colonoscopy more closely during this time period. Longer intervals may be considered thereafter.

#### eP42V AN UNCOMMON CAUSE OF PERSISTENT DIARRHEA

**Authors** Cubas JA<sup>1</sup>, Maynard A<sup>1</sup>, Dot Bach J<sup>1</sup>, Abu-Suboh Abadia M<sup>1</sup>, Masachs Peracaula M<sup>1</sup>, Armengol Bertroli J<sup>1</sup>, Ramon Armengol Miró J<sup>1</sup>

**Institute** 1 Vall d'Hebron University Hospital, WIDER Barcelona – Digestive Endoscopy Unit, Barcelona, Spain

DOI 10.1055/s-0039-1681790

Persistent Diarrhea (duration > 14 days) can have an etiology different than those seen in acute illness. We present the case of a 36-year-old female with no significant medical history. She had traveled 4 weeks prior to Marrakech, Morocco presenting during the trip acute initially non-bloody diarrhea with a low-grade fever then the presence of mucus and bright red blood. On arrival to Spain, she was reviewed by her GP with stool culture and study for parasite done that were negative. A week afterward she presented bilateral conjunctivitis that resolved with symptomatic therapy and 3 days prior to admission presented with pain in her left knee with swelling and lower back pain. She presented to the emergency department where orthopedic surgeon reviewed her knee and performed arthrodesis with the extraction of inflammatory culture and gram-negative fluid without birefringent crystal under the polarized microscope. Laboratory test showed a slight leukocytosis with normal x rays of the lumbosacral region and knee.

Colonoscopy showed multiple erosions of < 5 mm, some with an erythematous halo and general mucosal erythema of the left colon. Biopsy showed a chronic colitis suggestive of an infectious process. Stool cultures were positive for *Shigella Flexneri* and antibiotic therapy was started with ciprofloxacin. A lumbosacral MRI performed with arthritis of the right inter-joint articulations of L4-S1. The right knee was infiltrated with corticoids and NSAIDs started for pain control of lower back pain. She was diagnosed with enterocolitis due to *Shigella* with reactive arthritis. The patient presented clinical improvement and was discharged home.

Reiter's syndrome is a triad of arthritis, conjunctivitis/iritis and urethritis. Extra-articular infections that cause Reiter's syndrome have been identified, sexually transmitted diseases, found primarily in males and a post-dysentery form that often affects women, children, and the elderly as seen in our patients.

## eP43 ENDOSCOPIC MUCOSAL RESECTION OF LARGE COLORECTAL LESIONS BY LOW-VOLUME ENDOSCOPISTS: A RETROSPECTIVE STUDY

**Authors** Puscasu CI<sup>1</sup>, Oprea R<sup>1</sup>, Mihai Voiosu A<sup>1</sup>, Bengus A<sup>1</sup>, Radu Mateescu B<sup>1,2</sup>, Voiosu TA<sup>1,2</sup>

**Institute** 1 Gastroenterology, Colentina Clinical Hospital, Bucharest, Romania; 2 Internal Medicine, UMF Carol Davila School of Medicine, Bucharest, Romania  
DOI 10.1055/s-0039-1681791

**Aims** In expert hands, endoscopic mucosal resection (EMR) is a safe and effective method for managing superficial neoplastic lesions of the lower GI tract. We aimed to evaluate the technical outcome and safety of colon EMR performed by endoscopists with limited experience in advanced resection techniques.

**Methods** We conducted a single center, retrospective analysis of data collected from patients with sessile/flat polyps, treated over a 24 month period in our unit. We reviewed data regarding the size, localization and morphological characteristics of the lesions, en bloc resection rates, complications and local recurrence during follow-up.

**Results** 47 lesions were resected in 41 patients with a mean age of 65+/−19.3 years. The median size of the lesion was 20 mm. Most lesions had Paris IIa morphology (48.9%). High grade dysplasia was reported in 6/47 (12.8%) of cases – all males, and advanced neoplasia (TIS and invasive carcinoma) was detected in an additional 6/47 (12.8%) of cases – 5 lesions having mixed morphology (ISIIa). Complete resection of all visible tissue was achieved in 45/47 (95.7%) of cases, but only 9/47 (19.1%) of resections were en-bloc. In 2 cases, plasma argon coagulation for ablation of residual adenomatous tissue was performed in the same session, following piecemeal EMR. 9 patients required a second intervention for recurrent adenoma at follow-up endoscopy, with 6 cases undergoing repeat EMR and 1 patient referred for surgical resection of invasive carcinoma. There were a total of 5 reported adverse events (10.6%) – 3 intra-procedural bleedings, 1 delayed bleeding and 1 perforation, all managed successfully by endoscopy.

**Conclusions** Our study showed that high technical success rates for colon EMR are achievable even by endoscopists with limited initial experience in resection techniques, with low rates of procedure-related adverse events, comparable to those cited in expert centers.

## eP44V ENDOSCOPIC EN BLOC MUCOSAL RESECTION OF LARGE FLAT CAECAL ADENOMA

**Authors** Staka B<sup>1</sup>, Maceček J<sup>1</sup>, Baťková B<sup>1</sup>

**Institute** 1 Gastroenterology, Prostějov Hospital, Prostějov, Czech Republic  
DOI 10.1055/s-0039-1681792

**Aim** Videocase describes a 61-year-old woman with granular homogenous laterally spreading caecal tumor (LST-GH), size 40 × 30 mm, which was curatively treated by en bloc endoscopic mucosal resection (EMR) technique. Is not primarily designed technique for such large lesions.

**Methods** Colonoscope CF-HQ190L (Olympus Europe, Hamburg, Germany) was used. The patient underwent a standard preparation (Vistaprep, Tillots Pharma) in split dosing. Procedure was performed in analosedation. White light and narrow band imaging (NBI) were used to evaluate the lesion, which belonged to the NICE type 2 (NBI-International-Colorectal-Endoscopic) classification. The en bloc EMR was performed by the lift and cut technique. A solution of patent blue diluted with adrenaline (1:20.000) was used for the submucosal injection. The lesion was removed with a SnareMaster SD-230U polypectomy snare by using an ESG-100 electrocoagulation unit (Olympus) in the Pulse Cut Slow Level 120 W.

**Results** We performed an en bloc endoscopic mucosal resection of large LST (40 × 30 mm). Resulting histology was the adenoma with low grade intraepithelial neoplasia (LGIN). Despite of its size, the lesion was resected curatively (R0 resection) without peri- or postprocedural complication and without local residual neoplasia 3 months after the procedure.

**Conclusion** It is generally assumed that flat lesions ≤20 mm should be removed en bloc by endoscopic mucosal resection technique. For lesions >20 mm, piecemeal EMR (EMR) or endoscopic submucosal dissection (ESD) is recommended. However, our case shows that even lesions of 40 mm size can be also curatively resected en bloc. After using methylene blue and diluted adrenaline for injection the lesion becomes blue. Adrenaline causes fading of surrounding tissue and the edges of the lesion are much better visible than without adrenaline. Mucosal fading is more appropriate than labeling the lesion edges with coagulation markers. The whole lesion can be better captured inside the snare.

## eP45 INCIDENCE AND CHARACTERISTICS OF INTERVAL COLORECTAL CANCER. IDENTIFICATION OF IMPROVEMENT AREAS

**Authors** Pérez Citores L<sup>1</sup>, Bonoso Criado R<sup>1</sup>, Montero Moretón Á<sup>1</sup>, Cimavilla M<sup>1</sup>, De Gracia Villanueva Arias M<sup>2</sup>, Moreira Da Silva B<sup>1</sup>, Santos Santamarta F<sup>1</sup>, Maestro Antolín S<sup>1</sup>, Curieses M<sup>1</sup>, Peñas I<sup>1</sup>, Pérez Millán A<sup>1</sup>, Barcenilla Laguna J<sup>1</sup>

**Institute** 1 Department of Gastroenterology, Complex University Assistance of Palencia, Palencia, Spain; 2 Department of Internal Medicine, Complex University Assistance of Palencia, Palencia, Spain

DOI 10.1055/s-0039-1681793

**Aims** Interval cancer is a major cause of concern. It is conditioned by multiple reasons such as colonic preparation, exploration time and adequate polyps resection.

The primary aim was assessing the incidence and characteristics of interval cancers in our health area.

**Methods** Colorectal cancers diagnosed between 2016 and 2017 were collected. It was verified the number of these patients who had a previous colonoscopy 3 and 5 years before. The results of this colonoscopy were collected to identify the possible causes.

**Results** 374 cases of colorectal cancer were diagnosed, 18 (4.8%) had a previous colonoscopy in less than 5 years. In 5 (27.7%), cancer was located on the area of a previously resected polyp. In the rest of patients no lesion was identified in previous colonoscopy, colonic preparation was considered inadequate in 5 (38.4%) and good in the rest (62.6%). The characteristics regarding sex, staging and location are shown in the table.

Tab. 1

Sex	12 men (66.6%)	6 women (33.3%)
Staging	5 T1 (27.7%) 3	T4 o M1 (16.6%)
Location	8 right colon (44.4%) 6 Left colon (33.3%) 4 rectum (22.2%)	

If we only consider patients with colonoscopy in the previous 3 years, there were 8 cases (2.1%) (3 in right colon, 3 in left and 2 in rectum), 4 (50%) cancers settled in areas of previously resected polyps.

**Conclusions** Incidence of interval colorectal cancer is low in our health area. Inadequate preparation remains a major cause of unseen lesions, followed by incomplete polyp resection. Proper colonic preparation is highly important and colonoscopy must be repeated when it is inadequate. Careful polyp resection must be performed, as well as careful reevaluation of the scar after piecemeal resection.

## eP46 LONG TERM FOLLOW UP AFTER ENDOSCOPIC MUCOSAL RESECTION FOR LARGE AND CHALLENGING SUPERFICIAL RECTAL TUMOURS

**Authors** Alam A<sup>1</sup>, Rahmi G<sup>1</sup>, Perrod G<sup>1</sup>, Khater S<sup>1</sup>, Benosman H<sup>1</sup>, Cellier C<sup>1</sup>

**Institute** 1 Gastro-Enterology, European Hospital Georges Pompidou, Paris, France

DOI 10.1055/s-0039-1681794

**Aims** Endoscopic mucosal resection (EMR) is a commonly used technique to remove colorectal polyps. In this study, we aimed to evaluate the success, complications and recurrence rate of EMR for large superficial rectal tumours.

**Methods** From January 2010 to January 2018, all patients treated by EMR for rectal superficial tumours larger than 20 mm, at our centre, were retrospectively included. Clinical, endoscopic and histological data were collected.

We defined “challenging” polyps as polyps presenting at least one of these features: size  $\geq 4$  cm, macronodules  $\geq 10$  mm, contact with pectinate line or rectosigmoid junction and invasive carcinoma”. Patients who had a surveillance colonoscopy within the year following EMR were assessed for recurrence rate.

**Results** A total of 81 patients were included (mean age 70.67, 55.6% men). The median polyp size was 28 (20; 60) mm. Histological analysis revealed low-grade dysplasia in 45.67%, high-grade dysplasia in 18.51%, intramucosal carcinoma in 4.93% and invasive carcinoma in 3.7%. The 4 cases of invasive carcinoma were referred to surgery.

53 patients (65.43%) only received a surveillance colonoscopy within the year with median follow-up of 4.34 (3; 11) months. The local recurrence rate was 9.43%.

After logistic regression analysis, no significant correlation was identified for size, location, Paris classification or piecemeal resection. Among “challenging” polyps (60.49% (49/81)), only 42% (34/81) were followed. Recurrence rate of these polyps were 14.70% versus 9.52% for non challenging polyps;  $p > 0.05$ . Intraprocedural bleeding occurred in 14.8% of the cases, delayed bleeding in 4.9% and perforation in 3.7%. All complications were treated medically.

**Conclusions** Our study shows that EMR is an effective and safe technique for resection of large rectal polyps, with an overall recurrence rate of about 9.43%. EMR of challenging polyps may be associated with higher recurrence rate, but this data should be confirmed in large scale prospective study.

#### eP47 CLINICAL OUTCOMES OF PALLIATIVE COLORECTAL SELF-EXPANDABLE METAL STENT PLACEMENT: RESULTS OF A TWO-CENTER RETROSPECTIVE STUDY

**Authors** Yun O<sup>1</sup>, Fedorov A<sup>2</sup>, Davydova S<sup>2</sup>, Klimov A<sup>2</sup>

**Institute** 1 Endoscopy Department, City Clinical Hospital # 40, Moscow, Russian Federation; 2 Institute of Medicine, Department of Faculty Surgery, Peoples' Friendship University of Russia (RUDN University), Moscow, Russian Federation

DOI 10.1055/s-0039-1681795

**Aims** Self-expandable metal stent placement is an established method of palliation for patients with malignant colorectal obstruction, but it can be challenging in cases of locally advanced cancer. The aim of the study was to evaluate early and long-term outcomes of palliative colorectal stenting.

**Methods** 98 patients (median age – 68 years) presenting with symptomatic colorectal obstruction at the period of 2010 – 2018 in a Moscow city oncological hospital and a university surgical center were included in a retrospective two-center study. All patients were unfit for surgery due to advanced primary, recurrent or metastatic cancer of the large bowel or adjacent organs with the stenosis at the level of rectum (42), left colon (40), transverse colon (3) or right colon (13). Effectiveness of stent placement, adverse events and survival were analyzed.

**Results** Technical success was achieved in 96 cases (98%) with a good functional result in all stented patients. Early complications were observed in 8 patients (8.2%): colonic perforation with peritonitis (3), extraperitoneal rectal perforation (1), and distal migration of covered stents on 3 – 14 days after placement (4). All perforations occurred at the tumor site on the first (2), second (1) and eleventh (1) days after procedure. One perforation resulted from stent malpositioning, the others were associated with tumor necrosis. Two cases of peritonitis resulted in death, mortality – 2%. Long-term complications included recurrence of obstructive symptoms (2) due to stent occlu-

sion (tumor ingrowth, 449 and 633 days after stenting) and rectal bleeding (1). Median survival was 133 days.

**Conclusions** Stenting is an effective method of palliation for patients with malignant colorectal obstruction, including stenoses in the right colon. The main early complication in cases of locally advanced cancer is bowel perforation, which can be diminished by strict observance of stenting techniques. Placement of covered stents is associated with an increased risk of migration.

#### eP48 PREDICTIVE FACTORS FOR AN ADEQUATE BOWEL PREPARATION. A PROSPECTIVE ANALYSIS

**Authors** Luz Vargas García A<sup>1,2</sup>, Albuquerque M<sup>1,2</sup>, Tremols Bruns S<sup>1</sup>, Girones M<sup>1</sup>, Yeste C<sup>1</sup>, Pazos Massanas P<sup>1</sup>, González Bonilla ME<sup>1</sup>, Nitescu Martín S<sup>1</sup>, Cirera E<sup>1</sup>, Pechkova M<sup>1</sup>, Figa M<sup>1</sup>, González- F<sup>1</sup>, Lladó H<sup>1,3</sup>

**Institute** 1 Clínica Girona, Girona, Spain; 2 Hospital de Palamós, Palamós, Spain; 3 Hospital Arnau de Villanova, Lleida, Spain

DOI 10.1055/s-0039-1681796

**Aims** To determine predictive factors to achieve an adequate bowel preparation.

**Methods** Prospective register of consecutive colonoscopies. February 2014 - July 2018. Variables: demographic data, indication for colonoscopy, type of bowel cleansing solution and administration regimen, colon length and Boston bowel preparation scale (BBPs). Patients with colon resection and incomplete colonoscopies were excluded.

**Results** We included 7795 patients. Age:  $58.8 \pm 13.3y$ ; 51.6% women. The diagnostic colonoscopies were more frequent: 66.9%. The 95.4% of patients fulfilled the administration regimen, 64.1% with sodium-picosulfate (SP/MC) and 35.9% with PEG3350/ascorbic acid. The most of patient drank cleansing solution at the same day using “split dose”: 87.1%. We defined as a long colon the 11.8% of colonoscopies and according to BBPs (score  $\geq 2$  in each segment), the 86.7% were adequately prepared. In a multivariate analysis the fulfillment of the administration regimen: OR = 3.57; 95% IC: 2.47 – 5.15, age < 60y: OR = 1.91; 95% IC: 1.64 – 2.24, the intake of cleansing solution at the same day using “split dose”: OR = 1.84; 95% IC: 1.45 – 2.32, the female gender: OR = 1.33; 95% IC: 1.14 – 1.55, the SP/MC use: OR = 1.33; 95% IC: 1.14 – 1.56 and the screening colonoscopy: OR = 1.26; 95% IC: 1.07 – 1.47 were associated to adequate bowel preparation.

**Conclusions** Female < 60 years old who intake SP/MC solution at the same day in “split dose” in whom the indication for colonoscopy was CRC screening achieve an adequate bowel preparation. Therefore in those patients in whom these features are not identified we recommend a more intensive preparation strategy.

#### eP49 THE RISK FOR COLORECTAL ADENOMA IS ASSOCIATED WITH LIVER FIBROSIS IN PATIENTS WITH NON-ALCOHOLIC FATTY LIVER DISEASE

**Authors** Kim MC<sup>1</sup>, Jang BI<sup>1</sup>, Kang MK<sup>1</sup>, Cho JH<sup>1</sup>, Kim SB<sup>1</sup>, Kim KH<sup>1</sup>, Kim KO<sup>1</sup>, Lee SH<sup>1</sup>, Kim TN<sup>1</sup>

**Institute** 1 Internal Medicine, Yeungnam University College of Medicine, Daegu, Korea, Republic of

DOI 10.1055/s-0039-1681797

**Aims** Non-alcoholic fatty liver disease (NAFLD) is associated with risks for developing colorectal adenoma, which is related to various metabolic factors. However, studies on the risks of developing colorectal adenoma according to the severity of NAFLD are limited. This study aimed to evaluate the association between advanced fibrosis in NAFLD and the risk for colorectal adenoma.

**Methods** We retrospectively analyzed the data of 6,332 adults who underwent abdominal ultrasound and first-time colonoscopy on the same day in a health screening program at Yeungnam University Hospital from September 2009 to June 2017. NAFLD was diagnosed using abdominal ultrasound. We evaluated the presence of advanced fibrosis in NAFLD using various non-in-

vative score, which also analyzed the detection rate of colorectal adenoma according to the presence of advanced fibrosis in the subjects with NAFLD.

**Results** The subjects with NAFLD had a higher prevalence of colorectal adenoma, advanced adenoma, and multiple adenomas. In the multivariate analysis adjusting for demographic and metabolic factors, NAFLD was an independent risk factor for colorectal adenoma (adjusted odds ratio [OR], 1.15; 95% confidence interval [CI], 1.02 – 1.30), advanced adenoma (adjusted OR, 1.50; 95% CI, 1.12 – 2.01), and multiple adenomas (adjusted OR, 1.32; 95% CI, 1.01 – 1.73). When NAFLD was further stratified based on the stage of fibrosis using the non-invasive score models, the subjects with NAFLD and advanced fibrosis had a significantly higher risk for colorectal adenoma, advanced adenoma, and multiple adenomas than those with NAFLD without advanced fibrosis.

**Conclusions** NAFLD with advanced fibrosis is an independent risk factor for colorectal adenoma compared with NAFLD without advanced fibrosis.

## eP50 FACTORS OF PREOPERATIVE COLONOSCOPY THAT AFFECT THE DETECTION OF SYNCHRONOUS ADENOMA IN COLORECTAL CANCER PATIENTS

**Authors** Park JH<sup>1</sup>, Moon HS<sup>1</sup>, Kim JS<sup>1</sup>, Kang SH<sup>1</sup>, Sung JK<sup>1</sup>, Jeong HY<sup>1</sup>

**Institute** 1 Department of Internal Medicine, Division of Gastroenterology, Chungnam National University Hospital, Chungnam National University College of Medicine, Daejeon, Korea, Republic of  
**DOI** 10.1055/s-0039-1681798

**Aims** Despite thorough preoperative screening, approximately 19–30% of synchronous polyps are detected after colon cancer surgery. Remnant synchronous lesions might require additional colonoscopy procedure or surgery. The purpose of this study was to investigate the factors of preoperative colonoscopy that can affect the detection of synchronous lesions in the colon in patients who have undergone surgery for colorectal cancer.

**Methods** From January 1, 2012 to December 31, 2016, we retrospectively analyzed 1147 colorectal cancer patients, who underwent colectomy and colonoscopy. In all, 518 patients underwent colonoscopy before and after surgery. Index colonoscopy was defined as the last endoscopy performed before surgery. Follow up colonoscopy was performed one year after surgery. The effects of bowel preparation, index colonoscopy, adenoma, and physician and patient factors on postoperative PMR, AMR and AAMR were analyzed. An Aronchick scale "Excellent" or "good" was defined as optimal bowel preparation.

**Results** The overall rate of missed adenomas was 25.7% (95% confidence interval, 22.2–29.8%). On comparing the optimal and non-optimal groups, the post-operative PMR, AMR (11% vs. 49%, and 5.9% vs. 35.2%,  $p < 0.01$ ), AAMR (3.0% vs. 4.6%,  $p = 0.272$ ), and size of the polyps ( $3.2 \pm 0.55$  vs.  $4.9 \pm 0.23$  mm,  $p = 0.017$ ) were higher in the non-optimal bowel preparation group. Based on the optimal group, we found more number of synchronous adenomas in the fair group (OR 5.72) and poor group (OR 11.39). On univariate analysis, the patients' age and withdrawal time ( $p < 0.01$ ) also influenced AMR. Physicians with more than 10 years' experience in colonoscopy had lower post-operative ADR than those with less experience, but there was no statistically significant difference. Multivariate analysis showed that age and preoperative bowel preparation influenced postoperative AMR.

**Conclusions** Higher age of the patient and non-optimal bowel preparation at index colonoscopy, have a negative effect on lowering the postoperative AMR.

## eP51 YIELD OF FLEXIBLE SIGMOIDOSCOPY-BASED SCREENING FOR COLORECTAL NEOPLASIA IN GREEK AVERAGE-RISK INDIVIDUALS: IMPACT OF SERRATED POLYPS

**Authors** Papastergiou V<sup>1</sup>, Mathou N<sup>1</sup>, Giannakopoulos A<sup>1</sup>, Evgenidi A<sup>1</sup>, Schoretsanitis E<sup>1</sup>, Apessou D<sup>1</sup>, Lenas M<sup>1</sup>, Paraskeva K<sup>1</sup>

**Institute** 1 Konstantopoulou-Patision General Hospital, Athens, Greece  
**DOI** 10.1055/s-0039-1681799

**Aims** Flexible sigmoidoscopy (FS) is an attractive screening modality, being less invasive and costly compared to full colonoscopy. We investigated the yield of FS with respect to advanced colorectal neoplasia (ACN) detection and identified factors correlating with ACN missed by FS-based screening.

**Methods** Retrospective cross-sectional study of data from 2005 patients aged  $\geq 50$  years (57.2% female,  $61.8 \pm 8.2$  years) who underwent an average-risk screening colonoscopy between 1/2014–6/2018. ACN was defined as conventional adenoma  $\geq 10$  mm, villous histology, high-grade dysplasia, sessile serrated adenoma/polyp (SSA/P)  $\geq 10$  mm, SSA/P with cytologic dysplasia, traditional serrated adenoma, or cancer. The additional yield resulting from conversion to full colonoscopy in patients with pre-established distal findings ( $\geq 3$  conventional adenomas,  $\geq 10$  mm, villous, or high-grade dysplasia) was also evaluated. Two definitions of FS up to the sigmoid-descending junction (FS-1) or splenic flexure (FS-2) were analyzed.

**Results** Colonoscopy revealed 419 conventional adenomas in 293 (14.6%) patients, 54 SSA/Ps in 35 (1.7%) patients and 114 ACNs in 102 (5.1%) patients. FS alone would have led to the detection of 40.4% (46/114; FS-1) and 53.5% (61/114; FS-2) cases of ACN. Forty-two (2.1%; FS-1) and 56 (2.8%; FS-2) patients with pathological distal findings would have undergone full colonoscopy, resulting in the additional detection of 8 (7%) and 7 (6.1%) ACNs, respectively. Overall, the implementation of FS-based screening would have led to the identification of 47.4% (54/114; FS-1) and 59.6% (68/114; FS-2) cases of ACN. Individuals with at least one SSA/P of any size anywhere in the colon were more likely to have proximal ACN with no concurrent distal findings that would have led to full colonoscopy [age- and gender-adjusted RR: 32.6, 95% CI 15–70.6,  $P = 0.0001$  (FS-1), 42.3, 95% CI 19.2–93.6,  $P = 0.0001$  (FS-2)].

**Conclusions** In Greek average-risk individuals, 40–53% of cases of ACN would be missed by FS-based screening. In our setting, SSA/Ps were the only identifiable factor affecting negatively the yield of FS-based screening.

## eP52 ENDOSCOPIC AND CLINICAL OUTCOMES IN CD PATIENTS: RESULTS OF A PROSPECTIVE STUDY

**Authors** State M<sup>1</sup>, Voiosu T<sup>1,2</sup>, Bengus A<sup>1</sup>, Mateescu B<sup>1,2</sup>

**Institute** 1 Colentina Clinical Hospital, Bucharest, Romania; 2 'Carol Davila' University of Medicine and Pharmacy, Bucharest, Romania  
**DOI** 10.1055/s-0039-1681800

**Aims** Our aim was to assess clinical and endoscopic outcomes in CD (Crohn's disease) patients enrolled in an IBD prospective cohort and to identify predictors of persistent inflammatory activity at follow-up.

**Methods** CD patients prospectively enrolled in an IBD cohort from a tertiary care center in Bucharest were followed annually, collecting clinical (CDAI, SIBDQ), endoscopic (SES-CD), biologic (CRP) data at each study visit.

**Results** Analysed data from 62 CD patients (visits (22% ileal, 46% colonic, 29% ileo-colonic disease extension) were included, totalling 143 study visits. In the final analysis, at baseline 43% of patients had clinical activity, 82% had active endoscopic disease and reported a poor quality of life (median SIBDQ score 4.7). Enrolled patients had mild endoscopic activity (median SES-CD score 5) and a low prevalence of stenosis (median SES-CD stenosis subscore 0). SES-CD scores improved significantly at first follow up visit (median SES-CD 3,  $p = 0.013$ , Mann-Whitney U test), as well as quality of life scores (median SIBDQ score at baseline 4.7 vs. 5.5 at first follow-up visit,  $p = 0.001$ , Mann-Whitney U test) and clinical remission rates (43% at baseline vs. 28% at follow-

up,  $p=0.04$ ). In addition, we found a weak correlation for the SES-CD score with SIBDQ scores ( $r=-0.27$ ,  $p=0.019$ ) and with CRP levels ( $r=0.38$ ,  $p<0.01$ , Spearman's correlation).

**Conclusions** Under medical treatment, endoscopic and clinical parameters of CD patients improve at 12 months of follow-up. As there is no consensus regarding SES-CD cut-off scores for endoscopic remission it's difficult to interpret the significance of SES-CD score improvement. However, according to some authors [1], we could consider that a significant percent of enrolled patients achieved endoscopic remission at one year of follow-up, with 58% having SESCD  $\leq 3$ .

**References** [1] Efstratios Koutroumpakis and Konstantinos H. Katsanos<sup>1</sup>. Implementation of the Simple Endoscopic Activity Score in Crohn's Disease. Saudi J Gastroenterol. 2016 May-Jun;22 (3):183 – 191.doi: [10.4103/1319 – 3767.182455]

### eP53 COLORECTAL CANCER INCIDENCE AND THE PREVALENCE OF PRECURSOR LESIONS IN YOUNGER ADULTS

**Authors** Penz D<sup>1,2</sup>, Ferlitsch A<sup>3</sup>, Waldmann E<sup>1,2</sup>, Pammer D<sup>1,2</sup>, Majcher B<sup>1,2</sup>, Gessl I<sup>2</sup>, Hinterberger A<sup>1,2</sup>, Szymanska A<sup>1,2</sup>, Asaturi A<sup>1,2</sup>, Trauner M<sup>1</sup>, Ferlitsch M<sup>1,2</sup>

**Institute** 1 Department of Internal Medicine III, Medical University of Vienna, Vienna, Austria; 2 Austrian Society of Gastroenterology and Hepatology (OEGGH), Vienna, Austria; 3 Barmherzige Brüder, Vienna, Austria  
DOI 10.1055/s-0039-1681801

**Aims** In the USA, Colorectal cancer (CRC) incidence and mortality decreases among the screening population. However more often younger (<50y) get diagnosed with CRC. Therefore, the American-Cancer-Society recommend to start screening colonoscopy (SC) at the age of 45. Aim of our study is to assess the CRC incidence in Austria within different age groups and compare it with the occurrence of precursor lesions.

**Methods** 266.592 screening colonoscopies were analyzed from 2008 – 2018 within the "Austrian-screening-program". The incidence (per 100.000) of colorectal cancer with the data from Statistic Austria and the prevalence of precursors within the Austria screening program were assessed within different age groups and compared among adults over and under 50years.

**Results** 9341 (3,5%) patients were below the age of 50 and 257.251 (96,5%) were over 50 years old. CRC-incidence under the age of 50 was 7,6 (♂) & 6,6 (♀) in 1985; 7,5 (♂) & 6,5 (♀) in 1995; 8,7 (♂) & 7,7 (♀) in 2005 and 9,8 (♂) & 8,8 (♀) in 2015. Incidences for patients over 50 was 192,7 (♂) & 156,8 (♀) in 1985; 215,3 (♂) & 160,7 (♀) in 1995; 212,3 (♂) & 144,0 (♀) in 2005 and 148,6 (♂) & 95,3 (♀) in 2015. The prevalence of advanced adenomas changed from 5,5% (♂) & 2,1% (♀) in 2008 to 7,4% (♂) & 8,7% (♀) in 2018 within patients under 50 and from 9,5% (♂) & 5,2% (♀) to 6,9% (♂) & 4,9% (♀) within those over 50 years.

The number needed to Screen (NNS) for an Adenoma was 5 within men aged 45 – 49, as well as among 50 – 54-years old. Within women NNS of 8 was also identically for both age groups.

**Conclusions** CRC incidence, as well as the occurrence of precursor advanced adenomas decreased within patients over 50 in the last years, while it is increasing among individuals under 50. The NNS for an adenoma is identically among patients aged 45 – 49 and 50 – 54. Therefore, the age for starting SC should be diminished to 45.

### eP54 COMPLICATIONS IN THE MANAGEMENT OF ACUTE LEFT COLONIC NEOPLASTIC OBSTRUCTION WITH CURATIVE INTENTION. DO ENDOSCOPIC STENTS HAVE A PROTECTIVE EFFECT?

**Authors** Couto-Worner I<sup>1</sup>, Guerrero-Montañés A<sup>1</sup>, López-Álvarez M<sup>1</sup>, Yáñez-González-Doposo L<sup>1</sup>, Teresa Seoane-Pillado M<sup>2</sup>, Alonso-Aguirre P<sup>1</sup>

**Institute** 1 Gastroenterology, Complejo Hospitalario Universitario de A Coruña, A Coruña, Spain; 2 Statistics, Complejo Hospitalario Universitario de A Coruña, A Coruña, Spain

DOI 10.1055/s-0039-1681802

**Aims** To evaluate factors involved in medical and surgical complications in patients with acute colonic obstruction secondary to left colon cancer treated with curative intention. We specifically compared the influence of stents.

**Tab. 1** Univariate analysis of complications in patients with neoplastic acute left colonic obstruction treated with curative intention

	Surgery	Stent	p	OR
Stoma	17 (56,7%)	16 (21,1%)	<b>0,001</b>	0,20 (0,08 – 0,50)
Surgical complications	5 (16,7%)	15 (19,7%)	0,716	1,23 (0,40 – 3,74)
Medical complications	7 (23,3%)	1 (1,3%)	<b>0,004</b>	0,04 (0,00 – 0,37)

**Methods** We performed an observational and retrospective study of patients attended in a single center for acute left colonic obstruction caused by cancer between 2007 and 2014. There were only included patients with curative intention, without metastasis at the time of diagnosis and treated with surgery with R0 resection.

**Results** There were included 106 patients. It was placed a colonic stent as a bridge in 76 (71,7%), and the rest were operated in an emergency setting. Surgical complication rate was lower in women, OR 0,30 (0,09 – 0,97). In multivariate analysis Charlson score, men and resection larger than 30 cm were associated with a higher surgical complication rate.

There were less medical complications in the postoperative period in patients with a colonic stent, OR 0,044 (0,00 – 0,37). In multivariate analysis, colonic stent and young age had fewer complications too.

The presence of stoma at discharge was less frequent in patients with a colonic stent, OR 0,20 (0,08 – 0,50), the ones with scheduled surgery, OR 0,09 (0,03 – 0,25), and higher in the ones who presented surgical complications, OR 2,73 (1,01 – 7,43). In multivariate analysis, the presence of colonic stent was associated with lower stoma rate.

**Conclusions** Colonic stents in patients with acute colonic obstruction secondary to left colon cancer treated with curative intent were associated in our study with a lower rate of medical complications and stoma but had no relationship with the presence of surgical complications.

### eP56 CLINICAL POTENTIAL OF CIRCULATING TUMOR CELLS IN COLORECTAL CANCER: A PROSPECTIVE STUDY

**Authors** Song GA<sup>1</sup>, Baek DH<sup>1</sup>, Lee MW<sup>1</sup>, Park JW<sup>1</sup>, Lee SH<sup>1</sup>

**Institute** 1 Gastroenterology, Pusan National University Hospital, Busan, Korea, Republic of

DOI 10.1055/s-0039-1681803

**Aims** Identification of Circulating tumor cells (CTCs) in the peripheral blood has been suggested for an early diagnostic and prognostic marker in patient with colorectal cancer (CRC). However, only limited data exist on the diagnostic impact of CTCs in patients with CRC. In this study, we evaluate a newly developed CTCs detection systems based on the cell size to assess CTCs and its clinical potential with early diagnosis and prognostic biomarker in CRC patient.

**Methods** From 2014 to 2015, a total of 88 patients with newly diagnosed CRC (67 patients with colon cancer and 21 patients with rectal cancer) who were scheduled for surgery and 31 healthy volunteers were enrolled and followed-up in Pusan National University Hospital. CTCs were enriched using

a centrifugal microfluidic system with a new fluid-assisted separation technique (FAST) from peripheral blood and were detected by cytomorphological evaluation using fluorescence microscopy.

**Results** Two or more CTCs were detected using FAST in 74 patients and 3 healthy volunteers. The number of CTCs in the CRC group was significantly higher than that in the healthy volunteers ( $P < 0.001$ ). When a receiver operating characteristic curve was created to differentiate CRC patients from healthy volunteers, the sensitivity and specificity were almost optimized when the critical CTC value was 5/7.5 mL of blood. When this value was used, the sensitivity and specificity in differentiating CRC patients from the healthy controls were 75% and 100%, respectively. In CRC patients with  $\geq 5$  CTCs, vascular invasion was frequently identified ( $P = 0.035$ ). All patients with stage IV cancer were positive for CTCs.

**Conclusions** Our study demonstrated promising results with the use of FAST-based CTC detection for the early diagnosis.

## eP57 INCIDENCE AND RISK FACTORS FOR SESSILE SERRATED ADENOMAS AFTER CURATIVE SURGERY IN LEFT-SIDE COLON CANCER PATIENTS

**Authors** Moon HS<sup>1</sup>, Kim MH<sup>1</sup>, Park JH<sup>1</sup>, Kim JS<sup>1</sup>, Kang SH<sup>1</sup>, Sung JK<sup>1</sup>, Jeong HY<sup>1</sup>

**Institute** 1 Department of Internal Medicine, Division of Gastroenterology, Chungnam National University Hospital, Daejeon, Korea, Republic of  
**DOI** 10.1055/s-0039-1681804

**Aims** Sessile serrated adenomas (SSAs) are known to be precursors of colorectal cancer (CRC). However, data regarding detection rates of premalignant lesions during colonoscopy surveillance in patients with a history of left-sided colonic resection for cancer are lacking. In this study, we aimed to identify the incidence and risk factors for serrated adenoma in left-side colorectal cancer patients.

**Methods** We retrospectively reviewed the medical records of patients who underwent left-sided colonic surgery for colon and rectal cancer at Chungnam national university hospital (CNUH) between September 2009 and September 2016. We enumerated the SSAs in patients with left-side colectomy who received 1 or more follow-up colonoscopies. The patients' baseline and SSA characteristics and colonoscopy information were reviewed.

**Results** A total of 539 patients were enrolled in the study. During the first follow-up, 98 SSAs were identified in 539 patients (22.2%). At the second follow-up, 51 SSAs were identified in 212 patients (24.0%). The mean age of the patients was 62.2 years and 77.0% patients were men. The mean first follow-up duration was 11.5 months, and the mean second follow-up duration was 25.8 months. Multivariate analysis showed that alcohol intake (HR, 1.603; 95% CI, 1.033–2.411), bowel preparation (HR, 0.599; 95% CI, 0.301–1.039), and the use of transparent cap (HR, 1.702; 95% CI, 1.060–2.735) were associated with serrated adenoma incidence in the first surveillance colonoscopy. However, in the second surveillance, the body mass index significantly increased the risk of SSAs (HR, 1.602; 95% CI, 1.060–2.836).

**Conclusions** Several lifestyle factors are associated with metachronous SSAs risk. The findings of this study enhance our understanding of the mechanisms of SSAs development and indicate that the risk of serrated pathway colorectal neoplasms could be reduced through lifestyle changes.

## eP58 CAN SIGMOIDOSCOPY REPLACE COLONOSCOPY WHEN EVALUATING PATIENTS WITH ULCERATIVE COLITIS?

**Authors** Lee J<sup>1</sup>, Lee JI<sup>1</sup>, Kim YD<sup>1</sup>

**Institute** 1 Chosun University, Gwangju, Korea, Republic of  
**DOI** 10.1055/s-0039-1681805

**Aims** Ulcerative colitis (UC) is a chronic inflammatory bowel disease of unknown etiology and is a lifelong disease repeating clinical improvement and aggravation. Endoscopic severity assessment is very important, because the

severity assessment is related to the prognosis of the UC patient. Colonoscopy is able to identify the entire field, but is accompanied by complication and the preparation process is difficult. The aim of this study is to evaluate the endoscopic tool to assessing severity of ulcerative colitis during follow up UC patients.

**Methods** The subjects were 183 UC patients who were diagnosed and followed up at Chosun University Hospital from 2013 January to 2017 December. Among them, 101 patients with follow-up colonoscopy were enrolled and retrospectively evaluated for endoscopic severity. The severity is assessed by colonoscopy alone, inspector determines endoscopic severity of follow up UC patients from rectosigmoid and proximal colon. The scale of endoscopic severity is endoscopic mayo score and ulcerative colitis endoscopic index scale (UCEIS).

**Results** Of the 101 patients, 40 has lesions limited to the rectosigmoid colon. (39%) The average of endoscopic mayo score of entire colon is 1.21 and in case of rectosigmoid colon is 1.07. The average of UCEIS of entire colon is 2.24 and in case of rectosigmoid colon is 1.94. The agreement endoscopic mayo score between the each site is observed with a kappa value of 0.83 ( $p = 0.00$ ), and agreement of UCEIS between the each site is observed with a kappa value of 0.840 ( $p = 0.00$ ).

**Conclusions** There is a very high level of agreement between entire colon severity and rectosigmoid colon severity in followed UC patients. Sigmoidoscopy is a good modality for evaluating the endoscopic severity of followed UC patients, considering complication and high cost.

## eP59 DON'T FORGET TO PERFORM BIOPSIES IN NORMAL ILEOCOLONOSCOPY FOR CHRONIC DIARRHEA

**Authors** Leoncini G<sup>1</sup>, Bonfante F<sup>2</sup>, Bonzanini O<sup>3</sup>, Polo S<sup>3</sup>, Aimo G<sup>2</sup>, Villanacci V<sup>4</sup>

**Institute** 1 Pathology Unit, ASST del Garda, Desenzano del Garda, Brescia, Italy; 2 Internal Medicine, Desenzano Hospital – ASST Garda Brescia, Desenzano del Garda, Italy; 3 Internal Medicine, Gavardo Hospital – ASST Garda Brescia, Gavardo, Italy; 4 Pathology Unit, ASST Spedali Civili, Brescia, Italy  
**DOI** 10.1055/s-0039-1681806

**Aims** The aim of the present study is to better assess the prevalence of colitis with unremarkable endoscopic features, through clinical-pathological correlations.

**Methods** 150 patients (96 women, age 18–72 y) with chronic diarrhea were retrospectively evaluated, from 2008 to 2018. IBD, diverticular disease, HIV infection, parasites infestations, neoplasms were excluded. Every patient underwent a complete ileo-colonoscopy with a bioptic mapping from the terminal ileum to the rectum, providing from a minimum of two biopsies from each explored intestinal segment; biopsies were correctly oriented on acetate cellulose filters. The ileo-colonoscopy was performed with white light instruments without high definition and magnification. The bioptic samples were sent to our Pathology Unit, formalin-fixed, paraffin-embedded and stained with Hematoxylin-Eosin (H-E). Microscopic examination was performed by two GI pathologist on H-E, Masson trichrome stain and immunohistochemical stains for CD3 and CD8 in selected cases.

**Results** The histopathologic examination confirmed the presence of microscopic colitis (MC) in 43 of 150 patients (29%), with predominance of lymphocytic colitis (LC) (16%) over collagenous colitis CC (13%). The remaining 71% was composed by the resolving phase of acute self-limiting colitis (ASLC-r; 28%), by atrogenic colitis (IC; 26%), with both hypereosinophilic (21%) and pseudo-melanotic (5%) pattern of injury, and histologically normal mucosa (NM; 17%).  
**Conclusions** When we perform colonoscopy for chronic diarrhea and endoscopic features are not remarkable, a complete bioptic sampling is mandatory, because the classic MC is not the only possible scenario in the normal mucosa. Our data suggested that MC are responsible for less than one third of cases of chronic diarrhea. Other conditions, such as ASLC-r and IC, are involved as

causative factors of diarrhea and they might be better understood on both clinical and pathological ground. Further studies with endoscopic high definition techniques are needed to rule out the intrinsic limitation of the low definition imaging.

## eP60 GENDER-SPECIFIC DIFFERENCE IN HISTOLOGY OUTCOMES ACCORDING TO POLYP SHAPE IN SCREENING COLONOSCOPIES

**Authors** Majcher B<sup>1</sup>, Penz D<sup>1</sup>, Kammerlander-Waldmann E<sup>1</sup>, Hinterberger A<sup>1</sup>, Szymanska A<sup>1</sup>, Pammer D<sup>1</sup>, Asaturi A<sup>1</sup>, Trauner M<sup>1</sup>, Ferlitsch M<sup>1</sup>, Quality assurance working group from Austrian Society of Gastroenterology and Hepatology (OEGGH)

**Institute** 1 Department of Internal Medicine III, Division of Gastroenterology & Hepatology, Medical University of Vienna, Vienna, Austria

DOI 10.1055/s-0039-1681807

**Aims** Predictions about histology can be made due to polyp's size, localization and shape. As influence of size and localization have been already shown in many studies (Lieberman D et al, Gastroenterology 2008), our aim of the study was to evaluate probabilities for type of histology according to different polyp shapes and whether it shows distinction between men and women.

**Methods** Screening colonoscopies between 2007 – 2018 were analyzed within Austrian Certificate in Quality for Screening Colonoscopy. Polyp shape was recorded on basis of Paris classification (sessile, flat, pedunculated). Histology was described for polyps: hyperplastic, other benign and for adenomas: tubular, villous, tubulovillous, sessile serrated (SSA), traditional serrated (TSA). Advanced adenomas (AA) were analyzed between 2013 – 2018.

**Results** 27 666 (46,88%) screening colonoscopies were from female patients, mean age = 61,76 (SD = 8,96), 53,12% were from male patients, mean age = 61,41 (SD = 8,92).

7766 (49,28%) flat polyps were found in women, 7992 (50,72%) in men. Regarding histology, 51,96% were hyperplastic in women vs. 44,73% in men, other benign 4,96% vs. 4,7%, SSA 3,84% vs. 2,34%, TSA 0,66% vs. 0,34%, tubular 33,29% vs. 41,37%, tubulovillous 5,07% vs. 6,19% and villous 0,23% vs. 0,33%.

From 2537 (42,78%) pedunculated lesions in women and 3394 (57,22%) in men, 16,71% were hyperplastic in women vs. 14,11% in men, other benign 6,39% vs. 5,48%, SSA 0,63% vs. 0,68%, TSA 0,43% vs. 0,47%, tubular 47,46% vs. 50,88%, tubulovillous 27,24% vs. 27,37% and villous 1,14% vs. 1,0%.

According to sessile polyps, 17 363 (46,52%) were found in women and 19958 (53,48%) in men. From that, 47,49% were hyperplastic in women vs. 42,31% in men, other benign 4,56% vs. 4,2%, SSA 3,04% vs. 2,11%, TSA 0,52% vs. 0,47%, tubular 37,85% vs. 43,65%, tubulovillous 6,16% vs. 6,89% and villous 0,38% vs. 0,42%.

From 39 886 screening colonoscopies since 2013, 4,53% AA were found in women and 6,06% in men. Regarding to polyp's shape, 6,26% of flat polyps (5 430) in women were AA vs. 7,8% in men (5 432), 41,01% of pedunculated polyps (1 517) vs. 41,05% (from 2073) and 7,13% of sessile polyps (11 848) vs. 8,43% (from 13 586).

**Conclusions** Patients with pedunculated polyps had higher risk for advanced histology compared to sessile or flat polyps. More men had pedunculated and sessile lesions.

More sessile and flat polyps turned out to be histologically hyperplastic and SSA among women whereas men had more tubular adenomas with these polyp shapes.

## eP61 ENDOSCOPIC RESECTION OF SMALL COLORECTAL POLYPS: WHAT IS THE OPTIMAL TECHNIQUE?

**Authors** Trad D<sup>1</sup>, Jlassi H<sup>1</sup>, Lassoued K<sup>1</sup>, Sabbah M<sup>1</sup>, Bibani N<sup>1</sup>, Elloumi H<sup>1</sup>, Ouakaa A<sup>1</sup>, Gargouri D<sup>1</sup>

**Institute** 1 Gastroenterology Department of Habib Thameur Hospital, Tunis, Tunisia

DOI 10.1055/s-0039-1681808

**Aims** More than 70% of the polyps detected during colonoscopies are small (1 – 10 mm). The optimal technique of their complete resection is a subject of concern for endoscopists.

The aim of this study was to review the different techniques used for the resection of small polyps and to suggest which one would be most effective comparing the different rates of incomplete resection.

**Methods** This was a retrospective study including all the patients who underwent polypectomy for a small colorectal polyp during a period of 12 months (the year 2017). Three groups were defined: Group 1 (G1) for polyps resected using mucosectomy, group 2 (G2) for polyps resected using hot snare and group 3 (G3) for polyps removed by the biopsy forceps.

**Results** During the year of the study, 116 colorectal polypectomies were performed for 74 patients with an average age of 62 years [22.87 years] and a sex ratio (M/F) of 2.08. Polyps at mainly in the rectum (29.3%). They were sessile in 76.7% (n = 89), pedunculated in 10.3% (n = 12), and flat in 8.6% of cases (n = 10). The average size of polyps was 4.59 mm [2 – 10]. Diminutive polyps were prevailing (71.5% of cases, n = 83). The histopathological assessment showed that 25.8% of the polyps were hyperplastic (n = 30), while 66.4% (n = 77) were adenomatous. In the latter, 80.5% were tubular and 16.6% tubulovillous. G1 included 16 polyps, G2: 15 polyps and G3: 82 polyps. The incomplete resection rate of adenomatous polyps was significantly higher in G3 compared to G2 and G1 (23.1% vs. 6.6% vs. 18.7%, p = 0.12).

**Conclusions** In our serie, complete endoscopic resection of small polyps was much better using hot snare. Until today, no optimal method has been described for the resection of small polyps.

## eP62 RESULTS OF ENDOSCOPIC MANAGEMENT OF SIGMOID VOLVULUS

**Authors** Sabbah M<sup>1</sup>, Jlassi H<sup>1</sup>, Trad D<sup>1</sup>, Ouakaa A<sup>1</sup>, Bibani N<sup>1</sup>, Elloumi H<sup>1</sup>, Gargouri D<sup>1</sup>

**Institute** 1 Gastroenterology Department of Habib Thameur Hospital, Faculty of Medicine of Tunis, Tunis, Tunisia

DOI 10.1055/s-0039-1681809

**Aims** Sigmoid volvulus (SV) is represented by the wrapping of the sigmoid colon around itself and its mesentery, causing an intestinal obstruction and ischemic changes.

Controversy exists between endoscopy and surgery for the therapeutic management of colonic volvulus in emergency.

The aim of the study is to assess the outcome of patients with SV managed by endoscopic detorsion.

**Methods** A retrospective study including patients who underwent emergency endoscopic detorsion in the gastroenterology department of Habib Thameur Hospital, between January 2008 and August 2018 was conducted. The results of endoscopic management, percentage of recurrence, and the need for surgical procedures were analyzed.

**Results** During the study period, a total of 12 patients with acute SV were endoscopically treated. There were 9 men and 3 women, with a mean age of 60,4 years [range 30 – 90]. Endoscopic treatment was successfully performed without any complication in 10 patients, representing a primary success of 83,3%. For the other cases, exsufflation could not be performed because of severity endoscopic signs of bowel ischemia requiring an immediate surgery consisting on sigmoidectomy with Bouilly-Volkmann's colostomy.

Early recurrence occurred in 2 patients an average of 16 days post detorsion [range 2–25 days], representing a secondary success of endoscopic treatment of 80%.

Semi-elective surgery was performed in 80% of patients who underwent endoscopic detorsion (n=8) an average of 19,1 days [range 0–35].

**Conclusions** For uncomplicated SV, endoscopy is the best therapeutic option. It is safe and efficient with a high primary and secondary success rates. An elective surgery can than be performed in better conditions.

## eP64 LARGE NON-PEDUNCULATED COLORECTAL POLYPS REMOVAL AND RESULTS IN A UK DISTRICT HOSPITAL OVER A 12 MONTHS PERIOD

**Authors** Mohamad A<sup>1</sup>, Sabri S<sup>2</sup>, Kroening H<sup>3</sup>, Saleem A<sup>4</sup>, Solkar M<sup>2</sup>

**Institute** 1 General Surgery, Tameside and Glossop Integrated Care NHS FT, Manchester, United Kingdom; 2 Tameside and Glossop Integrated Care NHS FT, Manchester, United Kingdom; 3 Tameside Hospital, Ashton under Lyne, United Kingdom; 4 Gastro Enterology, Tameside and Glossop Integrated Care NHS FT, Manchester, United Kingdom

DOI 10.1055/s-0039-1681810

**Aims** To identify results, pit falls to formulate recommendations based on audit of LNPCP removal over a 12 months period and to compare it with BSG (British Society of Gastroenterology Society) guide lines and to see that it meets recommended BSG standards. Data collection was between Aug 2016 till Aug 2017.

**Methods** A retrospective data collection was conducted of LNPCP removed over a 12 months period 14 different parameters were used for each polypectomy conducted and results were analyzed on MS Excel.

**Results** 50 patients had LNPCPs removed during this 12 months duration. The demographic results shows that majority of patients were in there eighties. 56% were female and 44% were male. Majority of polyps were in distal sigmoid and hepatic flexure which constitutes 36%. The majority of the polyps removed were between 2–3 cm which makes 36% of total sample size. 82% of polyps were removed by hot snare cauterisation.. The majority of indication for colonoscopy was previous polyps and this was 28%. 54% of polyps were completely removed and remaining were piecemeal. 26% of patients received midazolam and 50 mg of Fentanyl.

62% of cases pit pattern was not recorded in the endoscopy report..66% of cases paris classification was not noted. 100% polyps were retrieved. 54% polyps were removed completely. One adverse event was noted which was patient discomfort.66% polyps had histology of tubovillous adenoma with low grade dysplasia. 72% polyps were regarded as complete by histopathologis. No patients were readmitted. 4 patients had adenocarcinoma.

**Conclusions** Pit pattern and paris classification of polyps to be entered religiously to rule out suspicious lesion. Referral pathway to facilitate the management of LNPCP to be developed. Mdt to discuss complex LNPCP. Endoscopist to be highly experienced in standard polypectomy. Primary therapeutic management of LNPCPs to be undertaken in 8 weeks.

## eP65 CONTRIBUTION OF COLONOSCOPY AFTER AN EPISODE OF COMPLICATED DIVERTICULOSIS

**Authors** Mrabet S<sup>1</sup>, Kallel R<sup>1</sup>, Akkari I<sup>1</sup>, Ben Jazia E<sup>1</sup>

**Institute** 1 Gastroenterology, Farhat Hached University Hospital, Sousse, Tunisia

DOI 10.1055/s-0039-1681811

**Aims** A colonoscopy is often indicated after an episode of complicated diverticulosis to the search for a malignant tumor of the colon. The purpose of our study is to clarify the value of this examination in patients with complicated diverticular disease of the colon.

**Methods** This is a retrospective study including all patients explored by colonoscopy after an episode of complicated diverticulosis between January 2016 and September 2018.

**Results** Among 168 patients with colonic diverticular disease, 38 patients had a complicated diverticulosis (22.6%). These patients were divided into 20 men and 18 women with a mean age of mean age of 58.42 years. Diverticulosis was complicated by sigmoiditis in 31 cases, deep abscess in 3 cases, gastro-intestinal bleeding in 3 cases and perforation in 1 case. A favorable evolution was obtained after the introduction of antibiotic therapy in most cases (34 patients). Four patients underwent surgical treatment. Colonoscopy performed within 53.8 days (30–90 days) showed diverticula in the sigmoid colon in 22 cases, the left colon in 8 cases, the transverse colon in 2 cases, the right colon in 2 cases and diffuse in 4 cases. Colonic polyps were present in 3 patients (7.8%) of 8.3 mm (5–12 mm) average size. Histological examination showed two tubular adenomas with low grade dysplasia and a tubular adenoma with high grade dysplasia. No cases of malignancy were observed.

**Conclusions** After an episode of complicated diverticulosis, colonoscopy was pathological in 7.8% of cases. No cases of malignancy were observed.

## eP66 POSITIVE IMPACT OF SWITCHING FROM BSG TO ESGE POST POLYPECTOMY GUIDELINES ON A COLONOSCOPY SURVEILLANCE WAITING LIST

**Authors** Semenov S<sup>1,2</sup>, Syafiq Ismail M<sup>1,2</sup>, O'Connor A<sup>1,2</sup>, Breslin N<sup>1</sup>, Ryan B<sup>1</sup>, McNamara D<sup>1,2</sup>

**Institute** 1 Gastroenterology, Tallaght University Hospital, Dublin, Ireland; 2 Trinity Academic Gastroenterology Group, Trinity College Dublin, Dublin, Ireland

DOI 10.1055/s-0039-1681812

**Aims** Assess current compliance and the impact of switching surveillance recommendations.

**Methods** A consecutive sample of surveillance patients was identified. Indication, surveillance interval, index endoscopy and histology findings were documented. Compliance with BSG and impact of switching to ESGE guidelines was determined.

**Results** To date, 261 cases have been reviewed, 93 were excluded (86 (33%) non-polyp surveillance and 7 (3%) insufficient data). Of 168 post polypectomy cases, 60% were men and mean age 67 (35–89) years, compliance with BSG recommendations was 62% (n=104). Of the 64 (38%) with inappropriate intervals, 31 (18%) did not require surveillance, 8 (5%) should have had a longer interval (median 18 months), and 25 (15%) a shorter interval (median 24 months).

Of the 137 requiring surveillance, in 108 (79%) the interval would be extended by a median of 60 months by switching from BSG to ESGE recommendations, only 14 (10%) would be shorter, median 24 months and 15 (11%) remain unchanged. In those requiring surveillance, if compliance with BSG guidelines was 100%, our surveillance intervals would actually have been reduced by 456 months. Conversely, switching to ESGE recommendations would extend intervals by 6,144 months and 3,809 months assuming 100% and 62% compliance.

**Conclusions** Our data confirms surveillance guideline compliance remains an issue. While optimising compliance is important, adopting ESGE intervals would have a greater impact on colonoscopy demand.

## eP67 EFFICACY OF EMERGENCY ENDOSCOPIC HEMOSTASIS IN PATIENTS WITH ACUTE LOWER GASTROINTESTINAL BLEEDING AND FACTORS ASSOCIATED WITH NECESSITY OF ENDOSCOPIC INTERVENTION

**Authors** Diamantopoulou G<sup>1</sup>, Konstantakis C<sup>2</sup>, Tsolias C<sup>1</sup>, Kalafateli M<sup>1</sup>, Theocharis G<sup>1</sup>, Skroubis G<sup>3</sup>, Triantos C<sup>1</sup>, Papantoniou K<sup>1</sup>, Thomopoulos K<sup>1</sup>

**Institute** 1 Gastroenterology, University Hospital of Patras, Patras, Greece; 2 Gastroenterology, General Hospital of Patras, Patras, Greece; 3 Surgery, University Hospital of Patras, Patras, Greece

**DOI** 10.1055/s-0039-1681813

**Aims** The necessity and effectiveness of emergency endoscopic hemostasis in patients with acute lower gastrointestinal bleeding (ALGIB) has not been clearly established. The aim of this study was to define the role and efficacy of endoscopic hemostasis in patients with ALGIB and analyze factors associated with necessity for hemostasis.

**Methods** We analyzed the medical records of 587 patients with ALGIB treated in two affiliated hospitals during a seven year period. Our practice was to perform colonoscopy in all patients after hemodynamic stabilization during the first 24 h of hospitalization and capsule enteroscopy and/or computed tomography angiography, when needed.

**Results** Endoscopic hemostasis was required in 96 patients (16.3%) and permanent hemostasis was achieved in 82 cases (85.4%) in first colonoscopy and in 100% after a second attempt. No patient required emergency surgical hemostasis and no patient died. Mainly clips (52%), adrenaline injection (40.6%) and APC (39.5%) were performed. Factors associated with need for endoscopic hemostasis were concomitant diseases ( $p = 0.035$ , OR 2.69, 95% CI 1.05,6.87), use of anticoagulants ( $p < 0.001$ , OR 2.59, 95% CI 1.59, 4.22), post-polypectomy bleeding ( $p < 0.001$ , OR 23.01, 95% CI 11.92,44.26), presence of colonic ulcers ( $p < 0.001$ , OR 5.02, 95% CI 2.14, 11.76) and vascular ectasias ( $p < 0.001$ , OR 46.37, 95% CI 15.74,136.54). Ischemic colitis ( $p < 0.001$ , OR 0.766, 95% CI 0.729, 0.805), diverticulosis ( $p < 0.001$ , OR 0.108, 95% CI 0.034, 0.348) and neoplasia ( $p < 0.001$ , OR 0.89, 95% CI 0.87, 0.92) were negative predictors for the need of endoscopic hemostasis.

**Conclusions** Endoscopic hemostasis is required in a substantial number of patients with ALGIB with high efficacy and its necessity can be predicted by a variety of factors. However larger prospective studies are required to better define a prognostic score.

## eP68 THE ELASTIC LIGATION OF INTERNAL HEMORRHOIDS: WHERE ARE WE NOW?!

**Authors** Benjira R<sup>1</sup>, Abid H<sup>2</sup>, Lamine Sejai A<sup>2</sup>, Lahlali M<sup>2</sup>, Lahmidani N<sup>3</sup>, Elyousfi M<sup>2</sup>, Benajah DA<sup>2</sup>, Elabkari M<sup>2</sup>, Ibrahimimi A<sup>2</sup>

**Institute** 1 Service d'Hépatogastro-Entérologie, CHU Hassan II de Fès, Faculté de Médecine et de Pharmacie, Université sidi Mohamed Ben Abdallah de Fès, Fès, Morocco; 2 Service d'Hépatogastro-Entérologie, Faculté de Médecine et de Pharmacie, Université sidi Mohamed Ben Abdallah de Fès, Fès, Morocco; 3 Faculté de Médecine et de Pharmacie de Fès, Fez, Morocco

**DOI** 10.1055/s-0039-1681814

**Aims** Hemorrhoidal disease requires different means of treatment: medical, surgical and instrumental. Among these, the elastic ligation seems to be an effective and widespread technique in the world.

The aim of our study is to report our experience in methodology and short and medium term results of ligation in a population that strongly fear surgery.

**Methods** This is a retrospective and descriptive study of 208 patients treated on with elastic ligations for symptomatic internal hemorrhoids. These patients were collected over a period of 15 years (October 2003-April 2018) at the gastroenterology department of Hassan II CHU in Fez.

**Results** The mean age of our patients was 50.3 years [20;82yo] with a sex-ratio M/F of 2.85. The clinical signs were dominated by rectorrhagia (99%) complicated by anemia in 116 cases requiring blood transfusion in 72 cases;

followed by proctalgia (27.4%). Transit disorders were noted in 65 patients (31.2%). Indications for elastic ligation were symptomatic internal hemorrhoids grade 3 (65.4%) and Grade 2 (33.6%). The average number of ligation sessions that achieved the therapeutic goal was 2.30 sessions [1;5]. The average number of rings per session was 3.1 rings (1 – 6). Moderate to severe pain was reported by 73 patients (35%) mostly within 6 hours of ligation. Minimal rectorrhagia was reported in 32 cases (15.4%). No major complications required an hospitalization. The success rate was 80.7% (n = 168). Surgery was performed in 31 patients (14.9%) and sclerosis in 7 patients (3.3%).

**Conclusions** The elastic ligation of internal hemorrhoids remains an effective and inexpensive technique for the treatment of symptomatic internal hemorrhoids of grade 2 to 3. The results obtained in our study were very reassuring and motivating.

## eP69 LONG-TERM SURVIVAL ANALYSIS AFTER ENDOSCOPIC STENTING AS A BRIDGE TO SURGERY FOR MALIGNANT COLONIC OBSTRUCTION: COMPARISON WITH EMERGENCY SURGERY

**Authors** Corsato Scomparin R<sup>1</sup>, Costa Martins B<sup>2</sup>, Sparapan Marques CF<sup>3</sup>, Nahas C<sup>3</sup>, Shiguehissa Kawaguti F<sup>1</sup>, Lenz L<sup>1</sup>, Safatle-Ribeiro A<sup>1</sup>, Andrade de Paulo G<sup>1</sup>, Ribeiro U<sup>3</sup>, Nahas S<sup>3</sup>, Maluf-Filho F<sup>1</sup>

**Institute** 1 Cancer Institute of São Paulo, Endoscopy, São Paulo, Brazil; 2 Cancer Institute of São Paulo/University of São Paulo, Endoscopy, São Paulo, Brazil; 3 Cancer Institute of São Paulo, Surgery, São Paulo, Brazil

**DOI** 10.1055/s-0039-1681815

**Aims** Colorectal self-expanding metal stents (SEMS) can be used as a bridge therapy in acute malignant colorectal obstruction for elective surgical treatment in better clinical conditions. There are reports of higher rates of tumor recurrence in the long-term and worse survival in the SEMS group. The aim of this study was to compare the long-term results of colorectal SEMS versus emergency surgery in patients with malignant colorectal obstruction with curative purposes. The main outcome was overall survival rate.

**Methods** This is a retrospective comparison of patients who underwent placement of colorectal SEMS as a bridge therapy for malignant colorectal obstruction versus patients submitted to emergency surgery for the same clinical condition, with curative intentions in both groups. Inclusion: Patients with resectable colorectal neoplasia with obstructive signs and symptoms submitted to emergency surgery or SEMS. Exclusion: evidence of unresectable disease and/or metastatic disease.

**Results** 406 eligible patients. Groups are similar in age, gender, staging and ECOG status. SEMS group: 55 eligible patients of whom 34 were excluded (palliative care) and 21 were included. There were 3 perforations, 1 silent perforation, 3 reobstructions and 3 bleedings. There were 12 minor complications (9 pain, 2 tenesmus and 1 incontinence). Mean follow-up time was 16 months, (range 1 – 67). Surgery group: 351 eligible of whom 284 were excluded (evidence of unresectable disease) and 67 were included. Mean follow-up time was 17.6 months (range 5 – 69). Analysis of SEMS versus Surgery: primary anastomosis 70% vs. 14.4% ( $p < 0.0001$ ); temporary ostomy 35% vs. 71.6% ( $p = 0.0015$ ); permanent ostomy 15% vs. 35% ( $p = 0.1$ ); fistula 5% vs. 14.9% ( $p = 0.44$ ); local recurrence 38.1% vs. 22.4% ( $p = 0.14$ ). There was no difference in the overall survival rate (Log rank  $p = 0.873$ ).

**Conclusions** SEMS group showed better rates of primary anastomoses and permanent ostomy. There was no difference in local recurrence and overall survival rate between the groups.

## eP70 ENDOSCOPIC PREDICTION OF INVASION DEPTH BY CONVENTIONAL COLONOSCOPY IN EARLY COLORECTAL CANCER. A PROSPECTIVE STUDY IN PERU 2014 – 2018

**Authors** Marin Calderon L<sup>1</sup>, Medina Morales JB<sup>1</sup>, Palacios Salas F<sup>1</sup>, Bardalez Cruz P<sup>1</sup>, Vasquez Quiroga J<sup>1</sup>, Alva Alva E<sup>1</sup>, Medina Morales JE<sup>2</sup>, Davalos Moscol M<sup>1</sup>

**Institute** 1 Hospital Nacional Edgardo Rebagliati Martins, Departamento de Aparato Digestivo, Lima, Peru; 2 Universidad de San Martin de Porres, Lima, Peru

**DOI** 10.1055/s-0039-1681816

**Aims** Endoscopic resection has been established as the treatment of choice for adenomas and cancer colorectal early (ECRC), with minimal risk of lymph node metastasis. Hence, the tumoral invasion prediction might help to determine the best therapeutic approach. The aim of the study is to assess the prediction of tumor invasion by means of conventional colonoscopy in early colorectal neoplastic lesions.

**Methods** A prospective study for the validation of a diagnostic tool was performed. We included those patients with ECRC who were referred for endoscopic management during the period from January 2014 to July 2018. We evaluated the following endoscopic findings in each lesion: loss of lobulation, expansive appearance, depressed, eroded or ulcerated area demarcated, fold convergence, rigidity, and non-lifting sign. We define the depth of invasion in two groups: as intramucosal (M) with the presence of any or 1 endoscopic findings and massive-submucosal (SM-M) with the presence of at least 2 endoscopic findings. We correlated the prediction of depth invasion using the endoscopic findings with the pathologic stage of the lesions and determined its diagnostic performance. Subsequently, the association of each endoscopic predictor and the histological presence of SM-M invasion were determined with univariate and multivariate analysis.

**Results** Global accuracy for prediction of tumor invasion by endoscopic findings was of 93%. Sensitivity, specificity, positive predictive value and negative predictive value for the first group (M) was 91.8%, 95.5%, 97.8%, and 84%, respectively; whereas for the second group (SM-M) was 95.5%, 91.8%, 84%, and 97.8%, respectively. We find that expansive appearance and rigidity were independent risk factors, which predict significantly the submucosal invasion.

**Conclusions** The use of endoscopic predictors by conventional colonoscopy with white light is useful to determine the depth of tumor invasion in early neoplastic colorectal lesions.

## eP71 HOW WELL DOES POLYP DETECTION RATE CORRELATE WITH ADENOMA DETECTION RATE?

**Authors** Patel RN<sup>1</sup>, Hong S<sup>1</sup>, Gayle N<sup>1</sup>, Poonawala R<sup>1</sup>, Tariq Z<sup>1</sup>, Besherdas K<sup>1</sup>

**Institute** 1 Barnet Hospital, Royal Free London NHS Foundation Trust, London, United Kingdom

**DOI** 10.1055/s-0039-1681817

**Aims** Adenoma detection rate (ADR) is a key performance indicator for colonoscopy as it correlates with diminished risk of interval colorectal cancer (CRC) and mortality. Assessment of the ADR can be time consuming as it requires histological assessment. Polyp detection rate (PDR) is a less cumbersome measure that does not require the linkage of endoscopy and histopathology results. We aim to assess whether PDR was an adequate substitute for ADR.

**Methods** Single centre, retrospective analysis of colorectal polypectomies performed at Royal Free Hospitals NHS Trust during a 6-month period (March to September 2018). Data was collected from the Unisoft GI Reporting Tool and electronic patient records (EPR). Statistical analyses included chi-square and student t-tests.

**Results** 637 polypectomies were performed on 333 patients (mean age 63.2 (23 – 89)) and were included in this study (380 patients diagnosed with colorectal polyps; 47 (12.4%) excluded as polyp not resected). Median number of polypectomies per patient 1 (1 – 10); median size 6 mm (1 – 70 mm).

**Tab. 1** Adenoma versus Hyperplastic group: Demographics and outcomes.

Histology	≥ 1 Adenoma (n = 232)	Hyperplastic polyps only (n = 57)	*p value
Age, mean (range)	65.8 (30 – 87)	56.2 (26 – 89)	0.00001
Size (mm), mean (range)	9.5 (1 – 50)	5.2 (1 – 20)	0.0002
Proximal to Splenic Flexure, n (%)	155 (66.8)	24 (42.1)	0.0006
Bowel Prep (Excellent or Good), n (%)	159 (68.5)	47 (82.5)	0.04

**Conclusions** Almost 1 in 5 patients undergoing polypectomy had resection of hyperplastic polyps only. 10% of patients had a non-neoplastic polyp from the left side removed with no risk of progression to CRC. Correlation of endoscopic impression of adenoma is not 100% with histology and would therefore not advocate the resect-and-discard strategy. This data supports a business case for a 'polyp nurse' to assess polyps following histological analysis and risk stratify into the adenoma follow up guidelines. We conclude that the ADR does not correlate with PDR.

## eP72 PROBE-BASED CONFOCAL LASER ENDOMICROSCOPY IS A MANDATORY TOOL IN EVALUATION OF NEOANGIOGENESIS IN LOCALLY ADVANCED GASTRIC CANCER AND IN RECTAL CANCER PATIENTS

**Authors** Maiero S<sup>1</sup>, Magris R<sup>1</sup>, Guarnieri G<sup>1</sup>, Fornasari M<sup>1</sup>, Pivetta E<sup>1</sup>, Mongiat M<sup>1</sup>, De Re V<sup>1</sup>, Canton E<sup>1</sup>, Canzonieri V<sup>1</sup>, De Paoli A<sup>1</sup>, Buonadonna A<sup>1</sup>, Serraino D<sup>1</sup>, Belluco C<sup>1</sup>, Spessotto P<sup>1</sup>, Cannizzaro R<sup>1</sup>

**Institute** 1 Centro di Riferimento Oncologico di Aviano (CRO) IRCCS, Aviano, Italy

**DOI** 10.1055/s-0039-1681818

**Aims** Probe-based Confocal Laser Endomicroscopy (pCLE) is an advanced endoscopic technique which provides high resolution images of the mucosa and of the microvasculature. The aim of study was to evaluate if pCLE can provide accurate information about tumor vascular pattern before and after neoadjuvant radio-chemotherapy (RT/CT) achieving a more accurate diagnosis and patient-tailored targeted treatment in locally advanced Gastric Cancer (GC) and in Rectal Cancer (RC) patients.

**Methods** 130 consecutive RC patients (45F, 85 M mean age: 63 years) and 54 consecutive GC patients (26F, 28 M mean age: 62 years) underwent endoscopy with pCLE-GastroFlex UHD probe and i.v. fluorescein infusion in order to evaluate intratumoral vascularization. After CT/RT treatment, 69 RC (22F, 47 M, mean age: 65 years) and 12 GC patients (7F, 5 M, mean age 56 years) were reevaluated using pCLE.

Vascular assessment was based on Cannizzaro-Spessotto (CS) scale which evaluated vessel shape, size, permeability and blood flow. The angiogenic score ranged from 0, for normal to 4 for aberrant vasculature.

**Results** 79% of RC patients had an angiogenic score 3 or 4 at diagnosis. The angiogenic score after therapy showed a statistical significant improvement (median CS score pre CT: 3.3 vs. median CS score post CT: 1.8) in almost all RC patients (73%). In GC patients we found unchanged vascular alterations which correlated positively with stable or progressive disease. Since in only 25% of GC patients was detected a small remission it was possible that the unaltered angiogenic score could be ascribed to the lack of neoangiogenesis.

**Conclusions** Data demonstrate that during the treatment schedule, pCLE analysis is very important for predicting the efficacy of treatments and possibly introduce anti-angiogenic drugs when necessary. Future studies are necessary for the evaluation of pCLE impact in patients survival. This work was supported by the following grant Ministry of Health RF -2016 – 02361525 to R.C.

## Ep73V ENDOSCOPIC REMOVAL OF A COLONIC FOREIGN BODY USING A LOOP CUTTER DEVICE

**Authors** Pires F<sup>1</sup>, Araújo R<sup>1</sup>, Carvalho A<sup>1</sup>, Pinho J<sup>1</sup>, Cardoso R<sup>1</sup>, Constantino J<sup>2</sup>, Martins D<sup>1</sup>, Sousa P<sup>1</sup>, Cancela E<sup>1</sup>, Castanheira A<sup>1</sup>, Ministro P<sup>1</sup>, Silva A<sup>1</sup>

**Institute** 1 Gastroenterology, Centro Hospitalar Tondela-Viseu, Viseu, Portugal; 2 General Surgery, Centro Hospitalar Tondela-Viseu, Viseu, Portugal  
DOI 10.1055/s-0039-1681819

Foreign body ingestion is a common event in childhood but can also happen in adulthood, usually occurring accidentally during a meal. The authors report the case of a 61 year-old female, with no relevant personal history, who was sent to the emergency department due to a foreign body lodged in the sigmoid colon that was identified on an outpatient colonoscopy performed due to lower abdominal pain and episodic fever in the last 3 months. The physical examination and laboratory tests were unremarkable. An abdominal computed tomography confirmed a foreign body with 46 × 5 mm on the rectosigmoid junction, associated with colic wall thickening and densification of the surrounding fat, with no evidence of fluid collections nor intraperitoneal free air. Endoscopic removal was attempted but the foreign body had its ends lodged into the colonic wall (diverticula area), with inflammatory signs and a small quantity of purulent drainage and it was decided to hospitalize the patient and start intravenous antibiotics. Endoscopy was repeated under general anesthesia two days later. A loop cutter device was used to cut the foreign body, with extraction of the two ends with grasping forceps. The sites of previous contact with the colic wall were closed with endoclips. The patient was discharged five days later without any complaints. The authors highlight the therapeutic innovation presented in this case, where an alternative use of a device enabled a safe and minimally invasive resolution and emphasize the excellent iconography collected on video.

## Ep74V NEMATODES ATTACHED TO COLONIC WALL. ENDOSCOPIC DIFFERENTIATION (WITH VIDEOS)

**Authors** Diéguez Montes L<sup>1</sup>, Aranda Hernández J<sup>2</sup>, Lucendo Jiménez L<sup>1</sup>, Ortega Lobete O<sup>1</sup>, García Lledó J<sup>1</sup>, Martos Vicaíno E<sup>1</sup>, Carbonell Blanco C<sup>1</sup>, Merino Rodríguez B<sup>1</sup>

**Institute** 1 Gastroenterology, Hepatology and Endoscopy, Hospital Universitario Gregorio Marañón, Madrid, Spain; 2 Gastroenterology, Hospital Universitario Gregorio Marañón, Madrid, Spain

DOI 10.1055/s-0039-1681820

**Aims** To show two different nematodes attached to colonic wall allowing their characterization by endoscopic image.

**Methods** Two edited videos of attached nematodes diagnosed in our endoscopy unit (H.G.U. Gregorio Marañón, Madrid-Spain) found during two routine colonoscopies.

**Results** 1st case: 39-y.o. man from Spain with distal ulcerative colitis who abandoned clinical follow-up. He presented with increased number of stools also passing blood with suspicion of mild flare. 2nd case: 32-y.o. woman from Ecuador with rectal bleeding suggesting haemorrhoidal origin. She had no other symptoms. In 1st case, colonoscopy showed a nematode attached to sigmoid colon wall with faster movements, trend to form loops with longitudinal lined structures and longer than 2 cm.

In 2<sup>nd</sup> case, colonoscopy showed a nematode attached to the cecal wall making slow movements, with a thick and 2–3 cm luminal segment with gross structures consisting with sexual organs (uterus and ova).

**Conclusions** When a nematode attached to colonic wall is found, Trichuris and Anisakis are possible diagnosis. Location, morphology and specific characteristics allow a diagnostic approach. Endoscopic removal of attached worm/s is recommended.

## eP75 COMPARING COLON CAPSULE ENDOSCOPY TO COLONOSCOPY; A PATIENT'S PERSPECTIVE

**Authors** Murphy G<sup>1,2</sup>, Ismail MS<sup>1,2</sup>, Msaky C<sup>1,2</sup>, McNamara D<sup>1,2</sup>

**Institute** 1 Department of Gastroenterology, Tallaght University Hospital, Dublin, Ireland; 2 Trinity Academic Gastroenterology Group, Trinity College Dublin, Dublin, Ireland

DOI 10.1055/s-0039-1681821

**Aims** To identify comfort scores and patient preferences between CCE and colonoscopy.

**Methods** Patients from our centre who had both CCE and colonoscopy within the last 12 months were identified. We performed over-the-phone interviews focused on satisfaction, comfort and overall preference. A 10-point scale was used to assess comfort and satisfaction. Electronic records were also reviewed. Student t-test was used to compare parametric data and a p < 0.05 was significant.

**Results** In all, 40 patients were identified. 57.5% (23/40) were female and the mean age was 48 (24–78).

There was a statistically significance difference in mean comfort (9.2 vs. 6.7, p < 0.0001) but not satisfaction scores (8.3 vs. 7.7, p = 0.28) between CCE and colonoscopy. Bowel preparation was the main cause of dissatisfaction with CCE.

The correlation between intra-procedural Modified-Gloucester-Comfort-Scale and patient reported values was weak (R = 0.28).

Overall, 77.5% (31/40) of patients would prefer CCE if they required further investigation. Of these, 77.4% (24/31) preferred CCE despite the potential need for follow-up colonoscopy.

**Conclusions** CCE has a high satisfaction rating and has a higher comfort rating than colonoscopy. Studies have confirmed CCE and colonoscopy have equivalent diagnostic yields. The majority of patients in our cohort prefer CCE to colonoscopy. CCE should be considered as an alternative to colonoscopy in selected individuals.

## eP76 FEASIBILITY OF A NEW ELECTROSURGICAL UNIT “AUTOCONIII400” FOR ENDOSCOPIC SUBMUCOSAL DISSECTION

**Authors** Yamamoto K<sup>1</sup>, Takagi Y<sup>1</sup>, Mori M<sup>1</sup>, Sato Y<sup>1</sup>, Tokuda Y<sup>1</sup>, Tatsumi N<sup>1</sup>, Michida T<sup>2</sup>, Ito T<sup>1</sup>

**Institute** 1 Department of Gastroenterology, Japan Community Healthcare Organization Osaka Hospital, Osaka, Japan; 2 Department of Gastroenterology, Saitama Medical Center, Saitama, Japan

DOI 10.1055/s-0039-1681822

**Aims** Endoscopic submucosal dissection (ESD) is very useful for treating large superficial gastrointestinal tumors in en bloc resection manner, but it requires high skill. Especially beginners tend to cut the tissue slowly in ESD, and so it make the tissue burnt. Therefore, the ability of the electrosurgical unit and its setting are extremely important for ESD. VIO series (ERBE, Germany) is often employed for ESD, but usefulness of other electrosurgical units for ESD is not fully elucidated. Herein, we investigated the feasibility of the a new electrosurgical unit “AUTOCONIII400” (KARL STORTZ, Germany) for endoscopic submucosal dissection.

**Methods** We performed ESD for 15 colorectal, 16 gastric, and 4 esophageal superficial neoplasms with AUTOCONIII400 for endoscopic submucosal dissection between February 2018 and May 2018. FlushKnife BT (Fujifilm, Japan) was used for 14 colorectal, 6 gastric, and 4 esophageal lesions. Jet B-knife (Zeon Medical Co. Japan) was used only for 2 colorectal lesions. ITKnife 2 (Olympus, Japan) was used only for 9 gastric lesions. We adjusted the settings to find the appropriate modes and settings for ESD.

**Results** Average tumor diameter, resected specimens diameter, and average procedure time were 22.8 mm, 40.2 mm, and 43.8 minutes, respectively. All lesions were resected without any complications. Appropriate settings were GastroKNIFE, medium, effect3 for mucosal cutting, Forced Mix mode, effect2,

50 – 60W, for submucosal dissection, and Non-cutting mode, effect2, 80W for hemostasis. Cutting ability of GastroKNIFF mode and Forced Mix mode were excellent, and even fat rich tissue and fibrotic tissue was easily cut with less burning effect. On the other hand, a little slow cutting in submucosal dissection was needed to prevent bleeding.

**Conclusions** AUTOCONIII400 was feasible for colorectal, gastric and esophageal ESD. Further studies are needed to fully evaluate its usefulness.

## eP77 A RETROSPECTIVE REVIEW OF COLORECTAL CANCER OUTCOMES IN YOUNG ADULTS

**Authors** Kamran U<sup>1</sup>, Kurup A<sup>1</sup>, Abbasi A<sup>2</sup>, Zia Sana Ullah M<sup>2</sup>, Wright H<sup>3</sup>  
**Institute** 1 Gastroenterology, University Hospitals of North Midlands NHS Trust, Stoke on Trent, United Kingdom; 2 General Medicine, University Hospitals of North Midlands NHS Trust, Stoke on Trent, United Kingdom; 3 Research and Development, University Hospitals of North Midlands NHS Trust, Stoke on Trent, United Kingdom  
**DOI** 10.1055/s-0039-1681823

**Aims** The primary aim of this study was to look at the 5 year survival rates in young adults [age<50] following a diagnosis of colorectal cancer.

**Methods** This was a retrospective observational study. The identity of young adults diagnosed with colorectal cancer between 2009 – 2017 were obtained from the Somerset cancer data base. Clinical information about the patient was obtained from the electronic patient database [I portal] Descriptive statistics and survival outcomes were performed using SPSS software.

**Results** There were 171 patients over a period of 8 years, men (102) women (69). The majority of the tumours for both men and women were found in the rectum (64.6% and 35.4%). Far more patients presented with advanced disease 73% [stage 3 & 4] compared to early disease 27% [stage 1&2], p,0.0001. Although there was a trend toward low mcv in right sided cancers, there was no significant correlation between mcv and stage of disease at presentation. Surgery with curative intent was offered to 131 (76.6%). Neoadjuvant chemotherapy was received by 40 patients (23.4%) and best supportive care was offered to 12 (7%). Palliative chemotherapy was received by 25 (14.6%). Overall 5 year survival for young adults diagnosed with colorectal cancer was 55%. After adjusting for missing data and confounding variables this improved to 66%. There was no difference in survival between men and women.

**Conclusions** Colorectal cancer is considered a disease of old age. However the incidence of colorectal cancer, particularly rectal cancer in young adults is increasing. It is well known that young adults tend to present with advanced stage of the disease. Our study also support this observation. The overall 5 year survival following a diagnosis of colorectal cancer in young adults under the age of 50 within the catchment area of our institution is comparable to the rest of the united kingdom (58%).

## eP78V CUTTING DELAY DURING POLYPECTOMY OF A LARGE PEDUNCULATED POLYP IN THE CAECUM – USE OF A PARTIALLY ISOLATED SNARE

**Authors** Gölder SK<sup>1</sup>, Ebigbo A<sup>1</sup>, Messmann H<sup>1</sup>  
**Institute** 1 Department of Internal Medicine III, University Augsburg, Augsburg, Germany  
**DOI** 10.1055/s-0039-1681824

A 69-year old female patient was submitted for endoscopic resection of a large pedunculated polyp in the caecum. After submucosal injection with 10 ml of diluted epinephrine solution, a braided wire snare (25 mm, Olympus-Europe, Hamburg, Germany) was placed around the lesion. Cutting with the HF Unit ERBE VIO 300 (ERBE-Elektromedizin, Tübingen, Germany) was started with EndoCUT Q Effect 3, however, no cutting current could be established at the polyp stalk.

Therefore we changed to a partially isolated polypectomy snare with 30 mm (Micro-Tech Europe, Düsseldorf, Germany). The HF generator was set to Auto Cut and the polyp could be resected in one piece. After the endoscopic

treatment, an active bleeding could be controlled with through-the-scope clips.

The histopathological diagnosis showed high-grade dysplasia with an R0 resection.

**Conclusion** Complete resection of large pedunculated polyps could involve the risk of a cutting delay. Partially isolated snares could be an answer because the current in the cutting wire is strongly reduced. Attention has to be paid to postinterventional bleeding.

## eP79 APPLICATION IN OUR CENTER OF THE CLINICAL GUIDE FOR ENDOSCOPIC RESECTION OF COLON POLYPS IN THE MANAGEMENT OF ADENOCARCINOMA PT1

**Authors** Glez-Cotruel Glez A<sup>1</sup>, Álvarez Delgado A<sup>1</sup>, Soler AM<sup>1</sup>, Prieto Bermejo AB<sup>1</sup>, Jiménez Jurado A<sup>1</sup>, García Prada M<sup>1</sup>, Marcos Martín ÁF<sup>1</sup>, Rodríguez López P<sup>1</sup>, Del Carmen Martínez S<sup>1</sup>, Rodríguez Pérez A<sup>1</sup>  
**Institute** 1 Complejo Asistencial Universitario de Salamanca, Salamanca, Spain  
**DOI** 10.1055/s-0039-1681825

**Aims** The pT1 adenocarcinoma resected endoscopically poses a challenge in terms of its management. In some cases, there is a lack of scientific evidence that supports the need of additional invasive treatments. The Spanish Society of digestive Endoscopy suggests the classification of these injuries according to the risk of dissemination, multidisciplinary advice and individualized decision for patients at intermediate/high risk.

**Methods** A descriptive, prospective study analyzing the follow-up in our center of patients undergoing endoscopic resection of pT1 adenocarcinoma between January 2015 and June 2018.

**Results** 138 patients, 96 men (69.6%), with an average age of: 68.42 +/- 9.75 years and an average follow-up time of 20.96 ± 10.76 months. The most frequent reason for the indication of a colonoscopy was a positive SOH test within the CCR screening program: 68 (49.3%). The average size of the injuries was 22.36 ± 11.54 mm; 75 (54%) were Paris 0-Ip. In 114 (82.6%) polypectomy was performed in bulk. We described 2 perforations (1.4%) and 17 haemorrhages (12.31%) all endoscopically solved. We classified in risk groups according to the guide of resection polyps of the Spanish Society of digestive Endoscopy: 67 (48.6%) of low risk, 22 (15.9%) intermediate risk, 39 (28.3%) high risk and 10 (7.2%) resection incomplete. We analyzed the medium-high risk subgroup, after the multidisciplinary committee, 40 (65.57%) were included in the endoscopic surveillance and 19 (31.14%) were operated. Of the patients operated, in 5 (26.31%) the histology of the surgical piece was positive, without significant relationship with any parameter of poor prognosis analyzed. In the endoscopic follow-up, 4 presented recurrence results, resolved by endoscopy.

**Conclusions** In our series, the management suggested by the Spanish Society digestive Endoscopy seems adequate, in absence of confirmation of results with longer follow-up and larger sample size.

## eP80 HISTOPATHOLOGICAL FEATURES OF POSTCOLONOSCOPY COLORECTAL CANCER

**Authors** Sastre Lozano V<sup>1</sup>, Morán Sánchez S<sup>1</sup>, García Solano J<sup>1</sup>, Conesa Zamora P<sup>1</sup>, Ruiz Merino G<sup>2</sup>  
**Institute** 1 Hospital Santa Lucía, Cartagena, Spain; 2 Biosanitary Research and Innovation Area, Foundation for Health Training and Research, Murcia, Spain  
**DOI** 10.1055/s-0039-1681826

**Aims** The targets of this study are to describe postcolonoscopy colorectal cancer (PCCRC) histopathological features and to evaluate relevant differences between PCCRC and sporadic colorectal cancer (SCRC) in this topic.

**Methods** A retrospective simple centre study in a University Hospital was carried out. Colorectal cancer (CRC) cases diagnosed for three years period

were revised (n = 291). PCCRC cases were identified (n = 17; 6–60 months after a negative colonoscopy). Statistically significant differences regarding histological type in both groups were analysed (PCCRC vs. SCRC). To value histopathological differences, PCCRC cases and a SCRC control group were paired (1:1) regarding histological type, tumoral grade, tumour stadium and location. Features related with CRC prognosis were re-examined by an expert pathologist (lymphatic, vascular and perineural invasion, budding tumour mayor than 10, tumoral grown type, peritumoral lymphoid inflammatory infiltration grade, lymphoid Crohn type response and Tumour Intraepithelial lymphocytes. Statistical analysis: Pearson  $\chi^2$  test for qualitative variables.

**Results** Serrated adenocarcinoma and High-Microsatellite Instability Carcinoma (MSI-H) were more frequent in PCCRC group than in SCRC (23.53% and 11.76% versus 14.57% and 2.21% respectively), but differences were not significant. All cases of PCCRC had an inflammatory infiltration (High or Low grade) versus 58.83% in SCRC control group ( $p = 0.011$ ). Lymphoid Crohn type response was present in 47% of PCCRC cases versus 5.88% of SCRC control group ( $p = 0.007$ ) (Table 1). There were no statistical differences in the other histopathological features.

**Conclusions** There are few studies in the literature that analyse PCCRC pathological features. There are some references to molecular aspects. Studies about histopathological characteristics described above have not been found. Predominating Inflammatory infiltration and lymphoid Crohn type response are histopathological features observed in PCCRC with significant difference. Further studies are necessary to extrapolate results observed in this study.

### eP81V THE BUBBLE SIGN. A NEW TRACK TO DETECT A PERFORATION AFTER COLD SNARE POLYPECTOMY

**Authors** Sánchez Joaquín R<sup>1</sup>, Sánchez Alonso M<sup>2</sup>, Pellise Urquiza M<sup>3</sup>

**Institute** 1 Hospital Universitario de Ciudad Real, Ciudad Real, Spain; 2 Hospital General Universitario Ciudad Real, Ciudad Real, Spain; 3 Hospital Clinic de Barcelona, Barcelona, Spain

**DOI** 10.1055/s-0039-1681827

Cold snare polypectomy (CSP) is nowadays a highly recommended procedure for treatment of sessile adenomas up to 10 mm in size. Despite this procedure is not widely accepted in larger lesions, prospective and retrospective studies show outstanding results in terms of efficacy and safety, even performing piecemeal resection (wide field CSP). Indeed, in two recent meta-analysis no perforations have been described with this technique.

On the other hand, the scar assessment should be mandatory in order to detect damages in muscular layer. Because of no perforation have been reported with CSP, the evaluation of muscular injuries in this scenario has been unnoticed.

After performing a CSP, we usually irrigate a waterjet over the scar. In case the submucosal layer is intact, the creation of a cushion is observed. However in case of disruption of the submucosal and muscular layer this cushion is missing. We have called this fact "the bubble sign". Therefore, we present two cases of perforation with CSP in which this bubble sign was missing. Both cases were performed using a Captivator Hexagonal 13 mm snare (Boston Scientific) which is not specifically designed for CSP. These patients were treated by endoclips closure and dismissed 48 hours later with no adverse events.

In conclusion, despite the perforation with CSP is an unusual event, is important to keep it in mind. Irrigating a waterjet over the scar after the procedure and therefore assessing the "Bubble sign" could help us to detect this adverse event.

### eP82 COMPARISON OF THE THERMAL ARTEFACT BETWEEN EMR AND UNDERWATER-EMR AND IT'S INFLUENCE IN THE HISTOLOGICAL ASSESSMENT

**Authors** Sánchez Alonso M<sup>1</sup>, González López L<sup>2</sup>, Cuatrecasas M<sup>3</sup>, Rodríguez Sánchez J<sup>1</sup>

**Institute** 1 Endoscopy Unit. Gastroenterology Department, Hospital General Ciudad Real, Ciudad Real, Spain; 2 Pathology Department, Hospital General Ciudad Real, Ciudad Real, Spain; 3 Pathology Department, Hospital Clinic de Barcelona, Barcelona, Spain

**DOI** 10.1055/s-0039-1681828

**Aims** Thermal artefact in endoscopic mucosal resection (EMR) specimens, suppose one of the main drawbacks in the pathologic assessment. Heat dissipation effect endorsed by underwater-EMR might lead a way to prevent this handicap. We aimed to compare the thermal artefact in samples of en-bloc resection performed by EMR and Underwater EMR. In this regard, injuries in margins and in the whole samples were cautious assessed.

**Methods** We performed a retrospective cross sectional study in which en bloc specimens of U-EMR and EMR were included. All the procedures were accomplished with Endocut Q current (Effect 3; Time 1-interval 6) (ERBE VIO200 s). All samples were assessed by two expert pathologists according to a non-validated score from 0 (non injury) to 3 (Severe injury-non evaluable) both in margins and the whole sample. Furthermore, we also assess the possibility of been able to mount the pieces in a cork afterward of the resection.

**Results** A total of 40 specimens were finally included (22 U-EMR y 18 EMR). Regarding to the margins assessment, EMR showed a severe injury in 55.6% vs. 27.3% of the lesions resected by U-EMR ( $p = 0.06$ ). Otherwise, whole architecture of the polyps were deeply altered in 17% of the specimens in the EMR group versus 9% in the U-EMR group ( $p = 0.47$ ). Nevertheless, these differences were specifically stressed in case of the architecture of serrated lesions, which was severely altered in 100% of cases resected by EMR, compared to only 20% of cases resected by U-EMR ( $p = 0.07$ ).

**Conclusions** These preliminary results show that U-EMR might be an option to prevent thermal artefact in specimens sent to pathologist. This fact remains especially useful in case of serrated lesions.

### eP83 THE LOCATION AS A PREDICTOR OF ADENOCARCINOMA IN GRANULAR MIXED LATERALLY SPREADING TUMORS (GM-LSTS): A MULTICENTRE RESTROSPECTIVE ANALYSIS

**Authors** D'Amico F<sup>1</sup>, Maselli R<sup>1</sup>, Amato A<sup>2</sup>, Radaelli F<sup>2</sup>, Trovato C<sup>3</sup>, Fiori G<sup>3</sup>, Angeletti S<sup>4</sup>, Di Giulio E<sup>4</sup>, Soriani P<sup>5</sup>, Manno M<sup>5</sup>, Alessia Galtieri P<sup>1</sup>, Anderloni A<sup>1</sup>, Fugazza A<sup>1</sup>, Chiara Ferrara E<sup>1</sup>, Carrara S<sup>1</sup>, Di Leo M<sup>1</sup>, Spadaccini M<sup>1</sup>, Lamona L<sup>1</sup>, Craviotto V<sup>1</sup>, Belletrutti P<sup>6</sup>, Repici A<sup>1</sup>

**Institute** 1 Humanitas Clinical and Research Center, Via Manzoni 56 20089, Rozzano (MI), Italy; 2 Valduce Hospital, Como, Italy; 3 European Institute of Oncology, Milan, Italy; 4 Sant'Andrea University Hospital, 'Sapienza' University of Rome, Rome, Italy; 5 Ramazzini Hospital, Modena, Italy; 6 University of Calgary, Calgary, Canada

**DOI** 10.1055/s-0039-1681829

**Aims** GM-LSTS represent approximately 1/4 of all LST and have a submucosal invasion risk of approximately 10%. Size and location represent important predictor factors of advanced neoplasia. The aim of the study was to evaluate the prevalence of cancer in patients with GM-LSTS, analyzing factors of submucosal invasion risk such as size and location.

**Methods** Multicentric retrospective analysis of a prospectively maintained database of all consecutive patients with GM-LSTS that underwent endoscopic resection from 06/2014 to 10/2018 in five Italian centers.

**Results** A total of 581 patients (48,8% male; mean age 68.82 years) with GM-LSTS underwent endoscopic resection. The mean size of the GM-LSTS was 41,61 (range 18 – 150 mm). GM-LSTS were removed by: endoscopic mucosal

resection (EMR) in 429 pts (73,8%) and endoscopic submucosal dissection (ESD) in 132 pts (22,7%). GM-LSTs were removed en-bloc in 114 cases (20%). In 17 patients the GM-LSTs lesions were considered unfit for endoscopic resection and were referred to surgery. GM-LSTs were mainly located in the rectum (245, 42,2%) and in the right colon (245, 42,2%), while 48 lesions (8,2%) were in the left colon and 43 (7,4%) in the transverse colon. Histology showed low grade dysplasia (LGD) in 160 lesions (27,5%), high grade dysplasia (HGD) in 342 lesions (58,9%) and adenocarcinoma in 79 lesions (13,6%). When histology was analyzed according to lesion location the incidence of cancer was 18,8% (46/245) in the rectum vs. 9,8% (33/336) in the other colonic segments (p value = 0,001). Overall 41 (51,9%)pts with adenocarcinoma underwent surgery.

**Conclusions** Our study confirms the increased rate of adenocarcinoma in patients with GM-LSTs as highlighted in the literature and shows that the prevalence of cancer is significantly greater at the level of the rectum than in the other colonic segments. Further prospective multicentric studies are needed to define the best therapeutic approach for the removal of GM-LSTs.

## eP84V ENDOSCOPIC TRASLUMINAL DRAINAGE OF ENDOLUMINAL DIVERTICULAR ABSCESS

**Authors** Canaval Zuleta HJ<sup>1</sup>, Angel Ferrer Rosique J<sup>1</sup>, Riado Minguez D<sup>1</sup>

**Institute** 1 Gastroenterology, Hospital de Alcorcon, Madrid, Spain

**DOI** 10.1055/s-0039-1681830

**Aim** To describe the case of a diverticular endoluminal abscess, successfully endoscopically drained without any complication.

**Methods** We review the case of an endoscopic drainage performed in the endoscopic unit with a follow-up during hospitalization and after two month of having been discharged.

**Case report** A 65-year-old man who came for a colonoscopy screening due to occult blood stool and a family history of colorectal cancer. He referred a 2 week history of abdominal pain and dysthermia, without fever, nausea, vomiting or diarrhea. Colonoscopy revealed diverticulitis in the sigmoid colon and a submucosal mass of approximately 20 × 30 mm. in size with a slightly hyperemic surface mucosa. Palpation of this area with cold forces was soft and after oppression it drained a whitish discharge, with thick purulent aspect with decompression of the lesion. CT scan was later performed and showed sigmoid diverticulitis without evidence of perforation. Antibiotic therapy was given with adequate clinical response.

**Conclusions:**

1. The diverticular abscess in this case is an intraluminal complication of a diverticulitis but it is usually extraluminal.
2. There are only two cases in the literature described by Barkin et al and Calzolari C et al with similar presentation. This would be the third case of a diverticular abscess successfully endoscopically drained and without any complications.
3. While colonoscopy is not recommended in episodes of acute diverticulitis, there are certain cases in which it has to be considered not only as a diagnostic tool but also as a minimally invasive therapeutic option.

## eP84\_1 RISK OF INFECTION FOLLOWED BY COLONOSCOPIC POLYPECTOMY IN PATIENTS WITH LIVER CIRRHOSIS: A KASID MULTICENTER STUDY

**Authors** Kang HW<sup>1</sup>, Kim HG<sup>2</sup>, Jung Y<sup>3</sup>, Kim DB<sup>4</sup>, Koh SJ<sup>5</sup>, Lee HS<sup>6</sup>, Nam K<sup>7</sup>, Park J<sup>8</sup>, Chum J<sup>9</sup>, Yang CH<sup>10</sup>

**Institute** 1 Department of Internal Medicine-GI/Hepatology, Dongguk University, Ilsan, Korea, Republic of; 2 Internal Medicine, Soonchunhyang University College of Medicine, Seoul, Korea, Republic of; 3 Soon Chun Hyang University College of Medicine, Cheonan, Korea, Republic of; 4 The Catholic University of Korea St. Vincent's Hospital, Suwon, Korea, Republic of; 5 Seoul National University Boramae Medical Center, Seoul, Korea, Republic of; 6 Kyungpook National University Hospital, Daegu, Korea, Republic of;

7 Dankook University Hospital, Cheonan, Korea, Republic of; 8 Inje University Haeundae Paik Hospital, Busan, Korea, Republic of; 9 Seoul National University Hospital, Seoul, Korea, Republic of; 10 Dongguk University Gyeongju Hospital, Gyeongju, Korea, Republic of

**DOI** 10.1055/s-0039-1681831

**Aims** Liver cirrhosis is an immunocompromised state. However, there have been no study about infection rates and related risk factors in the patients with liver cirrhosis followed by colonoscopic polypectomy including endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD). We aimed to evaluate the incidence of infectious complication followed by polypectomy and investigate risk factors of infectious complication in these patients.

**Methods** In this multicenter, retrospective study involving 10 tertiary centers in Korea, we evaluated 892 patients who had been diagnosed as liver cirrhosis and underwent colonoscopic polypectomy from Jan 2013 to December 2017. We evaluate the incidence of infectious complication after polypectomy and evaluated risk factors for infection.

**Results** Infection rate after colonoscopic polypectomy was 2.9% (26/486). The infection rates of local infection, systemic infection and other infection were 2.1%, 1.2%, and 1.0%, respectively. In univariate analysis, old age (odds ratio (OR)= 1.86, 95% confidence interval (CI): 1.10 – 3.16, P=0.002), hepatic dysfunction (OR=4.50, CI: 1.96 – 10.50, P<0.001), the presence of ascites (OR=2.00, CI: 1.00 – 4.54, P=0.05), and tumor size > 10 mm (OR=2.72, CI: 1.23 – 6.02) are associated with infection. In multivariate analysis, old age (OR=1.79, 95% CI: 1.05 – 4.16, P=0.010), hepatic dysfunction (OR=4.50, CI: 1.55 – 9.70, P=0.005).

**Conclusions** Clinical infectious complication was relatively high in liver cirrhosis patient after colonoscopic polypectomy, especially patient with old age or hepatic dysfunction, which may warrant prophylactic administration of antibiotics in these high risk patients.

Friday, April 5, 2019

09:00 – 17:00

Endoscopic technology

ePosters

## eP85 CONFOCAL LASER ENDOMICROSCOPY IN THE ASSESSMENT OF PERSISTENT OR RECURRENT INTESTINAL METAPLASIA/NEOPLASIA AFTER ENDOSCOPIC TREATMENT OF BARRETT'S ESOPHAGUS RELATED NEOPLASIA – A PROSPECTIVE STUDY

**Authors** Krajcivova J<sup>1</sup>, Kollar M<sup>2</sup>, Maluskova J<sup>2</sup>, Kment M<sup>2</sup>, Vackova Z<sup>1</sup>, Spicak J<sup>1</sup>, Martinek J<sup>1</sup>

**Institute** 1 Hepatogastroenterology, Institute for Clinical and Experimental Medicine (IKEM), Prague, Czech Republic; 2 Clinical and Transplant Pathology, Institute for Clinical and Experimental Medicine (IKEM), Prague, Czech Republic  
**DOI** 10.1055/s-0039-1681832

**Aims** Patients after endoscopic treatment of Barrett's esophagus related neoplasia (BORN) should undergo regular endoscopic surveillance. Probe-based confocal laser endomicroscopy (pCLE) offers detailed examination of cellular structures and may examine larger areas compared to standard biopsy. The aim of this study was to evaluate the efficacy of pCLE (vs. standard biopsies) in detection of persistent/recurrent intestinal metaplasia (IM)/neoplasia (N) in patients after endoscopic treatment of BORN.

**Methods** A single center, prospective, controlled and pathologist-blinded study in patients undergoing surveillance endoscopy after treatment of BORN. pCLE images were obtained from the neo-Z-line, the cardia and the esophagus. Thereafter, standard biopsies were taken and sent for histopathological analysis (minimally 4 biopsies from neo-Z-line, 2 biopsies from the cardia and the esophagus and targeted biopsies from visible abnormalities, if present).

**Results** We examined 42 patients, from these 16 patients (38%) had the initial diagnosis of LGIN, 10 patients (24%) had HGIN and 16 patients (38%) had EAC. Six patients (14%) underwent endoscopic resection (ER) only, 20

patients (48%) underwent ER of all visible lesions followed by radiofrequency ablation (RFA), and 16 patients (38%) had RFA as a single treatment modality. Persistent/recurrent IM was detected only at the level of neo-Z-line in 11 patients (26%, 11/42 pts) by both standard biopsies and pCLE. pCLE but not biopsies detected IM in 2 patients (5%, 2/42), another 2 patients had IM present in biopsies but not in pCLE. pCLE diagnosed one patient with recurrent LGIN in a macroscopic visible tongue, which was not confirmed in biopsies. Sensitivity and specificity of pCLE in detection of persistent/recurrent IM was 93% and 85%, respectively, with a positive predictive value of 93% and a negative predictive value of 86%. Agreement of pCLE and histopathological findings was 90%.

**Conclusions** pCLE is comparable to standard biopsies in detection of persistent/recurrent IM after endoscopic treatment of BORN.

### eP86 EVALUATION OF A NEW DEMILUNE SHAPED DEVICE FOR RAPID ENDOSCOPIC SUBMUCOSAL DISSECTION (ESD)

**Authors** Neumann H<sup>1</sup>, Zimmermann T<sup>1</sup>, Grimminger P<sup>2</sup>, Rahman KF<sup>1</sup>, Thieringer F<sup>1</sup>, Galle PR<sup>1</sup>, Mönkemüller K<sup>3</sup>, Kneist W<sup>2</sup>

**Institute** 1 Interdisciplinary Endoscopy, University Medical Center Mainz, Mainz, Germany; 2 Department of Surgery, University Medical Center Mainz, Mainz, Germany; 3 Department of Gastroenterology, Helios Frankenwald, Kronach, Germany

DOI 10.1055/s-0039-1681833

**Aims** ESD has been established as an effective treatment option for early gastrointestinal cancer. To date, various devices for ESD are available. Most recently, a novel, demilune shaped device was introduced potentially allowing for fast submucosal cutting due to its special design which allows rapid movements of the device above the muscle layer. In addition, the device allows for selective grasping of the vessels thereby enabling ad hoc haemostasis. Primary objective of the study was to evaluate the efficacy and learning curve of a newly developed demilune shaped device for ESD.

**Methods** Ex vivo porcine models were utilized in an advanced endoscopic simulator of interventional endoscopy. Artificial lesions, each 2 × 2 cm in size, were created in fresh ex vivo porcine stomachs at the fundus, corpus and antrum. ESD was performed after marking of the lesions with the ESD instrument, followed by lifting of the mucosa with submucosal injection of colored saline. Afterwards, circular incision of the lesions was performed with the new ESD-instrument. For resection, the submucosa was lifted with a distal clear cap and cut with the new demilune device. Resection specimens were retrieved to evaluate if all marks were included (R0).

**Results** Average size of removed lesions was 30 mm. En-bloc resection rate was 100% and R0 resection rate was 95%. Mean total procedure time was 25 minutes and not dependent on the location. No perforations occurred during the study despite the rapid dissection speed through the submucosa. Satisfaction of the endoscopist and the supporting nurse staff was high throughout all cases.

**Conclusions** The new demilune shaped device for ESD allows for rapid dissection of the submucosa due to its inherent design. Further studies should be now focusing on in vivo studies to confirm these initial results.

Friday, April 5, 2019  
Endoscopic ultrasound

09:00 – 17:00  
ePosters

### eP87 RAPID ON-SITE EVALUATION (ROSE) FOR EUS-GUIDED FINE NEEDLE ASPIRATION (EUS-FNA) OF SOLID PANCREATIC LESIONS: “ON SITE” MULTIDISCIPLINARY TEAM IS THE PIVOT FOR AN ACCURATE DIAGNOSIS

**Authors** Olivari N<sup>1</sup>, Milluzzo SM<sup>1,2</sup>, Graffeo M<sup>1,2</sup>, Lovera M<sup>1</sup>, Bianchi D<sup>3</sup>, Padolecchia E<sup>3</sup>, Spada C<sup>1,4</sup>

**Institute** 1 Medicine Gastroenterology and Endoscopy, Fondazione Poliambulanza, Brescia, Italy; 2 Department of Gastroenterology and Digestive Endoscopy, Catholic University, Rome, Italy; 3 Pathology Unit, Fondazione Poliambulanza, Brescia, Italy; 4 EETC European Endoscopy Training Centre, Catholic University, Rome, Italy

DOI 10.1055/s-0039-1681834

**Aims** Compare the adequacy, diagnostic yield and accuracy of EUS-FNA for solid pancreatic lesions before and after introduction of ROSE in a single center study.

**Methods** All consecutive EUS-FNA procedures for pancreatic lesions performed during the first year of adoption (ROSE1 group) and the following year (ROSE2 group) were compared to those performed during the previous year (pre-ROSE group). EUS-FNA was performed using a linear echoendoscope using 22 or 25 Gauge diameter needles. Adequacy (sample provides sufficient material for evaluation), diagnostic yield (established diagnosis rate), diagnostic accuracy (correspondence between cases for which a diagnosis was rendered and the gold standard) of EUS-FNA were evaluated. Specimen were categorized into: *diagnostic* in presence of a specific diagnosis and *non diagnostic* if no sufficient cells or atypias were reported. Histological analysis of surgical specimen, when available, was considered the gold standard for diagnosis; otherwise, clinical and radiologic follow-up compatible with neoplasia (positive) or absence of deterioration/spontaneous resolution (negative) were examined.

**Results** 94 pancreatic lesions in 92 patients were enrolled (26, 30 and 38 in pre-ROSE, ROSE1 and ROSE2 groups, respectively). Patient number and age, lesion size and localization, technique (needle diameter, number of passages) were homogeneous. Adequacy rate was 96.2%, 93.3% and 100% in pre-ROSE, ROSE1 and ROSE2 groups, respectively (p = NS); diagnostic yield was 76.9%, 86.7%, 92.1% and accuracy 65.4%, 76.7% and 86.8% respectively, with significant difference between pre-ROSE and ROSE2 groups (p < 0.5).

**Conclusions** The use of ROSE during EUS-FNA for solid pancreatic lesions is associated with an improvement in terms of diagnostic yield and accuracy, but it does not seem to improve the adequacy of FNA. Rather than the technique adopted, the multidisciplinary team is the real pivot for an accurate diagnosis.

### eP88 ENDOSCOPIC ULTRASOUND GUIDED LEFT LOBE LIVER LESIONS BIOPSY (EUS-LLB) WITH ATYPICAL MALIGNANCIES, AN ALTERNATIVE APPROACH TO RADIOLOGICAL IMAGE GUIDED BIOPSY

**Authors** Urrehman A<sup>1</sup>

**Institute** 1 Hepatogastroenterology, Sindh Institute of Urology and Transplantation SIUT, Karachi, Pakistan

DOI 10.1055/s-0039-1681835

**Aims** EUS is gaining attraction as an alternative method of biopsy. It offers a more targeted approach for focal lesions in liver especially those areas which are accessible via EUS-guided method.

**Methods** A total of 7 patients from Feb 2018 till September 2018 underwent EUS-guided Left Lobe lesions biopsies using 22G FNA needle, 2 passes were done with slow pull technique over one minute with 10 – 15 strokes in each

pass to obtained core samples. Duration of procedures ranges from 15–30 minutes.

**Results** Case 1: 78 male with history of gastrectomy 5 years back for gastric cancer, presented with weight loss and vague epigastric pain, CT scan showed left lobe lesion. Biopsy showed **well differentiated Adenocarcinoma** from GI Tract. Case 2: 58 male presented with weight loss and Liver mass on CT Scan. Hepatitis B & C screen was negative with normal AFP levels. Biopsy revealed **Sarcomatoid Carcinoma**. Case 3: 53 male presented with weight loss and abdominal pain with multiple liver lesions on CT scan. Biopsy revealed **Neuroendocrine Tumor**. Case 4: 35 male presented with abdominal pain, anti-HCV reactive with normal AFP levels. CT Scan showed liver lesion suggestive of atypical Hepatocellular carcinoma. Biopsy revealed **Smooth Muscle Tumor**. Case 5: 60 female presented with weight loss, CT scan showed pancreatic malignancy with liver metastasis. Biopsy revealed **Metastatic Adenocarcinoma**. Case 6: 42 female presented with obstructive jaundice from ampullary Carcinoma. She underwent EUS staging which revealed left lobe lesion. Biopsy revealed **Metastatic Adenocarcinoma**. Case 7: 32 male presented with weight loss and obstructive jaundice, CT scan showed left lobe malignancy consistent with Cholangiocarcinoma, biopsy revealed **Lymphoproliferative disease (Lymphoma)**.

**Conclusions** EUS-guided LLB is an alternative new technique for biopsy of liver lesions with suspected atypical malignancies. It appears to have higher level of safety and accuracy for targeted lesional biopsies.

## eP89V LOST AND FOUND – SPONTANEOUS GASTROINTESTINAL EXPULSION OF A MIGRATED LAMS

**Authors** Pavic T<sup>1,2</sup>, Kralj D<sup>1</sup>, Barsic N<sup>1</sup>, Lerotic I<sup>1</sup>, Budimir I<sup>1</sup>, Hrabar D<sup>1</sup>

**Institute** 1 Department of Gastroenterology and Hepatology, University Hospital Center Sestre Milosrdnice, Zagreb, Croatia; 2 School of Medicine University of Zagreb, Zagreb, Croatia

DOI 10.1055/s-0039-1681836

Lumen-apposing metal stents (LAMS) are increasingly used for drainage of symptomatic pancreatic walled-off necroses (WON) and pseudocysts. As noted in a growing number of studies, complication rates associated with endoscopic drainage procedures using LAMS are low and, among others, include bleeding, superinfections, stent occlusion and migration. Despite its special anti-migratory design, cases of LAMS migration have been reported both into the cyst cavity and stomach. We describe the first reported case of LAMS migration and spontaneous expulsion through the gastrointestinal tract. A 61-year-old man with a large symptomatic peripancreatic necrotic collection following an earlier episode of acute necrotic biliary pancreatitis was referred to our Interventional Gastroenterology Unit for evaluation and management. At admission the patient was in a state of chronic sepsis, complained of early satiety and abdominal pain, and computed tomography (CT) revealed a peripancreatic heterogenous necrotic collection measuring 15 × 11.6 cm with bilateral pleural effusions and ascites. Endoscopic ultrasound-guided drainage through the gastric wall was performed using 15-mm cautery enhanced LAMS with a flange diameter of 24 mm (Hot AXIOS, Boston Scientific, USA). Regression of WON size was observed promptly after the procedure and following the clinical improvement the patient was discharged. He was readmitted 7 days later due to fever and abdominal pain. Control CT scan showed LAMS occlusion by necrotic debris and intraabdominal abscess on the left paracolic space. Stent de-occlusion and necrosectomy was performed along with an intraabdominal percutaneous drainage placement under ultrasound guidance. The follow-up CT scan showed nearly complete WON resolution and patient was scheduled for LAMS extraction 31 days after its placement (Video). The LAMS, however, couldn't be visualised the following day on upper endoscopy and was retrieved by the patient after a bowel movement while waiting a fluoroscopy.

## eP90 THREADING THE NEEDLE: DIAGNOSTIC YIELD OF ENDOSCOPIC ULTRASOUND GUIDED FINE NEEDLE ASPIRATION IN REAL WORLD CLINICAL PRACTICE

**Authors** Clifford C<sup>1</sup>, Moran C<sup>1</sup>, Harkin C<sup>1</sup>, Hussey M<sup>1</sup>, McGettigan N<sup>1</sup>, Harewood GC<sup>1</sup>, Cheriyan D<sup>1</sup>, Sengupta S<sup>1</sup>

**Institute** 1 Department of Gastroenterology, Beaumont Hospital, Dublin, Ireland

DOI 10.1055/s-0039-1681837

**Aims** The primary aim was to assess diagnostic yield of solid pancreatic lesions. Secondary outcomes include: assessing the number of passes performed and the presence of trainees on diagnostic yield.

**Methods** Electronic endoscopy recording system (EndoRad) identified patients that underwent endoscopic ultrasound (EUS) in 2017. Endoscopy reports were examined manually to identify if EUS guided sampling of solid pancreatic lesions was performed. Patient demographics, presence of trainee and number of passes with sampling needle were recorded from endoscopy reports. Pathology reports were examined to assess whether an adequate sample was received from EUS guided sampling.

**Results** 388 EUS procedures were performed in 2017. 48 patients (12%) with solid pancreatic lesions underwent EUS guided tissue sampling. 77% (37/48) of procedures yielded an adequate tissue sample as per histology report. The higher the number of passes, the higher the proportion of samples having an adequate sample for diagnostic purposes, with yields of 89% (16/18) for 3 passes compared to 72% (13/18) and 67% (8/12) for two and one passes respectively. The presence of a trainee was associated with an increased diagnostic yield, 85% (23/27) versus 67% (14/21).

**Conclusions** This retrospective study demonstrates that a higher number of passes is associated with higher diagnostic yield, mirroring published clinical trials and interestingly that the presence of a trainee increases diagnostic yield. A standardised protocol for number of passes and needle type used may also warrant repeat audit in the future.

## eP91 FEASIBILITY AND EFFICACY OF A NOVEL NEEDLE IN ENDOSCOPIC ULTRASOUND-GUIDED TISSUE SAMPLING FOR PANCREATIC SOLID LESIONS: A PROSPECTIVE RANDOMIZED COMPARATIVE STUDY

**Authors** Cho CM<sup>1</sup>, Yeo SJ<sup>1</sup>, Seo AN<sup>2</sup>, Bae HI<sup>2</sup>

**Institute** 1 Internal Medicine, School of Medicine, Kyungpook National University, Daegu, Korea, Republic of; 2 Pathology, School of Medicine, Kyungpook National University, Daegu, Korea, Republic of

DOI 10.1055/s-0039-1681838

**Aims** Histologic confirmation is crucial in the evaluation of pancreatic solid lesions. Recently, variable needles with different shapes for endoscopic ultrasound-guided tissue sampling (EUS-TS) have been widely used to diagnose pancreatic lesion. However, most needles used currently are made from major companies and expensive. Therefore, it is urgent to develop an inexpensive needle with a novel concept technology. We evaluated the feasibility and efficacy of a newly developed prototype needle in EUS-TS for pancreatic solid lesions comparing the commercially available ones.

**Methods** As a prospective randomized trial, we compared between a 22-gauge needle (22G, Clear-Tip, FINEMEDIX, Daegu, Korea) with side-hole of both reversed bevel (test needle) and three commercially available 22G biopsy needles (control needle) in patients with undergoing EUS-TS of pancreatic solid lesions. First two passes of EUS-TS were accomplished in a random order between test and control needles. The procured specimens were prepared for the comparison of specimen adequacy and diagnostic accuracy to final diagnosis. Additional two passes were performed using the control needle for histologic diagnosis. Two blinded pathologists evaluated the specimens based on an already agreed diagnostic criteria for cytology and histology.

**Results** Between February and June 2018, 24 patients (median 63.5 years, 14 males) with pancreatic solid lesions were enrolled. Among them, one patient

had no final diagnosis due to inadequate specimen. Technical failure occurred in one case of test needle. There was no significant difference between test and control needles in terms of specimen adequacy (91.3% vs. 95.8%) and diagnostic accuracy (72.7% vs. 82.6%) ( $p$  value = 0.456 and 0.331, respectively).

**Conclusions** The new prototype needle is feasible and efficient for EUS-TS in pancreatic solid lesions. However, further study including large volume and for other lesions is needed to validate these results.

## eP92 ENDOSCOPIC MANAGEMENT OF PANCREATIC FLUID COLLECTIONS (PFC): A SINGLE CENTRE EXPERIENCE WITH LUMEN APPOSING METAL STENTS (LAMS)

**Authors** Rizza S<sup>1</sup>, Cortegoso Valdivia P<sup>1</sup>, Venezia L<sup>1</sup>, De Angelis CG<sup>1</sup>

**Institute** 1 Division of Gastroenterology, AOU Città della Salute e della Scienza, Torino, Turin, Italy

**DOI** 10.1055/s-0039-1681839

**Aims** PFC may require drainage in case of persistent symptoms, infection or rapid increase in size. The endoscopic management is challenging and the appearance of LAMS could overcome some limitations of surgical and percutaneous drainage, such as leakage and migration.

**Methods** All patients who underwent LAMS placement for PFC drainage in our centre from November 2016 to November 2018 were included. We collected data regarding type of PFC and drainage, technical success, resolution/reduction of collection and complications. In all cases we had a CT describing the PFC prior to stent placement. Stents used measured 10 mm in length, with two different lumen diameters (10 mm and 15 mm). Transabdominal US was executed the day after and a CT after 3–4 weeks. LAMS were retrieved within 4 weeks.

**Results** Fifteen patients (10 M and 5 F, median age 58.6) with PFC were treated with LAMS. Indications were: pseudocyst in 13 cases, walled-off pancreatic necrosis (WOPN) in 2 cases. The median size was 10.1 cm. The drainage was transgastric in 13 patients, transduodenal in 2. PFC were solved in 9 cases (60%) and reduced significantly in 6 (40%). Two patients needed endoscopic necrosectomies and/or hydrogen peroxide irrigation after stent placement. In a case of reduced PFC further endoscopic attempts were made with a double-pig tail plastic stent, first, and subsequently with a second LAMS. Stent-related adverse events were observed in 2 patients: we experienced "stent buried syndrome" under the gastric mucosa, both cases solved endoscopically but in one case the distal flange remained imprisoned in the retroperitoneum and it is still in place, not causing any symptoms. There was no procedure-related or 30 day mortality.

**Conclusions** This monocentric study demonstrates that LAMS can be considered a safe and effective approach with a high technical success rate and a very low serious adverse events rate.

## eP93 LONG-TERM EFFICACY AND COST EFFECTIVENESS OF ENDOSCOPIC TREATMENT OF PANCREATIC PSEUDOCYSTS: PIGTAIL VS SELF EXPANDING METAL STENTS (SEMS)

**Authors** Dieninyte-Misiune E<sup>1,2</sup>, Stanaitis J<sup>1</sup>, Valantinas J<sup>1,2</sup>

**Institute** 1 Vilnius University Hospital Santaros Clinics, Vilnius, Lithuania;

2 Vilnius University, Faculty of Medicine, Vilnius, Lithuania

**DOI** 10.1055/s-0039-1681840

**Aims** Currently endoscopic therapy is a gold standard management option of pancreatic pseudocysts. However, particular type of stent application in larger pseudocysts is still debated, especially regarding long-term outcomes and costs. Therefore, we hypothesized that due to its larger diameter and improved drainage SEMS would be as efficacious and cost effective as pigtail stents in resolving pseudocysts larger than 6 cm.

**Methods** To test the hypothesis we conducted a retrospective cohort study into patients who underwent endoscopic pancreatic pseudocystogastrostomy in VULSK during 2012–2017. Patients were followed up for 6 months when according to local protocol stent should be removed. We collected demographic (age, gender) and clinical data (stent type, size of the pseudocyst, presence of infection, bleeding, sequential operation, resolution of the cyst, number of days admitted in 6 months, number of endoscopies performed) from hospital records. Economics department provided the data regarding treatment costs. For statistical analysis we used R statistical package. To compare the groups we used Chi-square, Fisher-exact test and t-test. Results were considered statistically significant if  $p < 0,05$ .

**Results** Our study comprised 49 patients, 75% of whom were men. All drainage procedure were done under EUS guidance and during 6 months of follow-up all patients attained pseudocyst resolution. Main findings are summarized in Table 1.

**Tab. 1**

	ALL	PIGTAIL	SEMS	p
Patients	49	33	16	
Bleeding in 6 months	4 (8%)	4 (12.1%)	0 (0.0%)	0,37
Days of hospitalization in 6 months	15,94 (± 16,22)	18,33 (± 19,19)	11,00 (± 4,21)	0,139
Treatment cost in 6 months (EUR)	3801,53 (± 3836,35)	3987,50 (± 4135,59)	2760,12 (± 835,18)	0,519

**Conclusions** In patients with large pancreatic pseudocyst, pancreatogastrostomy with SEMS is at least as efficient and cost effective as drainage with pigtail stents.

A larger prospective randomized controlled trial would provide definite guidance for best clinical and economic practice.

## Ep94v BEYOND PALLIATION: USING EUS-GUIDED CHOLEDOCHODUODENOSTOMY WITH A LUMEN-APPPOSING METAL STENT AS A BRIDGE TO SURGERY

**Authors** Fabbri C<sup>1</sup>, Fugazza A<sup>2</sup>, Binda C<sup>3</sup>, Zerbi A<sup>4</sup>, Jovine E<sup>5</sup>, Cennamo V<sup>6</sup>, Repici A<sup>7</sup>, Anderloni A<sup>2</sup>

**Institute** 1 Unit of Gastroenterology and Digestive Endoscopy, Forli-Cesena, AUSL Romagna, Forli-Cesena, Italy; 2 Digestive Endoscopy Unit, Department of Gastroenterology, Humanitas Research Hospital, Rozzano (MI), Italy;

3 Internal Medicine, Gastroenterology and Liver Unit, Fondazione Policlinico Universitario A. Gemelli IRCCS, Università Cattolica del Sacro Cuore, Roma, Italy; 4 Pancreatic Surgery Unit, Humanitas Research Hospital, Rozzano (MI), Italy; 5 Department of Surgery, AUSL Bologna Bellaria-Maggiore Hospital,

University of Bologna, Bologna, Italy; 6 Unit of Gastroenterology and Digestive Endoscopy, AUSL Bologna Bellaria-Maggiore Hospital, Bologna, Italy;

7 Digestive Endoscopy Unit, Department of Gastroenterology, Humanitas Research Hospital, Humanitas University, Rozzano (MI), Italy

**DOI** 10.1055/s-0039-1681841

**Introduction** We analyzed the efficacy of pylorus-preserving pancreaticoduodenectomy (PPPD) after endoscopic ultrasonography-guided choledochoduodenostomy (EUS-CD) using a lumen-apposing metal stent (LAMS) as a bridge to surgery.

**Patients and methods** Retrospective multicentric analysis of all consecutive failed-ERCP patients (06/2017–10/2017) who subsequently underwent EUS-CD using LAMS, followed by PPPD with resectable distal malignant biliary obstruction.

**Results** Five patients underwent an EUS-CD using EC-LAMS; the bile duct was accessed using the transbulbar approach. The technical success rate of EUS-CD was 100%. No procedure-related adverse events occurred. Five patients underwent PPPD with a technical success rate of 100%.

The presence of a transduodenal LAMS did not impede surgery. No cases of biliary or duodenal fistula occurred. Pancreatic fistulas with late bleeding were observed in 2 patients (1 fatal).

**Discussion and conclusion** These few cases indicate that PPPD after EUS-CD using LAMS is feasible and safe.

EUS-CD should be performed irrespective of the stage of the disease, also for patients fit for surgery.

Additional larger prospective studies are required to confirm this preliminary data, in particular for possible interference with postoperative outcomes.

## eP96 FACTORS ASSOCIATED TO WOPN ENDOSCOPIC TREATMENT SUCCESS

**Authors** González L<sup>1</sup>, Brujats A<sup>1</sup>, Trias M<sup>1</sup>, De Riba B<sup>1</sup>, Romito R<sup>1</sup>, Murzi M<sup>1</sup>, Colan J<sup>1</sup>, Concepción M<sup>1</sup>, Gordillo J<sup>1</sup>, Pernas JC<sup>1</sup>, Poca M<sup>1</sup>, Soriano G<sup>1</sup>, Guarner Argente C<sup>1</sup>

**Institute** 1 Hospital de la Santa Creu i Sant Pau, Barcelona, Spain

**DOI** 10.1055/s-0039-1681842

**Aims** Endoscopic necrosectomy with metal stents, especially lumen apposition metal stents (LAMS), is increasingly being used for the treatment of complicated walled-off pancreatic necrosis (WOPN), but the need for necrosectomy is not well understood. The aim of this study is to evaluate clinical, endoscopic and radiologic predictors for the need of necrosectomy in patients treated with LAMS.

**Methods** Patients with WOPN treated with LAMS from 2014 to 2017 in our unit were retrospectively reviewed. Data was obtained from medical records and reviewed by endoscopist and radiologist. Clinical success was defined as the percentage of patients without need for surgery. Necrosectomy was performed only when clinically needed (i.e. fever or hemodynamic instability during follow-up). Predictors for the need of necrosectomy were evaluated with univariate analyses.

**Results** Eighteen patients were analyzed. Three were excluded due to early decease (2 intestinal perforation and 1 pancreatitis recurrence and advanced age). Among the remaining 15, 67% were men with mean age of 66 ± 14 years. One immediate adverse event occurred (7%) as the stent migrated to the gastric cavity during deployment, but was relocated in the same procedure. All 15 patients solved without need for surgery, but 5 (33%) required necrosectomy (4 multiple necrosectomy sessions, 1 only irrigation). The percentage of necrosis detected in the previous CT scan (47 ± 20% vs. 15 ± 18%, p = 0,008), and the purulent aspect of the fluid drained (100% vs. 40%; p = 0,044) predicted the need for necrosectomy in the univariable analysis, but only the first in the multivariable (p = 0,042). Other factors as age, gender, collection characteristics on CT scan (size, number, distance to stomach, or density) or EUS, or indication for drainage were not significant.

**Conclusions** Percentage of necrosis detected in the CT scan previous to WOPN drainage with LAMS might predict the need for necrosectomy.

## eP97V EUS-GUIDED BILIARY AND PANCREATIC DRAINAGE AS RESCUE DEFINITIVE THERAPY IN A PATIENT WITH CHRONIC PANCREATITIS AND VITAL RISK COMPLICATIONS

**Authors** Vila J<sup>1</sup>, Aburruza L<sup>1</sup>, González G<sup>1</sup>, Carvalho J<sup>2</sup>, Costa J<sup>3</sup>, Uribarri L<sup>1</sup>, Estremera F<sup>1</sup>, Carrascosa J<sup>1</sup>, Fernández-Urién I<sup>1</sup>

**Institute** 1 Complejo Hospitalario de Navarra, Endoscopy Unit, Gastroenterology Dpt., Pamplona, Spain; 2 Hospital Lisboa Norte, Gastroenterology Dpt., Lisboa, Portugal; 3 Hospital de Braga, Gastroenterology Dpt., Braga, Portugal

**DOI** 10.1055/s-0039-1681843

**Case** A 67 year old male patient with records of chronic pancreatitis and partial gastrectomy with Roux-en-Y anastomosis is admitted to the hospital for acute cholangitis. During admission he suffers a bout of acute pancreatitis with infected perirenal collection developing severe sepsis with multiorgan

failure requiring supportive therapy and admission to ICU. Pancreatobiliary surgeons decline surgical treatment because of the unacceptable surgical risk. EUS-guided hepaticogastrostomy for treatment of cholangitis and percutaneous drainage of the perirenal collection are decided with subsequent clinical improvement. Maintained percutaneous purulent drainage precludes from complete resolution of the collection and feeding pancreatic duct dysruption is suspected on a CT scan. As rescue therapy to solve the pancreatic duct dysruption an EUS-guided wirsung-jejunostomy is performed. After this procedure the pancreatic dysruption and perirenal collection are finally resolved and the patient is discharged asymptomatic. One month after discharge he is admitted because of a new bout of acute cholangitis. Antegrade cleansing of the biliary tract with extraction of stones and sludge is performed through the hepaticogastrostomy stent. A prepapillary biliary stenosis is seen and a plastic stent is antegradely and transpapillary placed for treatment of the stenosis. The patient remains asymptomatic and an elective antegrade endoscopic revision is made, both through the wirsung-jejunostomy with transpapillary passage of a new stent to complete the treatment of the pancreatic stenosis, and through the hepaticogastrostomy with retrograde extraction of the biliary plastic stent and placement of a transpapillary fully covered biliary stent to complete the treatment of the biliary stenosis (Video).

**Conclusion** We describe the case of a patient in such a poor condition precluding surgical therapy who was finally resolved by means of EUS-guided biliary and pancreatic drainage. This antegrade accesses allow now to complete the treatment of the biliary and pancreatic duct stenosis secondary to the chronic pancreatitis.

## eP98V EUS GUIDED BILIARY DRAINAGE – TECHNICAL VARIANTS

**Authors** Fernandes J<sup>1,2</sup>, Moreira M<sup>1</sup>, Araújo T<sup>1</sup>, Giestas S<sup>1</sup>, Ribeiro H<sup>1</sup>, Lucas F<sup>3</sup>, Libânio D<sup>1,4</sup>, Ramada J<sup>1</sup>, Certo M<sup>5</sup>, Canena J<sup>6</sup>, Lopes L<sup>1,7,8</sup>

**Institute** 1 Gastroenterology, Hospital de Santa Luzia, Viana do Castelo, Portugal; 2 Gastroenterology, Centro Hospitalar Cova da Beira, Covilhã, Portugal; 3 Serviço de Medicina do Hospital de Cascais, Cascais, Portugal; 4 Gastroenterology, Instituto Português de Oncologia do Porto, Porto, Portugal; 5 Hospital de Braga, Braga, Portugal; 6 Gastroenterology, Hospital Amadora Sinta, Amadora, Portugal; 7 Life and Health Sciences Research Institute (ICVS), School of Medicine, University of Minho, Braga, Portugal; 8 ICVS/3B's – PT Government Associate Laboratory, Braga/Guimarães, Portugal

**DOI** 10.1055/s-0039-1681844

**Description** We present the video of 4 cases of obstructive jaundice solved with endoscopic ultrasonography guided biliary drainage. In 3 of these patients, it was not possible to access the second duodenal portion and/or to visualize the papilla major due to the presence of pancreatic head adenocarcinomas with subsequent duodenal invasion, which led to choledochoduodenostomies in two of them, and the placement of a anterograde transpapillar metal stent through the duodenal bulb in the other patient.

The fourth patient had obstructive jaundice secondary to metastatic hilar adenopathies, due to an advanced gastric neoplasia with gastro outlet obstruction. Biliary drainage was performed through a hepatogastrostomy. All procedures were performed with technical and clinical success (resolution of jaundice) and with no relevant adverse events related to the procedure. None of the patients presented biliary obstruction recurrence until their death.

**Motivation** ERCP stent placement is a minimally invasive 1st line technique for the treatment of biliary obstructions. Despite their high safety and efficacy, there are patients where this is not possible, even when performed by experienced ERCP endoscopists. The majority of these cases are related duodenal invading tumors, not allowing the duodenoscope to access the 2nd duodenal portion or recognition of the major papilla. In these situations biliary drainage by echoendoscopy, is a valid option in centers with experienced ERCP endos-

copists/echoendoscopy and adequate material and human resources. In this video we intend to illustrate 3 variants of this technique (choledochoduodenostomy, hepatogastrotomy, antegrade transpapillary prosthesis), whose worldwide experience is still limited, given the high level of difficulty associated.

### eP99V EUS-GUIDED LOCATION AND REMOVAL OF A BURIED LUMEN-APPPOSING METAL STENT WITHIN THE GASTRIC MUCOSA

**Authors** Bozhychko M<sup>1</sup>, Mangas-Sanjuan C<sup>1</sup>, Compañy L<sup>1</sup>, Ruiz FA<sup>1</sup>, Martínez Sempere J<sup>1</sup>, Casellas JA<sup>1</sup>, Ramón Aparicio J<sup>1</sup>

**Institute** 1 Unidad Endoscopias, Hospital General Universitario de Alicante, Alicante, Spain

DOI 10.1055/s-0039-1681845

**Introduction** Endoscopic ultrasound (EUS)-guided lumen-apposing metal stent (LAMS) placement has become the first-line management of pancreatic fluid collections (PFCs) at many centers. LAMS has also shown to be safe and effective for endoscopic transmural drainage of pancreatic pseudocysts (PP) and walled-off pancreatic necrosis (WON). However, its long-term safety profile is not fully established. Our aim was to describe a clinical case of a LAMS buried within the gastric mucosa that was located and removed by EUS.

**Endoscopic procedure** A 65-year-old man with chronic pancreatitis was admitted to the hospital because of PP drainage. PP was located in the body of the pancreas and drainage was performed using EUS-guided LAMS (Hot-Axios 6 × 8 mm, Boston Scientific) placement by “free-hand” technique without early complications. After 66 days, PP resolution was confirmed by an abdominal CTscan. However, during an upper gastrointestinal endoscopy to remove LAMS, inspection of the gastric wall revealed that the gastric mucosa was completely healed at the site of the stent. Then, an EUS was performed and a buried stent within the gastric mucosa was confirmed. Under endoscopic and fluoroscopic guidance, 19-gauge needle was used to puncture inside the stent and a 0.025” guidewire (VisiGlide, Olympus) was passed through the stent. After that, gastric wall was dilated and then the Hot Axios was removed with mouse clamp.

**Conclusions** LAMS are effective for endoscopic transmural drainage of collections, however, buried stent can be a long-term complication. In these cases, buried LAMS can be located and removed by EUS-guided procedure.

### eP102V OBLITERATION OF GASTRIC VARICES GUIDED BY ECO-ENDOSCOPY WITH COILS INSERTION COATED WITH EXPANDABLE HIDROGEL POLYMERS

**Authors** de Benito M<sup>1</sup>, de la Serna C<sup>1</sup>, Carbajo AY<sup>1</sup>, Garcia-Alonso F<sup>1</sup>, Tejedor J<sup>1</sup>, Bazaga S<sup>1</sup>, Sanchez-Ocaña R<sup>1</sup>, Pérez- Miranda M<sup>1</sup>

**Institute** 1 Hospital Universitario Rio Hortega, Valladolid, Spain

DOI 10.1055/s-0039-1681846

**Introduction** Bleeding from gastric varices is a severe complication of portal hypertension, with few management alternatives, especially when there is a contraindication to TIPS. The usual therapeutic options are the injection of cyanoacrylate, the insertion of coils or both.

The Hydrocoil, are used in neurovascular interventionism, allowing a rapid occlusion of the vessel forming a mesh that favours the local formation of thrombus and the development of a neointima on the gel cover. We consider its use for the vessel's obliteration in the treatment of gastric varices, without using cyanoacrylate.

**Objective** The aim of this study is to evaluate the safety and effectivity of the application of USE-guided hydrocoils in patients that bleed from gastric varices with TIPS contraindication.

**Material and methods** Retrospective series of cases including four patients with TIPS contraindication after evaluation from an interventional radiologist. We used linear echoendoscopes, fluoroscopy, 19G needles and hydrocoils (AZUR, Terumo), Progreat 3Fr microcatheters. The procedures were advised

by an expert interventional radiologist. The obliteration of the vessel is confirmed by endoscopic ultrasound.

**Results** Technical and clinical success was reached in all 4 patients included. There were no adverse effects related to the procedure or equipment damage.

**Conclusions** The application of USE-guided Hydrocoils can be a safe and effective method in bleeding from gastric varices in patients not candidates for TIPS. It could also ensure a complete obliteration of the vascular lumen and thus dispense with the use of cyanoacrylate. Longer studies are needed to corroborate these preliminary results.

### eP103V BEWARE OF THE GLUE

**Authors** Romero-Castro R<sup>1</sup>, Jimenez-Garcia VA<sup>1</sup>, Hergueta-Delgado P<sup>1</sup>, Argüelles-Arias F<sup>1</sup>, Cordero-Ruiz P<sup>1</sup>, Maldonado-Perez B<sup>1</sup>, Morales-Barroso ML<sup>1</sup>, Caceres-Galan JL<sup>2</sup>, Pellicer-Bautista F<sup>1</sup>, Caunedo-Alvarez A<sup>1</sup>

**Institute** 1 Gastroenterology and Endoscopy, University Hospital Virgen Macarena, Seville, Spain; 2 Anesthesiology, University Hospital Virgen Macarena, Seville, Spain

DOI 10.1055/s-0039-1681847

DOI 10.1055/s-0039-1681847

**Background** Endoscopic injection of cyanoacrylate (CYA) was a stepforward in the therapy of gastric varices (GV). However has been associate to adverse events, mainly, GE (glue embolism). To minimize the risk of GE, EUS-guided injection in the perforating feeding vein of GV of CYA was reported (1), followed by the deployment of coils in GV without injection of CYA (2). Another approach is to deploy into the gastric varix itself one or two coils followed by injection of CYA (3, 4). One multicenter study reported a rate of pulmonary GE of 30% after an average injection of CYA mixed with lipiodol by EUS-guidance (5).

**Aims & Methods** In the following videos we present, after injecting pure contrast through 19G needles into the GV, some aspects of the hemodynamic in this setting.

**Results** First-video: high-blood flow velocity and how the contrast is rapidly cleared out. Second-video: how the contrast flows through 5 coils through the gastrosplenic shunt and up to the superior cava vein. Third-video: clearance of contrast in spite of 4 coils deployed. Fourth-video: how the flow is obstructed and the contrast remains in the gastric varix except for several small drops that run through the coils. Fifth-video: shows a completely procedure. Two coils are deployed and though them the contrast is fragmented into small drops and flows towards the gastrosplenic shunt and superior cava vein. After deployment more coils, a mesh is obtained and thromboses of GV is achieved.

**Conclusions** EUS-guided therapy of GV seems promising because of its accuracy and safety profile. Although it is postulated that injection of CYA without lipiodol is safe there is no way to carry out asymptomatic GE if lipiodol and CT scans are not used.

1. GIE 2007;66 (2):402 – 7.
2. Endoscopy. 2010;42 Suppl 2: E35 – 6.
3. GIE 2011;74 (5):1019 – 25.
4. GIE 2016;83 (6):1164 – 72.
5. GIE 2013;78 (5):711 – 21.

### eP104V EUS-GUIDED RECANALIZATION OF A COMPLETE STENOSIS OF THE BILIARY ANASTOMOSIS IN A PATIENT WITH WHIPPLE RESECTION

**Authors** Martínez Moreno B<sup>1</sup>, Roger Ibañez M<sup>1</sup>, Acevedo Piedra G<sup>1</sup>

**Institute** 1 Hospital Universitario del Vinalopó, Elche, Spain

DOI 10.1055/s-0039-1681848

Access to the bile duct in a patient with Whipple resection can be an endoscopic challenge.

The biliary-enteric anastomosis can be achieved by echoendoscopy (EUS) to assess the etiology of the stenosis and, if it is not possible to perform an ERCP due to complete stenosis, create the repermeabilization of the anastomosis.

A 57-year-old male with Whipple's resection for pancreatic head cancer was admitted with cholangitis. The radiological images showed a dilation of the withintrahepatic bile ducts and a complete stenosis of the choledocojejunal anastomosis. An external drainage was placed by interventional radiology, not being able to traverse the anastomosis. The spontaneous exit of this drain occurred, with the following percutaneous bile leak and disappearance of the intrahepatic dilation that made impossible this access again.

Tumor recurrence was ruled out with a diagnostic EUS. The echoendoscope was inserted through the afferent limb, and a fine-needle aspiration of the anastomosis was performed.

An ERCP was attempted, but the anastomosis couldn't be endoscopically identified, thence access by EUS was performed.

With the echoendoscope in the afferent limb anastomosis, the common bile duct was punctured with a 19G needle and a guidewire was inserted. The fistula was dilated with a 6Fr cystotome and subsequently a 10 mm Hurricane balloon was used. Finally a 10 × 40 mm fully covered metal stent with flaps was inserted, achieving the recanalization of the biliary anastomosis. It was fixed with a hemoclip.

**Conclusions** EUS is useful in the assessment of biliary anastomosis in patients with Whipple resection, and allows the recanalization of the anastomosis when the stenosis is complete.

Friday, April 5, 2019  
ERCP

09:00 – 17:00  
ePosters

### eP105V DIRECT PERORAL CHOLANGIOSCOPY FOR DIFFICULT BILIARY STONES TREATMENT DIRECT PERORAL CHOLANGIOSCOPY IN DIFFICULT BILIARY STONES

**Authors** Silva M<sup>1</sup>, Gomes S<sup>2</sup>, Rodrigues-Pinto E<sup>1</sup>, Santos AL<sup>1</sup>, Peixoto A<sup>1</sup>, Pereira P<sup>1</sup>, Macedo G<sup>1</sup>

**Institute** 1 Gastroenterology, Centro Hospitalar de São João, Porto, Portugal; 2 UCSP Rio Maior – ACES Lezíria, Rio Maior, Portugal

DOI 10.1055/s-0039-1681849

**Introduction** Peroral cholangioscopy (POC) using a conventional endoscope allows better visualization of the biliary tree and the use of devices that are not possible with the duodenoscope and is a useful technique for the treatment of difficult biliary lithiasis' cases. The authors describe one of these cases, resolved using POC and polypectomy snare.

**Cases Report** A 76-year-old female, with a medical history of liver transplant in 1991 for primary biliary cholangitis, which was complicated with an anastomotic stricture. She had been previously submitted to four endoscopic retrograde cholangiopancreatography (ERCP), including two direct POC procedures (between 2009–2016) due to episodes of symptomatic choledocholithiasis/ cholangitis. In the previous procedure, balloon catheter passage and POC with mechanical lithotripsy failed to remove the largest stones and a plastic stent of 10Fr and 4 cm was placed, to permit biliary drainage and provoke mechanic fragmentation of the impacted stones. Three months later, POC was repeated with a conventional videogastroscope (Olympus GIF-Q 180), and identified a biliary stone distal to the anastomosis, which was removed with a Roth net retriever. Cholangiogram confirmed the persistence of a subtraction defect of 20 mm, proximal to the anastomosis. Mechanical lithotripsy (Olympus BML-110) was attempted without success. Then anastomosis dilatation up to 15 mm (Boston Scientific Wire guided Balloon Dilator) was performed, under direct and fluoroscopic control. Subsequently, the conventional endoscope was introduced proximal to the anastomosis with direct visualization of the calculus, which was successfully removed recurring to a polypectomy snare (Olympus SnareMaster). Final cholangiogram revealed no subtraction defects, with proper drainage at the end of the procedure.

### eP106 DO CIRRHOTIC PATIENTS HAVE HIGHER RISK OF COMPLICATION FOLLOWING ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY? A SINGLE CENTER STUDY

**Authors** Kim KH<sup>1</sup>, Jang BI<sup>1</sup>, Cho JH<sup>1</sup>, Kim SB<sup>1</sup>, Kim KO<sup>1</sup>, Lee SH<sup>1</sup>, Kim TN<sup>1</sup>

**Institute** 1 Yeungnam University College of Medicine, Daegu, Korea, Republic of

DOI 10.1055/s-0039-1681850

**Aims** Endoscopic retrograde cholangiopancreatography (ERCP) is one of the most important procedures in the diagnosis and treatment of pancreaticobiliary disease. However, there is still insufficient data on the complication rate of ERCP in patients with liver cirrhosis (LC). The aim of this study was to investigate the rate of complications following ERCP in cirrhotic patients.

**Methods** A total of 51 patients with liver cirrhosis having CBD stones, who underwent ERCP at Yeungnam University Hospital from 2006 to 2017, were reviewed retrospectively and compared with age- and sex-matched non-cirrhotic patients (n = 102). Clinical outcomes and the rate of complication were investigated.

**Results** Of 51 LC patients, Child-Pugh class A was 24 (47.1%), B, 16 (31.4%) and C, 11 (21.6%), respectively and the number of decompensated LC was 30 (58.8%). The rate of endoscopic sphincterotomy was higher in non-LC patients (76.5% vs. 58.8%, p = 0.038) and the rate of balloon dilatation was higher in LC (41.2% vs. 22.5%, p = 0.027). There was no statistical difference regarding pancreatitis, cholangitis and perforation between two groups. The incidence of bleeding in cirrhotic patient was significantly higher than in non-cirrhotic group (17.6% vs. 4.9%, p = 0.023) and in particular, immediate bleeding rate was higher in LC (13.7% vs. 2.9%, p = 0.028). The rate of complications in patients with LC was not significantly different regardless of Child-Pugh score or the presence decompensated liver.

**Conclusions** Cirrhotic patients have a significant bleeding risk following ERCP procedure compared with non-cirrhotic patients. A large, prospective study is needed for elucidating the further outcomes of ERCP in cirrhotic patients.

### eP108 A RETROSPECTIVE ANALYSIS TO ASSESS THE IMPORTANCE OF DOING A BILIARY SPHINCTEROTOMY TO INCREASE AND SIMPLIFY CANNULATION SUCCESS RATE OF THE MAIN PANCREATIC DUCT

**Authors** Desai P<sup>1</sup>, Kabrawala M<sup>1</sup>, Nandwani S<sup>1</sup>, Mehta R<sup>2</sup>, Patel C<sup>1</sup>, Kalra P<sup>1</sup>, Prajapati R<sup>1</sup>, Patel N<sup>1</sup>

**Institute** 1 Surat Institute of Digestive Sciences, Surat, India; 2 Endoscopy, Surat Institute of Digestive Sciences, Surat, India

DOI 10.1055/s-0039-1681851

**Aims** MPD cannulation is the prime requisite for any pancreatic endotherapy during an ERCP. Very few techniques are described for selective pancreatic duct cannulation. When doing primary pancreatic therapy in cases where MPD cannulation is difficult, if we could get the wire into the CBD first, then doing a wide biliary sphincterotomy is shown to increase the success of cannulation of the MPD without using any more sophisticated techniques.

**Methods** Our data of all cases (1206) for pancreatic ERCP from October 2008 to May 2018 was studied. All cases were done by a single operator. All cases where MPD could not be cannulated in three attempts, or MPD not cannulated directly in 10 minutes or CBD cannulated first were studied. When MPD cannulation failed we tried to cannulate the CBD first or when CBD was first cannulated, instead of trying MPD cannulation again we did a wide biliary sphincterotomy, separated the biliary and pancreatic orifices and then cannulated the MPD with a cannula and glide wire.

**Results:**

- Number of ERP: 1206
- Successful direct MPD cannulation: 982 (81.4%)
- Difficult Cannulation: 224 (18.6%)

- CBD cannulated first: 199 out of 224 (88.9%)
- Biliary Sphincterotomy done: 199 (100%)
- Successful MPD Cannulation after biliary sphincterotomy: 185 (92.9%)
- Failed MPD cannulation after biliary sphincterotomy: 14 (7.03%)
- Pancreas Divisum found: 10/14 failed cannulations (71.4%)
- Failed MPD cannulation overall: 25 out of 1206 (2.07%).

**Conclusions** If direct MPD cannulation is difficult, cannulating the CBD first and doing a biliary sphincterotomy improves the MPD cannulation success rate significantly- Increase success from 81.4% to 92.9%.

Failed MPD cannulation even after biliary sphincterotomy, 71.4% had divisum. Lavage therapy after failed cannulation would be EUS guided drainage or surgery.

### eP109 CAROLI'S DISEASE (CD) CAUSED BY VERY RARE GENETIC MUTATION, MISDIAGNOSED WITH ERCP AND MRCP AS PRIMARY SCLEROSING CHOLANGITIS (PSC)

**Authors** Muhovic D<sup>1</sup>, Smolovic B<sup>1</sup>, Hodzic A<sup>2</sup>, Peterlin B<sup>2</sup>

**Institute** 1 Internal Clinic, Department of Gastroenterohepatology, Clinical Center of Montenegro, Podgorica, Montenegro; 2 Clinical Institute of Medical Genetics, University Medical Centre Ljubljana, Ljubljana, Slovenia

**DOI** 10.1055/s-0039-1681852

**Aims** CD is a rare congenital condition characterized by localized or diffused, multifocal, segmental dilatation of the intrahepatic bile ducts. Mutations in polycystic kidney and hepatic disease gene1 (PKHD1), located on chromosome 6, are responsible for CD, and many causative mutations are known. In some cases all clinical examinations are not sufficient to clearly diagnose CD, but genetic analysis may be helpful.

**Methods** We report the case of a 41 years old man on conservative treatment over 20 years for chronic renal insufficiency, with 4 episodes of cholangitis. Following extensive diagnostics (MRCP in 2 times, ERCP and liver biosy) the differential diagnosis included PSC and CD. In order to resolve the diagnostic dilemma, we referred the patient for genetic diagnostics, where clinical exome sequencing (CES) was performed.

**Results** MRCP showed diffuse cystic/fusiform dilatation of the intrahepatic bile ducts and normal caliber of choledochal duct, with enlarged polycystic kidneys. First the differential diagnosis of CD with polycystic kidney disease and PSC with dysplastic kidney disease was made. Liver biopsy showed multiple bile duct hamartomas (MBH), without evidence of congenital hepatic fibrosis (CHF). On the following ERCP and MRCP examinations changes in bile duct pointing to PSC were described and the diagnosis was leaning towards PSC. CES showed the presence of 2 very rare pathogenic heterozygous variants in PKHD1 gene causing CD (nonsense variant c.370C>T, and missense variant c.4870C>T).

**Conclusions** We report the discovery of 2 pathogenic variants in PKHD1 gene, causing CD with polycystic kidney disease in a patient undiagnosed for many years. Sometimes MRCP, ERCP, not even liver biopsy is not sufficient to clearly diagnose CD. Finally, in children and adult patients who present with recurrent cholangitis and hepato/splenomegaly or in all cases with cholangitis and polycystic kidney disease, a diagnosis of genetic condition – CD, should be considered.

### eP110 FULLY COVERED SELF EXPANDABLE METAL STENT IN THE MANAGEMENT OF DIFFICULT CHOLEDOCOLITIASIS

**Authors** Grande G<sup>1</sup>, Caruso A<sup>1</sup>, Pigò F<sup>1</sup>, Bertani H<sup>1</sup>, Mangiafico S<sup>1</sup>, Conigliaro R<sup>1</sup>

**Institute** 1 Gastroenterology and Digestive Endoscopy Unit, Azienda Ospedaliero-Universitaria di Modena, Modena, Italy

**DOI** 10.1055/s-0039-1681853

**Aims** Difficult choledocholithiasis represents up to 15% of retained biliary stones and no standard treatment is codified. On this context, the temporary

use of fully covered self expandable metal stent (FCSEMS) are an emergent option. Our aim was to assess the efficacy and safety of FCSEMS in the treatment of difficult common bile duct (CBD) stones.

**Methods** From February2012 to September2017 we retrospectively analysed 54 cases of difficult extrahepatic biliary stones, treated with at least one FCSEMS. Follow-up ERCP was performed for stent removal and new attempt of CBD clearance. In case of ineffectiveness, additional therapies such as ESWL, Dilation Assisted Stone Extraction (DASE) or surgery, were given. Data regarding patient's characteristics, bile duct and stone features, type of FCSEMS, adverse events, were analyzed.

**Results** FCSEMS placement was successful in all 54 patients. One patient died for massive delayed bleeding occurred after endoscopic sphincterotomy. Duct clearance with FCSEMS alone was achieved in 32 of 53 patients (60%) after a mean time of 34 days (Group A). Twenty one patients (Group B) underwent to additional treatments such as DASE (6 patients), ESWL (8 patients), ESWL +DASE (6 patients); surgery (1 patient). Univariate analysis showed the diameter of the stone was a predictive factor of unsuccessful treatment with FCSEMS alone (stone diameter 16.8 ± 5.1 mm vs. 20.3 ± 4.1 mm; p-value 0.01 and stone diameter ≥20 mm 34% vs. 67%, p-value 0.02, OR 3.8 (1.2122) in group A and B, respectively). Stent migration occurred in 11 cases. Mild adverse events occurred in 12/53 patients over 156 ERCP performed and no significant differences among the two groups were seen.

**Conclusions** FCSEMS represents a safe and effective treatment in the management of difficult choledocolitiasis. According to our case series, FCSEMS could be useful as single treatment for not giant biliary stones. Although this is the largest series available at the moment, further studies are needed to asses type of stent and its indwell time to reach best results.

### eP111V BILE CAST SYNDROME- A RARE CAUSE OF BILIARY OBSTRUCTION AFTER LIVER TRANSPLANTATION SUCCESSFULLY MANAGED USING DIGITAL SINGLE-OPERATOR CHOLANGIOSCOPY

**Authors** Karagyozev P<sup>1</sup>, Tishkov I<sup>1</sup>, Boeva I<sup>1</sup>

**Institute** 1 Interventional Gastroenterology, Acibadem City Clinic Tokuda Hospital, Sofia, Bulgaria

**DOI** 10.1055/s-0039-1681854

**Aims** We report a case of bile cast syndrome 6 months after orthotopic liver transplantation successfully diagnosed and treated using digital single-operator cholangioscopy.

**Methods** A 29-year old male patient was referred to our unit with jaundice and diffuse itching in the last 3 weeks, 6 months after deceased donor liver transplantation. Magnetic resonance cholangiopancreatography demonstrated intrahepatic bile duct dilation and stenosis at the level of the anastomosis. Endoscopic retrograde cholangiopancreatography was performed. Occlusion cholangiography revealed intact biliary anastomosis, irregular stenosis with a length of 25 mm ending close to the bifurcation. Cholangioscopy was carried out. The anastomosis was easy to pass through, bile casts were found in the donor bile duct adherent to the biliary wall, causing partial obstruction of the lumen. The bile casts were successfully cleaned with saline irrigation and multiple balloon sweeps. A 10 f 12 cm plastic stent was placed to secure the drainage.

**Results** Subsequently normalization of the liver function tests occurred and the patient experienced symptomatic improvement. One month later the plastic stent was removed. Follow up cholangioscopy demonstrated almost completely clean bile ducts. The patient remains asymptomatic 9 months after the procedure.

**Conclusions** Bile cast syndrome is a rear obstructive cholangiopathy occurring as a complication after liver transplantation. The diagnosis could be difficult, relying only on the traditional imaging modalities. The condition may mimic anastomotic or non-anastomotic biliary stricture leading to inappropriate treatment choice. Digital single-operator cholangioscopy may add useful di-

agnostic information to ERCP and could be superior to the traditional imaging and interventional modalities in the diagnosing and treating this rare condition.

## eP112 THE FIRST EXPERIENCE OF INDIRECT PERORAL CHOLANGIO-PANCREATOSCOPY USING THE SPYGLASS DS SYSTEM (BSC) IN RUSSIA

**Authors** Bakhtiozina D<sup>1</sup>, Budzinskiy S<sup>1,2</sup>, Shapovalianz S<sup>1,2</sup>, Fedorov E<sup>1,2</sup>, Mikhaleva L<sup>2,3</sup>, Chernyakevich P<sup>2</sup>, Platonova E<sup>2</sup>, Sorokin A<sup>4</sup>

**Institute** 1 Hospital Surgery, Laboratory of Endoscopy and Operative Gastroenterology, Pirogov RNRMU, Moscow, Russian Federation; 2 Moscow City Health Department, Moscow City Hospital No. 31, Moscow, Russian Federation; 3 Clinical Morphology, Research Institute of Human Morphology, Moscow, Russian Federation; 4 Faculty of Fundamental Medicine, Lomonosov Moscow State University, Moscow, Russian Federation

**DOI** 10.1055/s-0039-1681855

**Aims** To evaluate possibilities of diagnostic and therapeutic peroral cholangiopancreatography (POC).

**Methods** From December 6, 2017 to November 6, 2018, we performed 628 ERCP including 33 SpyGlass POCs in 31 patients: 30 cholangioscopies, 2 pancreaticoscopies and one cholangiopancreatocopy for assessment of the spread of major papilla tumor. The indications for cholangioscopy were: undifferentiated strictures – 22, Mirizzi syndrome – 2, control of bile duct stones extraction – 1, laser lithotripsy for choledocholithiasis – 2, guidewire placement – 2, removal of CBD ligature – 1; for pancreaticoscopy – strictures in chronic pancreatitis suspicious of malignancy – 2.

**Results** The overall technical success of the intervention was 97.0% (32/33). Intraductal biopsy with Spy-bite forceps was successfully performed in 17/18 (94.4%) planned cases. Histological confirmation of cholangiocarcinoma was obtained in 6 patients, including one in a patient with primary sclerosing cholangitis. Other strictures were benign. Divergence of endoscopic and histological diagnoses observed in 2 cases. Sensitivity of Spyglass visual diagnosis compared to Spy-bite histology was 83.3%, specificity 90.9%. Therapeutic interventions were successfully performed in all 5 patients, among them two laser lithotripsies of large bile duct stones with complete clearance of bile ducts. Indirect POC changed tactics in 15 patients. In comorbid patient with acute biliary pancreatitis and obstructive jaundice due to undifferentiated CBD stricture+choledocholithiasis the progression of pancreonecrosis leading to his death 3 days after EPST+POC was noted; however not directly related to SpyGlass. Overall morbidity and mortality was 3.22%.

**Conclusions** The main indications for endoscopic peroral intraductal interventions are various types of undifferentiated and complicated strictures of the biliary tree and pancreatic ducts, as well as the “difficult” bile and pancreatic duct stones. Diagnostic and therapeutic endoscopic interventions using the SpyGlass is promising technology, relatively easy to learn for ERCP specialists, with a level of complications and mortality comparable to traditional transpapillary interventions.

## eP113 ACUTE CHOLECYSTITIS IN HIGH RISK SURGERY PATIENTS. VALUE OF PERCUTANEOUS CHOLECYSTOSTOMY AND ERCP

**Authors** García-Ramos García C<sup>1</sup>, Quintanilla Lázaro EM<sup>1</sup>, Maestro Prada I<sup>1</sup>, Chaudarcas Castiñeira P<sup>1</sup>, Alvarez Sánchez M<sup>1</sup>, Castro Urda JL<sup>1</sup>

**Institute** 1 Hospital Severo Ochoa, Leganés, Spain

**DOI** 10.1055/s-0039-1681856

**Aims** Either percutaneous cholecystostomy (PC) and ERCP is recommended in patients with diagnosis of acute calculous cholecystitis (ACC) and high surgical risk. We aimed to compare the outcome of PC and/or ERCP in patient with ACC who are high-risk surgery candidates (HRSC).

**Methods** During January 2005-December 2017, we retrospectively reviewed patients with ACC who are HRSC and managed with ERCP and/or PC as a first line treatment.

**Results** We identified 71 cases, 22 treated with ERCP (31%), 47 (66.2%) with PC and 2 with PC+ERCP (2.81%) and a follow-up time of 5 years or until surgery.

The average age was 74 years-old in ERCP group and 77 years-old in PC group. Anesthetic risk ASAIII or greater was observed in 13 patients (59.1%) in ERCP group and 43 patients (91.48%) in PC group.

The rate of patients free of recurrence or need additional invasive procedures were discussed in table 1.

**Tab. 1** Rate of patients free of recurrence or need additional invasive procedures.

	ERCP	PERCUTANEOUS CHOLECYSTOSTOMY	ERCP + PC
Not recurrence not surgery	41% (9 patients of 22)	51% (24 patients of 47)	100% (2 patients)
Biliary recurrences (A new episode in spite of correct treatment)	27,3% (6 patients of 22) – 4 cholecystitis (3 surgical treatment) – 2 cholangitis (2 treated with ERCP).	25,53% (12 patients of 47) – 6 cholecystitis (4 surgical treatment) – 4 cholangitis (1 treated with ERCP) – 2 pancreatitis	
Time to recurrence	14,5 months	8 months	
Surgery after a first episode or biliary recurrence.	50% (11 patients of 22)	32% (15 patients of 47)	

Morbidity in ERCP group was 4.5% (1/22), due to delayed postpapillotomy bleeding, which was solved by endoscopy procedure later, and 2.1% (1/47) due to biliary peritonitis in PC group. In PC+ERCP group, there were not technical procedures complications, but a patient died because of biliary sepsis. PC and ERCP mortality was 1/71 (1.4%).

Finally, the morbidity and mortality of cholecystectomies were 3.8% (1/26) due to surgical site infection and death.

**Conclusions** Patients free of recurrence of biliary event were similar in both techniques (40 – 50%). 50% of not surgical patients who an ERCP were performed and 32% who a PC were performed, need a cholecystectomy afterwards.

## eP114 THE ROLE OF ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY (ERCP) IN THE MANAGEMENT OF BILIARY COMPLICATIONS ASSOCIATED WITH ORTHOTOPIC LIVER TRANSPLANTATION (OLT)

**Authors** Antolín B<sup>1</sup>, Tejedor J<sup>1</sup>, Yaiza Carbajo A<sup>1</sup>, García-Alonso FJ<sup>1</sup>, Bazaga S<sup>1</sup>, de la Serna-Higuera C<sup>1</sup>, Pérez-Miranda M<sup>1</sup>

**Institute** 1 Hospital Universitario Rio Hortega, Valladolid, Spain

**DOI** 10.1055/s-0039-1681857

**Aims** To describe the prevalence of different biliary complications after OLT, their endoscopic management and the results obtained.

**Methods** Retrospective single center analysis including all OLT performed from January 2008 to December 2017. We collected demographic, clinical and endoscopic variables. Clinical success was accepted in patients reaching analytical normalization and not presenting symptoms for at least 6 months without stents in situ.

**Results** A total of 395 patients underwent OLT with a median age of 57.2 years (IQR: 50.9 – 62.9), 311 (78.7%) men. ERCP was performed in 155 patients (39.2%) due to analytical/radiographic suspicion of biliary complications. In 8 (5.2%) it was normal, in 106 (26.8%) a diagnosis was reached and 41 (10.4%) presented multiple diagnoses. The most frequent diagnoses were: anastomotic biliary stricture (28.6%), bile leak (4.8%), ischemic stenosis (3.5%), lithiasis (3.3%) and secondary sclerosing cholangitis (3%). The first examination was performed 110 days after transplantation (IQR: 34 – 323), with 3 (IQR: 2 – 4) procedures/patient, and a first to last ERCP interval of 8.3 (IQR 2.1 – 16.4) weeks.

Tab. 1 Results in patients with a single diagnosis

	Patients (%)	ERCPs, med (IQR)	Interval 1st-last ERCP, (weeks) med (IQR)	Clinical success, (%)
Anastomotic stricture	86 (21.8%)	3 (2–4)	8.9 (3.4–18.6)	55 (64%)
Ischemic biliary stricture	5 (1.3%)	4 (3–4)	4.7 (1.4–6.4)	1 (20%)
Bile leaks	5 (1.3%)	4 (2–4)	11.6 (5.6–12.5)	4 (80%)
Lithiasis	5 (1.3%)	2 (1–2)	1.5 (1–4.1)	5 (100%)

ERCP was the first line of treatment in 147 (99.3%) cases. Twenty (13.6%) were in treatment at the end of the study period. Among the remaining 127, clinical success was achieved in 87 cases (68.6%), although 5 anastomotic biliary stenosis recurred after 9 months (range 6–37).

**Conclusions** Anastomotic biliary strictures are the main post-transplant biliary complication, occurring in 28.6% of our OLT. ERCP reaches clinical success in a high percentage of patients, although repeated procedures are usually required.

### eP115 DIGITAL, SINGLE-OPERATOR CHOLANGIOPANCREATOSCOPY IN THE DIAGNOSIS AND MANAGEMENT OF PANCREATOBILIARY DISORDERS: RESULTS FROM A SINGLE TERTIARY CENTER

**Authors** Hustak R<sup>1,2</sup>, Usak J<sup>1</sup>, Zavada F<sup>1,3</sup>, Martinek J<sup>1,4</sup>

**Institute** 1 Gastroenterology Department, University Hospital Trnava, Trnava, Slovakia; 2 Department of Laboratory Medicine, Faculty of Health Sciences and Social Work, University of Trnava, Trnava, Slovakia; 3 Hospital Pribram, Pribram, Czech Republic; 4 Department of Hepatogastroenterology, Institute for Clinical and Experimental Medicine (IKEM), Prague, Czech Republic  
DOI 10.1055/s-0039-1681858

**Aims** A new digital cholangioscopy (SPY DS) provides higher-resolution imaging of the pancreatobiliary tract. The aims of our study were to assess:

1. diagnostic yield of SPY DS visual diagnosis and biopsies in patients with undetermined biliary strictures;
2. the efficacy of SPY DS directed treatment of difficult lithiasis and
3. safety of SPY DS.

**Methods** Retrospective analysis of prospectively collected data.

**Results** Since May 2015, a total of 59 patients underwent 66 SPY DS (65 cholangioscopies and 1 pancreatoscopy); among them 37 (56%) were performed with diagnostic intents (with biopsies in 29/33), and 29 (44%) in 21 patients with therapeutic intents (1x pancreaticolithiasis). The most frequent indication of SPY DS was undetermined stenosis (n = 33). Reliable views of a target lesion were obtained in all patients. The diagnostic accuracy for visual diagnosis of a malignant lesion reached 97% (CI 84.7–99.9). The mean number of biopsies obtained per patient was 3 (range 1–13) and the specimen was adequate for histopathological analysis in 93.1% of patients. The diagnostic accuracy of directed biopsies was 92.6% (75.7–99.1). Of 17 patients with difficult choledochol/cystico/hepatico lithiasis underwent laser lithotripsy, a complete clearance was achieved in one session in 12 and in two sessions in further 4 patients, respectively, and the overall success rate was 94%. In one patient, a recurrence of hepaticolithiasis occurred after 1 year. A total of 13 patients (19.6%) experienced an adverse event, cholangitis being the most frequent in 6 (9.1%), followed by mild to moderate pancreatitis in 5 (7.6%) patients.

**Conclusions:**

1. SPY DS provides a high diagnostic yield in patients with undetermined biliary stenosis;
2. SPY DS directed biopsies had a high diagnostic accuracy but do not always provide sufficient specimen;
3. SPY DS guided stone lithotripsy was effective in majority of patients and
4. The most frequent complication was cholangitis in 9% of patients.

### eP116 ERCP IN PATIENTS WITH ACUTE CHOLECYSTITIS AND HIGH SURGICAL RISK REDUCES READMISSION RATE

**Authors** Pérez Citores L<sup>1</sup>, Cimavilla M<sup>1</sup>, Moreira Da Silva B<sup>1</sup>, Bonoso Criado R<sup>1</sup>, Montero Moretón Á<sup>1</sup>, Maestro Antolín S<sup>1</sup>, Santos Santamarta F<sup>1</sup>, Curieses M<sup>1</sup>, Pérez Millán A<sup>1</sup>, Barcenilla Laguna J<sup>1</sup>, Peñas I<sup>1</sup>

**Institute** 1 Department of Gastroenterology, Complex University Assistance of Palencia, Palencia, Spain

DOI 10.1055/s-0039-1681859

**Aims** Primary aim was analyzing causes of readmission after an AC in not surgical candidates and knowing the influence of ERCP with sphincterotomy on the readmission rate. Secondary aim was analyzing mortality rates.

**Methods** A Retrospective analysis was performed. All patients admitted in the hospital between 2012 and 2013 with diagnosis of acute cholecystitis and not surgical candidates were included in the study. Mortality and readmissions in the following 5 years were collected.

**Results** Following table show baseline characteristics, mortality and readmission rates.

Tab. 1 Baseline characteristics, mortality and readmission rates

116 patients admitted with AC	54 men (47%)/62 women (53%)
Mean age	84.8 (60–102)
Associated biliary pathology	13 choledocholithiasis/8 pancreatitis/2 choledocholithiasis + pancreatitis
Mortality	- during hospital admission 13/116 (11.2%)/- After 5 years 69/103 (67%) *For biliary cause 3/103 (2.9%)
Readmissions in 5 years	- Biliary pathology 35 (15.5%)/- Other medical reasons 190 (84.5%)

93 patients with AC and no other biliary pathology: 8 underwent biliary drainage (6 percutaneous drainage and 2 ERCP), one was readmitted due to cholecystitis (16.7%); 85 underwent antibiotic therapy without biliary drainage, 23 (27%) were readmitted due biliary pathology (6 cholecystitis, 8 choledocholithiasis, 5 pancreatitis, 2 biliary colic and 2 gallbladder neoplasms). 15 patients had AC and choledocholithiasis: ERCP was performed in 12, 1 was readmitted due to choledocholithiasis (6.7%). In 3, ERCP was not performed, one died and anotherone was re-admitted (50%) due to choledocholithiasis. 8 patients with AC and pancreatitis: 2 underwent ERCP, none had to be readmitted (0%). 6 received only medical treatment, 2 died, 1 was readmitted for choledocholithiasis (25%).

**Conclusions** Patients with AC and cholecystectomy contraindication because of high surgical risk have high rates of readmission and non-biliary cause mortality. Patients with AC and AC+choledocholithiasis who underwent ERCP and sphincterotomy presented lower rates of biliary readmissions.

### eP117 THE USEFULNESS OF SPYGLASS PERORAL CHOLANGIOSCOPY IN THE DIAGNOSIS OF BILIARY LESIONS AND TREATMENT OF DIFFICULT BILE STONES: SINGLE-CENTER, RETROSPECTIVE, COHORT STUDY

**Authors** Younis F<sup>1</sup>, Philips A<sup>1</sup>, Scapa E<sup>1</sup>, Shibolet O<sup>1</sup>, Santo E<sup>1</sup>

**Institute** 1 Gastroenterology and Liver Disease, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel

DOI 10.1055/s-0039-1681860

**Aims** To assess the efficacy and safety of the SpyGlass for the diagnosis and treatment of indeterminate biliary strictures and difficult bile duct stones in patients treated at a tertiary care center.

**Methods** Retrospective analysis of consecutive patients from august 2016 to april 2018 who underwent endoscopic retrograde cholangioscopy with SpyGlass for biliary lesions and stones. The main outcomes were technical success in terms of visualizing the target lesions, directed adequate tissue sampling, complete stone removal and incidence of procedure-related adverse events.

**Results** Our single-center cohort constituted of 29 patients (18 females, mean age 63 ± 7 years) undergoing 35 SpyGlass procedures. Overall, technical success was achieved in all cases. Thirteen patients had indeterminate biliary

stricture. Four patients thought to have malignancy by the visual diagnosis, but no malignancy was found in 10 patients who underwent SpyBite biopsy. Five patients underwent surgery: 2 malignant and 3 benign findings. Sixteen patients with difficult stones, with a mean size of  $17 \pm 2.4$  mm, 43.7% with  $\geq 2$  stones with previous failed ERCPs of  $2.2 \pm 0.7$  were treated with SpyGlass-guided holmium laser lithotripsy. Complete, incomplete and failed biliary and pancreatic stone clearance was achieved in 50% (8/16), 25% (4/16) and 25% (4/16) of the patients, respectively. Three out of 4 failed patients referred to surgery (Choledochoduodenostomy). Overall procedure-related complications 6.9% (2/29).

**Conclusions** SpyGlass is a useful tool for diagnosing indeterminate biliary strictures (especially visual) and treating difficult-to-remove biliary and pancreatic stones with an acceptable safety profile.

## eP118 PERORAL CHOLANGIOPANCREATOSCOPY USING A NEW VIDEOSCOPE (CHF-Y0012)

**Authors** Igarashi Y<sup>1</sup>, Okano N<sup>1</sup>, Itou K<sup>1</sup>, Kishimoto Y<sup>1</sup>, Takuma K<sup>1</sup>, Iwasaki S<sup>1</sup>, Yoshimoto K<sup>1</sup>, Kimura Y<sup>1</sup>, Yamada Y<sup>1</sup>, Watanabe K<sup>1</sup>, Hara S<sup>1</sup>

**Institute** 1 Gastroenterology and Hepatology, Toho University Oomori Medical Center, Tokyo, Japan

**DOI** 10.1055/s-0039-1681861

**Aims** Peroral cholangioscopy (PCS) and pancreatoscopy (PPS) using videoscope (CHF-BP260, CHF-B260, Olympus Co.) was performed since 2002 in our hospital. Endoscopic image is a good, however it is sometime easy to broken. We recently started to use a new videoscope (CHF-Y0012, Olympus Co. Tokyo). In this study, we evaluate with the endoscopic image for diagnosis of the biliary and pancreatic disorder.

**Methods** Since Jun. 2016, PCS and PPS using a new videoscope (CHF-Y0012) were performed in 49 cases (44 cases are the bile duct stenosis and 5 are intraductal papillary-mucinous neoplasm). The outer diameter of CHF-Y0012 is 3.3 mm. It has the scope bending function (up 70° and down 70°) and the channel diameter is 1.3 mm. It is inserted into the bile duct and the main pancreatic duct under fluoroscopic guidance. Physiological saline is continuing to inject during observation. Endoscopic photographs were taken using the EVIS-290 systems (Olympus Co.).

**Results** PCS and PPS using CHF-Y0012 were successful in all cases. One case of the malignant biliary stenosis (IBMN) could not observe the main lesion because of the intrahepatic stenosis. Endoscopic picture obtained were clearly in all cases.

This procedure was performed safely in all the cases without any complication.

**Conclusions** PCS and PPS using CHF-Y0012 are very useful for the diagnosis of the biliary and pancreatic disorder.

## eP119 OPTIMAL TIMING OF ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY IN ELDERLY PATIENTS WITH ACUTE CHOLANGITIS

**Authors** Miutescu B<sup>1</sup>, Ratiu I<sup>1</sup>, Popescu A<sup>1</sup>, Sirlu R<sup>1</sup>, Danila M<sup>1</sup>, Hajdarmataj E<sup>1</sup>, Bende F<sup>1</sup>, Sporea I<sup>1</sup>

**Institute** 1 Gastroenterology and Hepatology, 'Victor Babes' University of Medicine and Pharmacy, Timisoara, Romania

**DOI** 10.1055/s-0039-1681862

**Aims** Acute cholangitis may deteriorate the patients condition due to sepsis, therefore antibiotic therapy and biliary decompression is mandatory. Endoscopic retrograde cholangiopancreatography (ERCP) is the first line procedure used for biliary drainage. Our aim was to define the clinical impact of ERCP timing in elderly patients with acute cholangitis.

**Methods** We retrospectively investigated patients > 70 years with acute cholangitis between January 2016 and December 2017 at the Gastroenterology Department of the Timis Emergency County Hospital, Romania. Patients were divided in two groups according to their timing when the ERCP was performed – in the first 48 hours and beyond 48 hours. We assessed their

severity according to the 2018 Tokyo Guideline criteria and we analyzed the outcomes of mortality and length of hospital stay (LOHS).

**Results** A total of 114 patients was included in this study with a mean age of  $78.5 \pm 11.5$  years old. The female to male ratio was 1.48. Most patients had grade I (mild) severity of cholangitis – 51/114 (44.7%). Grade II (moderate) severity of cholangitis was met in 36/114 (31.6%) patients and grade III (severe) in 27/114 (23.7%) patients. Analyzing the timing of ERCP, 56/114 (49.1%) patients underwent the procedure in less than 48 hours and 58/114 (50.9%) patients had their ERCP done in more than 48 hours. Delayed ERCP and a higher grade of severity was correlated with a longer hospital stay, a mean LOHS of 7 days. Early ERCP and mild grade of severity had a mean LOHS of 4.7 days. We found no differences in mortality associated with the timing of the procedure.

**Conclusions** Elderly patients have a high incidence of severe cholangitis, therefore ERCP needs to be performed as soon as possible. Delaying the procedure was not associated with an increased mortality rate, but significantly influenced the length of hospital stay.

## eP120 ENDOSCOPIC RESECTION OF ADVANCED AMPULLARY ADENOMAS: OUTCOMES OF A SINGLE-CENTER RETROSPECTIVE STUDY

**Authors** Miutescu B<sup>1</sup>, Mercea V<sup>2</sup>, Groza A<sup>2</sup>, Ratiu I<sup>1</sup>, Tantau A<sup>3</sup>, Tantau M<sup>2</sup>

**Institute** 1 Gastroenterology and Hepatology, 'Victor Babes' University of Medicine and Pharmacy, Timisoara, Romania; 2 Gastroenterology, Regional Institute of Gastroenterology and Hepatology, 'Iuliu Hatieganu' University of Medicine and Pharmacy, Cluj-Napoca, Romania; 3 Gastroenterology, 4th Medical Clinic, 'Iuliu Hatieganu' University of Medicine and Pharmacy, Cluj-Napoca, Romania

**DOI** 10.1055/s-0039-1681863

**Aims** Ampullary adenomas have a potential of malignant transformation, so complete removal is essential for curative therapy. Endoscopic resection should only be performed in patients without evidence of invasive cancer. This study aims to evaluate the outcome of endoscopic resection of ampullary adenomas in a tertiary endoscopy department.

**Methods** We investigated all patients referred for endoscopic ampullectomy between January 2014 – January 2017 at the Regional Institute of Gastroenterology and Hepatology Cluj-Napoca, Romania. All patients had a benign pathological result prior to the endoscopic resection. Post-procedural complications such as bleeding, perforation, cholangitis, pancreatitis and mortality were analyzed. Data about resection type, post resection histology and 1 year follow-up was also processed.

**Results** We included 19 patients with a mean age of  $63.5 \pm 17.7$  years. The mean size of the tumor was  $17.4 \pm 7.8$  mm and all patients had an endoscopic resection. The male to female ratio is 0.7. "En bloc" resection was done in most cases 15/19 (78.9%). Bleeding occurred in 6 cases (31.6%) and two patients (10.5%) developed acute pancreatitis. The average days of hospitalization after endoscopic ampullectomy were 5.7 with a range from 2 to 25 days. Adenocarcinoma was described in the last histopathological result in 4/19 cases (21.1%). One year follow-up noted a recurrence rate of 15.8% (3/19 cases).

**Conclusions** In conclusion, endoscopic resection of ampullary adenomas is a high risk procedure with an increased risk of complications, but performed by experienced endoscopists in selected patients is safe and surgery can be avoided.

## eP121 ASSOCIATED FACTORS WITH ABSCENSE OF BILE DUCT STONE AT ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY (ERCP) IN PATIENTS WITH CHOLEDOCHOLITHIASIS DOCUMENTED ON MAGNETIC RESONANCE CHOLANGIOPANCREATOGRAPHY (MRCP)

**Authors** Palos-Cuellar R<sup>1</sup>, Murcio-Pérez E<sup>1</sup>, Ferreira-Hermosillo A<sup>2</sup>, Solórzano-Pineda OM<sup>1</sup>, Blanco-Velasco G<sup>1</sup>, Hernández-Mondragón OV<sup>1</sup>

**Institute** 1 Endoscopy Unit, Instituto Mexicano del Seguro Social, Mexico City, Mexico; 2 Research Unit, Instituto Mexicano del Seguro Social, Mexico City, Mexico

**DOI** 10.1055/s-0039-1681864

**Aims** Determine factors associated with absence of bile duct stone at ERCP in patients with choledocholithiasis documented on MRCP.

**Methods** A retrospective, cross-sectional, analytical study of patients with choledocholithiasis on MRCP undergoing ERCP from January 2016 to January 2018 at a referral endoscopy center. The clinical, biochemical, radiological and ERCP findings were analyzed.

**Results** Two hundred eighteen patients with choledocholithiasis documented on magnetic resonance MRCP undergoing ERCP were included. Most patients were female (66.5%) with a median age of 66.5 years (range 18–96). MRCP findings were as follows: mean bile stone size 7 mm. (range 2–20), mean bile duct diameter 11 mm (range 6–27), median number of stones at bile duct 1 (range 1–15). Median days between MRCP and ERCP was 19 (range 1–173). Laboratory values before ERCP were: white blood cells  $7.05 \times 10^3/\text{mm}^3$ , total bilirubin 3.18 mg/dL (range 0.15–18.4), direct bilirubin 2.7 mg/dL (range 0.1–18), alkaline phosphatase 230 U/L (range 34–923), GGT 405 U/L (range 10–3020), AST 45 U/L (range 10–827), ALT 45 (range 3–970).

At ERCP stone was found on 173 patients (79.4%). Patients without bile duct stone on ERCP had lower alkaline phosphatase levels (139 vs. 220 U/L  $p=0.017$ ), lower mean bile duct diameter on MRCP (11 vs. 12 mm.  $p=0.009$ ) and lower bile duct stone size on MRCP (6 vs. 9 mm.  $p=0.002$ ) than patients with bile duct stone at ERCP.

Predictors of bile duct absence at ERCP: bile duct diameter < 10 mm on MRCP (OR 0.31 CI95% 0.14–0.67), bile duct stone size < 6 mm on MRCP (OR 0.32 CI 95% 0.13–0.78) and a cut-off value of 129 U/L alkaline phosphatase before ERCP (OR 0.40 CI95% 0.19–0.83).

**Conclusions** Normal phosphatase, common bile duct diameter < 10 mm and bile duct stone size < 6 mm on MRCP were predictive factors of stone absence at ERCP on patients with choledocholithiasis on MRCP.

## eP122 PROPHYLACTIC EFFICACY OF 7-CM PANCREATIC STENT PLACEMENT FOR POST ENDOSCOPIC AMPULLECTOMY PANCREATITIS

**Authors** Iwasaki E<sup>1</sup>, Minami K<sup>1</sup>, Fukuhara S<sup>2</sup>, Kawasaki S<sup>1</sup>, Ogata H<sup>2</sup>, Kanai T<sup>1</sup>

**Institute** 1 Division of Gastroenterology and Hepatology, Department of Internal Medicine, Keio University School of Medicine, Tokyo, Japan; 2 Center for Diagnostic and Therapeutic Endoscopy, Keio University School of Medicine, Tokyo, Japan

**DOI** 10.1055/s-0039-1681865

**Aims** Endoscopic ampullectomy is a minimally invasive therapy for duodenal ampullary adenoma. With advances in endoscopic devices and methods, it became a safe and efficacious therapeutic procedure that can avoid the need for open surgery. However, there are few reports on suitable pancreatic stents after endoscopic ampullectomy. The placed pancreatic duct stent becomes unstable because of Oddi sphincter removal, so it may be better to use a relatively longer and double flapped pancreatic stent. We evaluated the length of pancreatic stent for prevention of post ampullectomy pancreatitis (PAP) retrospectively.

**Methods** This retrospective study was conducted from 2013 to 2018. Patients with pathologically proven ampullary adenoma who underwent endoscopic ampullectomy were enrolled. Predictive factors of PAP were evaluated by univariate analysis.

**Results** We reviewed 40 consecutive patients who underwent endoscopic ampullectomy without chronic pancreatitis or IPMN. After endoscopic ampullectomy, either straight 5 Fr, 5 cm or shorter plastic stent ( $n=18$ ) or a 5 Fr 7 cm or longer plastic stent ( $n=22$ ) was placed to pancreatic duct. PAP occurred 9 patients (17.5%) in our cohort. An incidence of PAP in the patient with short pancreatic stent ( $n=8$ , 44.4%) was significantly higher than those with long pancreatic stent ( $n=1$ , 4.5%). Univariate analysis for post ampullectomy pancreatitis showed that a short stent placement was significant risk factor for PAP (Odds ratio 16.8, 95% CI 1.8–153.3,  $p<0.001$ ). The reason for only one patient who developed PAP after inserting a long stent was considered to be due to perforation and pancreatic fistula associated with the mucosal resection.

**Conclusions** 5Fr, 7 cm or longer pancreatic plastic stent should be used for prevention of pancreatitis after ampullectomy.

## eP123 IMAGING CHARACTERISTICS RELATED TO DIFFICULTY OF CANNULATION IN ENDOSCOPIC RETROGRADE CHOLANGIO-PANCREATOGRAPHY

**Authors** Lee JM<sup>1</sup>, Lee HS<sup>1</sup>, Jang S<sup>1</sup>, Jeon HJ<sup>1</sup>, Choi SJ<sup>1</sup>, Kim SH<sup>1</sup>, Choi HS<sup>1</sup>, Kim ES<sup>1</sup>, Keum B<sup>1</sup>, Jeon YT<sup>1</sup>, Chun HJ<sup>1</sup>, Kim CD<sup>1</sup>

**Institute** 1 Department of Internal Medicine, Korea University College of Medicine, Seoul, Korea, Republic of

**DOI** 10.1055/s-0039-1681866

**Aims** The aim of this study was to investigate the imaging characteristics and clinical factors related to difficulty of cannulation in endoscopic retrograde cholangio-pancreatography (ERCP).

**Methods** Data of imaging studies (CT or MRI) and clinical findings of the patients underwent ERCP were retrospectively analyzed. Between January 2017 and August 2018, we compared the endoscopic result about cannulation time, success rate and use of rescue therapy such as pre-cut. Only patients undergoing first time ERCP were included in the study.

**Results** A total of 192 patients were included in the analysis. The overall cannulation success was 99.0% (190/192) and use of rescue therapy was 5.8% (11/190). Use of guide-wire assisted technique was 11.0% (21/190) and double guide-wire technique was 2.1% (4/190). The median time for all successful cannulations was 90 seconds (range 16–1308). Imaging characteristics associated with difficult cannulation were presence of large duodenal diverticulum in CT scan, acute angle of common bile duct-duodenal wall and prominent peri-ampullary mucosa. Major papilla located inside the diverticulum was a significant risk factor for difficult selective cannulation. There was no significant factors (age, gender, body weight) related with cannulation time.

**Conclusions** Characteristic image findings can be useful in predicting the difficulty of cannulation before ERCP. More attention would be required to performing ERCP procedure in patients with risk factors.

## eP124 ENDOSCOPIC MANAGEMENT OF OCCLUDED SELF-EXPANDABLE METAL STENTS USED FOR MALIGNANT STRICTURES OF THE BILE DUCT: RESULTS OF A SINGLE-CENTER RETROSPECTIVE STUDY

**Authors** Voiosu T<sup>1,2</sup>, Zacheu H<sup>1</sup>, Bobeica D<sup>2</sup>, Barbu M<sup>3,4</sup>, Bengus A<sup>1</sup>, Voiosu A<sup>1</sup>, Mateescu RB<sup>1,2</sup>

**Institute** 1 Gastroenterology, Colentina Clinical Hospital, Bucharest, Romania;

2 Internal Medicine, Carol Davila Medical School, Bucharest, Romania;

3 Medical Oncology, Elias Emergency Hospital, Bucharest, Romania;

4 Oncology, Carol Davila Medical School, Bucharest, Romania

**DOI** 10.1055/s-0039-1681867

**Aims** Self-expandable metal stents (SEMS) have become a mainstay of palliation for cholestasis in patients with malignant strictures of the bile duct, providing longer patency than plastic stents. There is, however, limited data regarding management of stent dysfunction in these patients, with current guidelines supporting use of both plastic and metal stents. We report our experience with management of SEMS dysfunction.

**Methods** We conducted a retrospective analysis of a prospectively updated database of ERCP procedures in a referral center for endoscopy. We identified all patients who had at least 1 SEMS implanted for a malignant stricture of the bile duct and cases with at least one more endoscopic intervention for stent dysfunction after SEMS implantation were included in the final analysis. Stent dysfunction was defined using a combination clinical, biochemical and imaging data, as per ESGE guidelines. Patient age, gender, diagnosis and bilirubin levels were retrieved, along with data regarding the initial procedure as well as the subsequent management of stent dysfunction.

**Results** One hundred seventeen consecutive patients treated by means of a SEMS for malignant biliary obstruction in our service between October 2016-October 2018 were identified and 18 patients (15.3%) with subsequent stent dysfunction were included in the final analysis. Pancreatic tumors were the most common indication for stenting (11/18). 16/18 patients had an uncovered SEMS initially implanted, with 5 patients having previous plastic stents. Median stent patency was 3 months (range 1 – 26 months). Stent dysfunction was successfully treated by the SEMS-in-SEMS technique in 13/18 cases (72. %), mechanical cleaning with a balloon in 3 cases and plastic stenting in 1 case.

**Conclusions** In our study, relatively few patients presented with stent dysfunction after SEMS implantation. Treatment was usually achieved by means of an additional metal stent; however, plastic stenting or mechanical cleaning were also successfully employed in some cases.

## eP125 CHOLANGIOSCOPY AND PANCREATOSCOPY ARE SAFE AND ARE ASSOCIATED WITH HIGH CLINICAL IMPACT

**Authors** Wengrower D<sup>1</sup>, Livovsky D<sup>1</sup>, Patz J<sup>1</sup>, Goldin E<sup>1</sup>

**Institute** 1 Digestive Diseases Institute, Shaare Zedek Medical Center, Jerusalem, Israel

**DOI** 10.1055/s-0039-1681868

**Aims** Diagnosis and effective management of complex biliary and pancreatic duct abnormalities is challenging. We evaluate the utility of peroral cholangioscopy and pancreatoscopy with targeted biopsy in these patients.

**Methods** Procedures were done under deep sedation by an anesthesiologist. An Olympus TJF-Q 180V-duodenoscope and a disposable SpyGlass cholangioscope (Boston Scientific) were used. The advancement of the cholangioscope was accomplished after standard biliary or pancreatic papillotomy with insertion of a guide wire to the target area under fluoroscopy. Prophylactic antibiotics were used for all patients. All patients were selected for cholangioscopy after standard diagnostic and therapeutic techniques failed. All procedures were performed by highly skilled and experienced endoscopists.

**Results** Since January 2016, 22 procedures (19 cholangioscopies and 3 pancreatoscopies) were done on 21 patients (9 Females).

Median age was 65.8 (range 31 – 86). The diagnostic findings (non-exclusive) were: biliary lithiasis in twelve patients, pancreatic lithiasis in 2, benign biliary strictures in 6, PSC with cholangiocarcinoma, malignant CBD polyp, IPMN and Intraductal papillary neoplasm, each in one patient. Stone extraction was performed in eleven patients. Five and one patients respectively underwent complete or partial laser lithotripsy and stone removal from the bile ducts and pancreatic duct. One patient underwent a polypectomy from the distal CBD. Eight biopsies were taken from the CBD and one from the PD. Malignancy and high grade dysplasia was confirmed in two cases and was ruled out in one. The mean duration was 65 (range 50 – 90) minutes. All patients recovered fully and no severe adverse events were seen.

**Conclusions** Cholangioscopy and pancreatoscopy is safe, was associated with high procedural success and may have clinical impact on the management of highly selected, complex cases.

## eP126 EVALUATION OF PREDICTORS FACTORS OF FAILURE IN ENDOSCOPIC BILIARY DRAINAGE IN MALIGNANT HILAR BILIARY STRICTURE

**Authors** Haendchen Bento L<sup>1</sup>, Mendonça E<sup>1</sup>, Costa Martins B<sup>1</sup>, Jureidini R<sup>1</sup>, Bacchella T<sup>1</sup>, Safatle-Ribeiro A<sup>1</sup>, Ribeiro U<sup>1</sup>, Maluf-Filho F<sup>1</sup>

**Institute** 1 Instituto do Cancer do Estado de São Paulo, São Paulo, Brazil

**DOI** 10.1055/s-0039-1681869

**Aims** To evaluate the clinical success of biliary drainage by ERCP in patients with primary or secondary malignant hilar biliary stricture and to analyze the predictors factors of failure.

**Methods** This is a retrospective, observational study, in a tertiary oncologic center in Brazil. We included all the patients with malignant hilar biliary stricture (Bismuth  $\geq$  II) submitted to a biliary drainage by ERCP, between January 2010 and December 2017. Clinical success was defined as a decrease in the direct bilirubin level to  $\leq$  50% of the pretreatment value within 2 weeks.

**Results** 82 patients were included. Bismuth classification grades II, IIIA, IIIB, and IV were noted in 23.2%, 15.9%, 14.6% and 46.3%, respectively. The indication of ERCP was palliative drainage in 56.1%, cholangitis in 29.3% and in previous stent obstruction in 13.4%. About 39% of the patients had a previous stent, 35.4% had plastic stent and 3.7% had metallic stent. The mean direct bilirubin was 8.2 mg/dL.

In 7.3% stent placement technically failed. In 20.7% one hepatic lobe was drainage, in 64.6% more than one lobe was drainage and in 7.3 the stent was placed distal to the confluence of the biliary hepatic branch. The clinical success rate was 53.7%.

The strictures Bismuth IV were related with lower clinical success rate when compared with others strictures (Table 1).

**Tab. 1** Predictors of clinical failure for biliary stents

Model and variable	B (S.E)	Hazard ratio (95% CI)	P value
Biliary strictures Bismuth IV	1.65 (0.71)	5.18 (1.28 – 20.88)	0.021
Lobes > 1 lobe	0.84 (0.67)	2.31 (0.62 – 8.59)	0.213
Cholangitis Presence	1.42 (0.85)	4.15 (0.78 – 22.04)	0.095
Bilirubin levels	0.07 (0.04)	1.07 (0.99 – 1.15)	0.052

**Conclusions** Endoscopic biliary drainage for malignant hilar biliary stricture still has limited clinical success rate. The proximal strictures (Bismuth IV) are associated with lower clinical success rate.

## eP127 PLACE OF ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY IN THE MANAGEMENT OF ECHINOCCOCAL CYSTS COMMUNICATING WITH BILE DUCTS: A SINGLE CENTER EXPERIENCE

**Authors** Boutallaka H<sup>1</sup>, Seddik H<sup>1</sup>, Mrabti S<sup>1</sup>, Sair A<sup>1</sup>, El Koti I<sup>1</sup>, Sentissi S<sup>1</sup>, Benkirane A<sup>1</sup>

**Institute** 1 Rabat, Mohamed V Military Teaching Hospital of Rabat, Rabat, Morocco

**DOI** 10.1055/s-0039-1681870

**Aims** The aim of our study is to specify the efficacy of ERCP in the management of hydatid cysts communicating with bile ducts.

**Methods** This is a retrospective study, conducted from January 2002 to September 2018 in the gastroenterology II department of the military teaching hospital of Rabat, including all patients followed for a liver hydatid cyst communicating with bile ducts. ERCP and endoscopic biliary sphincterotomy were performed before surgery in 20 patients, and in postoperative for 22 patients.

**Results** Among ERCP performed in our department in the period of the study, 2.4% (n = 42) was for a liver hydatid cyst communicating with bile ducts.

The mean age was 47 years old, with a higher prevalence in male (65%). The persistent external biliary fistula in postoperative were complicating the hydatid cyst communicating with bile ducts in 34%. All our patients underwent an endoscopic biliary sphincterotomy allowing the clearing of the bile duct from hydatid material using balloon or dormia basket. The follow up was marked by the disappearance of jaundice in 5 to 12 days on average after ERCP and resolve of the biliar fistula in 10 to 12 days. The global success which was defined by the definitive clearance of the common bile duct was obtained in 100% of our patients.

**Conclusions** Our study confirm the efficacy and safety of ERCP and biliary endoscopic sphincterotomy in the management of echinococcal cysts communicating with bile ducts. It leads to decrease duration of hospital stay and to avoid a heavy surgery.

### eP128V BALLOON SPHINCTEROPLASTY IS A SAFE AND RELIABLE METHOD TO ACHIEVE BILIARY CLEARANCE IN AN AT RISK CHOEDOCHOLITHIASIS COHORT

**Authors** Syafiq Ismail M<sup>1,2</sup>, O'Morain N<sup>1</sup>, Ryan B<sup>1</sup>, McNamara D<sup>1,2</sup>

**Institute** 1 Department of Gastroenterology, Tallaght University Hospital, Dublin, Ireland; 2 Trinity Academic Gastroenterology Group, Trinity College Dublin, Dublin, Ireland

DOI 10.1055/s-0039-1681871

**Introduction** Endoscopic balloon sphincteroplasty (EBP) has been recommended by ESGE as an alternative to Endoscopic Sphincterotomy (ES) in patients with coagulopathy or alternated anatomy.

**Aim** To investigate the effectiveness of EBP versus ES in managing selected patients with choledocholithiasis at TUH.

**Method** Over one year, patients with untreated coagulopathy or abnormal anatomy, with choledocholithiasis were recruited. Indication, demographics, diagnosis, duct clearance rates, sedation and complications were recorded. EBP was performed with an 8 mm Hurricane Biliary Balloon for  $\geq 4$  minutes under direct and fluoroscopic control, with subsequent stone extraction using standard techniques. Outcomes were compared to age and sex matched ES choledocholithiasis patients.

**Results** Of 577 ERCP's, 19 EBPs were performed and compared to 57 matched ES cases. Mean age 62 (21–91), 29 (38%) males. Indications: gall-stone pancreatitis 4 (5%), choledocholithiasis alone 72 (95%). Findings: Confirmed choledocholithiasis, 15/19 (79%) and 42/57 (74%), normal balloon trawl, 3/19 (16%) and 15/57 (26%) in EBP and ES groups respectively and 1/19 (5%) EPB stricture.

While failure of duct clearance was less common in EBP patients (OR 0.65), the difference was not significant; 87% (13/15) EBP vs. 81% (34/42) ES,  $p = 0.47$ . Despite EBP patients being coagulopathic, ES intra-procedural bleeding rates were higher (OR 3.3), again non-significant; EBP 1/19 (5%) vs. ES 9/57 (67%),  $p = 0.4$ . There were no significant post-procedure complications; procedure duration and mean sedation were comparable.

**Conclusion** EBP was not inferior to ES in selected patients with choledocholithiasis. A low bleeding rate despite coagulopathy, with effective duct clearance suggests EBP warrants further investigation.

### eP129 THE FIRST EXPERIENCE OF CHOLEDOCHOSCOPY USING SPYGLASS SYSTEM IN THE REPUBLIC OF BELARUS

**Authors** Lahodzich N<sup>1</sup>, Varabei A<sup>1</sup>, Butra Y<sup>2</sup>, Kapran A<sup>1</sup>

**Institute** 1 Belarusian Medical Academy of Postgraduate Education, Minsk, Belarus; 2 Minsk Regional Clinical Hospital, Minsk, Belarus

DOI 10.1055/s-0039-1681872

**Aims** To share experience of performing choledochoscopy in various clinical situations.

**Methods** For the period from March 2017 to September 2018 in the Republican Center for Reconstructive Surgical Gastroenterology and Coloproctology, 15 choledochoscopies were performed in 15 patients aged 48–82 years (mean age 64.2). There were 3 men, 12 women. The indications for choledochoscopy were: suspicion of a neoplastic process – 3 patients; stones of bile duct with large size (more 20 mm) – 8 patients; suspected stones – 4 patients. The study was performed in an X-ray room or operating room using the SpyGlass endoscopic system of the Boston Scientific trademark. Laser lithotripsy was performed using laser setup with a 1440 nm optical fiber with a power of 10–12 W.

**Results** A high degree of neoplasia with invasion into the wall of the common hepatic duct was confirmed in 1 case. The neoplastic process was excluded: in 1 patient stone was found in the wall of the common hepatic duct with severe perifocal inflammation and in 1 patient – an inflammatory stricture of the distal choledochus. Laser lithotripsy with complete extraction of calculi was successful in 3 patients after laparoscopic cholecystectomy with drainage of the common bile duct. Antegrade choledochoscopy with lithotripsy was performed on a patient with stricture Roux-en-Y hepaticojejunostomy. In 1 case choledochoscopy revealed a migrated plastic biliary stent among the stones. It was not possible to extract it endoscopically. In 3 cases, the control cholangioscopy was performed for evaluation the lumen after standart endoscopic lithotripsy. And in 4 cases the examination of the bile ducts was performed through the choledochotomic opening while performing a laparoscopic choledochostomy.

**Conclusions** Thus, choledochoscopy using the SpyGlass system is a promising method in the diagnosis and treatment of surgical pathology of the biliary tree.

### eP130V TWO CASES OF DELAYED REMOVAL OF MIGRATED PANCREATIC STENT SOLVED WITH THE SAME TECHNIQUE – FOREIGN-BODY FORCEPS

**Authors** Mendes Simões G<sup>1</sup>, Kumar Goenka M<sup>2</sup>

**Institute** 1 Gastroenterology Department, Centro Hospitalar de Lisboa Central, E.P.E, Lisbon, Portugal; 2 Institute of Gastro-Sciences, Apollo Gleneagles Hospitals, Kolkata, India

DOI 10.1055/s-0039-1681873

Pancreatic stenting has been increasingly used for a variety of pancreatic conditions during therapeutic retrograde cholangiopancreatography (ERCP). Proximal migration of pancreatic stents is an infrequent complication of pancreatic stenting and its management is difficult to tackle despite the several different methods described.

We present two well-documented cases of delayed removal of proximal migrated pancreatic stents, which were previously placed to prevent post-ERCP pancreatitis. In both cases the main pancreatic duct was not dilated and the pancreatic stent migrated beyond the pancreas genu. A variety of devices were tried, however only the foreign-body forceps was successful. Round cup forceps was used as it may be less traumatic. Despite the manipulation of pancreatic duct (PD), there were no procedure-related complications.

The use of foreign-body forceps for endoscopic retrieval of migrated PD stents seems safe, effective and simple to use. We prefer a round-cup rather than tooth-rat forceps. To our knowledge, this is the first time that the use of round-cup forceps for PD stent removal has been reported. The removal strategy will always have to be tailored to each patient condition, but we consider that foreign-body forceps might be a good first approach, especially when the PD is not dilated.

## eP131 ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY IN THE MANAGEMENT OF BILIARY COMPLICATIONS AFTER ORTHOTOPIC LIVER TRANSPLANTATION

**Authors** Egea Valenzuela J<sup>1</sup>, Jijon Crespin R<sup>1</sup>, Serrano Jimenez A<sup>1</sup>, Alberca de las Parras F<sup>1</sup>

**Institute** 1 Digestive Diseases – Digestive Endoscopy, H. Virgen de la Arrixaca, Murcia, Spain

**DOI** 10.1055/s-0039-1681874

**Aims** Biliary complications are frequent after orthotopic liver transplantation. Management of these complications with endoscopic retrograde cholangiopancreatography (ERCP) is available. The aim of the present study was to analyze the experience in the endoscopic management of biliary complications after liver transplantation in a third level center, and to determine the factors associated with higher rates of technical and clinical success.

**Methods** Observational retrospective study including ERCPs performed in patients with biliary complications after liver transplantation between February 2012 and January 2017. Factors analyzed were: demographics, time between transplantation and ERCP, indications for ERCP, strategy of stenting (only plastic stents, only self-expandable metallic stents, plastic followed by metallic stents, and metallic followed by plastic stents), technical and clinical success, and complications.

**Results** One hundred and sixty-eight endoscopies were performed in 58 patients. Thirty-three patients (56,9%) presented with early complications. The most frequent indication for ERCP was anastomotic stenosis (57,8%). Technical success in the first ERCP was achieved in 43 patients (74,1%). Early onset of the biliary complications was associated with higher rates of technical success (OR: 6,49; p: 0,036). Clinical success was obtained in 36 cases (62,1%). Patients with early complications presented higher probability of having good clinical response (OR: 11,16; p: 0,033). Results were worse in patients receiving only plastic stents (50% of clinical success). Eleven complications were observed among 168 ERCPs (6,54%), including 2 pancreatitis, 5 bleeding events, 3 cholangitis and 1 micro-perforation.

**Conclusions** ERCP is safe and useful in the management of biliary complications after liver transplantation. Early onset of the complications is associated with better results. Some patients will need repeated procedures to obtain a good clinical response.

## eP132V ENDOLUMINAL RADIOFREQUENCY ABLATION WITH SPYGLASS IN THE MANAGEMENT OF CHOLANGIOPANCREATITIS

**Authors** Mansilla-Vivar R<sup>1,2</sup>, Alonso-Lazaro N<sup>1</sup>, Argüello-Viudez L<sup>1</sup>, Ponce-Romero M<sup>1</sup>, Bustamante-Balén M<sup>1</sup>, Sanchez-Montes C<sup>1</sup>, Pons-Beltrán V<sup>1</sup>

**Institute** 1 Digestive Endoscopy Unit, Health Research Institute Hospital La Fe, La Fe Polytechnic University Hospital, Valencia, Spain; 2 Digestive Endoscopy Unit, Puerto Montt Hospital, Puerto Montt, Chile

**DOI** 10.1055/s-0039-1681875

Male patient of 38 years. Medical history: ambulatory clinical follow-up due to cryptogenic liver cirrhosis. Admitted in April 2018 for spontaneous bacterial peritonitis (SBP). During abdominal MRI admission, a lesion was reported in the hepatic hilum with hilar adenopathies compatible with cholangiocarcinoma. Due to marked portal hypertension and poor clinical improvement, a TIPSS was placed 2 months after admission without clinical changes. On July 18, ERCP with SpyGlass was applied, biliary stents placement with biliary biopsy of suspicious lesion was taken. We took only one sample due easy bleeding. Pathology report: suspicious but not conclusive with cholangiocarcinoma. After that, the patient presented remarkable clinical improvement. PET-CT was performed to confirm malignant diagnosis, reporting hilar cholangiocarcinoma with tumor viability signs, with intrahepatic bile ducts dilation. Sepsis concurrent SBP and antibiotic therapy was initiated with multiple antibiotic schemes by multiresistant bacterias for 2 months. Endocarditis and other

endovascular infections were ruled out. Four months after admission, oncology committee requested to repeat biliary biopsies and get adenopathies biopsy. Endoscopic ultrasound with FNA in August 2018 confirmed metastatic lymphadenopathies. In September 2018, second ERCP with SpyGlass system was performed; Endoscopic biopsy by SpyBite confirmed cholangiocarcinoma. With these findings, the patient did not meet Mayo Clinic criteria for curative resection, so endoluminal radiofrequency with Spyglass was offered as palliative treatment. An 18 mm temperature-controlled radiofrequency (RFA) catheter (ELRA STARmed, Korea) through duodenoscope working channel into the papilla of Vater was inserted. RFA was applied at 10 watts for a time period of 2 minutes under 80 °C of intraductal temperature. A temperature sensor inside the electrode provided accurate temperature measurements. The power and impedance settings were automatically made from the VIVA generator (STARmed Korea). After the procedure, patient presented mild self-limited abdominal pain for 12 hours, with no other complications 15 days after the procedure.

## eP133V PERCUTANEOUS ENDOSCOPIC ASSISTED HEPATIC ABSCESS DRAINAGE

**Authors** Katarov A<sup>1</sup>, Popadiin I<sup>2</sup>, Sapundzhiev K<sup>2</sup>, Dunkov Z<sup>2</sup>, Katarov K<sup>2</sup>

**Institute** 1 Gastroenterology, Military Medical Academy Sofia, Sofia, Bulgaria; 2 Gastroenterology, Military Medical Academy, Sofia, Bulgaria

**DOI** 10.1055/s-0039-1681876

Duodeno-pancreatic resection is the preferred operative approach in malignant mass lesions of the pancreatic head. One serious long-term complication of the procedure is benign or malignant stenosis of the biliary anastomosis and associated cholangitis.

We present the case of 64-year-old female operated for adenocarcinoma of the pancreatic head. A Whipple procedure was done followed by postoperative chemotherapy. Unfortunately, a year later there was a progression of the disease with mass lesion in the liver hilum and concomitant stenosis of the hepaticojunal anastomosis. A self-expandable metal stent was placed to relieve the obstructive jaundice and a new cycle of chemotherapy was initiated. Six months later the patient presented in the emergency unit with fever and elevated levels CRP and leukocytes. Upon further ultrasound examination an abscess cavity with solid debris and liquid content was observed in the right liver lobe. The patient was not suitable candidate for surgery and a 10fr drainage catheter was placed percutaneously. However, after few days of continuous lavage with saline and intravenous antibiotics, there were no significant improvement in patient condition.

After multidisciplinary team meeting a decision was made to clear the debris with a gastroscopically inserted through a previously, percutaneously placed self-expandable metal stent. Under ultrasound and fluoroscopy guidance a guidewire was placed in the cavity followed by metal stent insertion. That made possible direct communication between abscess cavity and skin. The lumen of the stent was dilated to 12 mm to facilitate scope passage. The abscess cavity was revealed with a gastroscopically and the solid debris were cleared. After the procedure the patient condition improved, and she was discharged from the hospital a few days later.

In our case this innovative technique helped in improving patient condition. It is applicable in selected cases in a tertiary centers with a prepared multidisciplinary team.

## eP134 ENDOSCOPIC TREATMENT OF BILIARY COMPLICATIONS AFTER LIVER TRANSPLANTATION, SINGLE CENTRE EXPERIENCE

**Authors** Březina J<sup>1</sup>, Macinga P<sup>1</sup>, Drastich P<sup>1</sup>, Štirand P<sup>1</sup>, Hucl T<sup>1</sup>, Špičák J<sup>1</sup>

**Institute** 1 Institute for Clinical and Experimental Medicine (IKEM), Hepatogastroenterology, Prague, Czech Republic

**DOI** 10.1055/s-0039-1681877

**Aims** Biliary complications are common in liver transplant recipients with incidence as high as 32%. The most common complications are biliary strictures and biliary leak. ERCP is a primary treatment modality in those patients; clinical success depends on the type of complication.

The aim of our study was to assess frequency and outcome of biliary complications in a single, large volume transplant centre.

**Methods** We retrospectively reviewed medical records of all adult patients who underwent orthotopic liver transplantation (OLT) between January 2005 and November 2016. We analysed all cases of biliary complications and evaluated outcome of endoscopic treatment. We compared survival rate and retransplantation rate of patients with and without biliary complications.

**Results** In selected period 1037 patients underwent OLT, 248 (23.9%) of them were diagnosed with biliary complication; 142 patients had biliary stenosis (57.2%), biliary leak occurred in 85 patients (34.2%), the remaining 21 patients had other complication (8.6%).

A total of 811 ERCPs were performed in 199 patients. Endoscopic treatment led to resolution of biliary complication in 162 cases (81.8%); the average number of procedures required for clinical success was four. Treatment success differed significantly in the group of patients with biliary stenosis and leak (92% vs. 42%;  $p = 0.001$ ). There was a statistically significant difference in survival and retransplantation rates between patients who had biliary complication compared to a control group (24% vs. 13.9%;  $p = 0.004$ , respectively 11.6% vs. 3.9%;  $p = 0.001$ ).

**Conclusions** Biliary complications after liver transplantation have significant impact on patients and liver-graft survival. Endoscopic therapy was effective in treatment of biliary strictures, the success rate in biliary leak was unsatisfactory.

### eP135 BILLIARY OBSTRUCTION AFTER TIPS PLACEMENT IN A LIVER TRANSPLANT PATIENT

**Authors** Gogová D<sup>1</sup>, Mačinga P<sup>1</sup>, Honsová E<sup>2</sup>, Janoušek L<sup>3</sup>, Raupach J<sup>4</sup>, Taimr P<sup>5</sup>, Špičák J<sup>1</sup>, Peregrin J<sup>6</sup>, Hucl T<sup>1</sup>

**Institute** 1 Institute for Clinical and Experimental Medicine (IKEM), Hepatogastroenterology, Prague, Czech Republic; 2 Institute for Clinical and Experimental Medicine (IKEM), Pathology, Prague, Czech Republic; 3 Institute for Clinical and Experimental Medicine (IKEM), Surgery, Prague, Czech Republic; 4 University Hospital Hradec Kralove, Radiology, Hradec Králové, Czech Republic; 5 Institute for Clinical and Experimental Medicine, Prague, Czech Republic; 6 Institute for Clinical and Experimental Medicine (IKEM), Radiology, Prague, Czech Republic

DOI 10.1055/s-0039-1681878

**Aims** Transjugular intrahepatic portosystemic shunt (TIPS) is a method conventionally used in portal hypertension treatment. Refractory ascites and bleeding from esophageal varices are the most common indications. Complications frequently observed include bleeding and development of liver encephalopathy, those affecting the biliary tree as biliportal fistula and biliary stenosis are much less common. Placement of TIPS in a liver transplant patient is rare and implicate a technically challenging procedure.

**Methods** None.

**Results** A forty year old male patient diagnosed with alcoholic cirrhosis underwent whole liver transplantation. Postoperatively, no major complications were observed and the patient was discharged early. He was admitted to our clinic with ascites and fluidothorax approximately two months later. The portosystemic gradient was 28 mm Hg and gastroesophageal varices were found on gastroscopy. Liver biopsy showed microvascular damage corresponding with the diagnosis of sinusoidal obstruction syndrome (SOS). Placement of TIPS resulted in regression of ascites and fluidothorax. However, an apparent rise in cholestatic enzymes level occurred and MRCP showed dilation of the dorsal right-lobe bile ducts with parenchyma abscesses. ERCP discovered a tight stenosis of the right posterior duct caused by external impression by the previously implanted stentgraft. An attempt of bridging the stricture

endoscopically with a stent was unsuccessful. Therefore, a percutaneous transhepatic external-internal drainage drain was insterted resulting in resolution of cholestasis and liver abscesses.

**Conclusions** Our case report describes biliary stenosis, a rare complication of TIPS placement, which was successfully treated by percutaneous transhepatic drainage. It is the first complication of this type ever described in a liver transplant patient.

Friday, April 5, 2019

09:00 – 17:00

Esophagus

ePosters

### eP136 SCREENING FOR HEAD AND NECK SECOND PRIMARY TUMORS IN PATIENTS WITH ESOPHAGEAL SQUAMOUS CELL CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS

**Authors** van de Ven SEM<sup>1</sup>, Bugter O<sup>2</sup>, Hardillo JA<sup>2</sup>, Bruno MJ<sup>1</sup>, Baatenburg de Jong RJ<sup>2</sup>, Koch AD<sup>1</sup>

**Institute** 1 Gastroenterology and Hepatology, Erasmus Medical Center, Rotterdam, Netherlands; 2 Otorhinolaryngology and Head and Neck Surgery, Erasmus Medical Center, Rotterdam, Netherlands

DOI 10.1055/s-0039-1681879

**Aims** Esophageal squamous cell carcinoma (ESCC) is often accompanied by second primary tumors in the head and neck region. Patients with an additional head and neck second primary tumor (HNSPT) have a worse prognosis than those with only ESCC. Therefore, early detection of HNSPTs may improve the overall outcome of esophageal cancer patients. The aim of this study was to review the literature to investigate the yield of endoscopic head and neck screening to detect HNSPTs in patients with ESCC. Secondary aims were to investigate whether screening should be performed synchronously or metachronously, and to investigate whether there is enough evidence to justify endoscopic screening in the Western world.

**Methods** A systematic literature search was conducted until January 2018 to retrieve studies from Embase, MEDLINE, Web of science, Cochrane Central and Google Scholar. Studies in which ESCC patients were endoscopically screened for the detection of HNSPTs were included. MINORS- and relevance-criteria were used to assess the study quality. The primary outcome was the pooled prevalence of HNSPTs.

**Results** Eight studies were included in this systematic review and meta-analysis with a total of 4295 patients; all studies were performed in Japan. The pooled prevalence of HNSPTs was 5.4% (95% confidence interval (CI) 3.6 – 8.1). The overall heterogeneity ( $I^2 = 88%$ ,  $p < 0.001$ ) was high across the studies. Most SPTs were located in the hypopharynx (59%), classified as low-stage (85%), and detected metachronously (69%).

**Conclusions** Based on our results, the pooled prevalence of HNSPTs was 5.4% (95% CI 3.6 – 8.1). The majority of HNSPTs were classified as low-stage, which can be treated curatively and have an excellent prognosis. Therefore, (metachronous) endoscopic screening could be considered in patients with ESCC. Since all studies were performed in Japan, it is not clear if this consideration applies to the Western world.

### eP137 FACTORS INFLUENCING THE LONG TERM OUTCOME OF CAUSTIC ESOPHAGEAL STRICTURE DILATATION USING SAVARY DILATORS

**Authors** Manzoor Haque M<sup>1</sup>, Majid Z<sup>1</sup>, Hassan Luck N<sup>1</sup>, Mehmood N<sup>1</sup>, Bux Soomro G<sup>1</sup>

**Institute** 1 Department of Hepatogastroenterology, Sindh Institute of Urology and Transplantation, Karachi, Pakistan

DOI 10.1055/s-0039-1681880

**Aims** Less is known in the literature about the management and long-term outcome of Caustic esophageal stricture (CES). It is reported from developing

countries particularly in pediatric and adolescent age group. The study is aimed to assess the long-term outcome of CES dilatation using Savary Gilliard dilator and also the factors associated with better outcome.

**Methods** We retrospectively reviewed the medical record of patients who underwent CES dilatation using Savary Gilliard dilators from July 2008 to July 2018. Rule of three was used for the esophageal stricture dilatation. Data is expressed in frequency, percentage, mean and standard deviation. Mann-whitney U test is used to determine the factors associated with better outcome.

**Results** Twenty one patients were included in study, mean age of patients was  $21 \pm 19.4$ . Out of twenty one 12 (57.1%) were males. More than half of them were in pediatric age group 11 (52.4%). Acid ingestion was seen in 14 (66.7%) while 7 (33.3%) patient had alkali ingestion. Accidental corrosive intake was found in 16 (76.2%), however 5 (23.8%) patients had taken it with suicidal intent. Most of patient had zargar's class IIA 12 (57.1%) injury. Mean length of stricture was  $7.3 \pm 4.5$  cm and range of number of dilatation required was 4 to 59 sessions. Over all pediatric patients required less number of session as compare to adults ( $p$  value = 0.008). Four patients had complex stricture. Complex stricture ( $p = 0.018$ ) and stricture longer than 10 cm ( $p = 0.028$ ) required more sessions of dilatations. Complete resolution of stricture was noted in 18 (85.7%) patients while 3 (14.5%) patients with complex stricture still require dilatations. Six patients had associated pyloric stenosis, managed via CRE balloon dilatation and while two required gastrojejunostomy. One patients developed minor perforation during the procedure.

**Conclusions** CES can be successfully managed via savary dilatations, long and complicated stricture required more sessions of dilatations while pediatric patients are better responders to treatment.

### eP139 SELF-EXPANDABLE METALLIC STENTS (SEMS) IN ESOPHAGEAL VARICES POST BAND ULCER REFRACTORY BLEEDING, A RETROSPECTIVE STUDY

**Authors** Elbahr O<sup>1</sup>, Kamal A<sup>1</sup>, Alsebaey A<sup>1</sup>, Amin M<sup>1</sup>, Abassy M<sup>1</sup>, Edris A<sup>1</sup>, Nada A<sup>1</sup>, Sabry A<sup>1</sup>, el-Aleem Helal A<sup>1</sup>, Gad-Allah AN<sup>2</sup>, Abd Elaziz M<sup>3</sup>

**Institute** 1 Hepatology and Gastroenterology, National Liver Institute – Menoufia University, Shebin Alkawm, Egypt; 2 Internal Medicine, Menoufia University, Shebin Alkawm, Egypt; 3 Internal Medicine, Alexandria University, Alexandria, Egypt

**DOI** 10.1055/s-0039-1681881

**Aims** Evaluate efficacy of SEMS in control of variceal post band ulcer bleeding and 42 days survival outcome.

**Methods** A retrospective study conducted on 28 patients at (Hepatology and gastroenterology department) National Liver Institute, Menoufia university, Egypt whom received SEMS as a management of their refractory bleeding from post variceal band ligation ulcer. Patients followed up for 42 days.

**Results** Patients age (mean  $\pm$  SD) ( $57.8 \pm 8.6$ ) years and 24 were males. Their child class (A/B/C) 3/15/10 respectively with 5 patients had early stage HCC. Admission prognostic scores were MELD ( $15.7 \pm 6.3$ ) MELD Na ( $20 \pm 6.4$ ) ALBI score ( $-1.36 \pm 0.58$ ) and CLIF-C AD ( $57.96 \pm 10.21$ ) (mean  $\pm$  SD). Their hospital stay range were (1 – 33) days.

As regard control of bleeding, 3 patients had uncontrolled bleeding and 2 patients experienced re-bleeding after initial control and well control of bleeding achieved in 23 (82.1%) patients. 7 (25%) patients died, (4 from bleeding, 1 from multiple organ failure MOF & 2 from sepsis). 6 (21.4%) stents were displayed. We classified post banding ulcer endoscopically into A- ulcer covered with clot (9 patients). B- ulcer oozing blood (7 patients). C- ulcer with active spurting (12 patients). Univariate analysis was conducted revealed that post band ulcers other than type A, development of overt hepatic encephalopathy were risk for 42 days mortality ( $p = 0.04, 0.02$  respectively). low base line arterial blood pressure mean  $65 \pm 6.7$  ( $p = 0.003$ ), increased number of transfused blood units  $5.4 \pm 4.8$  ( $p = 0.006$ ) and high base line CLIF-C AD score

mean  $64.4 \pm 15.6$  ( $p = 0.05$ ) were associated with 42 days mortality. mean survival 34 (CI 95% 28 – 39) days.

**Conclusions** SEMS is a promising maneuver to control post band ulcer bleeding but individualized approach in respect of type of the ulcer is advised for better survival outcomes.

### eP140 NBI GUIDED CRUSH CYTOLOGY COMPARED TO HISTOPATHOLOGY – EARLY DIAGNOSIS & FASTER TREATMENT INITIATION

**Authors** Desai P<sup>1</sup>, Kabrawala M<sup>1</sup>, Mehta R<sup>1</sup>, Nandwani S<sup>1</sup>, Patel C<sup>1</sup>, Kalra P<sup>1</sup>, Prajapati R<sup>1</sup>, Patel N<sup>1</sup>

**Institute** 1 Endoscopy, Surat Institute of Digestive Sciences, Surat, India

**DOI** 10.1055/s-0039-1681882

**Aims** To Prove the Utility of Crush Cytology as compared to standard histopathology.

**Methods** Crush cytology for gastrointestinal (GI) lesions is not studied much. We studied utility of crush cytology in diagnosis of GI lesions compared to conventional histopathology. 94 suspected cases of malignancy of esophagus, stomach, ampulla and colorectum, undergoing endoscopy from August 2018 to November 2018 were included in the study. For any tumor, an area was targeted for biopsy using NBI criteria, first 2 biopsies taken on a slide, crush smears made, stained with H&E and studied. then Correlation done with conventional histopathology from remaining bits. Diagnostic values, accuracy, sensitivity, specificity, and positive and negative predictive values calculated.

**Results** There were 72 cases of histologically confirmed carcinomas and 65 cases were positive for carcinoma by crush smear cytology. Thus, the diagnostic performance of crush cytology and histopathology was 90.3% vs. 100%;  $p > 0.05$  which revealed no significant difference between two tests. Male/female ratio of 2.6:1 and mean age of 60.3 years; Incidence of carcinomas was highest in seventh decade, with 36.6% cases. Most common site was colorectal (52.4%) followed by esophagus (22.9%), stomach (17.1%), ampulla (4.3%) and GE junction with 2.8% cases each. Most common histologic types of colorectal and gastric malignancy were well-differentiated adenocarcinoma (83.8% & 69.2%) and poorly differentiated adenocarcinoma (2.7% & 30.8%), respectively. Squamous cell carcinoma (18.8%) was the most common malignancy of esophagus. Crush smears were not conclusive in 7 cases i.e they showed high grade dysplasia and final biopsy was malignant. Sensitivity of crush cytology was 79.5%, specificity 85.5%, PPV 90.3%, and NPV of 19.8%. Diagnostic accuracy 82.5%.

**Conclusions** Crush cytology is Easy and rapidly performed technique. The diagnostic yield is very high. It is comparable to histopathology. Final pathology certain in  $>90\%$ . Treatment/surgery can be initiated faster without awaiting HPE report.

### eP141 EARLY DIAGNOSIS IS ASSOCIATED WITH IMPROVED CLINICAL OUTCOME IN BENIGN ESOPHAGEAL PERFORATIONS: AN INDIVIDUAL PATIENT DATA META-ANALYSIS

**Authors** Vermeulen B<sup>1</sup>, van der Leeden B<sup>1</sup>, Rosman C<sup>2</sup>, Siersema P<sup>1</sup>

**Institute** 1 Gastroenterology and Hepatology, Radboud University Medical Center, Nijmegen, Netherlands; 2 Surgery, Radboud University Medical Center, Nijmegen, Netherlands

**DOI** 10.1055/s-0039-1681883

**Aims** Benign esophageal perforations (BEP) are subdivided in two groups;

1. spontaneous esophageal perforations, also known as Boerhaave's syndrome, and
2. iatrogenic esophageal perforations.

Timing between onset and diagnosis of BEP is regarded as an important risk factor for poor outcome. However, no strong evidence exists to support this finding. We investigated whether timing between onset and diagnosis is associated with clinical outcome of patients with BEP.

**Methods** A systematic review (PROSPERO: CRD42018093473) was performed following PRISMA guidelines. Clinical studies of patients treated for BEP were identified from Medline, Embase and Cochrane databases. After study inclusion, corresponding authors were invited to share individual patient data (IPD) and a meta-analysis was performed. Patients were subdivided in two groups; (1) early diagnosis ( $\leq 24$  hours); and (2) late diagnosis ( $> 24$  hours), after symptom onset. We used multi-level mixed model logistic regression analysis to compare both groups while correcting for age, gender, etiology, esophageal location and initial treatment strategy. Outcome included mortality, intensive care unit (ICU) admittance and re-interventions.

**Results** The systematic search yielded 146 studies eligible for inclusion. If possible, we invited corresponding authors of included studies ( $n = 115$ ) to share IPD. In total, 25 authors (22%) responded and shared IPD. Out of 960 patients, 672 patients (iatrogenic  $n = 411$ , spontaneous  $n = 261$ ) were included in the IPD meta-analysis. After multivariable logistic regression analysis, late diagnosis ( $> 24$  h) was associated with 6% increase in mortality (95% CI 1.20 – 4.10, OR 2.2,  $p = 0.01$ ), 17% increase in ICU admittance (95% CI 1.21 – 3.34, OR 2.0,  $p = 0.007$ ), and 19% increase in need for re-intervention (95% CI 1.48 – 3.35, OR 2.2,  $p < 0.001$ ), when compared with early diagnosis ( $\leq 24$  h) of BEP.

**Conclusions** This real-world IPD meta-analysis shows that late ( $> 24$  h) diagnosis is associated with higher mortality, ICU admittance and re-intervention rates, when compared with early ( $\leq 24$  h) diagnosed patients with BEP. This association confirms results from previously published small cohort studies and expert opinion.

#### eP142 HYBRID-APC FOR THE ENDOSCOPIC ERADICATION OF DYSPLASTIC BARRETT'S ESOPHAGUS IN A LOW PREVALENCE COUNTRY: LONG-TERM RESULTS OF THE TREATMENT AFTER THE ONSITE TRAINING

**Authors** Kashin S<sup>1</sup>, Vidyayeva N<sup>1</sup>, Kuvaev R<sup>1</sup>, Kraynova E<sup>2</sup>, Manner H<sup>3</sup>

**Institute** 1 Endoscopy Department, Yaroslavl Regional Cancer Hospital, Yaroslavl, Russian Federation; 2 Pathology Department, Yaroslavl Regional Cancer Hospital, Yaroslavl, Russian Federation; 3 Hendrik Manner, Frankfurt am Main, Germany

DOI 10.1055/s-0039-1681884

**Aims** This study was undertaken to evaluate the efficacy and safety of Hybrid-APC for the treatment of dysplastic BE in a low prevalence country after the onsite training.

**Methods** All procedures were performed by a single operator (SK) after the onsite training by an experienced endoscopist (HM). Hybrid-APC was performed by the hybrid APC probe with water jet system (ERBE, Germany) in 5 steps: marking, submucosal injection, 1<sup>st</sup> mucosa ablation (60Watt), removal of tissue remnants by the distal cap, 2<sup>nd</sup> ablation with the lower power (40Watt). High dose PPI was administered after the procedures. After complete BE eradication endoscopy with 4-quadrant biopsies from former BE segment was performed in 3, 6 months and then annually. All histology specimens were estimated by an experienced gastrointestinal pathologist.

**Results** From 120 BE patients (registered from July 2014 to September 2017) 11 patients (5 male, 6 female, mean age 46 years (range 25 – 63)) were diagnosed with dysplasia and treated with Hybrid-APC. The mean length of BE was C1M2. In five cases EMR was performed for visible lesions before ablation. Eighteen Hybrid-APC sessions were successfully performed. Complete BE eradication was achieved after a mean of 1.6 (range 1 – 3) sessions. No perforation or uncontrollable bleeding was detected. Stricture formation was observed in one patient after combination therapy with Hybrid-APC and EMR in the one session and was managed by balloon dilatation. The patients were followed-up for a mean of 3.1 years (range 17 – 53 months) after BE eradication. Neither recurrence of intestinal metaplasia, nor buried intestinal metaplasia was seen in any patients.

**Conclusions** Our study demonstrated high effectiveness and safety of Hybrid-APC for treatment of dysplastic BE. 3-year follow-up didn't reveal any recurrence, buried metaplasia or any major complications. Since Hybrid-APC is an operator dependent technique our data emphasizes the importance of a proper training to provide reliable long-term outcomes.

#### eP143 DIAGNOSIS OF BARRETT'S ESOPHAGUS IN UNIVERSITY HOSPITAL CENTRE ZAGREB BETWEEN 2012 AND 2017

**Authors** Franolić L<sup>1</sup>, Markoš P<sup>1</sup>, Škrlec I<sup>1</sup>, Iveković H<sup>1</sup>, Kalauz M<sup>1</sup>, Bilić B<sup>1</sup>, Rustemović N<sup>1</sup>

**Institute** 1 Endoscopy Unit, Department of Gastroenterology and Hepatology, University Hospital Centre Zagreb, Zagreb, Croatia  
DOI 10.1055/s-0039-1681885

**Aims** To evaluate basic epidemiology situation and demographic data of patients diagnosed with Barrett's esophagus in University Hospital Centre Zagreb between January 2012 and December 2017.

**Methods** In a 6 year period, upper GI endoscopy was obtained in 19,950 patients. We have analysed our endoscopy data base and hospital data system regarding pathohistological diagnosis and demographic data of patients diagnosed with Barrett's esophagus as well.

**Results** Endoscopy suspicion of esophageal metaplasia (ESEM) was set in 592 patients. Pathohistological confirmation of Barrett's esophagus was established in 163 patients (0,8%). Intestinal metaplasia without dysplasia was diagnosed in 137 patients, confirmed low grade dysplasia in 20 patients, high grade dysplasia in three and early cancer in Barrett esophagus in three patients.

In the group of 163 patients with confirmed Barrett's esophagus 116 (71%) were male and 47 (29%) were female with median age of 58 years. Hiatal hernia was observed during endoscopy in 92 patients (56%).

Patients with high grade dysplasia and early cancer have been treated with bandEMR and then radio frequency ablation (RFA), and all the patients with confirmed low grade dysplasia have been treated with RFA.

**Conclusions** Barrett's esophagus still has a low incidence in Croatia, even in a high volume tertiary referral Centre.

#### eP144 DIAGNOSIS AND TREATMENT OF PATIENTS SUFFERING FROM AUTOIMMUNE DISEASES OF THE ESOPHAGUS, COMPLICATED BY BENIGN STRICTURE

**Authors** Korolev M<sup>1</sup>, Fedotov L<sup>1</sup>, Ogloblin A<sup>1</sup>, Fedotov B<sup>1</sup>, Luchinina D<sup>1</sup>

**Institute** 1 Saint Petersburg State Pediatric Medical University, Saint Petersburg, Russian Federation  
DOI 10.1055/s-0039-1681886

**Aims** Identification of the clinical features, diagnosis and treatment of 4 nosological units: mucous membrane pemphigoid (MMP), lichen planus (LP), eosinophilic esophagitis (EoE) and Crohn's disease (CD).

**Methods** From 2003 to 2017, 57 patients with esophageal strictures caused by autoimmune diseases were treated. EoE – 24 cases (42%), LP – 15 (26%), CD – 10 (18%), and RP – 8 (14%) patients. An Rg-contrast study revealed that in most cases MMP and LP were complicated by the stricture of the proximal esophagus, EoE and CD were complicated by the strictures of the distal esophagus, and in 7 patients with EoE the esophagus was narrowed throughout. Patients with MMP, LP and CD had multiple erosions and superficial ulcers of the esophagus, unlike them in EoE. Autoimmune genesis of stricture development was morphologically confirmed in 100% of cases. The method of choice is a combination of endoscopic treatment and specific treatment. Each dilatation session provokes the main disease, and forced bougienage can lead to complications, so endoscopic manual should be performed in stages, in a "gentle" mode.

**Results** On the 14th day after dilatation, all patients reported an improvement in the condition – the result of treatment in all 57 patients (100%) was

good. A year later, 48 (84%) patients were under observation, 12 of them (25%) were compensated, and no data for recurrent stricture were obtained. In 28 (58%) patients with dysphagia of 2–3 points, X-rays showed that they had a recurrent stricture, which required repeated complex treatment. After 3 years 39 (68%) patients were inspected. A satisfactory result was in 9 (23%) patients; a recurrence of stricture was detected in 30 (77%) patients.

**Conclusions** The main minimally invasive method of treatment is endoscopic bougienage, which should be carried out in stages, in a “gentle” mode, and certainly with the specific treatment to autoimmune diseases.

## eP145 RISK FACTORS FOR PREDICTING EARLY VARICEAL REBLEEDING AFTER ENDOSCOPIC VARICEAL LIGATION (EVL)

**Authors** Banjira R<sup>1</sup>, Lahmidani N<sup>1</sup>, Lamine Sejai A<sup>1</sup>, Lahlali M<sup>1</sup>, Abid H<sup>1</sup>, Elyousfi M<sup>1</sup>, Benajah DA<sup>1</sup>, Elabkari M<sup>1</sup>, Ibrahim A<sup>1</sup>

**Institute** 1 Service d'Hépatogastro-Entérologie, CHU Hassan II de Fès, Faculté de Médecine et de Pharmacie, Université sidi Mohamed Ben Abdallah de Fès, Fes, Morocco

**DOI** 10.1055/s-0039-1681887

**Aims** The aim of this study is to determine the factors predicting the occurrence of post LVO bleeding and its mortality.

**Methods** Between April 2010 and April 2018, 587 LVOs were performed in the gastroenterology endoscopy unit in 393 patients with cirrhotic portal hypertension. Early rebleeding following EVL is mainly due to early spontaneous slippage of rubber bands leaving the unhealed ulcer.

**Results** The complication occurred in 32 patients (8.1%) whose mean age was 49.9, twenty-five patients were admitted through emergency departments for gastrointestinal bleeding while 21.2% were under secondary prevention protocol by ligation. This EGD was performed by a junior doctor at 21 patients with the establishment on average 4.7 rings [2.9]. All our patients received octreotide for an average of 3.8 days, whereas none of them was put under PPIs after the realization of this 1st EGD. The pressure bleeding occurred within an average delay of 7.4 days. It induced haemodynamic instability in 8 patients (25%) requiring transfusion in 78% of patients. univariate analysis, the risk factors for the occurrence of this hemorrhagic event were: ligation in the setting ( $p = 0.004$ ), the presence of ascites ( $p = 0.001$ ), the hepatic encephalopathy ( $p = 0.001$ ), the platelet count  $< 70\ 000$  ( $p = 0.04$ ), the presence of a portal hypertensive gastropathy ( $p = 0.001$ ), an advanced child Pugh score ( $p = 0.0034$ ) and the achievement of the EGD by a junior ( $p = 0.004$ ). The multi-varied analysis concluded that only a low platelet count is statistically associated with the occurrence of fall of eschar. Mortality was 31.2% ( $n = 10$ ) following this complication.

**Conclusions** Early rebleeding following EVL in cirrhotic patients is a serious complication, especially in cases of emergency recruitment. The occurrence of this complication was statistically linked to low platelet count and a high mortality rate.

## eP146 ENDOSCOPY IN PREVENTION AND TREATMENT OF ESOPHAGEAL AND GASTRIC VARICEAL BLEEDINGS

**Authors** Filin A<sup>1</sup>, Duvanskiy V<sup>2</sup>

**Institute** 1 Endoscopy, Leningrad Regional Clinical Hospital, Saint Petersburg, Russian Federation; 2 Scientific Research University of Laser Medicine, Moscow, Russian Federation

**DOI** 10.1055/s-0039-1681888

**Aims** Estimate and improve methods of treatment of the patients with esophageal and gastric varices, control of portal bleedings using the method of endoscopic varices ligation (EVL) in esophagus and stomach and the role and limitations of placing of Danish stent.

**Methods** We applied plastic ligatures and ligating device in esophagus and stomach. We applied rubber-band ligators only in esophagus. We placed Danish stent in cases of severe portal bleeding and when we had to postpone

emergency EVL because of severe erosive esophagitis combined with bleeding.

**Results** We perform EVL since 1998 year. We analyzed 325 EVL to 216 patients with the portal hypertension and large esophageal and gastric varices (Baveno VI). We ligated varices in subcardia and gastric fundus with plastic ligatures in 34% of cases with 86% of efficiency. We never used rubber-band ligators for it. Complications after EVL: cutting of ligated varices in stomach – 2 (1,8%).

We placed Danish stent in 9 cases. Haemostasis in 100% of cases. Four patients died in 1–2 days because of hepatic failure. Others received postponed EVL after stent extraction. The follow-up is up to 12 years. Subsequent examinations were held every 6–12 months. Patients with Child-Pugh C (27%) had the worst prognosis. Most of them died from hepatic failure or accidents, deaths not related with bleeding.

All the patients received combined drug therapy.

**Conclusions** EVL with plastic ligatures is effective in prophylaxis and treatment of variceal bleeding, even in stomach. Danish stent can temporary control the bleeding and allow to postpone EVL. Endoscopic treatment of esophageal and gastric varices decreases the rate of death because of variceal bleedings, but does not treat the main disease. Patients with Child-Pugh C assemble the group of a high risk of complications and mortality.

## eP147V ESD OF CIRCUMFERENTIAL ESOPHAGEAL SQUAMOUS CELL CARCINOMA, “MUCOSAL BRIDGE TRACTION TECHNIQUE”

**Authors** Uchima H<sup>1</sup>, Torrealba L<sup>1</sup>, Busquets D<sup>1</sup>, Mateu G<sup>2</sup>, Figa M<sup>1</sup>, Pujadas M<sup>3</sup>, Huertas C<sup>1</sup>, Hombrados M<sup>1</sup>, Piñol V<sup>1</sup>, López C<sup>1</sup>, Louvriex R<sup>1</sup>, Arjona S<sup>1</sup>, Coll C<sup>1</sup>, Marta S<sup>1</sup>, Aldeguer X<sup>1</sup>

**Institute** 1 Gastrointestinal Endoscopy, Hospital Universitario Doctor Josep Trueta de Girona, Girona, Spain; 2 Pathology, Hospital Universitario Doctor Josep Trueta de Girona, Girona, Spain; 3 Esophagogastrophic Surgery, Hospital Universitario Doctor Josep Trueta de Girona, Girona, Spain

**DOI** 10.1055/s-0039-1681889

**Introduction** We present the case of a circumferential oesophageal submucosal endoscopic dissection in a 56-year-old patient who presented a squamous esophageal squamous carcinoma of 10 cm in superficial length, without evidence of lymph node involvement by EUS, CT and PET-Scan. ESD was decided as the preferred first-line treatment according to the patient decision.

**Brief description of the technique** The procedure was performed in the operating room, with the patient in supine position, intubated under mechanical ventilation, PEEP +5.

After marking the limits of the lesion, a circumferential mucosal incision was made with flush knife 1.5 mm at the anal side of the lesion. Then a semi circumferential proximal mucosal incision was made. Tunneling with flush knife and IT nano was done.

“Mucosal bridge traction technique”: Before completing submucosal dissection, 2 mucosal “bridges” were left on the oral side, to help traction of the lesion, when doing submucosal tunneling dissection. At the end of the procedure the mucosal bridges were cut. The procedure was completed in 2 hours and 45 minutes.

The final histology showed an intramucosal squamous cell carcinoma that contact the muscularis mucosa (M3) at two points, without evidence of lymphovascular or submucosal involvement.

The patient presented a stenosis after 3 weeks of the procedure, despite corticosteroid treatment, requiring endoscopies treatments.

9 months after the intervention there is no evidence of local or distant recurrence, and the patient has a normal diet, having required 17 endoscopic balloon dilation sessions to date.

**Conclusions** The tunneling technique is useful in the submucosal dissection of extensive esophageal lesions. This novel technique, “mucosal bridge trac-

tion technique" might be helpful in some cases of ESD, as an alternative traction technique.

### eP148V SUCCESSFUL COMPLETE ERADICATION OF BARRETT'S ADENOCARCINOMA WITH UNDERLYING ESOPHAGEAL VARICES WITH MODIFIED EMR TECHNIQUE AND RADIOFREQUENCY ABLATION

**Authors** Uchima H<sup>1</sup>, Busquets D<sup>1</sup>, Serra I<sup>1</sup>, Lopez C<sup>1</sup>, Gutierrez L<sup>1</sup>, Torrealba L<sup>1</sup>, Figa M<sup>1</sup>, Huertas C<sup>1</sup>, Hombrados M<sup>1</sup>, Piñol V<sup>1</sup>, Aldeguer X<sup>1</sup>  
**Institute** 1 Gastrointestinal Endoscopy, Hospital Universitari de Girona Dr Josep Trueta, Girona, Spain

**DOI** 10.1055/s-0039-1681890

**Case** We present the case of a 63-year-old patient with alcohol liver cirrhosis, with portal hypertension and esophageal varices in prophylaxis with beta-blocker.

During follow-up upper endoscopy a 0-IIa lesion is detected on a Barrett's esophagus.

A modified band ligation EMR technique was performed, with histology showing intramucosal adenocarcinoma, clear margins.

Three sessions of radiofrequency ablation with HALO 360 and 90 of the remaining Barrett's esophagus were performed with the standard technique. In each session, intravenous somatostatin was administered starting before the procedure, and maintaining it 24 hours. Prophylactic antibiotic was administered peri-procedure. After each session hospital discharge was performed at 24 hours, there were no incidents or complications during or after the procedure.

In the last follow-up endoscopy Barrett eradication was confirmed endoscopically and histologically.

**Comments** Radiofrequency (HALO) ablation can be performed in selected cases of patients with esophageal varices and dysplastic Barrett, taking into account the risks and benefits of the technique.

In the present case Barrett's esophagus (T1a) in a cirrhotic patient with esophageal varices, was successfully eradicated following radio frequency ablation (HALO), without complications.

### eP149 RISK FACTORS OF DYSPLASIA AND ADENOCARCINOMA IN BARRETT'S ESOPHAGUS

**Authors** Kallel R<sup>1</sup>, Sabbah M<sup>1</sup>, Trad D<sup>1</sup>, Ouakaa A<sup>1</sup>, Bibani N<sup>1</sup>, Elloumi H<sup>1</sup>, Gargouri D<sup>1</sup>

**Institute** 1 Habib Thameur Hospital, Tunis, Tunisia

**DOI** 10.1055/s-0039-1681891

**Aims** Barrett's esophagus (BE) is a rare lesion that can progress to adenocarcinoma of the lower esophagus. Endoscopic and histological monitoring is necessary to detect these lesions early and to propose appropriate management.

The purpose of this work was to determine the risk factors of dysplasia or degeneration during BE.

**Methods** A retrospective descriptive study (2009–2016) including all patients presenting a Barrett's esophagus in the endoscopy was conducted. The BE was classified according to Prague and the diagnosis was retained on the histological data of the esophageal biopsies. The patients were divided into two groups: group 1 (G 1) BE without dysplasia, group 2 (G2) BE with dysplasia (low or high grade) or adenocarcinoma. A statistical study (SPSS 23.0 software, p significant if <0.05) was performed to compare the two groups.

**Results** Eighty-three patients with histologically confirmed BE were included. They were distributed as follows: group 1: 70 patients and group 2: 13 patients. Of these, eight patients (9.6%) had dysplasia, only one of high grade, and five patients (6%) had adenocarcinoma. Comparing the two groups, the risk factors identified of dysplasia or degeneration were age with mean age (56 years old vs. 61 years old) respectively in groups 1 and 2 (p=0.04) and dysphagia as functional sign (8%, vs. 46%, p=0.003, OR=9.1). There was no

significant difference in sex ratio [H/F] (1.25 vs. 1.6, p=0.08) neither in the other signs (anemia, gastroesophageal reflux). The two groups were comparable in the mean length of the BE (17 mm vs. 26 mm, p=0.33) and the HP infestation rate (46% vs. 46%, p=0.98).

**Conclusions** Only advanced age and dysphagia were predictive of dysplasia or degeneration during BE. An intensification of the monitoring protocol of these patients could be proposed to allow detection and early management of dysplasia.

### eP150 INJECTION OF CYANOACRYLATE FOR THE TREATMENT OF GASTRIC VARICES BLEEDING

**Authors** Abouelhak S<sup>1</sup>, El mansouri S<sup>1</sup>, Tahiri M<sup>1</sup>, Haddad F<sup>1</sup>, Hliwa W<sup>1</sup>, Bellabah A<sup>1</sup>, Badre W<sup>1</sup>

**Institute** 1 Departement of Gastroenterology and Hepatology, Faculty of Medicine and Pharmacy of Casablanca Morocco, Casablanca, Morocco

**DOI** 10.1055/s-0039-1681892

**Aims** The aim of our study is to evaluate the efficacy and safety of gastric varices injection with cyanoacrylate.

**Methods** a prospective study between May 2015 and November 2018, all patients with gastric variceal bleeding was hospitalized and underwent endoscopic treatment. Success was defined as an absence of recurrent bleeding after the cyanoacrylate injection, and safety was evaluated by looking for side effects.

**Results** Thirty three Cyanoacrylate injections were done for 23 patients (13 women and 10 men, the sex ratio was 0.76), the mean age was 43 (ranging from 15 to 77 years old).

All patients had portal hypertension, 17 due to intra-hepatic cause (73.9%), 5 patients had extra-hepatic portal hypertension, and unidentified cause for one patient.

All patients was admitted to the emergency unit for upper gastrointestinal bleeding (hematemesis and melena in 73%), 25% was hemodynamically unstable. The hemoglobin mean rate was 7.2 g/dl (3.8–9.8). All patients received early vaso-actif treatment.

The esophagogastroduodenoscopy (EGD) was done in less than 24 hours after the hemorrhage. We found GOV 2 in 82%, GOV 2 and IGV1 in 12.55%.

Commercially flexible sclerotherapy injectors with a 6 mm/21-gauge needle were used for gastric variceal injection. N2BC was mixed with Lipiodol at the same proportion (1cc-1cc) with the average of 2 injections spot in every session.

All patients achieved immediate hemostasis so the treatment was successful in 100%, without any complications (epigastric discomfort, fever, embolism, thrombosis) and no endoscope was damaged.

The re-bleeding was noticed in 6 patients, from new gastric varices.

Two patients died from uncontrolled bleeding away from the N2BC injection.

**Conclusions** The study confirm the efficacy of and safety of cyanoacrylate injection for the treatment and second prophylaxis of gastric varices bleeding. To confirm its efficacy in the primary prophylaxis, other studies are needed.

### eP151 ANTIREFLUX MUCOSECTOMY. PRELIMINARY RESULTS OF A PROSPECTIVE STUDY

**Authors** Ortega A<sup>1</sup>, Rosón P<sup>1</sup>, Fernandez F<sup>1</sup>, Angeles Romero M<sup>1</sup>, Angeles Perez Aisa M<sup>1</sup>, Cotta J<sup>1</sup>, Lozano M<sup>1</sup>

**Institute** 1 Gastroenterology and Endoscopy Service, Hospital Quiron Salud Malaga, Málaga, Spain

**DOI** 10.1055/s-0039-1681893

**Aims** Gastroesophageal reflux disease (GERD) is very prevalent and has a significant impact on quality of life. Proton pump inhibitors (PPIs) are the mainstay of treatment, but up to 30% of patients do not respond. Several endoscopic treatment systems have been developed, with disparate results. Anti-reflux mucosectomy (ARMS) is based on the resection of the gastric

mucosa distal to the cardia, which, after healing, results in a retraction that remodels the cardial valve, and rectifies the angle of Hiss.

The main objective of the study is to evaluate the efficacy of ARMS by pH-metry and specific quality of life questionnaires.

**Methods** All patients submitted to ARMS, with dependent on conventional treatment who did not present a hiatus hernia, have been included consecutively and prospectively.

**Results** Since April 2018, the technique has been performed in 7 patients, average age of 41 years, a baseline deMeester score of 37.1 (mean), and a GERD questionnaire score of 19 points (mean). The average time of completion was 45 minutes, with slight bleeding occurring in three of them. The average stay was 1.5 days, without complications. The control gastroscopy at month showed the formation of a fully competent neovalve in all patients, except one. There was improvement in the GERD questionnaire, with an average decrease of 16 points and the 4 patients evaluated in the third month after technique had managed to suspend the PPIs. Of the 4 pH-metries performed on that date, 2 of them showed a normal deMeester score. The third patient remained unchanged, in which a fully competent neovalve was not achieved, despite which he presented a significant decrease in the GERD score and suspended the PPIs.

**Conclusions** The preliminary results of this study indicate that the ARMS manages to reshape the cardial valve and achieve effective control of GERD, with an excellent safety profile.

## eP152 A MULTICENTER STUDY ON THE PREVALENCE OF EOSINOPHILIC ESOPHAGITIS IN THE CENTRAL REGION OF THE RUSSIAN FEDERATION AMONG ADULTS UNDERGOING UPPER GASTROINTESTINAL ENDOSCOPY

**Authors** Kaibysheva V<sup>1</sup>, Kashin S<sup>2</sup>, Pirogov S<sup>3</sup>, Galkova Z<sup>1</sup>, Gasanov A<sup>4</sup>, Mayat E<sup>1</sup>, Fedorov E<sup>1</sup>, Kuvayev R<sup>1,2</sup>, Vidyayeva N<sup>2</sup>, Shapovaliantc S<sup>1</sup>, Nikonov E<sup>1</sup>

**Institute** 1 Pirogov Russian National Research Medical University (RNRMU), Moscow, Russian Federation; 2 Yaroslavl Regional Cancer Hospital, Yaroslavl, Russian Federation; 3 Moscow P.A. Herzen Cancer Research Institute, Moscow, Russian Federation; 4 N.V. Sklifosovsky Research Institute of Emergency Medicine, Moscow, Russian Federation

DOI 10.1055/s-0039-1681894

**Aims** The aim of this study was to evaluate the prevalence of eosinophilic esophagitis (EoE) in the central region of the Russian Federation among adult patients undergoing upper gastrointestinal (UGI) due to upper gastrointestinal symptoms.

**Methods** This study was conducted in 5 endoscopy departments in the central region of the Russian Federation (4 in Moscow, 1 in Yaroslavl). During a 12 month period (from October 2017 to October 2018) 23740 adult patients (aged 18 – 80 years) were evaluated using UGI endoscopy due to symptoms (heartburn, dysphagia, food impaction, acid regurgitation, chest pain, epigastric pain, nausea, vomiting). In patients with endoscopic findings of EoE (edema, rings, exudates, furrows, and strictures) 8 biopsies were obtained from the proximal and distal esophagus to quantify the maximum eosinophil count per high-power field (eos/hpf; hpf = 0.24 mm) by a gastrointestinal pathologist. EoE was defined by  $\geq 15$  eosinophils/high-power field.

**Results** UGI endoscopy revealed typical endoscopic features of EoE in 47 patients. Esophageal biopsy confirmed EoE in 18 (0.076%) cases (male – 77.7%, female – 22.3%). The average age was 37.25 years (rank 21 – 67), 88.8% of patients were under 45 years of age. Individuals with EoE suffered from dysphagia (61.1%), heartburn (50%), food impaction (33.3%), and nausea (38.8%). 83.3% of EoE patients had a past history of gastroesophageal reflux disease, 27.7% suffered from allergic rhinitis, 33.3% had atopic dermatitis, 11.1% -asthma. 1 patient had a family history of EoE (his sibling and mother also suffered from dysphagia due to EoE).

**Conclusions** The prevalence of EoE among adult patients undergoing upper endoscopy in the Russian Federation is 0.076% (1 case for 1319 UGI endos-

copies). The characteristic findings of EoE patients included predominantly male gender, age under 45 years and history of atopic diseases.

## eP153 ACHALASIA: ENDOSCOPIC DILATATION RESULTS AND PREDICTIVE FACTORS OF FAILURE

**Authors** Ouni A<sup>1</sup>, Hamzaoui L<sup>1</sup>, Hasnaoui B<sup>1</sup>, Khsiba A<sup>1</sup>, Medhioub M<sup>1</sup>, Mahmoudi M<sup>1</sup>, Msadak Azouz M<sup>1</sup>

**Institute** 1 Gastroenterology, Mohamed Taher Maamouri Hospital, Nabeul, Tunisia

DOI 10.1055/s-0039-1681895

**Aims** Achalasia is a primary motor disorder of the esophagus. Its treatment consists of decreasing the pressure at the lower esophageal sphincter (LES). Pneumatic dilatation is an efficient therapeutic method compared to surgery. The aim of our work is to study the results of endoscopic dilatation and to identify the predictive factors of failure.

**Methods** We have performed a retrospective analytical study from 2014 to 2018 including patients treated with pneumatic dilatation for mega-esophageal. Patients who have previously undergone Heller surgery or who received a medical treatment were not included. Treatment failure is defined as the persistence of dysphagia after 3 dilatations or relapse within 2 years. The studied parameters were the epidemiological, clinical, manometric data and the results of dilatation.

**Results** Seventeen patients were enrolled with an average age of 47 years and a sex ratio F/H = 1.4. Patients had mean Eckardt score = 7 and chest pain in 41% of cases. 35% of patients were of type I achalasia, whereas 65% were of type II. Seven patients had a resting pressure of LES > 35mmHg and 72% had a residual pressure of LES > 10 mmHg. 16 patients had a first dilatation with a 30 mm balloon. The mean number of dilatations was 2,8 and no serious complications were detected except a case of GERD. 47% of patients did not respond to dilatation. In bivariate analysis, only young age < 40 years and the presence of chest pain were predictive of failure (p = 0.008). However, no factor was found in multivariate analysis.

**Conclusions** In this study, endoscopic dilatation represents an efficient method in the treatment of achalasia with a success rate exceeding 50%. The response could have been better once we have included patients with a satisfactory number of dilatations. As mentioned in the literature, young patients and those with chest pain are advised to have Heller myotomy immediately or POEM.

## eP154 REAL LIFE DATA FOR DYSPLASTIC BARRETT'S ESOPHAGUS MANAGEMENT AND FOLLOW-UP

**Authors** Michopoulos S<sup>1</sup>, Axiaris C<sup>1</sup>, Baxevas P<sup>1</sup>, Stoupaki M<sup>1</sup>, Gagari V<sup>1</sup>, Karlaftis A<sup>1</sup>, Zampeli E<sup>1</sup>, Theodorou D<sup>2</sup>, Sotiropoulou M<sup>3</sup>, Petraki K<sup>4</sup>

**Institute** 1 GI, Alexandra Hospital, Athens, Greece; 2 Surgery, University of Athens Medical School, Athens, Greece; 3 Pathology, Alexandra Hospital, Athens, Greece; 4 Pathology, Metropolitan Hospital, Athens, Greece

DOI 10.1055/s-0039-1681896

**Aims** Real life data concerning the management and outcome of patients with dysplastic Barrett esophagus (BE) are scarce.

Evaluate the management and outcome of patients with dysplastic BE.

**Methods** Analyze 10 years data from a single center. All patients had dysplastic BE on  $\geq 2$  consecutive endoscopies confirmed by  $\geq 2$  dedicated pathologists.

**Results** 47 out of 55 dysplastic patients fulfilled the inclusion criteria [40 LGD, 5 high grade dysplasia (HGD) and 2 with intramucosal adenocarcinoma (IMAC) at the initial diagnosis]. Age:  $58.7 \pm 16.2$  years, 37 males, with a follow-up of 2666 patient-months (range: 1 – 134, Q1 = 6, Q3 = 36). BE length > 3 cm in 15 patients. The grade of dysplasia progressed in 4 patients, all with BE > 3 cm and during the first 12 months after the initial diagnosis (2 LGD to HGD and 2 HGD to cancer). Among 31 patients with LGD without endoscopic intervention and a follow up of 1914 months, 11 regressed to non-dysplastic BE (2 –

84 months after the initial diagnosis of dysplasia) while 20 remained stable. All patients with HGD and IMAC along with 7 LGD had an endoscopic treatment (7RFA and 8 EMR followed by RFA and/or APC). Age > 55 years ( $p = 0.02$ ), male gender ( $p = 0.066$ ) and BE length > 3 cm ( $p = 0.04$ ) favored endoscopic therapy. After treatment residual dysplasia was detected in 8/15, addressed by complementary APC sessions in 180 patient-months follow-up period while 7 remained without dysplasia for 396 patient-months. Complementary interventions for BE > 3 cm were X2.7 times more than in BE < 3 cm.

#### Conclusions:

1. A substantial percentage of patients with BE and LGD don't progress and may benefit from endoscopic surveillance
2. Aggravation of the dysplasia degree was detected during the first year after diagnosis
3. Age, sex and BE length influence the need for endoscopic intervention
4. The original maximal length of BE determines the need for complementary interventions.

### eP155 PREDICTORS OF FAILURE OF PNEUMATIC DILATION IN ACHALASIA

**Authors** Ayari M<sup>1</sup>, Ayedi S<sup>1</sup>, Bel Hadj Mabrouk E<sup>1</sup>, Zaimi Y<sup>1</sup>, Mouelhi L<sup>1</sup>, Debbeche R<sup>1</sup>

**Institute** 1 Gastroenterology, Charles Nicole Hospital, Tunis, Tunisia

**DOI** 10.1055/s-0039-1681897

**Aims** Although endoscopic peroral endoscopic myotomy (POEM) is an innovative and promising technique, its place remains to be defined and the first line treatment is still based on pneumatic dilation (PD) in several countries. The purpose of this study is to assess the results of endoscopic dilation and to determine the predictive factors for failure of this treatment.

**Methods** Patients with achalasia undergoing DP between 2000 and 2017 in our department were included and evaluated retrospectively. The dilations were performed with balloons of 30 to 35 mm. The efficacy of the treatment was judged on the clinical improvement of the symptoms (Eckart score). Failure was defined by a number of dilations > 2 or surgical treatment.

**Results** Sixty-eight patients were included. The average age was 47 years old with female to male ratio of 1.3. Manometry confirmed the diagnosis by showing esophageal aperistalsis present in all patients. The average pressure of the lower esophageal sphincter (LES) was 32 mmHg (5 – 60 mmHg). A total of 93 PDs were performed with an average of 1.3 dilations per patient. Clinical recurrence requiring a second dilatation session was found in 22% of patients. Failure of endoscopic treatment was noted in 6% of cases. In a univariate analytical study, age under 30 years ( $p = 0.002$ ), number of dilations ( $p < 0.0001$ ), initial pressure of LES < 35 mmHg ( $p < 0.0001$ ) and vigorous achalasia ( $p = 0.002$ ) were significantly associated with dilatation failure. In multivariate analysis, only young age ( $p = 0.004$ ), low pressure of LES ( $p = 0.003$ ) and vigorous achalasia ( $p < 0.001$ ) were independent predictors of PD failure. In our study sex was not significantly associated with treatment failure.

**Conclusions** Pneumatic dilation is an effective, simple and well tolerated technique. However, in case of clinical and manometric predictive factors of PD failure, another endoscopic treatment such as POEM should be proposed as first line.

### eP156 AUGSBURGER ZENKER QUESTIONNAIRE – ACQUISITION OF SYMPTOMS AND MONITORING DURING FOLLOW-UP OF PATIENTS WITH ENDOSCOPIC TREATMENT OF SYMPTOMATIC ZENKER'S DIVERTICULUM

**Authors** Manzeneder J<sup>1</sup>, Römmele C<sup>1</sup>, Gölder S<sup>1</sup>, Freuer D<sup>2</sup>, Messmann H<sup>1</sup>

**Institute** 1 Klinikum Augsburg, Department of Internal Medicine III, Augsburg, Germany; 2 Ludwig-Maximilians University of Munich, Chair for Epidemiology at UNIKA-T, Augsburg, Germany

**DOI** 10.1055/s-0039-1681898

**Aims** The frequency and severity of symptoms of Patients with Zenker's diverticulum have been acquired by a newly developed questionnaire (Augsburger Zenker Questionnaire – AQZ). A cumulative score was generated that should help to recognize patients with symptomatic recurrence during follow-up.

**Methods** From August 2014 to July 2018  $n = 97$  patients with symptomatic Zenker's diverticulum were treated with flexible endoscopy. The symptoms of the patients were recorded by an eight-item questionnaire prior to treatment and 1 and 6 months post-interventional. The questionnaire asked for the Dakkak's dysphagia score, the frequency of dysphagia, odynophagia, regurgitation, vomiting, dry cough, halitosis and nocturnal awakening due to Zenker related symptoms on an ordinal scale with values from zero to four. The scores of the single symptoms were added to a total score (0 to maximum 68 points) whereas according to our clinical experience frequent and more specific symptoms were higher rated. In case of readmission with recurrence the score was raised again and compared with the score of recurrence-free patients.

**Results** The median value prior to treatment was 41.0 (32.0 – 45.8). Patients, who developed a recurrence later on showed already before intervention a tendency for higher values (44.0 vs. 36.0 of recurrence-free patients,  $p = 0.09$ ). The median value one month after treatment was 5.0 (0 – 12.3) and after six months 9 (0 – 18.0). Patients with recurrence ( $n = 13$ ) stated a value of 32.5 (24.8 – 45.0) before the retreatment.

In the follow-up a value of  $\geq 26$  shows a high probability for recurrence (specificity 98.7%, sensitivity 75%, PPV: 92%, NPV 95%). Patients with values less than 21 most likely had no recurrence (NPV 97%).

**Conclusions** We described the first time a specific questionnaire for patients with symptomatic Zenker's diverticulum. It records extensively the symptoms prior to treatment. It can be a helpful tool to calculate the probability of symptomatic recurrence in patients after flexible endoscopic treatment.

### eP157 RESTORATION OF A RARE, IMPRESSIVE AESTHETIC CERVICAL DYSMORPHIA DUE TO OESOPHAGEAL ACHALASIA BY PERORAL ENDOSCOPIC MYOTOMY PROCEDURE

**Authors** Delis K<sup>1</sup>, Robotis I<sup>1</sup>, Prevezianou A<sup>2</sup>, Lamprinakos S<sup>1</sup>, Leontis M<sup>3</sup>, Ampartzidou O<sup>4</sup>

**Institute** 1 Gastroenterology Department, Endoscopy Unit, Metropolitan Hospital, Piraeus, Neo Faliro, Greece; 2 Department of Anaesthesiology, Metropolitan Hospital, Piraeus, Neo Faliro, Greece; 3 Department of Radiology, Metropolitan Hospital, Piraeus, Neo Faliro, Greece; 4 Department of Internal Medicine, Metropolitan Hospital, Piraeus, Neo Faliro, Greece

**DOI** 10.1055/s-0039-1681899

**Aims** An aesthetic advantage of peroral endoscopic myotomy procedure (POEM) on achalasic patients against surgical approaches, is the absence of abdominal or thoracic skin scars. The aim of this abstract is to present another impressive aesthetic result, succeeded via therapy of an achalasic patient with POEM, which simultaneously corrected an accompanied rare extensive aesthetic cervical dysmorphism, as well.

**Methods** Patient, a female 77 years old, presented with dysphagia, heartburn, regurgitation, retrosternal pain mainly during last year, and the above men-

tioned dysmorphic left cervical distention which was deteriorated in size by food intake, last month. The laboratory findings of oesophagogram, manometry and OGD reconfirmed the presence of achalasia. CT scan revealed a large oesophageal tube with significant tortuosity that caused an extreme anatomical deviation of aorta and neighbor anatomy, explaining the above mentioned dysmorphic picture. A successful anterior POEM was performed.

**Results** The second post procedural day the barium oesophagogram showed the easy emptying of barium through the LOS. Patient was able to swallow and was discharged on antibiotics and progressive diet. Seven days later the patient assured that cervical distention had completely disappeared, obviously due to the reduction of LOS pressure. On follow up, CT scans confirmed an impressive correction of the normal anatomy after 2 months and complete restoration after 12 months. Clinical as well aesthetic success is preserved, too.

**Conclusions** In conclusion, the aesthetic advantage of POEM is not limited only on the profound lack of skin scars but may also be expanded to other not expected accompanied situations, as above described.

### eP158V A CASE OF EOSINOPHILIC ESOPHAGITIS: HEARTBURN DOES NOT ALWAYS MEAN GASTROESOPHAGEAL REFLUX DISEASE

**Authors** Vidyaeva N<sup>1</sup>, Kashin S<sup>1</sup>, Kaybysheva V<sup>2</sup>, Kraynova E<sup>1</sup>, Kuvaev R<sup>1,2</sup>

**Institute** 1 Yaroslavl Regional Cancer Hospital, Yaroslavl, Russian Federation; 2 Pirogov Russian National Research Medical University, Moscow, Russian Federation

**DOI** 10.1055/s-0039-1681900

A 27-year-old Caucasian man visited a gastrointestinal clinic because of intermittent heartburn and substernal chest discomfort for 6 months. He did not have any allergic histories and family histories of an atopic disease, but he had obesity grade 2 and essential hypertension. Physical examination was unremarkable, and there were no abnormalities in laboratory test results. The primary care doctor diagnosed gastroesophageal reflux disease (GERD) and referred to oesophagogastrroduodenoscopy (EGD). EGD showed: edema, decreased vascularity, longitudinal furrows, and white exudate on the lower and mid esophagus. Biopsies were obtained: 3 specimens at the proximal and distal esophagus, and also at stomach and duodenum. Whereas histology from stomach and duodenum was normal, eosinophilic infiltration (> 80 eos/hpf) was observed on the esophageal mucosa. Moreover esophageal impedance-pH monitoring did not reveal pathological gastroesophageal reflux (acid exposure time = 0.4%). High-resolution manometry detected normal esophageal motility. Based on the clinical, endoscopic and histological findings, the patient was diagnosed with eosinophilic esophagitis (EoE). Proton pump inhibitors (PPIs) and an empiric six-food elimination diet were prescribed. The patient noted the resolution of symptoms during that therapy. After a 12-week initial therapy course the follow-up endoscopy revealed edema, decreased vascularity, longitudinal furrows, white exudate in the distal esophagus despite of treatment. Magnifying endoscopy with narrow spectrum (i-scan OE) demonstrated dot-shaped intrapapillary capillary loops (IPCL) and absent cyan vessels, which were described in literature for EoE [Tanaka K, et al., 2013] and also multiple white plaques on the mucosal surface. Mucosal biopsies showed maintenance epithelial eosinophil infiltration (> 30 eos/hpf), eosinophil microabscesses and basal zone hyperplasia. Topical corticosteroids were added to therapy. Our case report demonstrates that the proper examination of patients with heartburn provides the correct diagnosis of EoE and helps to distinguish EoE from GERD, which is the most common esophageal disorder with heartburn and sometimes esophageal eosinophilia.

### eP159 DIAGNOSTIC ADEQUACY OF BARRETT'S ESOPHAGUS IN A TERTIARY REFERENCE CENTER. PRELIMINARY ANALYSIS

**Authors** Herrera Fajes JL<sup>1</sup>, Ortega Lobete O<sup>1</sup>, Bighelli F<sup>1</sup>, Dieguez Montes L<sup>1</sup>, Nogales Rincón O<sup>1</sup>, Martos Vizcaino E<sup>1</sup>, García Lledó J<sup>1</sup>, Merino Rodríguez B<sup>1</sup>, Aranda Hernández J<sup>1</sup>

**Institute** 1 Gastroenterology, Hospital Gregorio Marañón, Madrid, Spain  
**DOI** 10.1055/s-0039-1681901

**Aims** Some patients are wrongly typified with Barrett's esophagus (BE) in spite they don't meet criteria: presence of intestinal metaplasia (IM) and columnar segment longer than 1 cm. We didn't find studies focused on this fact so we decided to assess it and estimate the number of unnecessary follow-ups and factors contributing to a wrong categorization.

**Methods** Retrospective-descriptive study, tertiary reference endoscopy unit in Spain. Search in ENDOBASE server for any endoscopy including "Barrett" in its indication, description or diagnosis in endoscopies between December 2013 and May 2018. We excluded follow-up endoscopies due to reasons different from BE.

**Results** 1178 endoscopies in 712 patients were included. 63,2% of cohort (745/1178) didn't meet BE criteria, 30,2% did and in 6,5% it wasn't possible to know due to lack of reporting.

58,9% of specimens showed no IM, 32,8% showed IM and in 8,2% it wasn't possible to know. 29,9% of patients had a columnar segment shorter than 1 cm.

Within the 745 endoscopies not meeting BE criteria, 37,7% (281/745) corresponded to 1<sup>st</sup> or later follow-up endoscopies and 18,9% (141/745) to 2<sup>nd</sup> or later follow-up endoscopies. Thus, at least 50,2% (141/281) of follow-up endoscopies were likely unnecessary during the study period.

In 90,5% of endoscopies (1066/1178) the word "Barrett" was utilized (BE, suspicious for Barrett, rule out BE, ultrashort Barrett, etc.) in diagnostic section.

A gastroenterologist requested 67,1% of procedures.

C or M length weren't reported in 8,9% and 12,2% of endoscopies.

**Conclusions** In our area, BE is over-diagnosed mostly due to absence of IM. Half of endoscopies for BE surveillance during the study period could be unnecessary.

Improvements in BE follow-up indication, pathology and endoscopic reporting are warranted.

Further descriptive and multicenter studies focused on BE diagnostic adequacy-reporting are needed.

### eP160 GASTRIC PERORAL ENDOSCOPIC MYOTOMY (G-POEM) – FIRST EXPERIENCE

**Authors** Fleischmann C<sup>1</sup>, Ebigbo A<sup>1</sup>, Nagl S<sup>1</sup>, Neuhaus L<sup>1</sup>, Messmann H<sup>1</sup>

**Institute** 1 Klinikum Augsburg, 3. Medizinische Klinik, Augsburg, Germany  
**DOI** 10.1055/s-0039-1681902

**Aims** Gastroparesis is defined as delayed stomach emptying in the absence of obstruction. Symptoms include vomiting, nausea, post-prandial fullness, epigastric pain, weight loss and early satiety. Etiology varies between post-surgical injury of the vagus nerve, diabetes mellitus or medication, yet one third of the cases are idiopathic.

**Methods** This is a retrospective single center case series of 8 patients treated with G-POEM. All patients received a gastric emptying scintigraphy (GES) and a 13C-octanoic acid breath test before the procedure. POEM was performed using a triangle knife with water jet function (Olympus) and HF-generator (V10 300D, ERBE) and a distal cap on the endoscope (Olympus, Distal Attachment, Ø12,4 mm). The first step was to inject 5 ml of saline with indigocarmine at the greater curvature in the antrum in a distance of 4 cm to the pylorus. A small incision of 10 – 15 mm of the mucosa was performed (Endo-Cut-Q) and subsequently submucosal injection was performed. Tunneling in the submucosa was performed until the muscle of the pylorus was visible. The

pylorus was cut over a length of 1 cm (EndoCut-Q). Finally, the incision was closed by using through-the-scope (TTS) clips (Olympus, standard clip).

**Results** In all 8 cases, G-POEM was technically successful. The mean age of patients was 55 years. The etiology of gastroparesis was post-surgical in 6 cases and idiopathic in 2 cases.

The mean procedure duration was 112 minutes (range 39 to 159). Technical success was 100%. The closure with TTS clips was successful in all cases. No acute complications occurred. Six out of 8 patients had clinical improvement within 3 months. Mean GES time decreased from 33 minutes preoperative to 14 minutes after G-POEM.

**Conclusions** G-POEM seems to be a safe and promising treatment option for gastroparesis, if indication was chosen carefully. However, long-term follow-up and randomized trials are necessary to evaluate this new technique.

Friday, April 5, 2019

09:00 – 17:00

Pediatric endoscopy

ePosters

### eP161 UPPER GASTROINTESTINAL TRACT INVOLVEMENT IN PEDIATRIC CROHN'S DISEASE: A SINGLE-CENTER EXPERIENCE

**Authors** Kim HJ<sup>1</sup>, Oh SH<sup>2</sup>, Kim KM<sup>2</sup>

**Institute** 1 Inje university, Busan paik hospital, Busan, Korea, Republic of; 2 Asan Medical Center Children's Hospital, University of Ulsan College of Medicine, Pediatrics, Seoul, Korea, Republic of  
DOI 10.1055/s-0039-1681903

**Aims** Crohn's disease (CD) may involve any part of the intestine, but the prevalence of upper gastrointestinal (UGI) lesions has greatly varied. This aim of this study was to evaluate the prevalence and associated factors of UGI involvement in pediatric CD.

**Methods** We retrospectively analyzed 586 patients who were younger than 18 years of age at CD diagnosis between 1987 and 2013. They were classified according to the Paris classification. The frequency of UGI involvement and associations between risk factors and presence of UGI involvement were evaluated.

**Results** Of 586 patients, 152 (25.9%) presented with UGI involvement at the time of diagnosis. The male-to-female ratio was 2.5:1. The median age at CD diagnosis was younger (14.3 vs. 15.0,  $p < 0.001$ ) in patients with UGI involvement. Isolated UGI involvement was seen in only 10 (1.7%) patients. Patients with UGI involvement were more likely to have growth failure (19.7 vs. 8.3,  $p < 0.001$ ) and complicated behavior (19.7 vs. 7.8,  $p < 0.001$ ) at diagnosis. In multivariate analysis, growth failure (HR: 2.44, CI: 1.42 – 4.16,  $p = 0.001$ ) and complicated behavior (HR: 2.60, CI: 1.51 – 4.47,  $p = 0.001$ ) at diagnosis were significant associated factors of UGI involvement.

**Conclusions** UGI involvement was relatively common, although isolated UGI involvement was rare. Growth failure and complicated behavior at diagnosis were identified as the main predictive factors for such involvement at CD diagnosis.

### eP163 ENDOSCOPY AS THE ULTIMATE METHOD IN CASES OF DELAYED DIAGNOSIS OF CONGENITAL DUODENAL MEMBRANE IN CHILDREN

**Authors** Semeniv S<sup>1</sup>, Vroniak D<sup>1</sup>, Trembach L<sup>1</sup>, Kolomoiets I<sup>1</sup>

**Institute** 1 National Children Specialized Hospital 'Ohmatdet', Kyiv, Ukraine  
DOI 10.1055/s-0039-1681904

**Aims** Congenital duodenal membrane (CDM) is anomaly characterized by luminal gastrointestinal obstruction and consists of a diaphragm with openings. Clinical presentation in such malformations occur from the first days of life, in some cases – much later, depends on the degree of the duodenum stenosis. The aim of our study is to describe the management and characterize endoscopic findings of patients with delayed presentation of CDM.

**Methods** We analyzed in retrospective-prospective study data (demographic details, associated anomalies, clinical presentation, diagnostics features, outcomes) of 14 patients with delayed diagnosis of CDM who were treated at the National Children Specialized Hospital "Ohmatdet" (Kyiv, Ukraine) during 2001 – 2018 years.

**Results** The age of patients was range 6 month to 15 years. There was female sex predilection (M:F = 1:2,5). Most patients had associated anomalies or syndrome: Down's syndrome (n = 6), malformations of the cardiovascular system (n = 4), congenital pathology of the spine (n = 1), Meckel's diverticulum (n = 1). The most frequent symptoms were recurrent episodes of vomiting n = 14 (100%), failure to thrive n = 7 (50%), aspiration n = 3 (21%) and gastrointestinal bleeding n = 4 (29%). The incomplete nature of the obstruction results in difficult and delayed diagnosis, because of the gradual onset of atony and ineffective peristalsis in the dilated duodenum. In all patients, we received the necessary confirmation using ultrasound, radiography and endoscopy. Diagnostics features during endoscopy includes: much expanded pylorus, "smooth" nonfolding mucosa of dilated part of duodenum, dilated proximal segment of duodenum, which often recognized as "second stomach" (the so-called "patulous pylorus", "windsock sign" or "thumb of a glove"), inflammatory changes of the mucosa up to ulcers and erosions due to constant stagnation of food, atypical folds which surrounded the opening.

**Conclusions** The diagnosis of CDM must always be kept in mind with the clinical presentations of high intestinal obstruction in children of different age. Endoscopy is the most informative diagnostic method.

### eP164 BATTERY INGESTION COMPLICATIONS IN CHILDREN: CASE SERIES

**Authors** Souto Bittencourt PF<sup>1,2</sup>, Magalhães Bittencourt M<sup>3</sup>, Vanolli AL<sup>3</sup>, Giannella Estanislau VT<sup>3</sup>, Andrade Franciscani Peixoto A<sup>4</sup>, Gatto Polo AC<sup>4</sup>, Alves da Cruz Texeira L<sup>4</sup>, Fraga Moreira E<sup>4</sup>

**Institute** 1 Pediatric- Gastrointestinal Endoscopy, Fundação Felice Rosso, Belo Horizonte, Brazil; 2 Pediatric- Gastrointestinal Endoscopy, Fundação Hospitalar de Minas Geras/Hospital Infantil João Paulo II/João XXIII, Belo Horizonte, Brazil; 3 Universidade Jose Rosário do Vellano, Belo Horizonte, Brazil; 4 Fundação Felice Rosso, Belo Horizonte, Brazil  
DOI 10.1055/s-0039-1681905

**Aims** Accidental ingestion of foreign bodies is common in children and is a medical emergency when it comes to battery intakes. According to data from a study conducted in the USA in the period 1986 – 2009, 56,535 cases of ingestion of batteries were recorded. It is important to note that 90% are asymptomatic or present with sialorrhea, dysphagia, food refusal, vomiting, hematemesis, cough, hematochezia, peritonitis and mediastinitis. The diagnosis is based on anamnesis and imaging tests. The main complications are tracheoesophageal fistula, esophageal perforation, esophageal stricture and death.

**Methods** Six patients were treated with complications resulting from battery impaction in the esophagus and were followed up at the Hospital Felício Rocho, the Hospital João Paulo II and João XXIII in Belo Horizonte, Brazil from January 2009 to March 2018. All of them presented severe complications secondary to the impaction of the battery in the esophagus and were followed up until hospital discharge. The patient's complications were: patient 1: perforation of the esophagus, mediastinitis and pneumothorax/pneumomediastinum; patient 2: esophagomediastinal fistula; patient 3, 4 and 5: esophageal ulcer and esophageal stenosis; and patient 6: esophagotracheal fistula and mediastinitis.

**Results** Three patients evolved with esophageal stenosis and dilations were performed, with good evolution in all. One patient evolved with esophageal stenosis and esophagomediastinal fistula with conservative treatment. One patient required cervical esophagostomy, gastrostomy and awaiting esophageal reconstruction. One patient underwent tracheostomy, gastrostomy, jejunostomy and closure of esophagotracheal fistula.

**Conclusions** The impact of batteries in the esophagus is a medical emergency and its prevention is very important, mainly by the parents, since all the accidents happen in their homes.

### eP166V BLUE RUBBER BLEB NEVUS SYNDROME IN A 7-YEAR-OLD CHILD TREATED WITH LOOP LIGATION FACILITATED BY DOUBLE-BALLOON ENTEROSCOPY

**Authors** Lazaridis N<sup>1</sup>, Murino A<sup>1</sup>, Costa D<sup>1</sup>, Telese A<sup>1</sup>, Raymond R<sup>1</sup>, Koukias N<sup>1</sup>, Crespi D<sup>2</sup>, Furman M<sup>2</sup>, Despott EJ<sup>1</sup>

**Institute** 1 Royal Free Unit for Endoscopy, The Royal Free Hospital and University College London (UCL) Institute for Liver and Digestive Health, London, United Kingdom; 2 Centre for Paediatric Gastroenterology, The Royal Free Hospital and University College London (UCL) Institute for Liver and Digestive Health, London, United Kingdom

**DOI** 10.1055/s-0039-1681906

**Introduction** Blue rubber bleb nevus syndrome (BRBNS) is an extremely rare systemic vascular disorder characterised by multiple cutaneous and gastrointestinal venous malformations. Patients present with fatigue, iron deficiency anaemia (IDA) and occult or overt gastrointestinal (GI) bleeding. Patients are usually treated with conservative management including iron supplementation and blood transfusions. However, endoscopic (argon plasma coagulation, sclerotherapy, polypectomy, band ligation etc), radiological and surgical approaches are preferred for severe cases.

**Aims and Methods** A 7-year-old female patient with iron deficiency anaemia and multiple cutaneous lesions was diagnosed with BRBNS at a local hospital. The patient was referred to our institution for further management due to blood transfusions dependence and PR bleeding. A small bowel capsule endoscopy (SBCE) revealed two vascular lesions in the small bowel.

**Results** An anterograde double-balloon enteroscopy (DBE) was performed under general anaesthesia. Two 20 mm vascular lesions were identified in the gastric body. A loop ligating device (Olympus, Tokyo, Japan) was applied around the base of each lesion then tightened and completely detached. No further vascular malformations were found in the duodenum, jejunum and proximal ileum. Although the number of units of blood transfusion decreased over the next 6 months a follow-up retrograde DBE was performed due to persistent anaemia. Six lesions were identified in the transverse colon (2), caecum (1) and distal ileum (3). Ligation loop was used for 2 colonic lesions while two ileac rubber blub lesions were treated with both ligation loop and metallic clips. Since the 2 remaining lesions were flat and floppy, loop ligation was not technically feasible. No immediate and post procedural complications (including delayed bleeding) occurred.

**Conclusion** DBE facilitated loop ligation appears to be a safe and minimally invasive option in patients affected by BRBNS reducing the blood transfusion dependence.

Friday, April 5, 2019

09:00 – 17:00

Stomach and small intestine

ePosters

### eP167 STUDY OF CELIAC DISEASE SEROLOGY IN PATIENTS WITH JUVENILE SYSTEMIC LUPUS ERYTHEMATOSUS

**Authors** Shamseya AM<sup>1</sup>, Abdelaty KA<sup>1</sup>, Elsayed EH<sup>1</sup>, Donia HM<sup>2</sup>, Shamseya MM<sup>3</sup>, Ellakany AI<sup>4</sup>

**Institute** 1 Internal Medicine, University of Alexandria, Alexandria, Egypt; 2 Clinical & Chemical Pathology, University of Alexandria, Alexandria, Egypt; 3 Experimental and Clinical Internal Medicine, University of Alexandria, Medical Research Institute, Alexandria, Egypt; 4 Internal Medicine, University of Alexandria, Faculty of Medicine, Alexandria, Egypt

**DOI** 10.1055/s-0039-1681907

**Aims** The aim was to screen patients with juvenile systemic lupus erythematosus for Celiac disease.

**Methods** 100 patients with juvenile systemic lupus erythematosus were subjected to detailed history taking, Clinical examination with thorough joint examination Clinical assessment of lupus activity using SLEDAI score Serum levels of anti-tTG Ab IgA & IgG, esophagogastroduodenoscopy (EGD) for those with positive serology for Celiac disease.

**Results** Of the 100 recruited patients with juvenile systemic lupus erythematosus, 10 patients had positive serological evidence of Celiac disease. Of the 10 patients, 3 patients had mild elevation of IgG Anti Ttg (less than 20 U/ml), and seven patients had Serum levels of Anti-tTG more than 20 U/ml. Correlation of Serum Anti-tTG levels with SLEDAI score was positive ( $p < 0.05$ ) denoting strong association between Celiac disease and activity of SLE. EGD was done to all 10 patients with positive serology for Celiac disease revealing six patients with manifest Celiac (positive serology & positive endoscopy/biopsy) and four cases of latent Celiac (positive serology & negative endoscopy/biopsy).

**Conclusions** From the results of the present study we conclude that the possibility of concomitant presence of both Celiac disease & SLE is high (10%). The masking of Celiac disease manifestations (intestinal & extra-intestinal) by SLE manifestations make diagnosis of Celiac disease missed in almost all cases and leaves screening for Celiac disease using serology as the gold standard for its detection among juvenile SLE patients.

### eP168 THE EFFECT OF REBAMIPIDE ON NSAID-INDUCED GASTROENTEROPATHY COMPARED WITH LANSOPRAZOLE: A MULTI-CENTER, RANDOMIZED, OPEN LABELED, PILOT STUDY

**Authors** Lee DH<sup>1</sup>, Cho JH<sup>1</sup>, Yoon H<sup>1</sup>, Shin CM<sup>1</sup>, Park YS<sup>1</sup>, Kim N<sup>1</sup>, Seol SY<sup>2</sup>

**Institute** 1 Seoul National University Bundang Hospital, Internal Medicine, Seongnam, Korea, Republic of; 2 Inje University Busan Paik Hospital, Internal Medicine, Busan, Korea, Republic of

**DOI** 10.1055/s-0039-1681908

**Aims** Long-term use of Nonsteroidal anti-inflammatory drugs (NSAIDs) can cause gastroenteropathy. Proton pump inhibitors (PPIs) have been proved to be helpful for NSAID-induced gastroenteropathy and have been widely used. However, the impact of PPIs on small bowel injury induced by NSAIDs is controversial. Rebamipide is also known to be effective against NSAID-induced gastroenteritis, including small intestinal damage, although few studies have been reported in comparison with PPI.

**Methods** This was a multi-center, randomized, open labeled, pilot study. Patients with musculoskeletal disease, such as rheumatoid arthritis and osteoarthritis, who required more than 3 months of NSAIDs were enrolled, and all these patients were treated with meloxicam. The study group received rebamipide three times daily, and the control group received lansoprazole one time daily. Esophagogastroduodenoscopy, capsule endoscopy, laboratory test, and gastrointestinal symptoms were measured before and 12 weeks after.

**Results** A total of 33 patients were included with 15 in the study group and 18 in the control group. NSAID-induced gastric ulcer, which was the primary outcome of this study, did not occur in both groups. The change in the number of small bowel erosions and ulcers was  $-0.6 \pm 3.06$  in the study group and  $1.33 \pm 4.71$  in the control group. The number of subjects with mucosal breaks, defined as multiple erosions and/or ulcers, was 3 (20%) in the study group and 6 (40%) in the control group ( $p = 0.427$ ). No serious adverse events occurred in both groups. but, adverse events such as dyspepsia and skin rash occurred in 6 (32%) in the study group and 13 (65%) in the control group ( $p = 0.036$ ).

**Conclusions** There was a trend that rebamipide decreased NSAID-induced mucosal damage compared to PPI, although there was no statistical difference. Moreover, rebamipide had fewer adverse effects than lansoprazole.

## eP169V A FEARED COMPLICATION OF AN INTRAGASTRIC BALLOON HYPERINSUFFLATION

**Authors** Silva M<sup>1</sup>, Dos Passos Galvão Neto M<sup>2</sup>, Grecco E<sup>2</sup>, Ferreira de Souza T<sup>2</sup>, Santos AL<sup>1</sup>, Gomes S<sup>3</sup>, Macedo G<sup>1</sup>, de Quadros LG<sup>2</sup>

**Institute** 1 Centro Hospitalar de São João, Porto, Portugal; 2 ABC Medical School, Santo André, Brazil; 3 UCSP Rio Maior – ACES Lezíria, Rio Maior, Portugal

**DOI** 10.1055/s-0039-1681909

**Introduction** Bariatric endoscopy is rapidly emerging as an effective and less invasive alternative to bariatric surgery. IGB placement is one of the most common procedures performed for the treatment of obesity. The authors report a rare, but potentially serious, complication of IGB placement.

**Case report** A 46-year-old woman with an initial BMI of 31.6 kg/m<sup>2</sup>, with no other comorbidities. The patient was submitted to intragastric balloon (IGB) placement to treat mild obesity. Three months after the procedure, she had lost a total of 16 kg. At three months after the IGB placement, the patient consulted the bariatric endoscopy service due to epigastric pain over 48 hours, nausea, vomiting and abdominal distension. The patient reported progressive worsening of the pain, abdominal distension and vomiting. On physical examination, the patient had bulging of the upper abdominal and presented diffuse pain on palpation, but with no other signs of peritoneal irritation or hemodynamic instability. An abdominal X-ray was performed showing an increase in the diameter of the IGB. The patient was admitted to the emergency department and was treated with intravenous scopolamine, dipyron and bromopride, which provided symptomatic relief. Due to the improvement of symptoms including the pain on palpation, the patient was fasted for 12 hours to try to reduce the gastric contents and diminish the risk of pulmonary aspiration, and an esophagogastroduodenoscopy with endotracheal intubation. After inspection of the gastric cavity and aspiration of a large quantity of gastric residues, IGB hyperinsufflation was confirmed and it was decided to empty the balloon. However, the IGB ruptured after puncturing it with the needle. The liquid contents of the IGB were aspirated and the balloon was later removed using endoscopic tweezers without further complications. The patient had clinical improvement and she was discharged on the same day as the procedure.

## eP170 URGENT GASTROSCOPY THROUGH PEG FISTULA APPROACH

**Authors** Vujnovic G<sup>1</sup>, Vrbnjak M<sup>1</sup>, Drobnic M<sup>1</sup>, Pivko K<sup>1</sup>, Kostanjevec B<sup>1</sup>

**Institute** 1 General Hospital Ptuj, Ptuj, Slovenia

**DOI** 10.1055/s-0039-1681910

**Aims** Gastroscopy in the best way treat upper GI bleeding. In some medical condition natural feeding way is closed. Percutaneous endoscopic gastrostomy (PEG) fistula in such patients is usually narrow for standard gastrostomy. Endoscopy of such patient can be challenging. Dieulafoy's lesion is rare cause of GI bleeding.

**Methods** 64-year old patient with liver cirrhosis, who had laryngectomy due to carcinoma was admitted in hospital because of hematochezia. In past 6 months he was several times hospitalized because of massive, intermittent, GI bleeding. Gastroscopy through the natural way couldn't be done because of oesophageal stricture (lumen 3 mm). He had 16Fr PEG and tracheostomy. During earlier examination CT scans didn't show bleeding site. Varices of oesophagus was suspected to bleed. Bleedings was successfully treated with conservative measures.

**Results** We perform gastroscopy with paediatric endoscope through the PEG fistula. Procedure was unsuccessful because of food filled stomach. Then we do colonoscopy which didn't show bleeding site in the lower GI. Next day we repeat gastroscopy with retrograde oesophagoscopy up to stricture. There was no variceal or other cause of bleeding. In stomach we confirmed 8 mm angiodysplasia with artery in the center (Dieulafoy's lesion) without active bleeding. We couldn't treat lesion because of no working channel in

paediatric endoscope. Few days later in propofol sedation we surgically wide fistula enough for adult gastrostomy. First we treated lesion with 2,5 mL of 1% sclerosin, then applied three clips on. At the end we applied 20 Fr PEG tube. Until then, patient had no any GI haemorrhage.

**Conclusions** PEG fistula can also be access port for treatment of upper GI bleeding. Diagnose can be made with paediatric gastrostomy. Treatment with adult gastrostomy can be done after surgically widening fistula in sedation. Dieulafoy's lesion can be treated with combination therapy.

**Keywords** PEG, Dieulafoy, bleeding.

## eP171 PATENCY CAPSULE IN CLINICAL PRACTICE – EXPERIENCE OF A TERTIARY REFERENCE CENTER

**Authors** Silva M<sup>1</sup>, Peixoto A<sup>1</sup>, Gomes S<sup>2</sup>, Santos AL<sup>1</sup>, Moreira P<sup>1</sup>, Corte Real Nunes A<sup>1</sup>, Lopes S<sup>1</sup>, Macedo G<sup>1</sup>

**Institute** 1 Gastroenterology, Centro Hospitalar de São João, Porto, Portugal; 2 UCSP Rio Maior – ACES Lezíria, Rio Maior, Portugal

**DOI** 10.1055/s-0039-1681911

**Aims** Videocapsule endoscopy (VCE) is a non-invasive method for examining the small bowel. VCE retention is the most significant complication of these devices and a patency capsule (PC) may be used to safely perform VCE, in patients with an increased risk of VCE retention.

To describe their experience with PC exams and to evaluate the indications, results and safety profile of its use in the clinical practice.

**Methods** Retrospective single-center including all PiiCam CP exams performed between 2010 and 2017. PC detection with radiofrequency identification scanner and symptoms evaluation were assessed 30 hours after ingestion.

The intestinal tract was considered to be patent if the capsule was not detected by the scanner 30 h after ingestion, or if the capsule was later excreted intact. Patients with a positive scanner detection of PC did not perform VCE.

**Results** 716 PC were performed (57% women; mean age of 42 ± 15 years). Main indications included Crohn's disease (CD) (44%), suspected CD (41%), suspected small-bowel neoplasia (9%), previous abdominal surgery (4%), NSAID enteropathy/radiation enteritis (0.5%). 11% of patients had a previous diagnosis of small-bowel strictures in abdominal imaging or endoscopic exams and 33% had a history of previous abdominal surgery. The retention rate 30 h after CP ingestion was 28%, however 32 (5%) patients excreted an intact CP later. Two (0.2%) patients with CD required hospital admission due to small-bowel obstruction, which was successfully managed with intravenous corticosteroids. The history of small-bowel strictures was associated with non-patency of the small-bowel ( $p < 0.001$ ). All 551 (77%) patients with small-bowel patency subsequently performed VCE without incidents.

**Conclusions** PC has proven to be a safe and effective exam. As expected, the history of prior intestinal strictures was associated with non-patency of the small-bowel. The rate of PC retention (23%) was similar to that described in other series.

## eP172 RESULTS OF ENDOSCOPIC BALLOON DILATATION IN PATIENTS WITH GASTRIC OUTLET OBSTRUCTION RELATED TO PEPTIC ULCER DISEASE

**Authors** Medhioub M<sup>1</sup>, Ben Mohamed A<sup>1</sup>, Khsiba A<sup>1</sup>, Mahmoudi M<sup>1</sup>, Lamine Hamzaoui M<sup>1</sup>, Moussadek Azzouz M<sup>1</sup>

**Institute** 1 Mohamed Taher Maamouri Hospital, Nabeul, Tunisia

**DOI** 10.1055/s-0039-1681912

**Aims** Pyloric and bulbar stenosis is a rare complication of peptic ulcer disease (PUD). Surgery has been the conventional treatment, but it is associated with significant morbidity. Endoscopic balloon dilatation (EBD) with medical treatment showed short- and long-term efficacy and safety. The aim of our study was to evaluate the results of the EBD in patients with Pyloric and bulbar stenosis related to PUD and to determine the predictive factors of poor response to EBD.

**Methods** We conducted a retrospective descriptive study, including all patients who underwent an EBD for pyloric and bulbar stenosis related to PUD, between January 1997 and January 2017. The stenosis was defined by the inability to pass a 12-mm-diameter endoscope beyond the obstruction. The patients received a double-dose proton-pump inhibitor intravenously for 7–10 days and underwent a control endoscopic examination. If the obstruction persisted, an EBD was performed.

**Results** Seventy-three patients were included with a mean age of 51 years old (20–81). The sex ratio was 5.6. Seventy percent of patients were smokers and 7% were taking non-steroidal anti-inflammatory drugs. Thirty-four patients had a history of PUD. All patients were suffering from abdominal pain and vomiting. The median number of EBD sessions per patient was 1.67 (1–4). The median diameter of the balloon was 16 mm (12–20 mm). A duodenal perforation occurred in one case. The EBD was successful in 72.6% of cases. A surgical treatment was necessary on 20 patients.

Predictive factors for an unsuccessful EBD were: the failure of HP eradication, a number of sessions > 3 with *p* respectively, 0.03 and 0.045.

**Conclusions** The EBD associated with HP eradication is an effective and safe treatment of pyloric and bulbar stenosis related to PUD.

## eP173 HOW TO AVOID THE RECURRENT DISPLACEMENT OF AN ENTERAL FEEDING TUBE

**Authors** Espinel J<sup>1</sup>, Pinedo ME<sup>2</sup>, Cano V<sup>2</sup>

**Institute** 1 Hospital Universitario de León, León, Spain; 2 Hospital Universitario de León, León, Spain

**DOI** 10.1055/s-0039-1681913

**Aims** The placement of an enteral feeding tube (EFT) by endoscopy can be a challenging procedure because of their displacement when removing the endoscope. In order to avoid it, it is usually employed a forceps to try retaining the tube while removing the endoscope or, by opting for a distal fixation of the probe in the duodenum-jejunum, with clips. We present a case of recurrent displacement of an EFT while removing the endoscope.

**Methods** An endoscopic fixation technique was designed by means of a surgical tape (ST), previously placed in the middle part of the EFT. A hole in the surgical tape was previously made and it helped to fix it to the antrum gastric mucosa with clips.

**Steps:** Placement in the ST in the middle EFT/ST fixation to the gastric mucosa with clips/Removal of the endoscope without migration of the EFT/Radiological verification of EFT location and correct contrast pass.

**Results** In this way, the EFT's tension was significantly reduced and the EFT was maintained for a prolonged period.

**Conclusions** By means of this novel technique (surgical tape (ST) with gastric attachment), the sustained fixation of the EFT was achieved, thus preventing their recurrent migration.

## eP174 MULTIPLE NEUROENDOCRINE TUMOR OF THE SMALL BOWEL DIAGNOSED BY CAPSULE ENDOSCOPY

**Authors** Kunovsky L<sup>1,2</sup>, Dastyh M<sup>1</sup>, Kroupa R<sup>1</sup>, Dolina J<sup>1</sup>, Kysela P<sup>2</sup>, Svaton R<sup>2</sup>, Kala Z<sup>2</sup>, Vlazny J<sup>3</sup>, Husty J<sup>4</sup>, Eid M<sup>5</sup>, Trna J<sup>1</sup>, Poredska K<sup>1</sup>

**Institute** 1 Department of Gastroenterology, University Hospital Brno Bohunice, Faculty of Medicine, Masaryk University, Brno, Czech Republic; 2 Department of Surgery, University Hospital Brno Bohunice, Faculty of Medicine, Masaryk University, Brno, Czech Republic; 3 Department of Pathology, University Hospital Brno Bohunice, Faculty of Medicine, Masaryk University, Brno, Czech Republic; 4 Department of Radiology, University Hospital Brno Bohunice, Faculty of Medicine, Masaryk University, Brno, Czech Republic; 5 Department of Hematology, Oncology and Internal Medicine, University Hospital Brno Bohunice, Faculty of Medicine, Masaryk University, Brno, Czech Republic

**DOI** 10.1055/s-0039-1681914

**Aims** Primary malignant tumors of the small bowel constitute only about 1–2% of all gastrointestinal neoplasms. Although neuroendocrine tumors (NETs) are relatively rare, they still represent the second most common malignancy of the small bowel (after adenocarcinoma). Clinical manifestations include abdominal pain, bowel obstruction, diarrhea, weight loss and bleeding. The differential diagnosis of obscure gastrointestinal bleeding can sometimes be challenging for endoscopic as well as for radiological methods.

The aim of the lecture is to present the diagnostic and therapeutic management of a patient with NET of the small bowel.

**Methods** A literature research (in MEDLINE, PubMed and Google Scholar databases) was done focusing on diagnostics, endoscopic and surgical treatment of neuroendocrine tumor of the small bowel.

**Results** We present a case of an 80-year-old man suffering from severe hypochromic anemia. Routine endoscopic methods did not show any pathology explaining the severe anemia. Finally, a single ulcerative infiltration of the ileum was diagnosed by capsule endoscopy (CE). CT enterography did not reveal any other lesions. In accordance with a positive chromogranin A, endoscopic and radiological methods, a suspicion of NET was expressed. During the surgery 7 lesions were found and a resection of 120 cm of ileum was performed. The histology confirmed a diagnosis of NET grade 1, with a total number of 15 NET lesions in the specimen.

**Conclusions** NETs located in the duodenum up to 1 cm in size can be treated endoscopically and are mostly isolated lesions. On the other hand, surgical treatment is recommended for NETs in the jejunioileum. They have a greater propensity to metastasize and NETs in this localization can even form more lesions.

We present a patient with 15 NET lesions in the ileum diagnosed by CE and successfully treated by surgical resection of the ileum.

## eP175V DOUBLE PIGTAIL STENT INSERTION FOR EFFERENT LOOP SYNDROME

**Authors** Sioulas A<sup>1</sup>, Papadaki K<sup>1</sup>, Tzimas G<sup>1</sup>, Scotiniotis I<sup>1</sup>

**Institute** 1 Hygeia Hospital, Athens, Greece

**DOI** 10.1055/s-0039-1681915

**Aims** To describe the successful treatment of a patient with efferent loop syndrome with the insertion of two double pigtail stents.

**Methods** A 58-year-old man, who had undergone total pancreatectomy for a pancreatic head adenocarcinoma before 28 days, was admitted to the hospital with abdominal discomfort and bilious vomiting. Upper gastrointestinal endoscopy revealed a dilated gastric remnant and the endoscope could not be advanced into the efferent loop due to excessive kinking. The afferent loop was easily accessed and appeared normal. Gastrografin swallow showed nearly complete obstruction of the efferent loop at the level of its opening. The patient was initially treated with nasogastric tube decompression and total parenteral nutrition, without significant improvement. Five days later a repeat endoscopy was performed and two double pigtail stents (4 and 7 cm, respectively; 7Fr both) were inserted through the efferent loop stenosis over a guide wire and under combined endoscopic and radiologic guidance.

**Results** Following the procedure the patient experienced immediate symptomatic relief and could gradually tolerate oral intake. Ten days later plain abdominal films confirmed migration of both stents, while the patient remained asymptomatic.

**Conclusions** Insertion of two double pigtail stents relieved symptoms from efferent loop obstruction and may be considered as a treatment option in such cases.

### eP176V LIGATION-ASSISTED ENDOSCOPIC MUCOSAL RESECTION (EBL-EMR) AS A SAFE ALTERNATIVE FOR THE RESECTION OF A FLAT DUODENAL ADENOMA IN A CIRRHOTIC PATIENT WITH ECTOPIC DUODENAL VARICES

**Authors** Tribonias G<sup>1</sup>, Kechagias G<sup>1</sup>, Moschovis D<sup>1</sup>, Zacharopoulou E<sup>1</sup>, Giotis I<sup>1</sup>, Palatianou M<sup>2</sup>, Penesis G<sup>1</sup>, Internos I<sup>2</sup>, Tzouvala M<sup>1</sup>

**Institute** 1 Gastroenterology Department, General Hospital of Nikaia 'Agios Panteleimon', Nikaia, Athens, Greece; 2 Gastroenterology Department, General Hospital of Nikaia 'Agios Panteleimon', Athens, Greece

DOI 10.1055/s-0039-1681916

**Background** Duodenal lesions not involving the major duodenal papilla can be removed with a variety of EMR techniques, but carries an increased risk of bleeding and perforation because the duodenum has increased vascularity and a thin wall.

**Case report** We present the usage of ligation-assisted EMR for the en-bloc resection of a 15 mm flat duodenal adenoma in a cirrhotic patient with ectopic duodenal varices. A 48-year old woman was referred to our department for screening EGD regarding her newly diagnosed cirrhosis. Endoscopy revealed except from small esophageal varices, additional ectopic duodenal varices. A flat (Paris classification 0-IIa) duodenal adenoma was also detected opposite the major papilla. Ligation-assisted EMR was chosen for the en-bloc resection due to the efficiency of the method in extruding the muscularis propria layer and entrapping only the mucosa and portions of the submucosa with lower risk of perforation in the thin duodenal wall. Secondly, the ligation band device could guide the operator more accurately in ensnaring with the plastic band the adenomatous polypoid tissue and transform the flat (0-IIa) duodenal polyp to a sessile one (0-Is). The resected specimen was controlled without a target sign. The mucosal defect in the duodenal wall revealed minimal intra-procedural bleeding that was managed with small amount of adrenaline diluted into normal saline and sprayed above the bleeding defect. Finally, EMR defect was closed with 3 metallic clips in order to prevent delayed bleeding. The patient discharged the same day without any complications and the final histology report demonstrated tubular duodenal adenoma with low grade dysplasia and clear margins (R0 resection).

**Conclusions** Ligation-assisted EMR could be a safe and accurate method for the removal of flat duodenal adenomas even in cirrhotic patients where the possibility of an acute bleeding is higher and the restoration of a perforation probably more difficult.

### eP177V A RARE CASE OF BURIED AND PERFORATING SHARP FOREIGN BODY (METAL PIN) FROM ANTRUM TO GB FOSSA – REMOVED USING ESD

**Authors** Desai P<sup>1</sup>, Kabrawala M<sup>1</sup>, Mehta R<sup>1</sup>, Kalra P<sup>2</sup>, Patel C<sup>1</sup>, Nandwani S<sup>2</sup>, Prajapati R<sup>2</sup>, Patel N<sup>2</sup>

**Institute** 1 Endoscopy, Surat Institute of Digestive Sciences, Surat, India; 2 Surat Institute of Digestive Sciences, Surat, India

DOI 10.1055/s-0039-1681917

**Case** A 27 year old male.

Abdominal pain over right hypochondrium.

Nausea.

Vomiting- one episode, non-bilious.

H/o accidental ingestion of metal pin.

Patient was admitted at government medical college for 15 days.

Close clinical observation and conservative medical management.

Multiple serial X-rays- s/o persistent position of FB in stomach.

Discharged on supportive medical treatment.

Persistent symptoms- Referred to our institute.

**CT Findings** NCCT revealed a Foreign body in the pre pyloric region of the stomach with its distal end extending into the gall bladder fossa with very minimal adjacent free fluid and few air foci s/o perforation.

**Method** Endoscopy revealed a bulge in the antrum with mucosal cover and the FB was imbedded deep in the bulge. We located it under fluoroscopy, marked the tip and then marked with a dual knife surround the area of the tip. Did a deep mucosal incision with ESD technique over the marked tip. After deep dissection we probed the area with a rat tooth forceps and again taking the help of fluoroscopy we caught the tip of the needle and removed it safely. There was little ooze from the raw area and hemostasis was secured with gold probe coagulation. Fluoroscopy confirmed no free CO<sub>2</sub> leak from the area.

**Conclusion** ESD technique was useful in removal of a buried and perforating sharp foreign body from the antrum while using fluoroscopy guidance. The technique shows the importance of using resources at hand to remove difficult foreign bodies in the GI tract.

### eP178 ASSOCIATION OF PROTON PUMP INHIBITORS WITH RISK OF DEMENTIA: A NATIONWIDE POPULATION-BASED COHORT STUDY IN SOUTH KOREA

**Authors** Han J<sup>1</sup>, Park S<sup>1</sup>, Cho B<sup>1</sup>

**Institute** 1 Internal Medicine, Chungbuk National University Hospital, Cheongju, Korea, Republic of

DOI 10.1055/s-0039-1681918

**Aims** The present study was performed to investigate the association between PPI use and dementia using the Korean National Health Insurance Service (KNHIS), to follow the development of dementia in users and non-users of PPIs in a Korean population over a > 10-year period (2002 – 2013).

**Methods** We used a retrospective, case-control design in which both cases and controls had exposure to a new PPI prescription and from which a definite period (12 months) of observation was accrued from the first PPI dispensing date until the onset of dementia or December 31, 2013.

**Results** These observations indicated that the PPI cohort had a significantly elevated risk of dementia compared to the control cohort (IRR: 1.34, 95% CI: 1.24 – 1.43). Subgroup analysis revealed similarly elevated risks of dementia in the PPI cohort for most variables. The risk of dementia in the PPI cohort increased at all ages, but risk ratio compared with the controls decreased with age, and there was no difference among subjects in their 80s or older. The risk of dementia in the PPI cohort increased at all levels of household income and was increased in the low household income in both the PPI cohort and controls. The PPI cohort showed increased risk of dementia for all comorbidities.

**Conclusions** In our retrospective cohort study from the National Health Insurance Database of Korea, the risk of all-cause dementia was shown to be significantly associated with PPI use over 90 DDD, as compared to a matched control group.

### eP179 REFRACTORY GAVE TREATED WITH RADIOFREQUENCY ABLATION BY THROUGH-THE-SCOPE CATHETER: THREE CASES OF COMPLETE RESPONSE

**Authors** Maida M<sup>1</sup>, Morreale G<sup>1</sup>, Scarpulla G<sup>1</sup>, Manganaro M<sup>1</sup>, Garufi S<sup>1</sup>, Camilleri S<sup>1</sup>

**Institute** 1 Gastroenterology Unit, S. Elia – Raimondi Hospital, Caltanissetta, Italy

DOI 10.1055/s-0039-1681919

**Aims** Gastric antral vascular ectasia (GAVE), or watermelon stomach, is an uncommon cause of upper gastrointestinal bleeding. One emerging and promising endoscopic treatment for GAVE is radiofrequency ablation (RFA) with focal catheters (e.g. HALO<sup>90</sup> and HALO<sup>ULTRA</sup>). We present three cases of refractory GAVE treated with radiofrequency ablation with the smaller and more handling through-the-scope (TTS) catheter, with long-term response.

**Methods** Three patients (1<sup>st</sup> patient male 68 years old, 2<sup>nd</sup> patient male 81 years old, 3<sup>rd</sup> patient female 71 years old) with endoscopic and histological diagnosis of GAVE and chronic anemia dependent on blood transfusions, previously treated with argon plasma coagulation or endoscopic band ligation without clinical response, underwent RFA with the Barrx through-the-scope catheter. Every session was performed placing the device at 12 or 6 o'clock, starting at the pylorus and working proximally providing a maximum of 2 hits in the same area with an energy density of 12 J/cm<sup>2</sup>. The average duration of each session was 35 minutes, with a number of applications ranging from 60 to 80.

**Results** The 1<sup>st</sup> and the 2<sup>nd</sup> patients were treated with two sessions while the 3<sup>rd</sup> patient with 3 sessions of RFA. Every session reached a full technical success without any complication during or after the procedure. After a mean follow-up of 9 months, in each of the 3 cases Hemoglobin rose by at least 2 g/dl with values above the threshold of 10 g/dl and no further transfusion has been required confirming a good clinical outcome.

**Conclusions** Radiofrequency ablation with the Barrx is a new, promising technique for endoscopic treatment of GAVE. Current evidence supports its effectiveness, in the absence of major adverse events. In contrast to other reports, we used the through-the-scope RFA catheter since it is more handy and can be inserted through the working channel providing a better maneuverability and avoiding multiple endoscope introductions.

## eP180 PERCUTANEOUS ENDOSCOPIC GASTOSTOMY AND JEJUNOSTOMY – ONE CENTRE REVIEW (SUMMARY DATA 2002 – 2018)

**Authors** Kohout P<sup>1</sup>, Antos Z<sup>1</sup>, Puskarova G<sup>1</sup>, Rozmahel M<sup>1</sup>, Cernik M<sup>1</sup>, Summerova S<sup>1</sup>

**Institute** 1 Internal Clinic, Thomayer's Hospital, Prague, Czech Republic  
DOI 10.1055/s-0039-1681920

**Aims** The aim of study was to review number of percutaneous gastrostomies (PEG) and jejunostomies (PEJ) in PEG Center of Internal Clinic 3<sup>rd</sup> Medical Faculty of Charles University and Thomayer's Hospital in Prague.

**Methods** PEG is method of choice for application of enteral nutrition for more than 4–6 weeks, PEJ is introduced, when jejunal nutrition is indicated or introduction of PEG is contraindicated (stomach cancer) or technically impossible.

**Results** Since 2002 to 2018 1587 PEGs in 1526 patients (707 men, 819 women, aver. age 69,5 years, 6 weeks – 98 years) were introduced, 830 PEGs in patients over 70 years (351 men, 479 women), 169 PEGs in children under 15 years (80 boys, 59 girls, aver. age 2,1 years) 35 PEJs were introduced in 35 patients in the average age of 52,4 years (23 men, 12 women), 15 of them with stomach cancer.

312 patients (20,6%) have had Oncological diagnose (225 men, 89 women, aver age 57,3 years), in 227 of them (14,8%) Head end neck cancer was found (165 men, 62 women, aver age 61,4 years), in 92 patients PEG were introduced before radiotherapy of surgery, in 153 patients pull technique (Gauderer-Ponsky or Sacks-Vine) and in 74 push-through technique (Russell) were used.

37 pts have had after stomach resection, in 36 of them PEG and in next 18 PEJ were successfully introduced, in 2 of them transthoracally.

The rate of early complications (in 30 days) was low – 10,5%, the mortality was 0,06% (1 patient), 2,4% had serious complications (2,1% aspiration pneumonia) and 9,2% of complications were non-serious (light) (8,4% stoma site infection).

**Conclusions** Percutaneous endoscopic gastrostomy and jejunostomy are safe and easy to perform methods for long term application of enteral nutrition.

## eP181 SURVIVAL OF PATIENTS WHO UNDERWENT PERCUTANEOUS ENDOSCOPIC GASTROSTOMY TUBE PLACEMENT IN THE INTENSIVE CARE UNIT: FOUR YEARS OF FOLLOW-UP

**Authors** Grammatikos K<sup>1</sup>, Tziatzios G<sup>1</sup>, Lygkos D<sup>1</sup>, Panoutsakou M<sup>1</sup>, Koukoulioti E<sup>1</sup>, Miltiadou K<sup>1</sup>, Gatos-Gatopoulos P<sup>1</sup>, Lazaridis LD<sup>1</sup>, Gkolfakis P<sup>1</sup>, Triantafyllou K<sup>1</sup>

**Institute** 1 Hepatogastroenterology Unit, Attikon University General Hospital, Athens, Greece

DOI 10.1055/s-0039-1681921

**Aims** We compared Intensive Care Unit (ICU) patients' survival to the survival of patients hospitalized in the General Medical Ward (GMW) after percutaneous endoscopic gastrostomy (PEG) tube placement in a tertiary hospital in Athens, Greece.

**Methods** Using the hospital records, we retrospectively identified consecutive patients who underwent PEG tube placement and we retrieved their demographic, clinical and survival data (overall, 28<sup>th</sup> day, 3months and 6months mortality).

**Results** Between January 1<sup>st</sup>, 2015 and September 10<sup>th</sup> 2018, 116 patients [70 (60.3%) men, 63.4 ± 19.5 years old] underwent PEG tube placement. The 28 (24.1%) ICU patients [21, (75%) men] were significantly younger compared to those hospitalized in the GMW (55.4 ± 23.4 vs. 70.1 ± 16.8 years, p = 0.001). As compared to GMW, similar number (9 vs. 8) of patients with head injury, and significantly fewer (p = 0.01) patients with neurological diseases/psychomotor retardation (12 vs. 34), dementia (5 vs. 32) and head and neck cancer (2 vs. 14) were hospitalized in the ICU. Survival data after PEG tube placement were available for 112/116 (96.5%) patients. Overall the median survival was similar between patients hospitalized in the ICU and GMW [135; 95% CI (37.9 – 232.1) vs. 60; 95% CI (3.7 – 116.2) days, p = 0.17]. 28th day (95% vs. 77.5%, p = 0.07), 3months (75% vs. 67.2%, p = 0.36) and 6months (65% vs. 57.1%, p = 0.37) survival rates were also similar between the two groups. During the follow-up period, PEG tube was removed in 3 ICU and 4 GMW patients, following restoration of the swallowing function.

**Conclusions** Survival after PEG tube placement is similar among ICU and GMW patients despite their different epidemiological and clinical characteristics.

## eP182 SHORT AND MID TERM RESULTS OF ENDOSCOPIC SUBMUCOSAL DISSECTION IN EARLY GASTRIC CANCER: PROSPECTIVE STUDY IN PERU 2012 – 2018

**Authors** Palacios F<sup>1</sup>, Benites H<sup>1</sup>, Marín L<sup>1</sup>, Bardalez P<sup>1</sup>, Vásquez J<sup>1</sup>, Alva E<sup>1</sup>, Dávalos M<sup>1</sup>

**Institute** 1 Gastroenterology, Hospital Nacional Edgardo Rebagliati Martins, Lima, Peru

DOI 10.1055/s-0039-1681922

**Aims** Endoscopic submucosal dissection (ESD) is a treatment modality for superficial gastric neoplasms that has proven to be useful in multiple oriental studies; however, given its technical difficulty, it is not commonly used in the West. In the present study we evaluate the short and mid term results of ESD in the treatment of early gastric cancer (EGC) in two reference centers in Peru.

**Methods** We prospectively included all patients undergoing ESD for EGC from July 2012 to July 2018 in two medical centers. The rate of en bloc, complete and curative resections were calculated, as well as the complication rate. The rate of recurrences and the appearance of metachronous lesions were determined. In addition, a global and disease-free survival analysis were performed after resection.

**Results** In the period described, a total of 94 patients with 105 EGC were included. The medians of the measurement of the lesions and the time of the procedure were 20 mm and 50 min, respectively. The rates of en bloc, com-

plete and curative resection were 99%, 98% and 92%, respectively. There were 7 cases of perforation (6.7%) and 4 cases of late bleeding (3.8%). A patient with perforation had to undergo surgery. Within the group of curative resections there was a case of local recurrence (1.4%) and four cases of metachronous EGC (6%).

**Tab. 1** Histopathological analysis

Curative resection	
Guideline criteria	49 (46.67)
Expanded criteria – Differentiated	47 (44.76)
Expanded criteria – Undifferentiated	1 (0.95)
Non-curative resection	8 (7.62)

**Conclusions** Gastric ESD is a feasible treatment modality to be performed in our country, being effective and safe when performed by trained endoscopists and in reference centers.

### eP184 INTEREST OF UPPER GASTROINTESTINAL ENDOSCOPY BEFORE BARIATRIC SURGERY

**Authors** Mrabet S<sup>1</sup>, Dhouioui K<sup>2</sup>, Hamila F<sup>2</sup>, Akkari I<sup>1</sup>, Ben Jazia E<sup>1</sup>, Letaief R<sup>2</sup>  
**Institute** 1 Gastroenterology, Farhat Hached University Hospital, Sousse, Tunisia; 2 Surgery, Farhat Hached University Hospital, Sousse, Tunisia  
 DOI 10.1055/s-0039-1681923

**Aims** The search for Helicobacter Pylori (HP) infection is recommended systematically before bariatric surgery. The aim of our study is to determine the endoscopic and histological aspects of gastric lesions in patients with morbid obesity.

**Methods** This is a retrospective study including all patients proposed for bariatric surgery between January 2013 and September 2018. All patients had a preoperative exploration by upper gastrointestinal endoscopy (UGE) with antrofundics biopsies.

**Results** During the study period, 62 patients were collected divided into 60 women and 2 men. The median age was 31.5 years. The average body mass index was 44.9 kg/m<sup>2</sup>. Co-morbidities were associated with obesity in 45% of cases dominated by Hypertension and diabetes. Most patients (93%) were asymptomatic in the digestive tract. Preoperative UGE was pathological in 33 patients (54%): congestive gastritis (n = 17), nodular gastritis (n = 6), erosive gastritis (n = 5), hiatus hernia, (n = 4), esophagitis (n = 1), erosive bulbitis (n = 1), and bulb ulcer (n = 1). Gastritis with Helicobacter Pylori (HP) was present in 20 patients (32.3%). Gastritis was active in all cases with severe activity in 13 cases. Two patients had antro-fundic atrophy. Intestinal metaplasia was noted in one patient. The surgery was Sleeve Gastrectomy in 86% of cases and gastric bypass in 14% of cases. 91% of the patients were operated by laparoscopy. Anemia was the only factor significantly associated with HP gastritis (p = 0.013).

**Conclusions** 54% of patients had preoperative gastric lesions despite that they were asymptomatic in 93% of cases. The prevalence of HP gastritis was 32.3%. Therefore, UGE appears necessary as preoperative investigation in all patients proposed for bariatric surgery.

### eP185 ENDOSCOPIC AND HISTOLOGICAL ASPECTS OF HELICOBACTER PYLORI GASTRITIS

**Authors** Mrabet S<sup>1</sup>, Chabbouh K<sup>1</sup>, Akkari I<sup>1</sup>, Ben Jazia E<sup>1</sup>  
**Institute** 1 Gastroenterology, Farhat Hached University Hospital, Sousse, Tunisia  
 DOI 10.1055/s-0039-1681924

**Aims** The responsibility for Helicobacter pylori (HP) in the genesis of peptic ulcer is well established. Its role in gastric carcinogenesis has also been demonstrated. The purpose of our work was to determine the endoscopic and histological aspects of HP gastritis.

**Methods** This is a retrospective study including all the patients who had a first upper gastrointestinal endoscopy (UGE) with 5 gastric biopsies between January 2015 and September 2018. The histological examination allowed us in

addition to the existence of HP, studying the activity of gastritis, gastric atrophy and intestinal metaplasia according to the Sydney System.

**Results** Among 355 patients who had UGE with gastric biopsies, 248 patients (96 men and 152 women, mean age 47 years) had chronic HP gastritis (70%). Sixty patients (20%) were smokers. Anemia was present in 80 patients (22%). Congestive or erythematous gastritis was the most common endoscopic lesion (n = 158, 63.7%). Other endoscopic findings were: nodular gastritis (n = 49), erosive gastritis (n = 13), ulcerated gastritis (n = 17), congestive gastro-bulbitis (n = 16), bulbitis erosive (n = 12), gastric ulcer (n = 9) and ulcerated bulbitis (n = 9). Chronic gastritis was active in 90% of cases with mild to moderate activity in most patients (88%). The prevalence of gastric atrophy was 19%. It was present in the fundus in 3.6% of cases. The prevalence of intestinal metaplasia was 9%. Only one patient had low grade dysplasia. The presence of HP was associated with smoking (p = 0.04) and the presence of anemia (p = 0.05).

**Conclusions** In our series, the prevalence of chronic HP gastritis was 70%. The presence of HP was associated with smoking and anemia. Intestinal metaplasia, fundic atrophy and dysplasia were present in 9%, 3.6% and 0.5% of cases, respectively.

### eP186 ANALYSIS OF GASTRIC AND DUODENAL BIOPSY RESULTS IN PATIENTS PRESENTING WITH DYSPESIA: A CROSS SECTIONAL STUDY IN A TERTIARY HOSPITAL CENTER IN LEBANON

**Authors** Farhat S<sup>1</sup>, Hussein Kamareddine M<sup>2</sup>, Bou-Ayash N<sup>2</sup>, Ghosn Y<sup>2</sup>, Jabbour G<sup>1</sup>, Cortas G<sup>3</sup>, Khoury S<sup>3</sup>, Bedran K<sup>4</sup>  
**Institute** 1 Saint George Hospital University Medical Center, Department of Gastroenterology, Beirut, Lebanon; 2 University of Balamand, Department of Medicine and Medical Sciences, Kahlata, Lebanon; 3 Saint George Hospital University Medical Center, Gastroenterology, Beirut, Lebanon; 4 Saint George Hospital University Medical Center, Gastroenterology, Achrafieh, Lebanon  
 DOI 10.1055/s-0039-1681925

**Aims** Around a half a century ago, Pelejo Correa described a "Model for Gastric Cancer Development" referred to as Correa's cascade. Today, roughly half of the world's population are infected with *Helicobacter pylori* (*H. pylori*), the main cause of chronic gastritis. While the reversibility of Correa's cascade is still debatable, there is insufficient data on the specific stage of the cascade during which *H. pylori* is detected and treated and its effect on prognosis. The Objectives of this study is to determine the prevalence of gastritis and *H. pylori* in patients presenting with dyspepsia, identify the prevalence of various pre-cancerous and cancerous gastric lesions, identify the stage of *H. pylori* detection in relation to Correa's cascade, determine the prevalence of duodenal pathology in patients presenting with dyspepsia, and investigate a possible relationship between *H. pylori* and celiac disease.

**Methods** An analytical cross sectional study was conducted at a Lebanese tertiary hospital center. 1428 patients presenting with dyspepsia underwent gastroscopy and duodenoscopy with biopsies. Variables include age, sex, presence/absence of *H. pylori* infection, and histopathological analysis of gastric and duodenal biopsies. Data was analyzed using SPSS v24.

**Results** Being above 40 years of age was associated with an increased likelihood of exhibiting abnormal gastric biopsy results. Gastritis and metaplasia are being detected more frequently than glandular atrophy (p < 0.001) with Gastritis being present the most (p < 0.001). No relationship was found between *H. pylori* and any of the duodenal biopsy results. Similarly, there was no relationship between gastric biopsy results and duodenal biopsy results.

**Conclusions** The burden of *H. pylori* infection in patients with dyspepsia was high. *H. pylori* was detected at various pre-cancerous lesions with varying significance. The prevalence of duodenal adenocarcinoma in dyspeptic patients is unexpectedly high. No association between gastric and duodenal pathologies was found.

## eP187 ANALYSIS OF THE PERFORMANCE OF THE ENDOSCOPIC TREATMENT OF OBESITY WITH INTRAGASTRIC BALLOON. IS THE SECOND HOUR OF GASTRIC EMPTYING THE CRUCIAL FACTOR?

**Authors** Barrichello S<sup>1</sup>, Cairo Nunes G<sup>2</sup>, Carolina Hoff A<sup>3</sup>, Waisberg J<sup>4</sup>, Ferreira de Souza T<sup>4</sup>, Grecco E<sup>4</sup>, Valente A<sup>4</sup>, Galvão Neto M<sup>4</sup>, Fernandes Fittipaldi JR<sup>5</sup>, Guimaraes Hourneax de Moura E<sup>6</sup>

**Institute** 1 Bariatric Endoscopy, Healthme Weight Management Clinic, São Paulo, Brazil; 2 Nutrition, Hospital das Clinicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil; 3 Bariatric Endoscopy, Angioskope Clinic, São José dos Campos, Brazil; 4 Bariatric Endoscopy, FMABC, Santo André, Brazil; 5 Bariatric Endoscopy, Endogastrorio Clinic, Rio de Janeiro, Brazil; 6 Bariatric Endoscopy, Hospital das Clinicas da Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil

**DOI** 10.1055/s-0039-1681926

**Aims** Morbid obese Patients are treated very efficiently by the various Bariatric surgery techniques, while overweight patients have good results with drug interventions and changes in lifestyle. For the patients who are at the intersection of these two strategies, the endoscopic treatment of obesity with the intragastric balloon is a very interesting and widely used alternative.

Understanding the mechanism of action of intragastric balloon is an important research factor for better use of the method. Changing the rate of gastric emptying is one of the probable hypotheses of function of the accessory during the treatment.

**Methods** Twenty patients were retrospectively evaluated for weight loss performance immediately after IGB withdrawal and six months afterwards. The velocity of gastric emptying was measured before and after IGB implantation by scintigraphy. The relationship between gastric motility alteration and final weight loss was also examined.

**Results** The sample consisted of adults, with a mean age of  $34.19 \pm 6.16$  years (minimum age: 23 years, maximum age: 48 years). The mean weight loss between before IGB placement and immediately after IGB removal ( $16.68 \pm 5.71$  kg,  $p < 0.01$ ), before and after six months of IGB withdrawal ( $14.42 \pm 6.65$  kg,  $p < 0.01$ ), and between IGB withdrawal and six months of follow-up ( $2.47 \pm 4.07$  kg,  $p = 0.02$ ) were significant. There was a significant increase between the mean retention of the test meal (%) post-implant of the BIG for the analyzes of 1 h (Before:  $71.6 \pm 14.12$ , After:  $86.2 \pm 21.89$ ,  $p = 0.02$ ) and 2 h ( $28.1 \pm 16.99$ ,  $67.99 \pm 29.32$ ,  $p < 0.01$ ).

**Conclusions** IGB treatment is efficient in the treatment of obesity grade I and II, promoting an important decrease in gastric emptying speed during the use of the accessory, especially on the second hour collaborating to the fullness sensation between meals.

## eP188 TEN YEARS OF UPPER GASTROINTESTINAL BLEEDING IN A LARGE VOLUME EMERGENCY DEPARTMENT

**Authors** Lomré M<sup>1</sup>, Mols P<sup>2</sup>, Kirkove P<sup>3</sup>, Eisendrath P<sup>4</sup>

**Institute** 1 ULB Brussels, Brussels, Belgium; 2 Department of Emergency, CHU St-Pierre, ULB Brussels, Brussels, Belgium; 3 CHU St-Pierre, ULB Brussels, Brussels, Belgium; 4 Department of Gastroenterology, CHU St-Pierre, ULB Brussels, Brussels, Belgium

**DOI** 10.1055/s-0039-1681927

**Aims** To analyse the etiologies of upper gastrointestinal bleeding (UGIB) in a public hospital from the city centre of Brussels.

To test two risk scores – Rockall Score (RS) and Glasgow-Blatchford Score (GBS) – in UGIB and to analyse how they perform for predicting outcomes.

**Methods** Based on in-hospital records, we retrospectively studied 243 adults who were hospitalized from the emergency room for UGIB between the 01/01/2004 and the 31/12/2014 at the CHU St Pierre in Brussels, Belgium.

We collected data regarding etiologies of UGIB, need of intervention (blood transfusion, endoscopic therapy, surgical treatment), the rebleeding rate and in-hospital mortality.

We applied RS and GBS to respectively 238 and 242 patients.

**Results** The most common etiology of UGIB was peptic ulcer (67,9%). No etiology was found for 12,4% of patients.

Regarding interventions, 57,2% of patients required blood transfusion, 42,8% needed endoscopic therapy and 7,4% underwent surgery. Rebleeding rate was 11,9%. Mortality was 6,6%.

The RS had a greater discriminating capacity for mortality risk (AUC 0.82) than for predicting rebleeding rate (AUC 0.65).

The GBS had a similar discriminating capacity for mortality (AUC 0.76) and for blood transfusion (AUC 0.86) and was less discriminant for the need of intervention (AUC 0.65).

Applying the usual threshold for management of UGIB as outpatients ( $\leq 1$ ), GBS identified correctly 106/107 patients who needed intervention, but one patient with a score of 0 needed transfusion and endoscopic therapy.

**Conclusions** Despite major advances in management of UGIB, mortality remains significant in our inpatient population where peptic ulcer remains the principal cause of UGIB.

The GBS is an interesting discrimination tool regarding mortality and for predicting the need of blood transfusion. The need of excluding patients with recent abdominal surgery from GBS for outpatient management assessment should be evaluated in larger prospective studies.

## eP189 EARLY EXPERIENCE OF ENDOSCOPIC SUBSEROSAL DISSECTION (ESSD) FOR GASTRIC TUMORS

**Authors** Cho J<sup>1</sup>, Yun S<sup>1</sup>, Yang M<sup>1</sup>, Lee Y<sup>1</sup>, Kim B<sup>1</sup>, Kim J<sup>1</sup>

**Institute** 1 Internal Medicine, Presbyterian Medical Center, Jeonju, Korea, Republic of

**DOI** 10.1055/s-0039-1681928

**Aims** Most of gastric subepithelial tumors confined to submucosa can be resected by endoscopy. The endoscopic submucosal resection for lesions originating from muscularis propria has been performed for the mass with submucosal or intramuscular growing only. Until now, the data for endoscopic subserosal dissection of gastric tumor was very rare.

**Methods** We analyzed to know the effectiveness of endoscopic subserosal resection (ESSD) in the gastric epithelial or subepithelial tumor with exophytic growing, retrospectively. ESSD was performed for 11 lesions, from August 2011 until May 2018. We wanted to evaluate about complete resection, procedure time and complication.

**Results** There were 3 male and 8 female, with mean age of 62.4 (51 – 72). Pathologic Diagnoses were 3 GISTs, 6 leiomyomas and 2 tubular adenomas with severe fibrosis. The site of lesions were gastric antrum in 2 and gastric body in 9. The mean size of resected specimens was 21 mm (12 – 36 mm). Mean procedure time was 36 min (11 – 72 min). En bloc resection rate was 11/11 (100%) and complete resection was achieved in 9/11 (82%). Perforation was occurred in 2 cases and managed conservatively.

**Conclusions** We think that Endoscopic subserosal dissection may be used as effective tool in the treatment of some gastric subepithelial tumor with subserosal or intramural growing. Further study is needed for evaluation for safety of ESSD.

### eP190 CAPSULE ENDOSCOPY WITHOUT LESIONS SIGNIFICANT FINDINGS IN OBSCURE BLEEDING – IS POOR PREPARATION ASSOCIATED WITH GREATER BLEEDING RECURRENCE?

**Authors** Sousa M<sup>1</sup>, Pinho R<sup>1</sup>, Ponte A<sup>1</sup>, Rodrigues A<sup>1</sup>, Silva J<sup>1</sup>, Gomes C<sup>1</sup>, Carvalho J<sup>1</sup>

**Institute** 1 Centro Hospitalar de Vila Nova de Gaia e Espinho, Vila Nova de Gaia, Portugal

DOI 10.1055/s-0039-1681929

**Aims** A false negative capsule endoscopy (CE) performed for obscure gastro-intestinal bleeding (OGIB) can occur in about 20–30% of patients. Poor bowel preparation may impair CE's accuracy. The aim of this study was to evaluate bleeding recurrence in patients with OGIB with EC without significant findings, taking into account the bowel preparation.

**Methods** Retrospective study that included CE performed 2010–2014 for OGIB and with negative significant results (CE without findings or P0/P1 lesions according to Saurin classification). Bleeding recurrence was defined as need for transfusional support, presence of melena/haematochezia or haemoglobin drop of 2 g/dL. Bowel preparation was classified according to qualitative scale of Brotz.

**Results** Four hundred fifty-nine CE were evaluated and 86 were included (64% female, mean age 67 years). Of these patients 12% had manifest OGIB and 88% had occult OGIB. The CE showed no lesions in 63%, P0 in 7% and P1 in 30%. The CE preparation was rated as excellent in 7%, good in 29%, fair in 36% and poor in 28%. 15% of the patients had bleeding recurrence, which was not related with bowel preparation ( $p = 0.8$ ). 12% of patients performed another method for the study small bowel and significant findings were found in 3 patients (2 angiectasias and 1 gastrointestinal stromal tumor) – these patients presented in the initial CE good or fair bowel preparations.

**Conclusions** In this sample, patients with CE with negative significant findings the quality of the preparation did not interfere in the bleeding recurrence that was 15%.

### eP191 HISTOLOGICAL PROFILE OF HELICOBACTER PYLORI-INDUCED CHRONIC GASTRITIS: ABOUT 227 CASES

**Authors** Kadi M<sup>1</sup>, Eljihad M<sup>1</sup>, Tahiri Joutei-Hassani M<sup>1</sup>, Badre W<sup>1</sup>, Hliwa W<sup>1</sup>, Haddad F<sup>1</sup>, Bellabah A<sup>1</sup>

**Institute** 1 Department of Hepato-Gastro-Enterology, Ibn Rochd Hospital University Center, Casablanca, Morocco

DOI 10.1055/s-0039-1681930

**Aims** The aim of our work is to define the different histological aspects of gastritis associated with HP infection.

**Methods** A retrospective study was performed, collating 227 patients admitted to our unit between August 2016 and November 2016 for upper endoscopy. Inclusion criterion was presence of chronic HP gastritis on the histological examination. Gastritis in the vicinity of malignant neoplasia or peptic ulcer were excluded.

**Results** Average age of patients was 47.2 years (extremes ranging from 14 to 85 years) with a sex ratio M/F of 0.8. The inflammation rate was light in 19.8% of the cases, moderate in 75.8% of the cases, and severe in 4.4% of the cases. The gastritis was not active in 18.5% of the cases, light in 37.0% of the cases, moderate in 36.6% of the cases, and severe in 7.9% of the cases. Density of colonization was HP+ in 40.1% of the cases, HP++ in 42.3% of the cases, and HP+++ in 17.6% of the cases.

Gastritis was atrophic in 29.5% of the cases. The atrophy was light in 68.7% of the cases, moderate in 28.3% of the cases, and severe in 3.0% of the cases. The prevalence of follicular gastritis was 15.0%. Intestinal metaplasia was found in 7.9% of the cases. In 6.6% of the patients, intestinal metaplasia was associated with gastric atrophy.

In univariate analysis, age, inflammation intensity, gastritis activity, and HP colonization density were associated with gastric atrophy ( $p = 0.001$ ,  $p = 0.030$ ,  $p = 0.044$ , and  $p = 0.016$ , respectively). In multivariate analysis, only age was associated with gastric atrophy ( $p = 0.002$ ).

**Conclusions** In our study, gastric atrophy was present in almost 1/3 of the cases and was associated with older age. Follicular gastritis and intestinal metaplasia were infrequent.

### eP192 HEREDITARY HEMORRHAGIC TELANGIECTASIA: DEMOGRAPHIC AND ENDOSCOPIC CHARACTERISTICS OF A LATIN AMERICAN COHORT

**Authors** Ramirez Polo A<sup>1</sup>, Grajales Figueroa G<sup>1</sup>, Barreto Zúñiga R<sup>1</sup>, Valdovinos Andraca F<sup>1</sup>, Zamora Nava LE<sup>1</sup>

**Institute** 1 Endoscopia, Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán, Ciudad de México, Mexico

DOI 10.1055/s-0039-1681931

**Aims** Primary: To describe the demographic characteristics and endoscopic findings of patients with HHT in a third-level center in Mexico. Secondary: To determine the number and type of endoscopic studies and treatment used.

**Methods** Retrospective study of patients with diagnosis of THH made between 1997–2017. Review of clinical records and endoscopic reports was made. The frequency of epistaxis, GI hemorrhage, anemia, type of endoscopic treatment, rebleeding and death were determined. To summarize the results, descriptive statistics were used (with STATA v.14.1 program).

**Results** We reviewed 30 cases and 225 endoscopic studies. 50% were women, median age at diagnosis: 41 years (6–69). The most frequent place of origin was Mexico City ( $n = 14$ , 47%). The most frequent comorbidities were GI pathologies ( $n = 8$ , 27%). 23% of patients did not require endoscopic evaluation. 28% of patients had anemia without evidence of clinical hemorrhage. 70% had epistaxis. 14 patients were assessed for GI tract hemorrhage (46.7%). The median of studies per patient was 4.5 (RIQ 3–15); the most frequently was upper endoscopy (76%,  $n = 171$ ); only 2% ( $n = 5$ ) were VCE. Most of telangiectasia were found in the upper digestive tract (greater curvature, 60%), however the data of active bleeding were more frequent in the middle intestine (2/5 studies, 40%). In relation to endoscopic treatment, the majority ( $n = 13$ , 43.3%) was treated with APC. Only 3 patients (10%) were under medical treatment with antiangiogenic drugs. 33% ( $n = 10$ ) was hospitalized for anemia and/or GI bleeding and 43.3% ( $n = 13$ ) went to the ER for this reason. 26.7% ( $n = 8$ ) presented rebleeding despite endoscopic treatment. Two patients died due to recurrent hemorrhage and severe anemia.

**Conclusions** THH is present in our country. Most cases originate in Mexico City. Upper endoscopy was the most frequently performed study for anemia and overt gastrointestinal bleeding. The multidisciplinary management of these patients is indispensable for the treatment of recurrent hemorrhage.

### eP193 TSHOULD WE SYSTEMATICALLY PERFORM AN ESOPHAGOGASTRODUODENOSCOPY (EGD) IN ANY PATIENT WITH IBD?

**Authors** Benjira R<sup>1,2</sup>, Elarabi H<sup>1,2</sup>, Lamine Sejai A<sup>1</sup>, Lahlali M<sup>1</sup>, Lahmidani N<sup>1</sup>, Elyoufi M<sup>1</sup>, Benajah DA<sup>1</sup>, Elabkari M<sup>1</sup>, Ibrahim A<sup>1</sup>, Abid H<sup>1</sup>

**Institute** 1 Service d'Hépatogastro-Entérologie, Faculté de Médecine et de Pharmacie, Université sidi Mohamed Ben Abdallah de Fès, Fes, Morocco; 2 Service d'Hépatogastro-Entérologie, CHU Hassan II de Fès, Faculté de Médecine et de Pharmacie, Université sidi Mohamed Ben Abdallah de Fès, Fes, Morocco

DOI 10.1055/s-0039-1681932

**Aims** Certain complementary examinations are essential to make the diagnosis of inflammatory bowel disease (IBD), as well as to establish an initial mapping that seems to be a crucial element in the therapeutic choice. However, the systematic search for lesions in the upper digestive tract is still controversial. The aim of this work is to study the contribution EGD in IBD.

**Methods** It is a retrospective study, between January 2005 and April 2018 including all the patients followed for an IBD and having benefited from an EGD within the department of gastroentero-hepatology of the CHU Hassan II of Fez.

**Results** Among 740 patients followed for IBD, 207 were included. The mean age was 36.8 years. 131 patients had Crohn disease and 75 patients had ulcerative colitis (UC). EGD was almost normal in 131 patients (63.6%), and revealed: oesophagitis in 15 patients (7.28%), nodular or atrophic gastritis in 11 patients (5.3%), a the presence of a the loss of duodenal folds in 17 patients (8.25%), and gastroduodenal aphthous ulcerations suggestive of a high localization of Crohn's disease in 18 cases (8.7%). Histology confirmed the diagnosis of Crohn's disease in 4 patients, and showed associated celiac disease in 11 patients (5.3%), 10 of whom were Crohn's, whereas in 175 patients (85%), it was nonspecific. HP was found in 55.8% (n = 115) of patients.

**Conclusions** In our series, the EGD was almost normal in 63.6% of cases and showed associated high involvement in 18 patients (8.6%) and an association with celiac disease in 11 patients (1.4%). % of all IBDs).

The results elucidated recommend the FOGD as a systematic examination in IBD, it seems to be useful especially in case of upper digestive symptomatology.

## eP194 INTRAHEPATIC DILATED BILE DUCTS IN OSLER-WEBER-RENDU SYNDROME

**Authors** Paikos D<sup>1</sup>, Moschos I<sup>2</sup>, Giannarakis M<sup>1</sup>, Tikos G<sup>1</sup>, Bampagianni C<sup>1</sup>, Bakas A<sup>1</sup>

**Institute** 1 G Genimatas Hospital, Thessaloniki, Greece; 2 424 General Military Hospital, Thessaloniki, Greece

DOI 10.1055/s-0039-1681933

**Aims** Osler-Weber-Rendu syndrome, is a rare autosomal dominant disorder (incidence in the general population is 1 – 2/100,000 while the race and gender distribution are homogeneous). It is characterized by abnormal blood vessel formation in the skin, the mucous membranes and often within other organs such as the lungs, liver and brain. Epistaxis is the earliest and most frequent manifestation, followed by telangiectasias in the oral mucosa, tongue, lips, fingers and skin.

**Methods** A 40 years old woman was referred to our department for abdominal pain on the right upper quadrant. Laboratory tests showed anemia. She was evaluated with abdominal ultrasound, computed tomography, upper abdominal MRI-MRCP, with findings suggesting multiple intrahepatic arteriovenous malformations, seen in Osler-Weber-Rendu syndrome with hepatic involvement. ENT evaluation showed telangiectasias in the nasal mucosa. A telangiectasia on the lower lip was spotted from the physical examination. Her past medical history included recurrent epistaxis, which started seven years ago, mitral valve prolapse, Hashimoto's thyroiditis. Patient reported that both her mother and sister were diagnosed with the same syndrome.

**Results** Diagnosis was made based on the four Curacao criteria:

1. recurrent epistaxis,
2. visceral arteriovenous malformations,
3. mucocutaneous telangiectasias
4. a positive family history.

**Conclusions** The mutations that have been identified with molecular testing are ENG, ALK1 and SMAD4 and are responsible for 87% occurrence within families. Molecular testing of individuals with a known mutation in the family, reduces the cost of repeated screening in relatives being in risk of developing the syndrome.

## eP195V PRIMARY EPITHELIOID ANGIOSARCOMA OF THE JEJUNUM: A RARE CAUSE OF UPPER GASTROINTESTINAL BLEED

**Authors** Nawaz F<sup>1</sup>, Ahmed M<sup>1</sup>

**Institute** 1 GoodHope Hospital, Gastroenterology, Birmingham, United Kingdom

DOI 10.1055/s-0039-1681934

**Background** Gastrointestinal angiosarcoma is a rare and highly malignant soft tissue tumor constituting < 1% of all gastrointestinal malignancies and only 1% of all sarcomas. The objective of this case report, is to increase awareness of this rare tumour.

**Case description** A 73 year old man with type 2 diabetes, COPD, hypertension and obstructive sleep apnoea was admitted to hospital with melaena. He had a 5 year history of iron deficiency anemia. Initially, the anaemia was mild (Hb 11 – 12 g/dl) but over the past 5 months, became more severe and symptomatic (Hb 4.5 – 8 g/dl), requiring 24 units of blood over 3 months. Gastroscopy and colonoscopy were normal whilst CT scan showed lytic lesions in the spine (T6/T8). Targeted spinal biopsies were inconclusive. Capsule endoscopy showed a punched out bleeding ulcer in the jejunum. Double Balloon Enteroscopy (DBE) via the anal route failed to find any abnormality. DBE via the oral route did locate the jejunal ulcer, and 30 cm distal to the ulcer, there was a 2 cm polyp which was not seen on capsule endoscopy or CT. The ulcer was biopsied and the polyp was resected *en bloc* using Endoscopic Mucosal Resection. The histology of the jejunal polyp and ulcer showed epithelioid angiosarcoma; the tumour cells were strongly positive for CD31. Review of biopsies from the spinal lytic lesions revealed metastasis from this primary jejunal angiosarcoma. The patient was referred to a specialist Sarcoma Unit but died 3 months after diagnosis.

**Conclusion** The diagnosis of small bowel angiosarcoma is challenging due to the non-specific clinical, radiological and histopathological features. Enteroscopy may help detect the source of bleeding and biopsies/polypectomy with immunohistochemical studies may provide definitive diagnosis. A high degree of suspicion is required to ensure early diagnosis and treatment.

**Reference** Nai Q et al, J Clin Med Res. 2018.10 (4):294 – 301. Primary Small Intestinal Angiosarcoma: Epidemiology, Diagnosis and Treatment.

## eP196 DIAGNOSTIC OF HELICOBACTER PYLORI VIA ENDOSCOPY: THE CLINICAL ISSUE OF SUPPRESSIVE CONDITIONS

**Authors** Knoop RF<sup>1</sup>, Ellenrieder V<sup>1</sup>, Neesse A<sup>1</sup>, Kunsch S<sup>1</sup>

**Institute** 1 Gastroenterology and GI Oncology, University Medical Center, Göttingen, Germany

DOI 10.1055/s-0039-1681935

**Aims** Testing for Helicobacter pylori (H. p.) is frequently conducted during esophagogastroduodenoscopy (EGD). Proton-pump inhibitors (PPI), upper gastrointestinal bleedings and recent antibiotic treatment deteriorate H. p. test quality.

Aim of our study was to evaluate the pattern of H. p. suppressive conditions in patients undergoing elective EGD in a large German university hospital.

**Methods** The survey was performed as a single center study in outpatients as well as inpatients. Over 6 months, every elective EGD was included and suppressive conditions were assessed. If H. p. testing was indicated according to guidelines, always both histology and rapid urease test (RUT) were conducted in analogy to the Sydney classification.

**Results** 1631 patients were included (median 61 years, 36,0% outpatients, 64,0% inpatients). Overall, 76,5% were under H. p. suppressive conditions. Major suppressive condition was the intake of PPI (70,7%). 50,2% of all patients were tested. 82,7% were negative for both tests. Of those, 70,0% were tested under suppressive conditions with a high risk of false negative results. 17,3% had a positive H. p. testing. Here, only 9,9% showed an incongruent

result (14,3% positive for RUT only and 85,7% positive for histology only). These discrepancies only occurred under suppressive conditions.

**Conclusions** Obviously, guidelines unanimously recommend H. p. testing under non-suppressive conditions. However, this often does not meet the clinical requirements. Especially, the demanded withdrawal of proton-pump inhibitors can often not be realized.

Our data represent the real clinical circumstances of testing in patients undergoing EGD with more than 60% of outpatients and even more than 80% of inpatients showing suppressive conditions leading to potentially more false negative results. In this respect, the present guidelines might not be expedient enough. Further research is needed to improve and clarify everyday clinical practice.

### eP197 THE VALUE OF THE UPPER GASTRO-INTESTINAL TRACT ENDOSCOPY IN CASE OF BLEACH INGESTION: ABOUT 80 CASES

**Authors** Bouamama S<sup>1</sup>, Elmansouri S<sup>1</sup>, Tahiri M<sup>1</sup>, Haddad F<sup>1</sup>, Hliwa W<sup>1</sup>, Bellabah A<sup>1</sup>, Badre W<sup>1</sup>

**Institute** 1 Medecine, Department of Gastroenterology of University Hospital IBN ROCHD, Casablanca, Morocco

**DOI** 10.1055/s-0039-1681936

**Aims** Evaluate the input of the upper gastro-intestinal tract endoscopy in case of a bleach ingestion.

**Methods** It is a retrospective study over 5 years length period, from November 2013 to July 2018, collecting the results of gastrointestinal endoscopy performed on patients who ingested bleach.

**Results** Eighty patients, with a mean age of 27.71 years and extremes between 14 and 70 years old, majority of whom are females (81.25%) and a sex ratio of 4.33.

A oesophagitis stage I was found in 20 cases, stage IIa in 12, stage IIb in 5 others and a normal esophageal mucosa in 43 cases.

A gastritis stage I was concluded to in 51 patients, stage IIa in 17, a gastritis stage IIb in 3, stage IIIa in 1 case and a normal gastric mucosa in 8 patients.

A bulbo duodénite stage I was objectified in 15 cases and 65 others have a strictly normal bulbo-duodenal mucosa.

Patients with esophagitis and gastritis stage IIa and IIb benefited from an endoscopic control a month after the first one noticing by a regression of lesions obtaining an oesophagitis stage I in 4 cases and a gastritis stage I in 7 others, the rest of patients had a strictly normal mucosa.

**Conclusions** The upper gastro-intestinal tract endoscopy seem to be of no use in case of a bleach ingestion due to the very low severity of lesions induced.

### eP198 DEVELOPMENT AND FEASIBILITY OF A METHOD TO IMPROVE THE DIAGNOSTIC VALUE OF MAGNETICALLY ASSISTED CAPSULE ENDOSCOPY IN THE DETECTION OF ESOPHAGEAL DISORDERS

**Authors** Dorottya Lovasz B<sup>1</sup>, Dubravcsik Z<sup>2</sup>, Zsobrak K<sup>3</sup>, Szalai M<sup>3</sup>, Schmiedt P<sup>3</sup>, Madacsy L<sup>3</sup>

**Institute** 1 Semmelweis University, Budapest, Hungary; 2 Bacs-Kiskun County Hospital, Kecskemet, Hungary; 3 Endo-Kapszula Endoscopy Unit, Szekesfehervar, Hungary

**DOI** 10.1055/s-0039-1681937

**Aims** Esophageal disorders, especially reflux esophagitis and Barrett's esophagus are common diseases. The non-invasive visualization of the esophagus is not solved yet. Esophagogastroduodenoscopy (EGD) is the gold standard diagnostic test, however it is uncomfortable for patients without sedation. The aim of the current study was to develop a method with magnetically assisted capsule endoscopy (MACE) for esophageal investigation and to perform a feasibility study of its use in patients.

**Methods** We developed a method for stationing the MACE capsule in the distal esophagus. First an ex vivo artificial esophagus was prepared and tested to find the optimal position and parameter settings to restrain the MACE capsule approximately 5 cm above the cardia. After the ex vivo development phase, we performed a feasibility study in 20 volunteers (median age: 47.65 years; 60% female; all had both MACE and EGD examinations within 3 months). All patients were laid on their left side, the upper body was raised 45 degrees with the examining table. The magnetic C-arm of MACE system was positioned next to their backs and the magnetic vector was positioned 90° and -90° to hold the capsule perpendicular to the esophageal lumen. We recorded every examination, both MACE and EGD, and analyzed the videos independently.

**Results** With our new protocol we could restrain the capsule in the esophagus in 90% of the cases (18/20). Esophageal transit and visualization times were 91.9 s with MACE and 46.2 s with EGD on average. The diagnostic abnormalities with EGD and MACE were comparable, while the diagnostic yield with UGE was higher than MACE regarding minor reflux erosions (12/6).

**Conclusions** Our protocol is a promising method to investigate the esophagus non-invasively with MACE to exclude major pathology in low risk groups. Further capsule development (cameras on both end, higher frame rate, higher resolution) may improve the diagnostic accuracy of this method.

### eP199V BLUE RUBBER BLEB NEVUS SYNDROME: ENDOSCOPIC TREATMENT WITH SCLEROSIS DURING DOUBLE BALLON ENTEROSCOPY IN A 9 YEAR OLD BOY

**Authors** Malafaia MC<sup>1</sup>, Pioche M<sup>2</sup>, Heissat S<sup>3</sup>, Jacob P<sup>3</sup>, Le Gall C<sup>3</sup>, Ruiz M<sup>3</sup>, Saurin JC<sup>2</sup>

**Institute** 1 Federal University of Alagoas/UFAL, Maceió, Brazil; 2 Edouard Herriot University Hospital, Lyon, France; 3 Hospital Femme Mere Enfant, Lyon, France

**DOI** 10.1055/s-0039-1681938

Blue rubber bleb nevus syndrome (BRBNS), also called Bean syndrome, is a rare disease associated with multiple venous malformations essentially in the skin and in the gastrointestinal tract (GIT) [1, 2]. Mostly it presents with anemia and the patients respond to supportive measures, but severe symptoms may be approached with surgical resection, endoscopic sclerosis, and laser photocoagulation [3, 4].

We report here a case of BRBNS presenting with gastrointestinal bleeding in a 9-year-old boy who had first been diagnosed at the age of 1 due to a venous angioma in the knee. The onset of melena led to a complete exploration of the GIT with both upper, lower GI and capsule endoscopy (CE), which revealed several typical blue lesions in the stomach (fig. 1a-b), small bowel (fig. 2 a-d) and colon (fig. 1c). Gastric and colonic lesions were first treated with argon plasma coagulation (fig. 3a-c) in the pediatric hospital, then the patient was referred to our unit for double-balloon enteroscopy (DBE) (EN-580T, Fujifilm, Tokyo, Japan) through which we could identify five pedunculated lesions and four flat friable ones. The progression with the endoscope was difficult due to the small size of the intestinal loops, but we could successfully treat the lesions with sclerosis by injecting aetoxysclerol (video 1). Besides such angiomas, there were no further lesions in need of treatment, according to the CE. The patient did not experience any new bleeding since this treatment.

In conclusion, BRBNS is rare but the diagnosis has to be evocated when typical lesions are seen in different areas. DBE appears feasible in children with the adult enteroscope but progression is probably more difficult in a small diameter bowel. As previously demonstrated, aetoxysclerol seems effective to treat those lesions with low risk of perforation.

## eP200 MUCOSAL ENDOSCOPIC RESECTION OF LARGE LESIONS OF THE UPPER DIGESTIVE TRACT

**Authors** Brunet Mas E<sup>1</sup>, Martínez Bauer E<sup>1</sup>, García Iglesias P<sup>1</sup>, Hernández L<sup>1</sup>, Da Costa J<sup>1</sup>, Llibre G<sup>1</sup>, Soria A<sup>1</sup>, Vives J<sup>1</sup>, Pedregal P<sup>1</sup>, Grau G<sup>1</sup>, Lira A<sup>1</sup>, Machlab ST<sup>1</sup>, Melcarne L<sup>1</sup>, Puig Diví V<sup>1</sup>, Brullet E<sup>1</sup>, Campo R<sup>1</sup>, Junquera F<sup>1</sup>

**Institute** 1 Hospital Universitari Parc Taulí, Sabadell, Spain

**DOI** 10.1055/s-0039-1681939

**Aims** Endoscopic mucosal resection (EMR) of upper digestive tract (UDT) lesions presents a good success rate and an excellent safety profile.

The aim is to investigate the efficacy and safety of EMR of significant lesions of UDT in our center.

**Methods** Observational, unicenter, retrospective study of a cohort of patients with large UDT lesions (>15 mm) treated by EMR in the last 7 years. Demographic, endoscopic and histological variables were collected. The endpoints were the resection rate R0 (free margins) and complications.

**Results** During the study period, 89 of a total of 172 EMR were performed in lesions greater than 15 mm. Sixty-one percent of patients had associated comorbidities, being diabetes mellitus (11%) and cardiovascular disease (6%) the commonest. Antiplatelet and anticoagulant treatment was present in 26% and 16% (n = 23 and 14) of our patients. Lesions were larger than 20 mm in 57 (64%) of patients. Lesions were located in the stomach in 70 patients (79%), in the esophagus in 14 (15%) and in duodenum in 5 (6%) patients. The most common EMR used technique included diathermy snare with prior submucosal injection (56, 63%). R0 rate was achieved in 65 (73%) patients. Complications occurred in 12 (13%) patients: bleeding in 9 (10%) patients, 1 postpolypectomy syndrome and 2 perforations. Endoscopic follow-up was performed in 17 patients with high risk lesions (19%). There were 6 recurrences. 4 of them were rescued endoscopically, and two required surgical treatment.

**Conclusions** EMR is a safe and efficacious technique to treat large lesions in the UDT. These results are similar to those described in the literature.

## eP201 GASTRIC SUBMUCOSAL TUMORS: MOLECULAR MARKERS ASSESSMENT ON EUS-FNA SAMPLES

**Authors** Cherciu IF<sup>1</sup>, Cazacu IM<sup>1</sup>, Ivan ET<sup>1</sup>, Saftoiu A<sup>2</sup>

**Institute** 1 University of Medicine and Pharmacy Craiova, Craiova, Romania; 2 Gastroenterology, University of Medicine and Pharmacy Craiova, Craiova, Romania

**DOI** 10.1055/s-0039-1681940

**Aims** Gastric submucosal lesions might have a benign or malign character. In order to determine the diagnosis of gastric submucosal tumors an important role is played by the endoscopic ultrasound (EUS) assessment. Solely EUS can not help to distinguish specific aspects of the pathology, for instance the degree of malignancy. EUS-guided fine-needle aspiration (EUS-FNA) is more useful in clarifying this distinctions through the use of immunohistochemical staining or genotype analysis. **The aim** of our study was to conduct a systematic review of literature assessing different molecular markers performed on gastric EUS-FNA samples in order to outline the most widely investigated diagnostic markers which might be further used in the early management of small gastric submucosal tumors. The biomarkers tested on a limited EUS-FNA sample would not only aid the diagnosis but it would allow furthermore a better patients stratification for therapies, hence an immediate clinical impact.

**Methods** A systematic literature search was carried out in three major databases which are as follows: PubMed, Scopus, and Web of Science covering the period 2000–2018. The analysis was performed using the population intervention comparison outcome (PICO) format: (P) patients undergoing EUS-FNA for diagnosis of gastric submucosal lesions; different immunohistochemical/genetic biomarkers (I) and cytological analysis (C) were carried out on the samples obtained by EUS-FNA, the outcome (O) being the diagnostic accuracy of the biomarkers.

**Results** 20 articles were selected for the systematic review. Overall, the studies have reported the following biomarkers: c-kit (CD177), CD34, MIB-1-Ki67 index, DOG1, desmin, S-100, smooth muscle actin, gene mutation (KIT, PDGFRA). No pathogenic alterations were found in PIK3CA, BRAF, KRAS, NRAS, or FGFR3. GISTs are defined as (CD117)-positive tumors, leiomyomas as desmin-positive and c-kit-negative tumors while schwannomas are S-100-positive and c-kit-negative tumors.

**Conclusions** The biomarkers must be further investigated in various combinations in order to select the optimal panel for clinical use.

## eP202 COMPARISON OF TWO DIFFERENT CLEANSING PROTOCOLS FOR SMALL BOWEL CAPSULE ENDOSCOPY

**Authors** Carretero C<sup>1</sup>, Prieto de Frias C<sup>1</sup>, Olcoz M<sup>2</sup>, Bojorquez A<sup>1</sup>, Munoz-Navas M<sup>1</sup>

**Institute** 1 Gastroenterology, University Clinic of Navarra, Pamplona, Spain;

2 University of Navarra, Pamplona, Spain

**DOI** 10.1055/s-0039-1681941

**Aims: Introduction** ESGE recently published a technical review on capsule endoscopy, where the recommendation is to use cleansing protocols before small bowel capsule endoscopy. Nevertheless, the optimal timing for taking purgatives is yet to be established.

**Aim** To compare two different cleansing strategies before capsule endoscopy. **Methods** We have retrospectively reviewed small bowel capsule procedures performed in 2 different years. Group A used 2L of PEG the evening before capsule while group B used 1L of Moviprep before capsule ingestion.

**Results** Group A included 61 patients, 58 in group B. Demographic characteristics were similar in both groups, although there were more inpatients in group A (74.44% vs. 57.58%). Mean total transit time was 222.38 min for group A vs. 224.96 for group B (p = n.s). Adequate cleansing level was described in 93.33% of group A and 94.64% in group B (p = n.s). Regarding the percentage of complete procedures (capsule reaching the cecum), we found 90.26% in group A and 81.03% in group B (p = n.s).

**Conclusions** The use of 2L of PEG the day before compared to 1L of Moviprep the same day of capsule ingestion did not make any difference in cleansing level or total transit time. The number of complete procedures was slightly higher in the PEG group however the differences were not statistically significant. Our results suggest that the use of 1L of Moviprep before capsule ingestion is not inferior to 2L of PEG the day before. As low volume laxatives seem to be better tolerated, this protocol can be considered a good option for small bowel capsule endoscopy.

## eP203 ENTEROSCOPY IN PATIENTS WITH MODIFIED GASTROINTESTINAL ANATOMY; EXPERIENCE OF THE NATIONAL INSTITUTE OF MEDICAL SCIENCES

**Authors** Zamora Nava LE<sup>1</sup>, Muñoz Anaya E<sup>2</sup>

**Institute** 1 Endoscopy, Salvador Zubirán National Institute of Health Sciences and Nutrition, Ciudad de México, Mexico; 2 Salvador Zubirán National Institute of Health Sciences and Nutrition, Ciudad de México, Mexico

**DOI** 10.1055/s-0039-1681942

**Aims** Describe the diagnostic capacity, therapeutic performance and technical success of enteroscopy in patients with surgical changes of the gastrointestinal anatomy.

**Methods** Retrospective analysis of enteroscopies performed in the Department of Gastrointestinal Endoscopy of INCMNSZ in the period between December 2014 and June 2018.

The number of procedures, procedure pathway, indications, depth of insertion, procedure time, diagnoses obtained, type of therapy used and the presence of complications of the procedures performed in patients with surgical changes of the gastrointestinal anatomy, who had not undergone pancreatic or biliary manipulation were evaluated.

**Results** A total of 315 enteroscopies were performed in the study period. Of the total of enteroscopies, 103 studies were performed in patients with abdominal surgeries, 69 (66%) were female, 83 of the studies corresponded to endoscopic retrograde cholangiopancreatography, so they were excluded, 20 studies corresponded to enteroscopies in patients with abdominal surgeries. 80% of antegrade and 20% retrograde studies were performed, the median depth of insertion was 102 cm, the median time of procedure was 64 minutes. Within the previous surgeries 15% of the patients corresponded to Roux-en-Y, 25% small bowel resections, 10% Whipple surgery, 30% hepato-jejunal anastomosis, 5% Billroth I, 15% Billroth II. The indications for the procedures were 45% gastrointestinal bleeding, 5% anemia, 40% anastomosis stenosis, 10% tumors. The findings were 20% stenosis, 20% ulcers, 20% active bleeding, 5% tumors, 5% erosions, 5% Dieulafoy, 15% obstruction due to adhesions, 10% normal studies. The therapeutic interventions were application of argon plasma 11%, clip placement 45%, dilatation 33%, jejunostomy in 11%. The diagnostic yield was 85%, the therapeutic yield 50% and the technical success was 90%.

**Conclusions** Enteroscopy is safe and effective in patients with abdominal surgeries, compared to patients with normal anatomy.

### eP204 EVALUATION OF THE RELATIONSHIP BETWEEN HELICOBACTER PYLORI AND THE SMALL WHITE SPOT LESIONS OF THE DUODENUM

**Authors** Çavuş B<sup>1</sup>, Çavuş T<sup>2</sup>, Akyüz Erdoğan B<sup>3</sup>, Kumcu E<sup>3</sup>

**Institute** 1 Gastroenterohepatology, Bingöl State Hospital, Bingöl, Turkey; 2 Internal Medicine, Kırklareli State Hospital, Kırklareli, Turkey; 3 Pathology, Bingöl State Hospital, Bingöl, Turkey

**DOI** 10.1055/s-0039-1681943

**Aims** Most of the time we are unable to pinpoint the clear cause or clinical equivalent of the small white spot lesions of the duodenum which we often encounter during routine endoscopic evaluation and identify as duodenal lymphangiectasia (DL). We aimed to evaluate the frequency of these small white spot lesions in the duodenum and their relationship with *Helicobacter pylori* (*H. pylori*).

**Methods** In our study, endoscopic findings of 445 patients, 231 of which were females and who underwent gastroscopy for complaints of dyspepsia in a period of 3 months, were evaluated via white light endoscopy by the same endoscopist. Biopsy samples from the duodenum and antrum in these patients whose endoscopic evaluation revealed were examined histologically and in terms of *H. pylori*.

**Results** Gastroscopic findings of 445 patients were evaluated. In the reports examined, white spot lesions in the duodenum were detected in 39 (8.8%) patients. Mean age of the patients with DL was found as 44.4 years, and that of those without DL was 47.2 years ( $p = 0.327$ ). Of the patients with DL 19 were male and there was no statistically significant difference between the groups with and without DL in terms of gender ( $p = 0.958$ ). Biopsy samplings were taken from 28 of the 39 patients that we reported as having DL, and these biopsy samplings revealed DL in 5 patients (17.8%) and edema in 11 patients (39.2%). While *H. pylori* was detected as positive in 19 patients (48.7%) in the evaluation of *H. pylori* in biopsy samplings, there was no statistical difference in terms of *H. pylori* positivity between the patients identified as positively DL pathologic as well and those in the negative group ( $p = 0.695$ ).

**Conclusions** The incidence of DL was found as 8.8% in routine gastroscopy, and the positivity of *H. pylori* in this group was detected as 48.7%. The presence of *H. pylori* was not detected to pose a significant difference between the group of patients in whom DL was identified pathologically as well and the group where it was found to be negative.

### eP205V A RHABDOID CAVITATED JEJUNAL ADENOCARCINOMA DIAGNOSED BY DOUBLE-BALLOON ASSISTED ENTEROSCOPY

**Authors** Pérez Fernandez A<sup>1</sup>, Pérez-Cuadrado-Robles E<sup>2</sup>, Francisco Sánchez Melgarejo J<sup>1</sup>, Rubio Mateos JM<sup>1</sup>, José Sánchez Fernández M<sup>1</sup>, Esteban Delgado P<sup>1</sup>, Rodrigo Agudo JL<sup>1</sup>, Pérez-Cuadrado Martínez E<sup>1</sup>

**Institute** 1 Morales Meseguer Hospital, Small Bowel Unit, Murcia, Spain; 2 Cliniques Universitaires Saint-Luc, Endoscopy Unit, Gastroenterology, Brussels, Belgium

**DOI** 10.1055/s-0039-1681944

**Introduction** The rhabdoid phenotypic characteristic in digestive tumors is exceptional. In the jejunum, the primitive undifferentiated adenocarcinoma rarely grows up to invade other organs and appears as a cavitated mass.

**Case report** A 64 years-old patient with multifactorial anemia and transfusional requirements underwent a normal gastroscopy and colonoscopy. This last procedure confirmed a 2 cm flat lesion in the right colon and the histopathological analysis reported adenocarcinoma.

Furthermore, a CT confirmed a mass dependent of small bowel and a PET-CT reported mesenteric implants with an extension on both adrenal glands and swollen lymph nodes. The biopsy of a peripheral adenopathy was an undifferentiated adenocarcinoma.

Thus, an oral double-balloon enteroscopy was performed. The procedure showed a large cavitated mass in jejunum consisting of a very irregular mucous membrane with proliferative, necrotic areas and diffuse as well as an ongoing mild-bleeding. Biopsies were taken. The enteroscope could assess the mass intracavitary, in retroversion, and the "outcoming" inside of the small bowel was visualized.

Finally, an undifferentiated rhabdoid carcinoma (vimentin, CKae1-be3 +) was confirmed by the histopathological analysis, excluding GIST or neural origin. The CT ruled out pneumoperitoneum, showing peritoneal and pleural neoplastic progression. Subsequent pathologic study of all samples of the various organs gave similar results. The patient was treated by chemotherapy.

**Conclusions** Small bowel undifferentiated rhabdoid carcinoma is rare, with a great aggressiveness and bad prognosis. At this location, there are only 11 cases described, almost the half of them in the jejunum. This case has affected other organs (including colon) with multiorgan metastases. Endoscopically, a big and cavitated jejunal is also a rarity, only described in eccentric GIST. There are no previous publications describing this entity by flexible enteroscopy.

### eP206 A TROUBLESOME ENTEROSCOPIC ATTEMPT TO REMOVE MIGRATED BILIARY STENTS IN THE SMALL BOWEL IN A PATIENT WITH ALTERED ANATOMY

**Authors** Cortegoso Valdivia P<sup>1</sup>, Venezia L<sup>1</sup>, Pennazio M<sup>1</sup>

**Institute** 1 University Division of Gastroenterology, Department of Medical Sciences, AOU Città della Salute e della Scienza, Torino, Italy

**DOI** 10.1055/s-0039-1681945

**Aims** The management of migrated stents is variable and is generally dictated by the site, type of stent, and anticipated likelihood of complications. Enteroscopy can be useful for stents migrated deeply in the small bowel, although very challenging especially in patients with altered anatomy.

**Methods** We describe a case of a patient undergoing single balloon enteroscopy (SBE) through a LAMS, placed by EUS-guided gastro-jejunostomy in a Roux-en-Y reconstruction, in order to remove two migrated biliary stents.

**Results** In 2015 the patient underwent a left hepatectomy + bilio-jejunal Roux-en-Y anastomosis for infiltrating cholangiocarcinoma.

After few months the disease recurred, followed by relapsing episodes of cholangitis, treated with percutaneous drainage (2 metal stents) and intraluminal brachytherapy. Due to the complications of percutaneous approach (fever, subcutaneous abscess) an ERCP through a EUS-guided gastro-jejunostomy (Hot Axios stent, 15 × 10 mm) was performed, placing two metal stents

inside the previously placed ones. The patient was then asymptomatic, but after one month an abdominal X-ray showed migration in the small bowel of two biliary stents. An antegrade SBE (Olympus XSIF-180-JY) was then performed through the gastro-jejunal anastomosis, inside the LAMS: after 10 push-pull cycles the two stents were found, with their proximal flange deeply buried into the mucosa of the distal jejunum with granulation tissue. Several attempts of removal with rat-tooth grasping forceps and polypectomy snare, after injection of saline were unsuccessful. Considering the high risk of perforation related to removal, the small bowel patency, the absence of symptoms and the poor patient's prognosis, the stents were left in situ and a close follow-up was scheduled. No procedural complications occurred.

**Conclusions** Enteroscopy is a safe and feasible procedure, even in cases of surgically altered anatomy. EUS-guided gastrointestinal anastomoses with LAMS may facilitate deep enteroscopic intubation for removing migrated stents. A careful balance of the risks and benefits of the procedure is mandatory.

## eP207 ROLE OF THE NOVEL INTRODUCED PAN-INTESTINAL CAPSULE ENDOSCOPY SYSTEM IN CELIAC DISEASE

**Authors** Foerster F<sup>1</sup>, Mönkemüller K<sup>2</sup>, Galle PR<sup>1</sup>, Neumann H<sup>1</sup>

**Institute** 1 Interdisciplinary Endoscopy, University Medical Center Mainz, Mainz, Germany; 2 Department of Gastroenterology, Helios Frankenwald, Kronach, Germany

**DOI** 10.1055/s-0039-1681946

**Aims** Capsule endoscopy has proven its efficacy in diagnosing villous atrophy and lymphoma in patients with celiac disease. Most recently, a novel capsule endoscopy system was introduced, allowing for visualization of the small and large bowel. Its role in patients with celiac disease has not been evaluated yet. Primary objective of the study was to evaluate the role of the novel pan-intestinal capsule system in patients with established celiac disease.

**Methods** Consecutive patients with established celiac disease (Marsh 0–3c) were included in this prospective single-center study. All patients received standard bowel preparation prior to the examination. Diagnostic yield, therapeutic impact and safety were analysed. In addition, concordance of capsule findings with histology and nutritional status in patients with symptomatic or refractory celiac disease were assessed.

**Results** Pan-intestinal capsule endoscopy was feasible in all cases and acceptable quality was also achieved in all cases following the standard bowel preparation. Villous atrophy was correctly identified in all patients with Marsh 3. Concordance of capsule findings with histology for villous atrophy showed a good correlation ( $\kappa$  0.45). No lymphomas were detected. Evaluation of the large bowel revealed diminutive polyps (size 4 mm in median) in 30% of patients.

**Conclusions** The novel introduced pan-intestinal capsule endoscopy system shows a fair correlation with histology and nutritional status in patients with symptomatic or refractory celiac disease. Of note, the capsule revealed colon polyps in up to 30% of patients. Therefore, the novel pan-intestinal capsule endoscopy system should be considered for patients with celiac disease and an indication for small-bowel endoscopy.

## eP208V DUODENAL NEUROENDOCRINE TUMOUR RESECTION WITH A NEW DUODENAL FULL THICKNESS RESECTION DEVICE

**Authors** Cortez Pinto J<sup>1</sup>, Mão de Ferro S<sup>1</sup>, Castela J<sup>1</sup>, Claro I<sup>1</sup>, Chaves P<sup>2</sup>, Dias Pereira A<sup>1</sup>

**Institute** 1 Instituto Português de Oncologia de Lisboa Francisco Gentil, Gastroenterology, Lisboa, Portugal; 2 Instituto Português de Oncologia de Lisboa Francisco Gentil, Pathology, Lisboa, Portugal

**DOI** 10.1055/s-0039-1681947

**Introduction and aims** Most well-differentiated, non-functional duodenal NETs limited to the mucosa/submucosa can be treated effectively with endoscopic resection.

Full thickness resection device (FTRD; Ovesco Endoscopy) enables transmural resection of suitable lesions with a fast minimally invasive technique. Colonic FTRD was used for duodenal lesions as an "of-label" indication with good clinical outcomes and a complications' rate compared to duodenal endoscopic mucosal resection (EMR). A duodenal FTRD (d-FTRD) with smaller diameter (19,5 mm vs. 21 mm), balloon assisted insertion and less clip interdental space was developed allowing easier upper esophageal sphincter (UES) passage and minimising bleeding risk.

**Methods** We describe a 74-year-old male with a 10 mm post-pyloric bulbar submucosal lesion with biopsies showing a well-differentiated NET. Endoscopic ultrasonography (EUS) showed a submucosal lesion. EUS and 68-Ga-DOTA-NOC PET/CT displayed no lymph node involvement or distant metastases. An attempt to resect with band ligation EMR failed because of an absence of aspiration into the cap.

Transmural resection with the d-FTRD was scheduled in the operating room under general anaesthesia. Lesion borders were marked with APC. UES dilation was performed with Savary-Guilliard bougie dilator (15–18 mm) allowing d-FTRD insertion.

A paediatric colonoscope was then advanced to the duodenum with the d-FTRD attached. Traction of the lesion to the cap with the grasper and aspiration was done, followed by over-the-scope clip release (OTSC). The pseudo-polype produced by the OTSC was resected with a 15 mm diathermic snare.

**Results** There were no immediate or delayed complications. Histology showed a NET G1 (<3 mitosis/10 high power field, Ki67 <3%) with infiltration of the muscularis propria. There was no lymphatic or perineural invasion. The lateral margin of the lesion in the pyloric side was coincident to the resection margin.

**Conclusions** d-FTRD is a new device that should be considered for the resection of subepithelial or non-lifting epithelial duodenal lesions.

## eP209V A GIANT ILEAL PSEUDOPOLYP IN CROHN'S DISEASE RESECTED BY DOUBLE-BALLOON ENTEROSCOPY

**Authors** Rubio Mateos JM<sup>1</sup>, Sánchez Melgarejo JF<sup>1</sup>, Sánchez Fernandez MJ<sup>1</sup>, Pérez Fernandez A<sup>1</sup>, Pérez-Cuadrado-Robles E<sup>2</sup>, Esteban Delgado P<sup>1</sup>, Chacón Martínez S<sup>1</sup>, Rodrigo Agudo JL<sup>1</sup>, Sastre Lozano V<sup>1</sup>, Pérez-Cuadrado Martínez E<sup>1</sup>

**Institute** 1 Small Bowel Unit, Morales Meseguer Hospital, Murcia, Spain; 2 Gastroenterology, Cliniques Universitaires Saint-Luc, Endoscopy Unit, Brussels, Belgium

**DOI** 10.1055/s-0039-1681948

**Aims** Giant pseudopolyps (>1.5 cm) are unusual in Crohn's Disease (CD), and often cause intestinal obstruction among other complications that may require surgical management. Endoscopic therapy could be an alternative in such circumstances. We describe a case report of a giant pseudopolyp treated by enteroscopy.

**Case report** A 63-year-old patient diagnosed with CD presented unexplained iron-deficiency anemia and subocclusive symptoms. Therefore, capsule endoscopy was performed, identifying an ulcerated ileal mass with leafy hypertrophic villi near a typical substenosis of CD. By Double-Balloon Enteroscopy (DBE) with 3.2 mm working channel and CO<sub>2</sub> insufflation, a 4 cm ulcerated mass was identified prolapsing through the substenosis. Diluted adrenalin (1:10000) was injected at its base, and lastly, the lesion was resected with a snare and removed using fishnet basket. Histology was consistent with the diagnosis of a CD associated pseudolyp. The patient now remains asymptomatic.

**Conclusions** Giant pseudopolyps are uncommon in the small bowel. When symptomatic, they are usually diagnosed and treated by surgery. Resection by

DBE with large working channel can be a feasible and safe approach in some patients.

## eP210 THE MANAGEMENT OF GASTRIC MALT LYMPHOMA

**Authors** Lee SH<sup>1</sup>, Kim MC<sup>1</sup>, Kang MK<sup>1</sup>, Cho JH<sup>1</sup>, Kim SB<sup>1</sup>, Kim KH<sup>1</sup>, Kim KO<sup>1</sup>, Jang BI<sup>1</sup>, Kim TN<sup>1</sup>

**Institute** 1 Yeungnam University College of Medicine, Internal Medicine, Daegu, Korea, Republic of

**DOI** 10.1055/s-0039-1681949

**Aims** *Helicobacter pylori* (*H.pylori*) eradication is an effective treatment in *H.pylori*-positive mucosa-associated lymphoid tissue (MALT) lymphoma. However, the complete remission (CR) rates after *H.pylori* eradication in *H.pylori*-negative MALT lymphoma is very low and the treatment strategy remains controversial. We investigated the effectiveness of each treatment option for *H.pylori*-negative MALT lymphoma and *H.pylori*-positive MALT lymphoma with treatment failure after *H.pylori* eradication.

**Methods** We conducted retrospective single center study using medical records of patients who were diagnosed with gastric MALT lymphoma in Yeungnam University Medical Center between January 2005 and December 2016. Response to each treatment options and relapse after CR were evaluated by pathologic base using endoscopic biopsy.

**Results** Of the 68 patients, 50 patients were enrolled. Mean ages were 55.4 ± 11.7 years and mean follow-up periods were 42.5 ± 31.0 months (range: 3 – 133.6). *H.pylori* infection was detected in 42 patients (84.0%). Of these *H.pylori*-positive MALT lymphoma, 36 patients (81.7%) were treated with *H.pylori* eradication as primary treatment and the CR rates after *H.pylori* eradication was 72.2% (n = 26). Patients without CR after *H.pylori* eradication (n = 10, 27.8%) were received radiotherapy as secondary treatment. All of them were shown CR and no one had relapse after radiotherapy. 2 patients (4.8%) of *H.pylori*-positive MALT lymphoma were treated with radiotherapy as primary manner and all reached CR. 1 of them (50%) had relapse after treatment, but another CR had been achieved after 2ndary radiotherapy. All patients with *H.pylori*-negative MALT lymphoma (n = 8, 16.0%) were treated with radiotherapy as primary treatment. The CR rates after radiotherapy was 100% and no one had had relapse after radiotherapy.

**Conclusions** Although *H.pylori* eradication is effective treatment in *H.pylori*-positive MALT lymphoma, radiotherapy may be worthwhile treatment option in *H.pylori*-negative MALT lymphoma and *H.pylori*-positive MALT lymphoma as 2ndary treatment after *H.pylori* eradication.

## eP211 CLINICAL SIGNIFICANCE OF REGIONAL LYMPH NODE ENLARGEMENT IN PATIENTS WITH EGC WITHIN THE EXPANDED CRITERIA FOR ESD

**Authors** Choi SY<sup>1</sup>, Park JK<sup>1</sup>, Lee DS<sup>2</sup>, Lee SJ<sup>1</sup>

**Institute** 1 Gangneung Asan Hospital, Internal Medicine, Gangneung, Korea, Republic of; 2 Seoul National University Boramae Medical Center, Internal Medicine, Seoul, Korea, Republic of

**DOI** 10.1055/s-0039-1681950

**Aims** Lymph node (LN) metastasis is negligible in early gastric cancer (EGC) within expanded criteria for endoscopic submucosal dissection (ESD). However, regional lymph nodes in abdominal CT scans are sometimes enlarged in patients with EGC within the expanded criteria for endoscopic submucosal dissection (ESD). In this study, we investigated the clinical significance of regional lymph node enlargement on abdominal CT scan in patients with EGC within the expanded criteria for ESD.

**Methods** From December 2010 to April 2015, among 301 patients with EGC within the ESD expanded criteria, 47 patients with regional lymph node enlargement shown by abdominal CT scan were prospectively enrolled. We performed surgical resection or periodic follow-up with abdominal CT scans

and upper endoscopy every 6 months to evaluate whether the enlarged lymph nodes are due to metastasis or a reactive change.

**Results** The mean age of the 47 patients (36 males, 11 female) was 65.1 years. The enlarged lymph nodes were usually single (26/47, 44.6%) and sized as follows: 7 nodes were ≤ 5 mm, 23 were 6 – 10 mm, and 17 were ≥ 10 mm. Four of the 47 patients initially underwent surgical resection, and 8 patients underwent surgical resection after ESD. However, there was no lymph node metastasis in surgical specimens. Thirty-five patients received ESD and periodically followed up at a median duration of 57 months (range: 36 – 88 month). The enlarged lymph node disappeared in 12 of 35 patients, decreased in 9 patients and remained the same size in 13 patients, and increased in 1 patient.

**Conclusions** Regional lymph node enlargement on abdominal CT scan in patients within expanded criteria for ESD of EGC may be not due to metastasis but a reactive change.

## Authors' Index

- A
- Aabakken L S74, S120  
 Aalling L S127  
 Abassy M S237  
 Abbasi A S219  
 Abd Elaziz M S237  
 Abdelaty KA S245  
 Abdelhafez M S15, S33, S176  
 Abdelrahim M S34, S39, S167  
 Abe S S65, S185  
 Abid H S216, S239, S252  
 Abouelhak S S240  
 Abu Ammar A S43  
 Abu Baker F S199  
 Abu Dayeh B S52  
 Aburruza L S94, S192, S225  
 Abu-Suboh Abadia M S208  
 Acevedo Piedra G S226  
 Adham M S111  
 Adler DG S38, S95, S96, S139  
 Adnan Mohiuddin S S204  
 Afonso LP S151  
 Agapov M S23, S206  
 Agcaoglu O S174  
 Ageykina N S6, S92  
 Aggeletopoulou I S16  
 Agrawal A S56, S103, S127, S134, S173  
 Agudo Castillo B S132  
 Agudo B S66, S89, S182  
 Ahmed E S141  
 Ahmed H S30, S180, S199  
 Ahmed M S117, S253  
 Ahmed S S106  
 Aimo G S213  
 Airinei G S171  
 Akahoshi K S49, S148  
 Akimoto T S175  
 Akita Y S150  
 Akkari I S215, S250  
 Akyüz Erdoğan B S256  
 Al Hajjar N S113  
 Al Kaabi S S204  
 Alam A S209  
 Alam W S207  
 Albeniz E S32, S83, S183  
 Albéniz E S90, S113, S137, S192  
 Albéniz-Arbizu E S11, S13  
 Alberani A S203  
 Alberca de las Parras F S172, S235  
 Albert J S40  
 Albert JG S10  
 Albert M S34, S48  
 Alberti LR S49  
 Albillos A S62, S143  
 Albizu EA S12  
 Albouys J S89, S90, S182  
 Albuquerque Miranda M S36, S122  
 Alburquerque M S165, S200, S210  
 Aldeguez X S239, S240  
 Aleem J S117  
 Alessia Galtieri P S186, S220  
 Alexandrino G S17, S75, S177, S185  
 Alexandru L S67  
 Alfa-Wali M S126  
 Alfieri S S208  
 Ali N S19  
 Alkandari A S34, S39  
 Al-Kandari A S102  
 Al-Kawas FH S32, S191  
 Allgaier HP S40  
 Almohalla C S121  
 Alonso N S7, S93, S134  
 Alonso P S32  
 Alonso-Aguirre P S129, S212  
 Alonso-Lazaro N S147, S235
- Al-Rifaie A S180  
 Alsebaey A S237  
 Al-Shaheen K S72  
 Altorjay I S76, S177  
 Alva Alva E S217  
 Alva E S249  
 Álvarez Delgado A S219  
 Álvarez González MA S125  
 Alvarez Sánchez M S229  
 Álvarez Sánchez M S128  
 Álvarez A S13  
 Alvarez C S90  
 Álvarez C S113  
 Alvarez T S74  
 Alvarez V S90, S113  
 Álvarez-Delgado A S11, S13  
 Alvarez-Gonzalez MA S32, S54, S71  
 Álvarez-Nava Torrego T S104, S190  
 Alvaro Bendezu Garcia R S111  
 Alves da Cruz Teixeira L S49  
 Alves da Cruz Texeira L S244  
 Alves R S49  
 Alves R S143  
 Alves S S44, S86, S191, S197  
 Amaro P S56, S103, S127, S134, S173, S181  
 Amata M S27, S37, S184, S186  
 Amato A S140, S184, S220  
 Amelia Cid L S142  
 Amin M S237  
 Amlani B S55, S56, S69, S70, S103, S125, S127, S134, S138, S152, S158, S173  
 Amoros A S13  
 Amorós-Tenorio A S11, S13  
 Ampartzidou O S242  
 An JY S118  
 Anderloni A S20, S35, S68, S82, S119, S123, S155, S184, S186, S220, S224  
 Anderson SH S9  
 Andersson V S10  
 Andrade de Paulo G S96, S199, S216  
 Andrade Franciscani Peixoto A S49, S244  
 Andrade Franco Neto J S187  
 Andrade G S168  
 Andujar Murcia X S111  
 Andujar X S61, S112  
 Andújar X S48  
 Angel de Jorge Turrión M S62  
 Angel Ferrer Rosique J S221  
 Angeles Perez Aisa M S240  
 Angeles Romero M S240  
 Angeletti S S12, S14, S22, S220  
 Angelino G S187  
 Angos R S160  
 Angsuwatcharakon P S59, S94, S140  
 Anjilivelil Joseph J S204  
 Annibale B S22, S150  
 Antaki F S32, S191  
 Anten MP S21  
 Antolín B S229  
 Antonelli G S12, S14  
 Antonelli M S173, S193  
 Antonini F S18  
 Antonio Ruiz F S24  
 Antos Z S86, S249  
 Antunes J S87, S88, S143  
 Aparicio JR S25, S47  
 Apessou D S153, S157, S211  
 Arabi Mohammad N S141  
 Araki T S119  
 Aranda Hernández J S62, S218, S243  
 Arantes de Carvalho Visconti T S108  
 Arantes V S27, S78  
 Araújo R S218  
 Araújo T S17, S49, S75, S87, S97, S155, S169, S185, S225
- Araújo-Martins M S106  
 Araya Arce V S110  
 Archibugi L S37, S58, S59  
 Arcidiacono PG S18, S21, S37, S58, S59  
 Arciniégas DI S102  
 Arciniégas ID S17, S75, S163  
 Areia M S44, S86, S191, S197  
 Arena I S206  
 Arena R S30  
 Arenstein A S43  
 Argüelles F S180  
 Argüelles-Arias F S226  
 Argüello L S134  
 Argüello-Viudez L S147, S235  
 Argyrakos T S183  
 Arieira C S8, S31  
 Arjona S S239  
 Arkadopoulos N S164, S183  
 Arlt M S4  
 Armengol Bertroli J S208  
 Arnau C S90  
 Arnau-Collell C S113  
 Arndtz S S34, S39, S167  
 Arribas Anta J S104, S190  
 Arribas J S137, S183  
 Arrigoni A S138  
 Arroyo Alonso JA S142  
 Arvanitakis M S122  
 Asaturi A S145, S212, S214  
 Aslan F S174  
 Aslanian HR S32, S191  
 Asmar N S110  
 Asti E S18  
 Atreya R S80, S81  
 Atriwal A S199  
 Atriwal B S199  
 Atriwal V S199  
 Attardo S S82  
 Attili F S51, S53  
 Auriemma F S20, S35, S65, S186  
 Ávitsland TL S74  
 Axiaris G S102, S241  
 Ayadi S S136  
 Ayari M S136, S242  
 Ayedi S S242  
 Aylward CJ S29  
 Azeredo Coutinho LM S96  
 Azeredo A S63  
 Azevedo C S49  
 Aziz MA S141  
 Azzolini F S83, S184  
 Azzouz MM S93
- B
- Baatenburg de Jong RJ S236  
 Baba E S168  
 Bacchella T S233  
 Bacchilega I S96  
 Bacsur P S38  
 Badalamenti M S82  
 Badhe P S199  
 Badre W S240, S252, S254  
 Bae HI S60, S223  
 Baek DH S190, S212  
 Bakas A S253  
 Baker G S64  
 Bakhtiozina D S229  
 Bakucz T S76, S177  
 Balaban V S202  
 Balague C S174  
 Balague F S90, S113  
 Balan G S162  
 Balassone V S187  
 Ballester Clau R S36, S200  
 Ballester R S48

- Ballester-Clau R S122  
 Bana e Costa T S17  
 Bang BW S40, S41  
 Banjira R S239  
 Baptista A S46, S49, S67, S69, S205  
 Baptista T S112  
 Barange K S36  
 Baratsis S S203  
 Barbaro F S74  
 Barberio B S29  
 Barbu M S232  
 Barcenilla Laguna J S209, S230  
 Bardalez Cruz P S217  
 Bardalez P S249  
 Bari Z S57  
 Barjas E S92  
 Barkun A S92  
 Barmpagianni C S253  
 Barquero D S137, S183  
 Barranco Priego LE S125  
 Barreiro P S17  
 Barreiro-Alonso E S143  
 Barresi L S18, S27, S37, S186, S195  
 Barret M S26, S46, S78, S172, S202  
 Barreto Zúñiga R S252  
 Barrichello S S53, S159, S251  
 Barron M S149  
 Barsic N S223  
 Barthet M S19, S25, S69, S83, S84, S115, S147, S178, S193  
 Barturen Barroso A S62  
 Bas-Cutrina F S48  
 Basford P S102  
 Basile P S69, S193  
 Bastiaansen BAJ S114  
 Bastin O S172  
 Bastos P S45  
 Bařková B S209  
 Bautista-Castaño I S50, S51, S52  
 Baxevanis P S102, S241  
 Bazaga Perez de Rozas S S204  
 Bazaga Pérez De Rozas S S25  
 Bazaga S S24, S26, S46, S95, S110, S111, S121, S163, S179, S226, S229  
 Bazarova A S64  
 Bazerbachi F S27, S68  
 Bazzoli F S207, S208  
 Becerro González I S62  
 Bedran K S207, S250  
 Beer S S52  
 Bekkering FC S114  
 Bel Hadj Mabrouk E S136, S242  
 Bellabah A S240, S252, S254  
 Belle A S98  
 Belletrutti PJ S12, S35, S123, S184, S220  
 Belluco C S217  
 Ben Jazia E S215, S250  
 Ben Mohamed A S93, S246  
 Ben Nejma H S169  
 Ben Romdhane H S169  
 Benajah DA S216, S239, S252  
 Benamouzig R S171  
 Benazzato L S146  
 Bende F S231  
 Benelbarhdadi I S141  
 Benes M S53, S130, S159  
 Bengus A S73, S149, S209, S211, S232  
 Benites H S249  
 Benjira R S216, S252  
 Benkirane A S162, S233  
 Benosman H S110, S209  
 Benson AA S58  
 Bentellis I S84  
 Berardi G S14  
 Berger A S78  
 Bergman J S108  
 Bergman JIGHM S107, S167  
 Bernal J S65  
 Bernhardt J S26, S78  
 Bernth J S6  
 Berr F S104  
 Bertani H S42, S228  
 Bertrand G S197  
 Besherdas K S217  
 Bessa Caserras X S125  
 Besselink MG S42  
 Betes M S160  
 Bettenworth D S15, S36, S121  
 Beyna T S15, S99, S121, S139  
 Bezzio C S206  
 Bhandari P S4, S34, S39, S83, S91, S114, S115, S125, S138, S158, S167, S208  
 Bhattacharyya R S102  
 Bhutani MS S44  
 Bi Y S22  
 Bialek A S137  
 Bianchetti M S65  
 Bianchi D S222  
 Bibani N S170, S214, S240  
 Biermann K S19, S107  
 Bighelli F S243  
 Bilal S S19  
 Bilić B S238  
 Binda C S47, S224  
 Bisschops R S4, S80, S91, S112, S114, S115, S165  
 Blanco-Velasco G S30, S195, S232  
 Blazquez E S66, S89, S182  
 Blero D S95, S122, S172  
 Boal Carvalho P S31, S188  
 Bobeica D S149, S232  
 Bodiou J S25  
 Boedeker S S15  
 Boeva I S228  
 Bogdan Mateescu R S73  
 Bogers SK S113  
 Bojorquez A S255  
 Bokemeyer A S15, S36, S121  
 Boland K S142, S201  
 Bommelaere F S149  
 Bonavina L S18  
 Bonfante F S213  
 Bonitta G S8, S29  
 Bonnington SN S116, S138, S153  
 Bonoso Criado R S209, S230  
 Bonura GF S83  
 Bonzanini O S213  
 Boo SJ S188  
 Boonmee C S46, S94  
 Boonstra JJ S114  
 Bor R S38  
 Bordacahar B S26, S46, S202  
 Borges V S170  
 Borges-Canha M S106  
 Borobia Sanchez R S62  
 Borrelli De Andreis F S67, S122  
 Borrow DM S9  
 Borsotti E S29  
 Bortlik M S137  
 Bosch-Schips J S48  
 Boskoski I S28, S67, S73, S82, S109  
 Bořkoski I S28, S51, S53, S122, S139, S147  
 Bossard C S179  
 Bossi P S20, S186  
 Bossuyt P S80  
 Bota S S198  
 Bote M S66, S89, S182  
 Bouamama S S254  
 Bou-Ayash N S250  
 Bouchabou B S169  
 Bouchard S S91  
 Bouin M S33, S91, S92  
 Bourke M S79  
 Boutallaka H S141, S162, S233  
 Bouzeloc S S149  
 Bove V S28, S51, S53, S67, S73, S82, S147, S193  
 Bozhychko M S24, S47, S97, S98, S141, S155, S226  
 Branche J S83, S115  
 Braun G S93  
 Bravo C S205  
 Breslin N S161, S215  
 Bretthauer M S120  
 Březina J S235  
 Briau B S26, S46, S202  
 Brink L S56, S103, S127, S134, S173  
 Brito D S44, S86, S191, S197  
 Brochard C S179  
 Bromberg L S95  
 Bronzwaer MES S114  
 Brosens LAA S168  
 Brückner M S121  
 Brujats A S204, S225  
 Brullet E S62, S63, S157, S255  
 Brunet Mas E S255  
 Brunet E S157  
 Bruno M S42, S148  
 Bruno MJ S21, S107, S109, S236  
 Bruno N S55  
 Brust CA S4  
 Brzeszczynska J S9  
 Bucalau AM S79, S95, S106  
 Buckova B S101, S130  
 Bucurica S S202  
 Budihal S S192  
 Budimir I S223  
 Budzinskiy S S229  
 Bugter O S236  
 Bülow S S127  
 Buonadonna A S217  
 Buonfiglioli F S203  
 Buras MR S10  
 Bures J S85, S130  
 Burgos Santamaría D S62  
 Burisch J S127  
 Buscarini E S42  
 Busch OR S42  
 Busquets D S34, S239, S240  
 Bustamante M S32  
 Bustamante-Balen M S93, S134  
 Bustamante-Balén M S147, S235  
 Busuioc B S73  
 Butra Y S234  
 Bux Soomro G S236  
 Buysschaert K S165  
 Byeon JS S81, S175  
  
 C  
 Caca K S40  
 Caceres-Galan JL S226  
 Cadime AT S44, S86, S191, S197  
 Cairo Nunes G S251  
 Calabrese C S8  
 Calabrese F S83, S184  
 Caldaro T S187  
 Cali A S84  
 Calin R S202  
 Calleja Panero JL S132  
 Calleja JL S89, S182  
 Calvanese C S84, S96  
 Calvet X S63, S157  
 Calvo P S90, S113  
 Camboni T S109  
 Cameron K S145  
 Camilleri S S70, S248  
 Cammarota G S109  
 Campanale M S74  
 Campo R S63, S157, S255  
 Cananzi F S20  
 Canard JM S78  
 Canaval Zuleta HJ S221  
 Canbay A S102  
 Cancela E S218

Canena J S17, S49, S75, S87, S97, S112, S155, S169, S185, S225  
 Cañete Ruiz Á S104, S190  
 Cannatelli R S79  
 Cannizzaro R S217  
 Cano V S247  
 Cañones A S59  
 Canton E S217  
 Cantù P S64  
 Canzonieri V S217  
 Capdevilla F S32  
 Capela T S112  
 Caplin M S45, S167  
 Capodaglio G S116  
 Capogreco A S123  
 Cappello A S68, S155  
 Capurso G S37, S58, S59  
 Carbajo López AY S25  
 Carbajo AY S24, S121, S226  
 Carballal S S90, S113  
 Carbonell Blanco C S62, S218  
 Cardoso H S143  
 Cardoso R S218  
 Cariou M S149  
 Carolina Hoff A S251  
 Carrara S S20, S68, S82, S123, S155, S186, S220  
 Carrascosa Gil J S43  
 Carrascosa J S94, S192, S225  
 Carretero C S160, S180, S255  
 Carrilero Zaragoza G S172  
 Caruso A S228  
 Carvalho A S218  
 Carvalho DF S170  
 Carvalho J S9, S31, S32, S94, S132, S145, S152, S188, S192, S196, S203, S225, S252  
 Carvalho PB S8  
 Carvalho R S177  
 Casals F S74  
 Casamali C S96, S108, S168  
 Casellas JA S24, S25, S47, S97, S98, S141, S155, S226  
 Cassoni P S138  
 Castanheira A S218  
 Castaño-García A S143  
 Castela J S257  
 Casteleiro C S49, S169  
 Castoro C S123  
 Castro Urda JL S128, S229  
 Castro R S151  
 Cauche N S172  
 Caunedo-Alvarez A S226  
 Cavalcante Franco M S96  
 Cavalcante M S168  
 Cavalcanti F S63  
 Cavalcoli F S20  
 Cavallaro F S8, S29, S64  
 Cavina M S83, S184  
 Çavuş B S256  
 Çavuş T S256  
 Cazacu IM S44, S45, S255  
 Cazzato M S22, S150  
 Cecinato P S83, S184  
 Cellier C S110, S209  
 Cennamo V S18, S47, S203, S224  
 Centorrino E S196  
 Cernik M S86, S249  
 Ceroni L S203  
 Certo M S17, S75, S87, S97, S155, S185, S225  
 Cha JM S81  
 Chabbouh K S250  
 Chabrun E S12, S83  
 Chacón Martínez S S257  
 Chahal P S26  
 Chang DK S80  
 Chang YW S40  
 Charachon A S83  
 Charisis D S72  
 Charissoux A S89  
 Chassang M S19  
 Chatu S S6  
 Chaudarcas Castiñeira P S128, S229  
 Chaudhari H S199  
 Chaudhari M S199  
 Chaudhari S S199  
 Chaudhari Y S199  
 Chaussade S S78, S115, S172  
 Chavarría Herbozo CM S62  
 Chaves P S257  
 Chedgy F S102  
 Chen H S22  
 Cherciu IF S255  
 Cheriyan D S142, S156, S201, S223  
 Chernyakevich P S229  
 Chevarria J S165  
 Chevaux JB S98  
 Chiara Ferrara E S68, S123, S186, S220  
 Chibai M S150  
 Chiu P S14  
 Cho B S248  
 Cho CM S60, S223  
 Cho H S185  
 Cho J S251  
 Cho JH S15, S143, S157, S210, S227, S245, S258  
 Cho JW S175  
 Cho JY S117  
 Cho KB S57, S166  
 Choe JW S16, S150  
 Choe Y S129  
 Choi CW S153, S158, S169, S205  
 Choi DI S104  
 Choi HJ S15  
 Choi HS S105, S109, S124, S144, S189, S232  
 Choi IJ S104  
 Choi JH S148  
 Choi SI S194  
 Choi SJ S105, S109, S124, S144, S189, S232  
 Choi SY S258  
 Choi YI S86  
 Cholet F S94, S149  
 Chon HK S178  
 Chowes Y S43  
 Christodoulou D S54, S140, S151, S197  
 Chum J S221  
 Chun HJ S103, S105, S109, S124, S144, S159, S189, S232  
 Chun J S188  
 Chung JW S86  
 Chung KH S120  
 Ciambriello B S37  
 Cicchese N S37  
 Cig Taskin O S174  
 Cimavilla M S100, S209, S230  
 Cintolo M S38, S95, S96, S139  
 Ciobanu A S144  
 Cipolletta F S186  
 Cirera E S210  
 Ciriano Hernández L S62  
 Cirrone Cipolla A S70  
 Claro I S257  
 Clifford C S223  
 Coda S S102  
 Coelho Fraga Moreira P S49  
 Cohen A S7  
 Cohen SA S10  
 Coimbra J S112, S170  
 Colan Hernandez J S112  
 Colan J S174, S204, S225  
 Coll C S239  
 Collini P S20  
 Colombo M S123  
 Colombo P S20  
 Colucci K S85  
 Cominardi A S84, S96  
 Comito T S186  
 Compañy L S24, S47, S98, S141, S155, S226  
 Concepción Martín M S204  
 Concepcion M S112  
 Concepción M S225  
 Conde B S182  
 Conesa Zamora P S219  
 Conigliaro R S42, S228  
 Conlon C S62  
 Consiglieri CF S48  
 Consolandi C S109  
 Constantinescu A S162  
 Constantinescu G S162  
 Constantino J S218  
 Conti L S22, S150  
 Contin I S17, S75, S163  
 Contini AC S187  
 Cooney R S79  
 Cordero-Ruiz P S226  
 Cordes F S36  
 Córdoba H S65  
 Coron E S4, S84, S91, S110, S115, S179, S180  
 Coronel M S96  
 Correale C S82  
 Correale L S91, S208  
 Corsato Scomarim R S96  
 Corsato Scomarim R S216  
 Cortas G S207, S250  
 Corte Real Nunes A S181, S246  
 Cortegoso Valdivia P S87, S148, S224, S256  
 Cortés H S13  
 Cortes-Pérez H S11, S13  
 Cortez Pinto J S171, S257  
 Costa Martins B S96, S199, S216, S233  
 Costa Santos MP S92  
 Costa D S106, S119, S167, S245  
 Costa I S75, S185  
 Costa J S94, S192, S225  
 Costache R S202  
 Costamagna G S28, S51, S53, S67, S73, S74, S82, S109, S122, S139, S147, S190, S193  
 Costantini A S67, S82  
 Costantino A S196  
 Coto Ugarte D S62  
 Cotta J S240  
 Cotter J S8, S10, S31, S188  
 Cottet V S154  
 Coutinho Madruga A S14  
 Coutinho L S168  
 Couto I S129  
 Couto-Worner I S212  
 Coutinho Madruga Neto A S108  
 Craviotto V S68, S119, S123, S184, S220  
 Cravo M S92  
 Crespi D S245  
 Crockett SD S32, S191  
 Crudeli A S9  
 Cuatrecasas M S90, S113, S220  
 Cubas JA S208  
 Cubiella J S100  
 Cullen G S173  
 Cunha I S181  
 Cunha R S49  
 Curcio G S195  
 Curieses M S209, S230  
 Cuyàs Espi B S204  
 Cyraný J S85  
 Czakó L S76, S177  
  
 D  
 Da Costa Martins B S108  
 Da Costa J S63, S157, S255  
 Dabbeche R S136  
 Dabizzi E S47  
 DaJubkowski K S137  
 Dabos K S173  
 Daferera N S72  
 Dagas A S54, S151, S197  
 Dahan M S89  
 Daiko H S185  
 Dal Buono A S123

- Dal Maso L S146  
 Dall'Oglio L S187  
 D'Amico F S12, S35, S68, S119, S123, S155, S184, S220  
 Dancour A S58, S60  
 Danila M S231  
 Danilova N S6, S92  
 D'Assuncao MA S194, S200  
 Dastych M S247  
 Dauer M S196  
 Davalos Moscol M S217  
 Dávalos M S249  
 D'Aversa F S28, S51, S53, S67, S193  
 Davie M S10  
 Davila M S49  
 Dávila M S69  
 Davydova S S210  
 Dawsey S S108  
 De Angelis C S42  
 De Angelis CG S87, S148, S224  
 De Angelis P S187  
 De Bellis M S55, S207  
 De Benito Sanz M S25, S62, S181  
 De Benito M S24, S46, S95, S110, S111, S121, S163, S226  
 De Biase D S18  
 De Bortoli N S207  
 de Castro FD S8  
 de Chaumont A S46  
 De Frutos D S66, S89, S182  
 De Gracia Villanueva Arias M S209  
 De hertogh G S80  
 de Jong B S113  
 De la Cruz Esteban DR S190  
 de la Cruz DR S51, S104  
 De la Peña J S13  
 de la Peña-García J S11, S13  
 De la Riva S S160  
 De la Serna Higuera C S24, S26, S46, S95, S110, S111, S163  
 de la Serna C S24, S121, S226  
 De la Serna-Higuera C S25, S229  
 de Nucci G S18, S21, S35, S57, S140, S154, S165, S206  
 De Paoli A S217  
 de Quadros LG S160, S246  
 De Re V S217  
 De Riba B S225  
 De Ronde O S121  
 de Souza LA S6  
 Debbeche R S242  
 Decassian T S196  
 Dedeu Cusco JM S125  
 Deiana S S27, S66, S88, S189, S207  
 Dekker E S114, S208  
 Del Carmen Martínez S S219  
 Del Chiaro M S42  
 del Pozo García A S104, S190  
 Del Pozo A S13  
 del Pozo-García AJ S51  
 del Pozo-García AJ S11, S13  
 Del Vecchio Blanco G S140  
 Delattre C S172  
 Delchambre A S172  
 Delconte G S20, S42  
 Delgado PE S50  
 Delis K S242  
 Delius S von S15, S33, S176  
 della Corte C S206  
 Dell'Anna G S83, S184  
 Delotte J S19  
 Demedts I S4, S115, S165  
 den Hartog GD S21  
 Denzer U S40  
 Denzler J S4  
 Deprez P S121  
 Deprez PH S18, S43, S186  
 D'Ercole MC S84  
 Dermine S S78  
 D'Errico F S9  
 Desai P S123, S124, S227, S237, S248  
 Deshêtres A S92  
 Deslandres E S91, S92  
 Despott E S106  
 Despott EJ S65, S119, S167, S245  
 Devani M S206  
 Deviere J S79, S106, S122  
 Devière J S83, S95, S172  
 D'Haens G S10  
 Dhouioui K S250  
 Di Giulio E S12, S14, S22, S55, S150, S220  
 Di Leo M S20, S68, S123, S186, S220  
 Diamantopoulou G S54, S151, S197, S216  
 Dias de Castro F S31  
 Dias Domingues T S177  
 Dias Pereira A S171, S257  
 Dias AM S112  
 Dias E S143  
 Díaz Tasende J S104  
 Díaz Tasende JB S190  
 Diaz M S90  
 Díaz M S113  
 Diaz-Tobar C S85  
 Dieguez Montes L S243  
 Diéguez Montes L S218  
 Dieninyte-Misiune E S224  
 Diez Redondo P S129, S181  
 Diez Rodríguez R S130  
 Diez-Redondo P S100  
 Díez-Redondo P S100  
 Dijk F S42  
 Dikopoulos N S55  
 Dima S S45  
 Dimas I S168  
 Dimov A S23  
 D'Inca R S29  
 Dinelli M S165  
 Ding M S117  
 Dinis-Ribeiro M S45, S106, S151, S208  
 Diniz Carvalho S S187  
 Dioscoridi L S38, S64, S95, S96, S139  
 Dirrenberger B S98  
 Distefano G S173, S193  
 Ditisheim S S33  
 Doat S S26  
 Dodmani M S177  
 Doherty G S173  
 Dolezal R S79  
 Dolina J S247  
 Dolz C S13  
 Dolz-Abadia C S11, S13  
 Domenico Mandelli E S140, S154, S165, S206  
 Domper Arnal MJ S36  
 Donatelli G S171  
 Donato G S184  
 Donia HM S245  
 Doods C S165  
 Dorotyya Lovasz B S5, S7, S254  
 Dos Passos Galvão Neto M S160, S246  
 Dot Bach J S208  
 Douda T S85  
 Douglas S S9  
 Doukas M S21  
 Dousset B S26, S46  
 Dovbenko O S192  
 Doyle J S149  
 Drábek J S187  
 Draghici T S149  
 Drastich P S53, S137, S235  
 Drazilova D S82  
 Drenth J S70  
 Drenth JPH S126  
 Drepper M S186  
 Drobnic M S246  
 Drug V S144  
 Dubois P S135  
 Dubravcsik Z S5, S7, S132, S254  
 Dubrovin O S195  
 Duller C S75  
 Dumoulin FL S40  
 Dunaeva O S5  
 Dunkov Z S235  
 Duong A S92  
 Duran R S13  
 Durán-Bermejo R S11, S13  
 Duvanskiy V S239  
 Duvansky V S38
- E**  
 East J S114  
 Ebigo A S6, S40, S72, S93, S219, S243  
 Edelsbrunner H S5  
 Edris A S237  
 Eduardo A S13  
 Eelbode T S4, S115  
 Egea Valenzuela J S172, S235  
 Ego M S65  
 Ehrmann J S148  
 Eickhoff A S73, S101, S200  
 Eid M S247  
 Eiji Matuguma S S96  
 Eisendrath P S79, S251  
 Ejenavi E S64  
 El Bacha H S26, S36, S46, S202  
 El koti I S162, S233  
 El mansouri S S240  
 El Menabawey T S135  
 Elabkari M S216, S239, S252  
 el-Aleem Helal A S237  
 Elarabi H S252  
 Elbahr O S237  
 Eliakim R S7, S10  
 Elias P S191  
 Elias PA S32  
 Elisei W S190  
 Eljihad M S252  
 Ellakany AI S245  
 Ellenrieder V S39, S253  
 Elli L S31, S64, S161, S196  
 Ellis R S102  
 Elloumi H S170, S214, S240  
 Elmansouri S S254  
 Elmunzer BJ S32, S191  
 Elnagar M S64  
 Elosua A S32  
 Elsayed EH S245  
 Elvas L S44, S86, S191, S197  
 Elyousfi M S216, S239, S252  
 Emmanouil T S203  
 Emmanuel A S6, S135  
 Enderle M S58  
 Enguita M S32  
 Ennaifer R S169  
 Enriquez CF S125  
 Eom BW S104  
 Epshtein J S58  
 Erkan Duman A S162  
 Eröss B S38  
 Espinel J S247  
 Espinet JMR S36  
 Espinos Perez JC S52  
 Espinos JC S34, S61, S137, S183  
 Espinós JC S32  
 Espinosa-Saavedra D S30  
 Esposito D S83, S184  
 Esposito G S22, S150  
 Essler G S198  
 Esteban Delgado P S256, S257  
 Esteban López-Jamar JM S164  
 Esteban JM S137, S183  
 Esteve M S61  
 Esteves J S170  
 Estevez P S142  
 Estremera F S225

- Etchepare N S110  
Eusebi LH S45  
Evangelides P S203  
Evgenidi A S157, S211
- F
- Fabbri C S18, S21, S47, S203, S224  
Fabián A S38  
Fabio Teixeira A S159  
Fabritius M S90  
Faiss S S40  
Faivre J S154  
Fakheri H S57  
Falconi M S58  
Faller J S182  
Falt P S137, S148  
Familiari P S28, S51, S53, S67, S82, S122, S193  
Fanti L S83, S173, S184, S193  
Fantin A S146  
Faraci S S187  
Farhat S S207, S250  
Farman M S156  
Farmer A S118  
Fasoli R S138  
Fateen W S63  
Faulques B S33  
Fedato C S117, S146  
Federici G S187  
Fedorov A S210  
Fedorov E S6, S71, S83, S92, S135, S229, S241  
Fedorov ED S166  
Fedotov B S238  
Fedotov L S238  
Feisthammel J S52  
Fejfar T S85  
Feldman D S199  
Ferlitsch A S212  
Ferlitsch M S145, S146, S212, S214  
Fernandes Fittipaldi JR S53, S159, S251  
Fernandes C S203  
Fernandes J S17, S45, S49, S75, S87, S97, S155, S169, S185, S225  
Fernandes S S132  
Fernandez Cadenas F S137, S183  
Fernandez Esparrach G S112  
Fernández Esparrach G S13  
Fernández Simón A S137  
Fernandez A S183  
Fernandez F S240  
Fernandez M S95  
Fernández N S142  
Fernandez-Ananin S S174  
Fernandez-Bañares F S61  
Fernández-Esparrach G S65  
Fernández-Esparrach MG S11, S13  
Fernández-Urién Sainz I S62  
Fernandez-Urien Sanz I S43  
Fernandez-Urien I S180  
Fernández-Urién I S94, S192, S225  
Ferrández Á S100  
Ferrante M S80  
Ferrara EC S20, S82  
Ferrara F S203  
Ferre Aracil C S62  
Ferreira Ayala Farias G S108  
Ferreira de Souza T S53, S159, S246, S251  
Ferreira A S92  
Ferreira-Hermosillo A S232  
Feußner H S33  
Figa Francesch M S36, S122  
Figa M S165, S200, S210, S239, S240  
Figura G von S176  
Filin A S112, S239  
Finati E S82  
Fiori G S220  
Fiorino S S18  
Fisac Vázquez J S164  
Fiscaletti M S47
- Fischbach W S56, S71, S103, S127, S134, S173  
Fischer S S80, S81  
Fissah M S170  
Fleischmann C S40, S243  
Flesland Havre R S163  
Fockens P S42, S114  
Foerster F S257  
Fojtik P S137  
Foltan O S171  
Fonseca J S75, S185  
Font Lagarriga X S125  
Formiga A S51  
Fornasari M S217  
Fornelli A S18  
Forti E S21, S38, S95, S96, S139, S140  
Fortier Beaulieu C S19  
Foucher J S91  
Fraga Moreira E S49, S244  
Fragaki M S168  
Fragkaki M S153  
Fraile M S32, S183  
Fraile-López M S63, S192  
Francesco Bonura G S184  
Francisco Sánchez Melgarejo J S256  
Frank R S55  
Franolić L S238  
Fraqelli M S196  
Frazzoni L S18, S45, S119, S128, S207, S208  
Frenn M S91  
Freuer D S242  
Freund S S72, S118  
Friedland S S81  
Frimberger E S15  
Froilan Torres C S62  
Frýbová B S187  
Fuccio L S18, S119, S128, S207, S208  
Fugazza A S20, S35, S68, S82, S119, S123, S155, S184, S186, S220, S224  
Fujiwara Y S185  
Fukuhara K S175  
Fukuhara S S232  
Fukunaga S S185  
Fukushima M S161  
Fumex F S36, S94, S202  
Furman M S245  
Furutani K S185  
Fusaroli P S17, S84, S96
- G
- Gabbani T S27, S66, S88, S189, S207  
Gabbadini R S123  
Gad-Allah AN S237  
Gagari V S102, S241  
Gaia S S148  
Gal O S199  
Galkova Z S241  
Gallach M S63, S157  
Galle PR S81, S106, S176, S204, S222, S257  
Galli G S22, S150  
Galtieri A S68  
Galtieri AP S82  
Galtieri PA S12, S20, S123  
Galvão Neto M S53, S159, S251  
Gamelas V S170  
Garcés R S65  
García Alonso FJ S62  
García de Paredes AG S143  
García Iglesias P S255  
García Lledó J S62, S137, S183, S218, S243  
García Prada M S219  
García Solano J S219  
García P S89  
García P S182  
García W S49, S67  
García-Alonso FJ S95, S111, S226  
García-Alonso FJ S24, S25, S26, S46, S110, S121, S163, S229  
García-Alonso J S24
- García-Campos M S93, S134  
García-Iglesias P S63  
García-Iglesias P S157  
García-Morales N S93, S134  
García-Pajares F S95  
García-Pajares F S121  
García-Prada M S143  
García-Ramos García C S128, S229  
García-Rodríguez A S65  
García-Romero D S11, S13  
Gardone R S27, S78  
Gargouri D S170, S214, S240  
Garriba AT S29  
Garrido A S66, S89, S182  
Garufi S S70, S248  
Gasanov A S241  
Gasbarrini A S47, S109, S193  
Gásdal Karstensen J S127  
Gasmi M S25, S178  
Gaspar R S143  
Gasperoni S S29  
Gatos-Gatopoulos P S158, S249  
Gatto Paulo AC S49  
Gatto Polo AC S244  
Gavric A S113  
Gavrić A S90  
Gayle N S217  
Gede N S38  
Geiger S S168  
Gelli D S8  
Genthner A S73, S101, S200  
George G S64  
Gerges C S15, S99, S139  
Gerothanassi N S133  
Gessl I S212  
Gheorghiu M S113  
Ghosh S S64, S79  
Ghosh Y S207, S250  
Giannakopoulos A S153, S157, S211  
Giannarakis M S253  
Giannelis P S23  
Giannella Estanislau VT S244  
Giannikaki E S168  
Giannikaki L S153  
Giardini M S55  
Gibiino G S28, S51, S53  
Gibo J S49, S148  
Giestas S S17, S75, S87, S97, S155, S185, S225  
Gillissen LPL S114  
Gill JA S32, S191  
Gimeno A S90, S113  
Gincul R S43, S202  
Gines A S112  
Gionchetti P S8  
Giorgio Mirante V S207  
Giotis I S248  
Giovanelli S S18, S21  
Girones M S210  
Gizzi G S128  
Gkolfakis P S54, S58, S101, S131, S133, S151, S158, S197, S249  
Glez-Cotorruelo Glez A S219  
Glomsaker T S120  
Gmeiner S S33  
Gódi S S76, S177  
Goetz M S194  
Goggin P S102  
Gogová D S236  
Goh MJJ S80  
Golan T S60  
Gölder S S72, S93, S242  
Gölder SK S219  
Goldin E S58, S60, S233  
Gomercic C S19  
Gomes AC S9, S31, S32, S145, S152, S196, S203  
Gomes C S27, S92, S132, S188, S252  
Gomes S S160, S181, S227, S246  
Gomez Oliva C S204

- Gómez M S94  
 González Bonilla ME S210  
 Gonzalez Gonzalez L S204  
 Gonzalez Haba Ruiz M S132  
 González López L S220  
 González Martín JÁ S143  
 González Partida I S182  
 Gonzalez B S180  
 González CE S182  
 González- F S210  
 González G S94, S192, S225  
 González I S66, S89  
 Gonzalez JM S25, S69, S83, S84, S115, S147, S178, S193  
 González L S225  
 González-Haba Ruiz M S62  
 Gonzalez-Haba M S89  
 González-Haba M S66, S89, S182  
 González-Huix i Lladó F S36  
 Gonzalez-Huix Lladó F S122  
 González-Húix Lladó F S200  
 González-Huix F S48, S165  
 González-Juan D S204  
 Gonzalez-Lopez T S34  
 Gonzalez-Partida I S89  
 Goong HJ S178  
 Gordillo Abalos J S32, S204  
 Gordillo J S90, S113, S174, S225  
 Gordon S S191  
 Gordon SR S32  
 Gornals J S112  
 Gornals JB S48  
 Gorskaya T S71  
 Gotink AW S109  
 Goto O S65  
 Gotoda T S190  
 Götz M S40  
 Gouveia C S92  
 Grabar S S36  
 Graffeo M S222  
 Grajales Figueroa G S252  
 Grammatikos K S158, S249  
 Granata A S27, S37, S186, S195  
 Grande G S228  
 Grandval P S94  
 Grassia R S21  
 Grasso E S55  
 Grau G S255  
 Gravito-Soares E S181  
 Gravito-Soares M S181  
 Grecco E S160, S246, S251  
 Greco S S122  
 Grega T S101, S116, S130  
 Grjurevic I S58  
 Grillo S S184  
 Grimm IS S32, S191  
 Grimminger P S176, S222  
 Groß V S196  
 Grossi C S190  
 Groza A S231  
 Grozinsky-Glasberg S S58  
 Grzelka M S201  
 Gschossmann J S70  
 Guarner Aguilar C S83, S204  
 Guarner Argente C S112, S225  
 Guarner C S32, S174  
 Guarner-Argente C S48, S174, S204  
 Guarnieri G S217  
 Guerra MF S32  
 Guerrero García A S62  
 Guerrero-Montañés A S129, S212  
 Guglielmo S S84  
 Guimarães Hourneaux de Moura E S14  
 Guimaraes Hourneaux de Moura E S53, S159, S251  
 Guingand M S178  
 Gulati S S6, S135  
 Gullon P S34  
 Gusella P S18  
 Gusmon de Oliveira CC S199  
 Gusmon C S168  
 Gutierrez JP S194  
 Gutierrez L S240  
 Guzman M S46, S49, S67, S69, S205  
 Guzzinati S S146  
 Gyökeres T S76, S177
- H**  
 Haasnoot KJC S114  
 Hadac J S171  
 Haddad F S240, S252, S254  
 Hadizadeh M S57  
 Haendchen Bento L S199, S233  
 Hajdarmataj E S231  
 Haji A S6, S135  
 Halfwerk JBG S42  
 Haller B S176  
 Halonen J S54, S151  
 Haluzik M S53, S159  
 Hamanaka J S74, S139  
 Hameed K S117  
 Hamila F S250  
 Hammar C S91  
 Hampal R S9  
 Hampe J S40  
 Hamzaoui L S93, S241  
 Han J S248  
 Han JH S15  
 Han SW S40, S129  
 Handa H S4  
 Hara S S231  
 Hardillo JA S236  
 Harewood G S142, S156, S201  
 Harewood GC S223  
 Harizi R S36  
 Harkin G S142, S201, S223  
 Harsányi L S132  
 Hartmann A S80  
 Hartmann D S40  
 Harustiak T S77  
 Harvey P S64  
 Hasan MK S32, S191  
 Hasenöhrl M S176  
 Hashimoto K S64  
 Hasnaoui B S241  
 Hassan Luck N S236  
 Hassan C S4, S35, S54, S55, S69, S70, S71, S91, S114, S115, S116, S117, S119, S123, S125, S131, S138, S146, S151, S152, S154, S206, S207, S208  
 Hastier-De Chelle A S84  
 Hayashi Y S65  
 Haycock A S73  
 Hayee B S6, S135  
 He S S108  
 Hegyi P S38, S76, S177  
 Heine GDN S114  
 Heinze G S146  
 Heinzow H S36  
 Heissat S S254  
 Hemdani N S169  
 Henrique Lenz L S108  
 Henry E S149  
 Hergueta-Delgado P S226  
 Hermida Perez MJ S142  
 Hernandez Villalba L S100  
 Hernández L S157, S202, S255  
 Hernández M S182  
 Hernández V S100  
 Hernandez-Mondragon OV S30, S195  
 Hernández-Mondragón OV S232  
 Hernanz N S143  
 Herraiz M S90, S113, S160  
 Herráiz M S100  
 Herrera Fajes JL S243  
 Herrero J S90, S113  
 Herreros de Tejada Echanojauregui A S11, S13  
 Herreros de Tejada A S13, S32, S66, S89, S182  
 Herrmann L S194  
 Herschkovitz A S159  
 Hervieu V S12  
 Hickey N S29  
 Hicks L S85  
 Hiele M S165  
 Hihara D S185  
 Hinterberger A S145, S146, S212, S214  
 Hirschmann S S80  
 Hjortswang H S72  
 Hlava Š S187  
 Hliwa W S240, S252, S254  
 Ho KY S14  
 Hochberger J S26, S78, S86, S99, S104, S118, S175, S184  
 Hodzic A S228  
 Hoff AC S53, S159  
 Hoffman I S165  
 Hoffmeister A S52  
 Hofmeyer M S118  
 Højen H S127  
 Hollenbach M S52  
 Hombrados M S239, S240  
 Hong S S217  
 Hong SN S80  
 Honsová E S236  
 Hoque Chowdhury E S106  
 Horn A S99, S184  
 Horta D S17, S75, S185  
 Hoseini V S57  
 Hossain E S34, S39, S167  
 Hoteya S S22, S41, S119  
 Howson W S85  
 Hrabar D S223  
 Hritz I S58, S132  
 Hu D S22  
 Huber Y S176  
 Huberland F S172  
 Huberty V S106, S122  
 Hucl T S53, S82, S124, S137, S171, S235, S236  
 Huerta A S90, S113  
 Huertas C S48, S239, S240  
 Hülögü S S162  
 Hüniger M S56, S103, S127, S134, S173  
 Hunsley M S135  
 Hussein Kamareddine M S207, S250  
 Hussey M S142, S201, S223  
 Hustak R S123, S230  
 Husty J S247  
 Hwan YS S136  
 Hwang SH S150  
 Hyeon SE S129  
 Hyun JJ S16, S150
- I**  
 Iacopini F S190  
 Iacucci M S64, S79, S80  
 Ianiro G S109  
 Ianniello A S184  
 Ibañez Beroiz B S32  
 Ibañez Pinto A S62  
 Ibañez Zafón I S125  
 Iborra Muñoz G S204  
 Ibrahim A S216, S239, S252  
 Igarashi Y S231  
 Iglesias Garcia J S43  
 Iglesias Jorquera E S172  
 Iizuka T S22, S41, S119  
 Ikeura T S120  
 Ikkide S S133  
 Ikuo Uchima Koecklin H S52  
 Ilie M S162  
 Imperatore N S21, S57  
 Inokuma T S77, S161  
 Inoshita N S22  
 Inoue H S83  
 Inoue S S161

Inoue T S77  
Internos I S248  
Invernizzi M S39  
Ionita Radu F S202  
Iori V S83, S184  
Iqbal T S79  
Irrarrazaval R S193  
Ishii R S33  
Ismail MS S29, S161, S218  
Ito T S105, S120, S185, S218  
Itou K S231  
Ivan B S18  
Ivan ET S255  
Ivanova E S135  
Ivanova EV S166  
Iveković H S238  
Iwao Y S175  
Iwasaki E S232  
Iwasaki S S231

**J**  
Jabbour G S207, S250  
Jacob H S7, S58  
Jacob P S254  
Jacques J S12, S67, S83, S88, S89, S90, S94, S98, S115, S182  
Jadot V S112  
Jang BI S136, S157, S210, S227, S258  
Jang HJ S15, S175, S188  
Jang JY S40, S41  
Jang S S124, S232  
Jang SH S105, S109, S144, S189  
Jangsirikul S S94  
Janoušek L S236  
Janousek R S82, S124  
Jansen ME S117  
Jantarattana T S59  
Jaswani T S156  
Javier García-Alonso F S179  
Jawhari A S192  
Jeen YT S105, S109, S124, S144, S189, S232  
Jeon H S198  
Jeon HJ S105, S109, S124, S144, S189, S232  
Jeon SR S143, S188  
Jeon SW S175  
Jeong HY S61, S211, S213  
Jespersen N S127  
Jezequel J S149  
Jijon Crespin R S235  
Jiménez Jurado A S219  
Jiménez Palacios M S130, S179  
Jimenez-Garcia VA S226  
Jiménez-Jurado A S143  
Jinga M S44, S202  
Jlassi H S170, S214  
Jo S S60  
Joao Moreira M S188  
João M S44, S86, S191, S197  
John S S81  
Johnson G S45  
Joo MK S103, S105, S159  
Jordán Castro A S179  
Jorge-Turrión MÁ S143  
Jorquera Plaza F S130  
José Sánchez Fernandez M S256  
Jovanovic I S73  
Jover R S54, S56, S100, S103, S127, S134, S173, S206, S208  
Jovine E S18, S47, S96, S224  
Juanmartiñena JF S94  
Juarez-Perez C S34  
Juhas S S79, S171  
Juhasova J S79, S171  
Julseth TC S120  
Jung C S46  
Jung G S90, S113  
Jung S S15  
Jung SW S16, S150

Jung Y S129, S188, S221  
Jung YK S16, S150  
Junquera F S63, S157, S255  
Jureidini R S233  
Juzgado de Lucas D S62  
Juzgado-Lucas D S34

**K**  
Kabar I S36  
Kabrawala M S123, S124, S227, S237, S248  
Kadi M S252  
Kaehler G S104  
Kaibysheva V S241  
Kala Z S247  
Kalafateli M S216  
Kalauz M S238  
Kale A S177  
Kallel R S215, S240  
Kalra P S123, S124, S227, S237, S248  
Kalvach J S171  
Kamal A S237  
Kamel R S171  
Kammerlander-Waldmann E S214  
Kamran U S219  
Kanai T S232  
Kanavidis P S58  
Kanda K S33  
Kandiah K S39, S102  
Kane K S79  
Kang CD S198  
Kang DH S153, S158, S169, S205  
Kang HW S221  
Kang MK S157, S210, S258  
Kang SH S61, S188, S211, S213  
Kang YM S148  
Kangalli S S73, S200  
Kantsevov SV S104  
Kapizioni C S23  
Kapral C S75  
Kapran A S234  
Kapranou A S168  
Kapur K S30, S180  
Karagoyozov P S228  
Karamanolis G S68  
Karamaroudis S S158  
Karlaftis A S102, S241  
Karoumpalis I S58  
Kartsoli S S140  
Kashab MA S191  
Kashida H S4  
Kashin S S5, S21, S48, S71, S238, S241, S243  
Katai H S185  
Kato M S175  
Katsura A S99  
Katzarov A S235  
Katzarov K S235  
Kavvadias A S140  
Kawaguti F S168  
Kawarai Lefor A S64, S127  
Kawasaki S S232  
Kawashima K S11, S65  
Kaybysheva V S243  
Kazemi A S57  
Kazuyoshi Minata M S199  
Ke Y S108  
Kechagias G S248  
Keczer B S58, S132  
Keegan M S43  
Keil R S187  
Keimali H S164  
Keum B S105, S109, S124, S144, S189, S232  
Khalin K S23, S206  
Khamaysi I S43  
Kharlova O S6, S92  
Khashab MA S32  
Khater S S110, S209  
Khoo CK S126  
Khoo D S28

Khoury S S207, S250  
Khsiba A S93, S241, S246  
Khvorova I S50, S103  
Khvostikov A S6  
Kieslichova E S124  
Kieslichová E S82  
Kiesslich R S114  
Kiesslich T S104  
Kiguchi Y S175  
Kikchi D S119  
Kikuchi D S22, S41  
Kim B S251  
Kim BJ S61  
Kim BW S118  
Kim CD S105, S109, S124, S144, S189, S232  
Kim CG S104  
Kim CH S39  
Kim D S150  
Kim DB S221  
Kim EH S194  
Kim EJ S86  
Kim ER S80  
Kim ES S57, S105, S109, S124, S136, S144, S189, S232  
Kim EY S103, S105, S136  
Kim GC S60  
Kim H S40, S41, S178  
Kim HG S15, S81, S143, S221  
Kim HJ S244  
Kim HW S81, S153, S158, S169, S205  
Kim J S81, S85, S251  
Kim JH S61, S86, S109, S124, S144, S188, S189  
Kim JJ S41  
Kim JO S143  
Kim JS S61, S175, S211, S213  
Kim JW S40, S129  
Kim KH S157, S210, S227, S258  
Kim KM S244  
Kim KO S57, S86, S136, S157, S188, S210, S227, S258  
Kim MC S157, S210, S258  
Kim MH S60, S179, S213  
Kim MS S61  
Kim MW S117  
Kim N S245  
Kim S S86, S124  
Kim SB S157, S210, S227, S258  
Kim SH S105, S109, S124, S144, S158, S189, S232  
Kim SJ S61, S153, S169, S205  
Kim SK S136  
Kim SY S16, S150  
Kim TH S61, S118, S178  
Kim TN S157, S210, S227, S258  
Kim YD S213  
Kim YG S136  
Kim YH S80  
Kim YI S104  
Kim YJ S86  
Kim YS S148  
Kim YT S37, S120  
Kim YW S104  
Kimoto Y S33  
Kimura Y S231  
Kinnunen U S56, S103, S127, S134, S173  
Kirkove P S251  
Kishimoto Y S231  
Klaikaew N S140  
Klare P S176  
Klarin I S73  
Klemt-Kropp M S126  
Klenske E S80, S81, S100  
Klima J S79  
Klimov A S210  
Kment M S221  
Kmochova K S56  
Kneist W S222  
Knoop RF S39, S253

- Ko BM S178  
 Kobayashi Y S127, S166  
 Kocak E S174  
 Koch AD S109, S236  
 Kodetova D S77  
 Koehler P S26, S78  
 Koga M S185  
 Koh DH S15  
 Koh JS S103, S105, S159  
 Koh SJ S221  
 Koh YX S81  
 Kohn N S33  
 Kohout P S86, S249  
 Kohoutova D S139  
 Kolkman JJ S117  
 Kollar M S77, S79, S123, S221  
 Kolligs F S40  
 Kolomoiets I S195, S244  
 Komeda Y S4  
 Konaka Y S99  
 Kongkam P S46, S59, S94, S140  
 Königsrainer A S194  
 Konishi N S33  
 Konstantakis C S16, S216  
 Kontorabdis N S203  
 Koo JH (Brian) S145  
 Koo JS S16, S150  
 Koop S S26, S78  
 Kopacova M S85  
 Kopelman Y S7, S199  
 Koptová P S187  
 Kordeas A S168  
 Kornowski A S71  
 Korolev M S238  
 Koshitani T S99  
 Kos-Kudła B S137  
 Kostanjevec B S246  
 Kotalová R S187  
 Koukias N S65, S119, S167, S245  
 Koukouloti E S249  
 Koulaouzidis A S8, S9, S10, S56, S103, S127, S134, S173  
 Kourkoulis P S23  
 Koutoufaris G S23  
 Kovács G S76  
 Koyama A S119  
 Krajciova J S77, S123, S221  
 Kralj D S223  
 Kraynova E S5, S21, S48, S238, S243  
 Kreft A S176, S204  
 Krishnadath KK S19  
 Kristianova H S171  
 Kroener PT S85, S194, S200  
 Kroening H S215  
 Kroupa R S247  
 Krylov A S6  
 Kubokawa M S49, S148  
 Kudo M S4  
 Kuipers EJ S21, S131  
 Kullavanijaya P S59, S140  
 Kumar Goenka M S234  
 Kumar S S156  
 Kumcu E S256  
 Kunovsky L S247  
 Kunsch S S39, S253  
 Künzli HT S167  
 Kurup A S219  
 Kuvae R S5, S21, S48, S238, S241, S243  
 Kwak MS S81  
 Kwon KA S86  
 Kwon KS S40, S41  
 Kwon TH S129  
 Kypraios D S58  
 Kyriakopoulos G S183  
 Kysela P S247
- L  
 La Marca M S18, S128
- Ladic A S73  
 Lahlali M S216, S239, S252  
 Lahmidani N S216, S239, S252  
 Lahner E S22, S150  
 Lahodzich N S234  
 Lajin M S47  
 Lamine Hamzaoui M S246  
 Lamine Sejai A S216, S239, S252  
 Lamona L S20, S68, S119, S123, S155, S184, S186, S220  
 Lamoureux A S98  
 Lamouri C S140  
 Lamprinakos S S242  
 Landi R S28, S51, S53, S67, S82, S147, S193  
 Lang D S15  
 Lansdorp-Vogelaar I S107  
 Laquiere A S36  
 Larghi A S18  
 Lariño Noia J S43  
 Laskaratos F S167  
 Lassoued K S170, S214  
 Laterza F S55  
 Laterza L S51, S53, S207  
 Laugier R S36  
 Law RJ S32, S191  
 Lazaridis LD S131, S249  
 Lazaridis N S65, S106, S119, S167, S245  
 Le Gall C S254  
 Le Maréchal M S19  
 Le Mouel JP S147, S193  
 Le Rhun M S110  
 Leblanc S S26, S36, S46, S78, S83, S115, S172, S202  
 Leclercq P S112  
 Leconte M S78  
 Ledezma C S165  
 Leduc R S92  
 Lee BI S129, S175  
 Lee BJ S103, S105, S159  
 Lee D S61  
 Lee DH S120, S245  
 Lee DS S258  
 Lee H S179  
 Lee HH S129  
 Lee HJ S136, S166  
 Lee HS S57, S105, S109, S124, S136, S144, S188, S189, S221, S232  
 Lee HY S86  
 Lee IS S15  
 Lee J S15, S117, S118, S213  
 Lee JH S117  
 Lee JI S117, S213  
 Lee JK S15, S189  
 Lee JM S105, S109, S124, S144, S189, S232  
 Lee JS S143  
 Lee JW S158  
 Lee JY S104, S166  
 Lee MS S178  
 Lee MW S212  
 Lee SH S15, S37, S120, S157, S190, S198, S210, S212, S227, S258  
 Lee SJ S198, S258  
 Lee SK S60, S179, S194  
 Lee SS S60, S179  
 Lee SW S16, S103, S105, S150, S159  
 Lee SY S57  
 Lee TH S143  
 Lee TY S15  
 Lee Y S251  
 Lee YC S194  
 Lee YJ S57, S136, S166, S175, S188  
 Lefor A S166  
 Lefort C S43, S202  
 Legros R S12, S89, S90, S94, S115, S182  
 Leighton JA S10  
 Lekkerkerker SJ S42  
 Lellwitz S S52  
 Lemmers A S79, S95, S106
- Lemoine O S95  
 Lemstrova R S148  
 Lenas M S157, S211  
 Lenz Tolentino LH S199  
 Lenz L S96, S168, S216  
 Lenze F S15, S36, S121  
 Lenzi A S203  
 Leoncini G S213  
 Leonidakis G S102  
 Leontis M S242  
 Lepetit H S94  
 Lepilliez V S78, S202  
 Lépilliez V S83  
 Lerotic I S223  
 Letaief R S250  
 Levenick JM S32, S191  
 Liao J S6  
 Libanio D S208  
 Libânio D S17, S75, S106, S151, S155, S185, S225  
 Liberal R S143  
 Ligresti D S27, S37, S184, S186, S195  
 Lim H S129  
 Lim JU S61  
 Lim YJ S188  
 Linguerri R S96  
 Lins Mota RC S14  
 Linzenbold W S58  
 Liotta R S18  
 Lippai D S66  
 Lira A S63, S157, S255  
 Lisotti A S17, S84, S96  
 Liu H S6  
 Liu X S22  
 Liu Y S22  
 Livovsky D S60, S233  
 Livovsky DM S58  
 Llach J S90, S113  
 Lladó H S210  
 Llibre G S63, S157, S255  
 Lobakov A S38  
 Lochamnová J S187  
 Lockman KA S201  
 Lodato F S203  
 Loh WL S144  
 Lomré M S251  
 Longcroft-Wheaton G S102  
 Lopes J S88  
 Lopes L S17, S49, S75, S87, S97, S155, S169, S185, S225  
 Lopes S S143, S181, S246  
 Lopetuso LR S109  
 López Fraile M S137  
 López Ibañez M S62  
 López López S S43  
 López Martín A S98  
 Lopez Nava G S52  
 López Serrano A S62  
 López Vicente J S90  
 Lopez C S240  
 López C S239  
 López M S182  
 López-Álvarez M S129, S212  
 López-Cerón M S90, S113  
 López-López S S18  
 Lopez-Nava G S50, S51, S52  
 López-Vicente J S113  
 Loras Alastruey C S111  
 Loras C S48, S61, S112  
 Loske G S194  
 Loss M S26, S78  
 Loubaris K S141  
 Louis H S122  
 Loureiro R S112  
 Lourenço L S17, S75, S185  
 Lourenço LC S177  
 Louvriex R S239  
 Lovecek M S148  
 Lovera M S222

Loya A S19  
Loza A S100  
Lozano M S240  
Luangsukrerak T S59  
Luca M S144  
Lucas F S17, S49, S75, S87, S97, S155, S169, S185, S225  
Lucendo Jiménez L S218  
Luchinina D S238  
Lucidi V S95  
Ludwig L S55  
Lujan M S180  
Lukas M S137  
Luong T S106, S167  
Lupu A S66, S89, S97, S111  
Luz Vargas García A S210  
Luz Vargas A S122  
Lv N S108  
Lygkos D S249  
Lykiardopoulos B S72  
Lyrakos G S72  
Lyutakov I S23

**M**

Macadon B S202  
Macarri G S18  
Maceček J S209  
Macedo G S87, S88, S143, S160, S181, S204, S227, S246  
Machado-Volpato N S143  
Machlab S S63, S157  
Machlab ST S255  
Macinga P S235  
Mačinga P S236  
Mackenzie TA S32, S191  
Madacsy L S5, S7, S254  
Madácsy L S132  
Maddirala V S28  
Maeda S S74  
Maehata T S175  
Maes F S4, S115  
Maestro Antolin S S209, S230  
Maestro Prada I S128, S229  
Magalhães Bittencourt M S244  
Magalhaes R S188  
Magalhães R S8, S31  
Magarotto A S20  
Magris R S217  
Maheshwari P S156  
Mahmoudi M S93, S241, S246  
Maida M S70, S248  
Maiero S S217  
Maieron A S75  
Majcher B S145, S146, S212, S214  
Majek O S101, S116, S130  
Majid Z S236  
Mak J S79  
Makino T S80  
Makris K S23  
Mala T S120  
Malafaia MC S254  
Maldonado-Perez B S226  
Maleki I S57  
Maletta F S148  
Malkov P S6, S92  
Mallard C S111  
Maluf F S168  
Maluf-Filho F S96, S108, S199, S216, S233  
Maluskova J S77, S221  
Mandair D S167  
Mandelli ED S57  
Manes G S18, S21, S35, S57, S140, S154, S165, S206  
Manfredi G S42  
Manfredi S S154  
Manganaro M S70, S248  
Mangano G S84  
Mangas-San Juan C S97  
Mangas-Sanjuan C S24, S47, S98, S100, S141, S155, S226  
Mangiafico S S228  
Mangiavillano B S35, S65, S155  
Mangiola F S28, S51, S53, S67, S82, S193  
Mangira D S145  
Mangsat E S9  
Manner H S238  
Manning J S54, S55, S69, S151, S152, S206  
Manno M S21, S27, S66, S88, S189, S207, S220  
Manolakis A S83  
Mansilla-Vivar R S147, S235  
Mantzaris G S164, S183  
Manzeneder J S6, S242  
Manzoor Haque M S236  
Mão de Ferro S S171, S257  
Marcos Martin ÁF S219  
Marcos-Prieto HM S143  
Marcovitch I S159  
Mari A S199  
Maria Ormando V S68  
Mariani A S37, S59  
Marín Calderon L S217  
Marín Gabriel JC S13, S104, S137, S190  
Marín JC S34, S183  
Marín L S249  
Marín-Gabriel JC S11, S13  
Marinoni B S31  
Markoš P S238  
Marmo C S131  
Marmo R S131  
Mármol C S63, S157  
Maroni L S119, S155  
Marques Bernardo W S14  
Marques M S143  
Marquez I S61  
Marta S S239  
Martí D S179  
Martinek J S77, S79, S82, S123, S124, S135, S137, S221, S230  
Martínek J S171  
Martínez Bauer E S62, S255  
Martínez Moneo E S43  
Martínez Moneo E S62  
Martínez Moreno B S179, S226  
Martínez Sempere J S24, S47, S98, S141, S155, S226  
Martínez B S25, S97, S141  
Martínez J S97  
Martínez-Alcala A S85, S156, S194, S200  
Martínez-Alcalá F S32  
Martínez-Ares D S75, S155, S185  
Martínez-Bauer E S63  
Martínez-Bauer E S157  
Martins Figueiredo L S177  
Martins B S168  
Martins D S218  
Martos Vicaíno E S218  
Martos Vizcaino E S243  
Martyr C S106  
Maruyama Y S150  
Masachs Peracaula M S208  
Mascarenhas-Saraiva M S136  
Masci E S20  
Masegosa Ataz J S149  
Maselli R S12, S20, S35, S68, S82, S119, S123, S155, S186, S220  
Masseli R S39  
Masucci L S109  
Masuda M S120  
Mata Bilbao A S34, S52  
Mata A S137, S183  
Matalanos P S66, S89, S182  
Mateescu B S149, S211  
Mateescu R S202  
Mateescu RB S232  
Matern P S36  
Mateu G S239  
Mathew A S32, S191  
Mathou N S153, S157, S211  
Matias DJ S130  
Matsuda T S11, S65  
Matsuhashi N S33, S35  
Matsui A S119  
Matsui R S4  
Matuhashi N S39  
Mavrogenis G S27, S68  
Mayat E S241  
Maydeo AP S35  
Mayerle J S40  
Maynard A S208  
Mayor V S61  
Mayr M S55  
Mazzoleni G S146, S173, S193  
McCulloch A S79  
McFarlane M S64  
McGettigan N S142, S201, S223  
McNamara D S29, S161, S215, S218, S234  
Meade S S9  
Medhioub M S93, S241, S246  
Medina Morales JB S217  
Medina Morales JE S217  
Mehmood N S236  
Mehmood S S19  
Mehta R S123, S124, S227, S237, S248  
Mehta S S177  
Meining A S55  
Meireles de Azeredo Coutinho L S108  
Mel Jurado L S164  
Mel L S137, S183  
Melcarne L S63, S157, S255  
Mellos A S23  
Mendel R S6  
Mendes Simões G S234  
Mendonça E S233  
Mercea V S231  
Merino Rodriguez B S243  
Merino Rodríguez B S218  
Messmann H S6, S40, S72, S93, S104, S118, S219, S242, S243  
Meves V S99, S184  
Miani T S119  
Michalopoulos G S23  
Michalska K S137  
Michelena Escudero J S52  
Michida T S105, S218  
Michopoulos S S102, S241  
Miguel Salas I S122  
Mihai Voiosu A S209  
Mikhailov I S6  
Mikhaleva L S229  
Miloni K S23  
Milluzzo SM S222  
Miltiadou K S158, S249  
Minami K S232  
Miñana Calafat J S200  
Miñana Calafat JM S122  
Miñana JM S36  
Minato Y S33, S39  
Ministro P S218  
Mion F S67  
Miranda Garcia P S74  
Mirante V S21, S27, S66, S189  
Mirante VG S88  
Mita M S99  
Mitobe J S150  
Mitrakov A S104  
Mitsuhiro F S81  
Mitsunaga M S150  
Mitsuyama T S120  
Miutescu B S231  
Miyahara S S127  
Miyashita H S150  
Miyazaki R S150  
Miyoshi H S120  
Mizuguchi Y S11

- Mogavero G S140, S184  
 Mohamad A S215  
 Mohammed N S83  
 Mohelnikova-Duchonova B S148  
 Mokashi S S54, S70, S71, S206  
 Mols P S251  
 Mommersteeg MC S21  
 Mondini S S203  
 Mongiat M S217  
 Mönkemüller K S85, S156, S176, S194, S200, S204, S222, S257  
 Monteiro P S45  
 Montero Moretón Á S209, S230  
 Moon HS S61, S211, S213  
 Moon JH S15  
 Moon JS S148  
 Moon SH S15  
 Morais R S87, S88, S143, S204  
 Moral Villarejo G S164  
 Morales-Barroso ML S226  
 Morán Sánchez S S219  
 Moran C S142, S156, S201, S223  
 Moreels T S121  
 Moreira Da Silva B S209, S230  
 Moreira F S88  
 Moreira L S90, S113  
 Moreira M S17, S75, S87, S97, S155, S185, S225  
 Moreira MJ S8, S31  
 Moreira P S181, S246  
 Moreno Sanguino C S164  
 Moreno L S90, S113  
 Moreno-García M S12  
 Morganti D S57, S154, S165, S206  
 Mori M S218  
 Morin M S98  
 Morinushi T S99  
 Morita S S77, S161  
 Mörk H S40  
 Moroi I S162  
 Morokhotov V S38  
 Morre C S9  
 Morreale G S70, S248  
 Moschos I S253  
 Moschovis D S248  
 Mosnier JF S179  
 Moss A S145  
 Mössner J S52  
 Mothes B S194  
 Mouelhi L S136, S242  
 Mourabit Y S122  
 Moussadek Azzouz M S246  
 Moyer MT S32, S191  
 Mpitouli A S153, S168  
 Mrabet S S215, S250  
 Mrabti S S162, S233  
 Mraz M S159  
 Msadak Azouz M S241  
 Msaky C S218  
 Múgica F S13  
 Múgica-Aguinaga F S11, S13  
 Muhovic D S228  
 Mulcahy H S173  
 Müller F S121  
 Munitiz V S172  
 Muñoz Anaya E S255  
 Munoz-Navas M S255  
 Muñoz-Navas M S160  
 Muramoto T S33  
 Murcia Palomares O S62  
 Murcio-Pérez E S232  
 Murino A S65, S106, S119, S167, S245  
 Murphy C S126  
 Murphy G S218  
 Murray M S126  
 Murzi M S112, S174, S225  
 Murzi-Pulgar M S204  
 Musaad A S141  
 Musquer N S110  
 Mussato A S116  
 Mussetto A S29, S30, S207  
 Mutignani M S38, S64, S95, S96, S139
- N
- Nada A S237  
 Nafiz Karahan S S174  
 Nagami Y S185  
 Nagayama M S127, S166  
 Nagengast WB S107, S114  
 Nagl S S243  
 Nahas C S216  
 Nahas S S216  
 Nakagawa S S99  
 Nakano K S99  
 Nakao T S33  
 Nakayama A S175  
 Nakhli A S169  
 Nakov R S23  
 Nam HS S153, S169, S205  
 Nam K S221  
 Nam SJ S188, S198  
 Nam SY S60  
 Nandwani S S123, S124, S227, S237, S248  
 Nantavithya C S59  
 Napoleon B S36, S43  
 Napoléon B S94, S202  
 Naranjo V S7  
 Narme E S116, S117  
 Naschold Geiger S S199  
 Nasr I S9  
 Nassar A S135  
 Nawaz F S117, S253  
 Nedoluzhko I S50, S103, S181  
 Neesse A S39, S253  
 Negishi R S33  
 Neokosmidis G S133  
 Neoral C S148  
 Neu B S15  
 Neuhaus H S15, S99, S139  
 Neuhaus L S93, S118, S243  
 Neumann F S137  
 Neumann H S4, S29, S81, S91, S106, S115, S135, S176, S204, S222, S257  
 Neunlist M S179  
 Neurath M S80, S81, S100  
 Nevárez A S7  
 Ngo O S56, S101, S116, S130  
 Ngoi SS S144  
 Ngooi S S144  
 Nicoletti R S82  
 Nieboer D S107  
 Niesert H S121  
 Nieuwenburg SAV S21, S131  
 Nikonov E S5, S21, S241  
 Nitescu Martín S S210  
 Noble C S70  
 Nobuki Usuy E S53, S159  
 Noel C S149  
 Nogales Rincón O S62, S243  
 Nogales O S32, S180  
 Nogales-Rincón Ó S11, S13  
 Nomura K S22, S41, S119  
 Nonaka S S185  
 Nong B S22  
 Noorda R S7  
 Nordblad Schmidt P S127  
 Nousbaum JB S149  
 Nowacki T S36, S121  
 Ntoui V S23  
 Nunes Arantes V S187  
 Nunes GC S159  
 Nunes J S92  
 Núñez Rodríguez H S129, S181  
 Núñez-Rodríguez MH S100  
 Nuta P S202
- O
- Ocaña T S90, S113  
 Occhipinti P S184  
 Ochiai Y S119, S175  
 O'Connor A S161, S215  
 Oczella L S5, S7  
 Oda I S185  
 Odagiiri H S119  
 O'Donovan H S62  
 Ogata H S232  
 Ogawa Matsubayashi C S14  
 Ogawa S S33  
 Ogloblin A S238  
 Oh D S60, S179  
 Oh SH S244  
 Ohata K S33, S35, S39  
 Ohishi T S99  
 Ohmori A S64  
 Okamoto Y S119  
 Okano N S231  
 Okazaki K S120  
 Okazaki O S96, S108, S168  
 O'Keefe A S29  
 Olcoz M S255  
 Oleynikova N S6, S92  
 Olga O S164  
 Oliva A S82  
 Olivari N S222  
 Oliveira de Marco M S14  
 Oliveira dos Santos CE S17, S63, S75, S163  
 Oliveira A S136  
 Olivier R S84, S179  
 Olmedo Camacho J S90  
 Omazzi B S206  
 Ominami M S185  
 Omodei PD S155  
 O'Morain N S62, S234  
 Onimaru M S83  
 Ono A S56, S100, S103, S127, S134, S173  
 Onofrio F S63, S75  
 Oostenbrug LE S19  
 Oprea R S209  
 Oprita R S162  
 Orbán-Szilágyi Á S76, S177  
 Oren G S7  
 Orkut S S33  
 Orlando DG S12  
 Orlando S S196  
 Ormando V S155  
 Orprayoon T S59, S94, S140  
 Ortega Lobete O S218, S243  
 Ortega Sabater A S172  
 Ortega A S137, S183, S240  
 Ortega S S165  
 Ortíz Fernández-Sordo J S63  
 Ortiz Polo I S62  
 Ortiz O S90, S113, S191  
 O'Toole A S142, S201  
 Ottaviani L S21  
 Ottoboni Brunaldi V S14  
 Ouakaa A S170, S214, S240  
 Oumnia N S170  
 Oumrani S S172  
 Ung B S12, S67  
 Ouni A S241  
 Ovadia B S199  
 Overwater A S107, S167, S168  
 Oya M S49, S148  
 Oyama T S104  
 Oyón Lara D S62  
 Oza CN S133
- P
- Padol S S149  
 Padolecchia E S222  
 Pagano G S62  
 Paggi S S207  
 Paik KH S16

Paik WH S16, S37  
Paikos D S253  
Pakodi F S76, S177  
Palacio Galan MA S183  
Palacio Galán MA S137  
Palacios Salas F S217  
Palacios F S249  
Palatianou M S248  
Palm C S6  
Palma R S68  
Palmela C S92  
Palos-Cuellar R S195, S232  
Pammer D S145, S212, S214  
Panagiotou G S133  
Pannick S S85  
Panoutsakou M S249  
Pantaleón Sánchez M S125  
Papa J S6  
Papadaki K S247  
Papanikolaou I S164, S183  
Papanikolaou IS S58, S203  
Papantoniou K S216  
Paparella G S139  
Papastergiou V S153, S157, S183, S211  
Papotti M S148  
Paraskeva K S153, S157, S211  
Pardo A S48, S112  
Parejo Carbonell S S62  
Parejo S S90, S113  
Park CG S117  
Park DH S60, S179  
Park DK S86  
Park EY S190  
Park J S143, S221  
Park JC S194  
Park JH S61, S148, S211, S213  
Park JJ S103, S105, S159, S188  
Park JK S258  
Park JM S118, S198  
Park JW S190, S212  
Park KS S57, S166  
Park S S248  
Park SB S153, S158, S169, S205  
Park SC S198  
Park SH S40  
Park SM S192  
Park SW S41  
Park TY S148  
Park YM S129  
Park YS S245  
Parra-Blanco A S192  
Parrilla Carrasco M S125  
Parrilla Paricio P S172  
Pasha SF S10  
Paspatis G S153  
Paspatis GA S168  
Pasquali S S20  
Passaretti S S173, S193  
Pastorelli L S8, S29, S64  
Patai Á S56, S76, S103, S127, S134, S173, S177  
Patchett S S142, S201  
Patel C S123, S124, S227, S237, S248  
Patel M S135  
Patel N S123, S124, S227, S237, S248  
Patel RN S133, S217  
Patel V S156  
Patil P S177  
Pato R S112  
Patrascu M S202  
Patrikakos P S16  
Patz J S233  
Pavão-Borges V S31  
Pavic T S223  
Pavlidis P S135  
Pavlov I S181  
Pazdro A S77  
Pazin J S171  
Pazos Massanas P S210  
Pecere S S56, S103, S109, S127, S134, S173  
Pech O S4, S91, S115  
Pechkova M S200, S210  
Peck-Radosavljevic M S198  
Pécsi D S38, S76, S177  
Pedraza Sanz R S179  
Pedregal P S255  
Peixoto A S181, S227, S246  
Pellegatta G S68, S155  
Pellicer-Bautista F S226  
Pellise Urquiza M S220  
Pellise M S32, S191  
Pellisé M S65, S90, S100, S113, S208  
Penagini R S161  
Peñas García B S62  
Peñas B S90, S113  
Peñas I S209, S230  
Peñas-García B S143  
Peñas-Herrero I S95, S121  
Penchev P S23  
Penesis G S72, S248  
Pennacchi C S168  
Pennacchi CMP S96  
Pennazio M S10, S256  
Penz D S145, S146, S212, S214  
Peppelenbosch MP S21  
Peregrin J S236  
Pereira Lima G S17, S63, S75, S163  
Pereira Lima J S17, S63, S75, S163  
Pereira P S87, S88, S143, S204, S227  
Pereira SP S45  
Pérez Berbegal R S125  
Pérez Carazo L S62  
Pérez Carregal C S125  
Pérez Citores L S209, S230  
Perez Corte D S62  
Pérez Fernandez A S50, S98, S256, S257  
Pérez Fernández R S130  
Pérez Millán A S209, S230  
Pérez- Miranda M S226  
Pérez-Cuadrado Martínez E S50, S98, S256, S257  
Perez-Cuadrado Robles E S43, S180  
Pérez-Cuadrado Robles E S50, S98  
Pérez-Cuadrado-Robles E S18, S186, S256, S257  
Pérez-Miranda Castillo M S25  
Perez-Miranda M S24, S95, S111, S156  
Pérez-Miranda M S24, S26, S46, S100, S110, S121, S129, S163, S179, S181, S229  
Pérez-Valle I S143  
Perk LE S114  
Permas JC S225  
Perretta S S51  
Perri V S28, S51, S53, S67, S82, S122, S139, S147, S193  
Perrod G S110, S209  
Perrot V S71  
Peter J S4  
Peter S S85, S156, S200  
Peterlin B S228  
Peters Y S108, S109, S113  
Petraiki K S102, S241  
Petrella L S207  
Petrone MC S18, S21, S37, S58, S59  
Petruzziello L S56, S103, S127, S134, S173  
Pezzilli R S42  
Pham KDC S163  
Phee SJ S14  
Phillips A S59, S230  
Piche T S19, S84  
Piedracoba Cadahía C S104, S190  
Piessevaux H S121  
Piffer S S146  
Pigò F S42, S228  
Pilar G S89  
Pillozzi E S14  
Pimenidou N S133  
Pimentel-Nunes P S45, S106, S151  
Pinard F S94  
Pinedo ME S247  
Piñerua J S46  
Pinho J S218  
Pinho R S9, S31, S32, S145, S152, S188, S196, S203, S252  
Piñol V S239, S240  
Pinte L S44  
Pioche M S12, S66, S67, S68, S78, S83, S84, S88, S89, S90, S97, S111, S115, S182, S197, S254  
Pires Batista C S199  
Pires F S218  
Pirici D S45  
Pirogov S S241  
Pita I S45  
Pivetta E S217  
Pivko K S246  
Pizarro Á S100  
Planella De Robinat M S200  
Platonova E S229  
Pleskow D S32, S191  
Plevris J S10  
Plevris JN S8, S9  
Plewa S S135  
Plomteux O S78  
Plotogea OM S162  
Poca M S225  
Pohl H S32, S33, S91, S92, S191  
Pohl J S40  
Pojoga C S113  
Poley JW S19  
Polifemo A S203  
Polyivets D S6  
Polo S S213  
Polydorou A S58  
Pommergaard HC S127  
Ponce M S93, S100, S134  
Ponce-Romero M S147, S235  
Ponchon T S12, S66, S67, S68, S71, S84, S89, S90, S97, S104, S152, S182, S197, S208  
Pons Renedo F S132  
Pons V S7, S93, S134, S180  
Pons-Beltrán V S147, S235  
Pontas C S164, S183  
Ponte A S9, S31, S32, S145, S188, S196, S252  
Poonawala R S217  
Popadiin I S235  
Popescu A S202, S231  
Popescu I S45  
Poredska K S247  
Portillo I S100  
Potamianos S S54, S151, S197  
Pradeep B S102, S131  
Prados Leira S S62  
Prajapati R S123, S124, S227, S237, S248  
Prat F S26, S36, S46, S78, S172, S202  
Preatoni P S155  
Prevezianou A S242  
Prieto Bermejo AB S219  
Prieto de Frias C S160, S255  
Prieto C S94  
Prieto HMM S62  
Prince Franzini T S14  
Privat J S83, S94  
Probst A S6, S40, S72, S93, S118  
Prochazka R S128  
Proença L S132, S203  
Protopapas A S133  
Prytz-Berset I S21  
Ptacnik J S171  
Pueyo A S192  
Pugliese F S38, S64, S95, S96, S139  
Puig Diví V S255  
Puig I S90, S113, S137, S183  
Puig-Diví V S63, S157  
Pujadas M S239  
Pujol B S43  
Puli C S28  
Pullmann D S139

- Puricelli M S161  
 Puscasu CI S209  
 Puskarova G S86, S249  
 Püspöck A S75
- Q**  
 Quagliuolo V S20  
 Quaranta G S109  
 Quénéhervé L S179, S180  
 Quiñones Castro R S130  
 Quintanilla Lázaro EM S128, S229  
 Quintero E S100  
 Qurashi M S64
- R**  
 Rabekova Z S123, S124  
 Radaelli F S114, S125, S138, S158, S184, S207, S208, S220  
 Radu Mateescu B S209  
 Ragi O S115  
 Ragunath K S63  
 Rahal D S20  
 Rahman KF S81, S176, S222  
 Rahmi G S78, S83, S110, S209  
 Raicu GM S107, S167  
 Rajendran A S73  
 Rakonczay Z S38  
 Ralf K S101  
 Ramada J S75, S87, S97, S155, S185, S225  
 Ramirez Polo A S252  
 Ramón Aparicio Tormo J S179  
 Ramón Aparicio J S24, S97, S98, S141, S155, S226  
 Ramon Armengol Miró J S208  
 Ramón Foruny-Olcina J S143  
 Ramos F S13, S32  
 Ramos G S112  
 Ramos R S49, S169  
 Ramos-Zabala F S11, S13  
 Rampioni Vinciguerra GL S14  
 Rastogi A S32, S191  
 Ratanachu-ek T S94  
 Rath T S80, S81, S100  
 Ratiu I S231  
 Ratke I S50  
 Raupach J S236  
 Raymond R S119, S245  
 Raynaud JJ S171  
 Razpotnik M S198  
 Rea F S187  
 Reati R S57, S154, S165, S206  
 Redaelli D S57, S154, S165, S206  
 Redero Brioso L S164  
 Refsum E S120  
 Regula J S71, S208  
 Reiffenstein I S200  
 Reinehri R S40  
 Reinten RJ S42  
 Reis J S17, S75, S177, S185  
 Reiser S S33  
 Rejchrt S S85  
 Reknimitr R S46  
 Remedios D S90, S113  
 Reñe Espinet JM S200  
 Reñe Espinet JM S122  
 Reni M S58  
 Renteln D von S32, S33, S91, S92  
 Repak R S85  
 Repici A S4, S12, S20, S35, S39, S65, S68, S70, S71, S82, S91, S114, S115, S119, S123, S155, S184, S186, S208, S220, S224  
 Rerknimitr R S59, S94, S140  
 Retes F S27  
 Rex D S208  
 Rex DK S32, S191  
 Rey Díaz-Rubio E S164  
 Reynolds R S9  
 Rezvani F S110  
 Riabov M S38  
 Riado Minguez D S221  
 Rial Fernández MJ S142  
 Ribeiro A S168  
 Ribeiro H S17, S75, S87, S97, S155, S185, S225  
 Ribeiro U S108, S216, S233  
 Ribeiro-Junior U S199  
 Ricciardiello L S207  
 Riccioni M S109  
 Riditid W S46, S59, S94, S140  
 Riemann JF S56, S103, S127, S134, S173  
 Rietdijk ST S114  
 Rimbias M S73, S149  
 Rimondi A S64  
 Ringel Y S160  
 Ríos León R S143  
 Rio-Tinto R S172  
 Riu Pons F S62, S125  
 Riu F S100  
 Rivero Sanchez L S90  
 Rivero-Sánchez L S113  
 Rivory J S12, S66, S67, S68, S83, S89, S90, S97, S111, S115, S182, S197  
 Rizopoulos D S107  
 Rizza S S87, S224  
 Rizzello F S8  
 Roales Gómez V S164  
 Robaszkiewicz M S149  
 Robert M S197  
 Robertson AR S201  
 Robotis I S242  
 Rocha M S112, S170  
 Roda R S27  
 Rodrigo Agudo JL S256, S257  
 Rodrigues Ferreira A S187  
 Rodrigues A S9, S31, S32, S188, S196, S252  
 Rodrigues J S9, S31, S32, S145, S152, S196, S203  
 Rodrigues-Pinto E S227  
 Rodriguez Carrasco M S104, S190  
 Rodríguez de Miguel C S90, S113  
 Rodríguez de Miguel C S65  
 Rodríguez de Santiago E S62, S83, S143  
 Rodríguez Escaja C S62  
 Rodríguez López P S219  
 Rodríguez Martín L S130  
 Rodríguez Pérez A S219  
 Rodríguez Prada JJ S142  
 Rodríguez Sanchez J S32  
 Rodríguez Sánchez J S220  
 Rodríguez J S205  
 Rodríguez S S13  
 Rodríguez-Escaja C S143  
 Rodríguez-Sánchez J S34, S183  
 Rodríguez-Sánchez J S11, S13, S90, S137  
 Rodriguez-Tellez M S32  
 Roelandt P S4, S115, S165  
 Roger Ibañez M S226  
 Roman S S67  
 Romano R S94  
 Romeo EF S187  
 Romero Romero E S104, S190  
 Romero Xandre J S125  
 Romero-Castro R S226  
 Romito R S225  
 Römmele C S72, S93, S242  
 Roncoroni L S31  
 Rondonotti E S10, S29  
 Rönnow CF S10  
 Rosa B S8, S31, S188  
 Rosado J S51  
 Rösch T S208  
 Roseau G S172  
 Rosendahl J S52  
 Rosianu C S162  
 Rosinach Ribera M S52  
 Rosman C S237  
 Rosón P S13, S137, S183, S240  
 Rosón-Rodríguez PJ S11, S13  
 Rossi G S18, S37, S58, S59  
 Rostain F S12, S66, S67, S97, S111, S197  
 Rottenstreich M S60  
 Roumans CAM S107  
 Rozmahel M S86, S249  
 Rubin DT S10  
 Rubio Mateos JM S50, S98, S256, S257  
 Ruggie M S116, S146  
 Ruiz de Angulo D S172  
 Ruiz Merino G S219  
 Ruiz FA S47, S98, S141, S155, S226  
 Ruiz L S61  
 Ruiz M S254  
 Rusakov A S5  
 Rusiniak-Rossińska N S137  
 Rust C S40  
 Rustemovic N S73  
 Rustemović N S238  
 Rusu I S113  
 Rutter M S114  
 Rutter MD S116, S138, S153  
 Ruzsics I S38  
 Ryan B S161, S215, S234  
 Rygl M S187  
 Ryoka Baba E S199  
 Ryska O S171  
 Ryu DG S153, S169, S205  
 Ryu JK S37, S120  
 Ryu KW S104  
 Ryu SH S148  
 Ryzhkov E S206
- S**  
 Sabado F S183  
 Sábado F S137  
 Sabate JM S171  
 Sabbah M S170, S214, S240  
 Sabri S S215  
 Sabry A S237  
 Saedon M S126  
 Safa S S46  
 Safatle-Ribeiro A S216, S233  
 Saftoiu A S44, S45, S255  
 Sagara Y S166  
 Saibeni S S206  
 Said E S30, S180  
 Sáinz Sáez-Torre S S204  
 Saiote J S170  
 Sair A S162, S233  
 Saito Y S11, S65, S185, S190  
 Sakai E S33, S39  
 Sakai T S185  
 Sakamoto H S64, S127, S166  
 Sakamoto T S11, S65  
 Sakurai T S4, S150  
 Salas IM S36  
 Salces I S90, S113  
 Saleem A S215  
 Salgado Pedrosa M S78  
 Salgado A S142  
 Salice M S8  
 Salinas A S49, S67, S205  
 Salok A S199  
 Samaha E S110  
 Samarghitan A S113  
 Samperi L S29  
 Sanaei O S32, S191  
 Sánchez Alonso M S90, S220  
 Sánchez Fernandez MJ S257  
 Sánchez Fernández MJ S50, S98  
 Sánchez García C S90  
 Sánchez Gómez F S51  
 Sánchez Joaquín R S220  
 Sánchez Melgarejo JF S50, S98, S257  
 Sanchez Montes C S112  
 Sánchez Velasco E S172  
 Sánchez A S90, S113  
 Sanchez F S180  
 Sánchez J S65

Sánchez-Alonso M S34  
 Sánchez-Antolín G S121  
 Sanchez-Montes C S93, S147, S235  
 Sánchez-Ocaña Hernández R S25  
 Sanchez-Ocaña R S24, S46, S95, S111, S226  
 Sánchez-Ocaña R S24, S26, S110, S121, S163  
 Sánchez-Yagüe A S11, S13  
 Sánchiz Soler V S179  
 Sandersen C S172  
 Sandru V S162  
 Sanjuan M S180  
 Sanpawat A S140  
 Sansone S S192  
 Santana E S100  
 Santander Vaquero C S62, S74  
 Santiago J S66, S89, S182  
 Santiago-García J S11, S13  
 Santo Mezzi G S140  
 Santo E S59, S230  
 Santos Santamarta F S209, S230  
 Santos AL S160, S181, S227, S246  
 Santos C S151  
 Santos S S170  
 Saperas E S90, S113  
 Sapundzhiev K S235  
 Saracco GM S148  
 Saraiva S S44, S86, S191, S197  
 Saruta M S150  
 Sassatelli R S83, S184  
 Sastre Lozano V S219, S257  
 Sato Uemura R S199  
 Sato Y S105, S218  
 Satorres C S93, S134  
 Saul C S17, S163  
 Saunders R S165  
 Saurin JC S12, S66, S68, S97, S197, S254  
 Sautereau D S89, S182  
 Sautereau D S90  
 Savier E S26  
 Sawdatkar S S199  
 Sayer V S135  
 Scagliarini M S207  
 Scaldaferrri F S109  
 Scapa E S59, S230  
 Scarparo J S159  
 Scarpulla G S248  
 Schachinger F S104  
 Schaefer M S98  
 Schaumburg T S52  
 Schempff U S194  
 Schepis T S147  
 Schiefke I S40  
 Schillaci D S70  
 Schlag C S176  
 Schmid RM S15, S176  
 Schmidt H S15, S36  
 Schmidt M S75  
 Schmiedt P S5, S7, S254  
 Schneider M S139  
 Schoon EJ S19, S107, S167  
 Schoretsanitis E S157, S211  
 Schrauwen RWM S113, S117  
 Schuhmacher B S40  
 Schulze L S204  
 Schwartz MP S114  
 Schweizer U S194  
 Scomparin R S199  
 Scorsetti M S186  
 Scotiniotis I S58, S247  
 Seabmuangsai O S94  
 Seddik H S162, S233  
 Seewald S S39, S83  
 Seicean A S113  
 Seicean R S113  
 Seifert H S104  
 Sekiguchi M S11, S65  
 Sekine S S185  
 Sekiya M S127, S166  
 Seldenrijk CA S107, S167  
 Seleznev DE S166  
 Selig L S52  
 Semeniv S S244  
 Semenov S S161, S215  
 Sendino O S112  
 Sengun B S174  
 Sengupta S S156, S223  
 Senore C S116, S131, S138, S208  
 Sentissi S S162, S233  
 Seo AN S60, S223  
 Seo DW S15, S59, S60  
 Seo M S175  
 Seoane Urgorri A S125  
 Seoane A S100  
 Seoane-Pillado MT S129  
 Seol SY S245  
 Sepp R S38  
 Sereni G S83, S184  
 Sergeev I S160  
 Sergey S S164  
 Serra I S240  
 Serraino D S146, S217  
 Serrani M S84, S96  
 Serrano Jimenez A S172, S235  
 Sethi A S123  
 Seufferlein T S208  
 Sevdalis N S73  
 Severgnini M S109  
 Sevilla Ribota S S62  
 Sevilla-Ribota S S34  
 Shamseya AM S245  
 Shamseya MM S245  
 Shannon E S62  
 Shapovaliantc S S241  
 Shapovalianz S S229  
 Sharma N S79  
 Sharma P S208  
 Sharp L S116, S138, S153  
 Shasi P S28  
 Sheridan J S173  
 Sheynkman G S60  
 Shibolet O S59, S230  
 Shiga T S33  
 Shiguehissa Kawaguti F S108, S199, S216  
 Shim CS S15  
 Shimamura Y S83  
 Shimatani M S120  
 Shimeno N S77  
 Shin CM S245  
 Shin SK S194  
 Shin YW S40, S41  
 Shinohara S S77  
 Shinozaki S S127  
 Shiratsuchi Y S148  
 Shiratuchi Y S49  
 Shishin K S50, S103, S181  
 Shivaji U S64  
 Shivaji UN S79  
 Shumikhina MA S166  
 Shumkina L S50, S103, S181  
 Sickert S S4  
 Sidhu N S79  
 Siebler J S100  
 Sierra-Morales M S143  
 Siersema P S7, S114, S237  
 Siersema PD S19, S99, S108, S109, S113, S117, S139  
 Silva A S218  
 Silva AP S32, S145, S152  
 Silva J S132, S143, S188, S252  
 Silva JC S9, S31, S32, S145, S152, S196, S203  
 Silva M S160, S181, S204, S227, S246  
 Silva MJ S112  
 Simas de Lima M S199  
 Simas M S168  
 Simioni Pennacchi CMP S199  
 Simões G S170  
 Sinagra E S70  
 Singh A S28  
 Singh D S135  
 Sinkovec H S146  
 Sioulas A S164, S247  
 Sioulas AD S58  
 Sirin G S162  
 Sirisub N S140  
 Sirli R S231  
 Sivanathan V S176  
 Skalicky P S148  
 Skamnelos A S54, S140, S151, S197  
 Škrlec I S238  
 Skroubis G S216  
 Slaney E S64  
 Slattery E S62  
 Smania V S207  
 Smarrelli A S165  
 Smirniotis V S164, S183  
 Smirnov A S83  
 Smith S S64, S79  
 Smolovic B S228  
 Šnajdauf J S187  
 Sodarot P S94  
 Sohn KM S142  
 Sol Delgado M S66, S89, S182  
 Soler AM S219  
 Solkar M S215  
 Solorzano-Pineda OM S30, S195  
 Solórzano-Pineda OM S232  
 Somers I S42  
 Soncini M S161  
 Song EM S175  
 Song GA S190, S212  
 Song TJ S60, S179  
 Soria A S255  
 Soriani P S27, S66, S88, S189, S207, S220  
 Soriano G S225  
 Sorokin A S229  
 Soru P S161  
 Sotiropoulou M S102, S241  
 Soubrane O S26  
 Sousa M S9, S31, S32, S132, S145, S152, S188, S196, S203, S252  
 Sousa P S218  
 Souto Bittencourt PF S49, S187, S244  
 Souza de Macedo F S187  
 Spaander M S114  
 Spaander MCV S19, S21, S71, S107, S131  
 Spada C S56, S103, S127, S131, S134, S173, S207, S222  
 Spadaccini M S68, S119, S123, S184, S220  
 Sparapan Marques CF S216  
 Sparchez Z S113  
 Spessotto P S217  
 Spicak J S53, S77, S82, S123, S124, S130, S221  
 Špičák J S235, S236  
 Sporea I S231  
 Sportes A S171  
 Sriuranpong V S59  
 Stallmach A S4  
 Stamou A S158  
 Stanaitis J S224  
 Staka B S209  
 Starzyńska T S137  
 Stasi E S20, S38, S95, S96, S139  
 State M S211  
 Stefanidis G S168  
 Steger V S194  
 Stein A S63, S160  
 Steiner E S75  
 Steyerberg EW S107  
 Stirand P S82, S124  
 Štirand P S235  
 Stogiannou D S133  
 Storan D S173  
 Stoupaki M S102, S241  
 Stournaras E S133

- Štoviček J S187  
 Stranadko E S38  
 Straulino F S73, S101, S200  
 Stueker D S194  
 Suárez A S100  
 Subramaniam S S102, S167  
 Suchanek S S56, S71, S101, S116, S130, S137  
 Summerova S S86, S249  
 Sun X S22  
 Sunada K S64, S127, S166  
 Sung JK S61, S211, S213  
 Surlin V S45  
 Suzuki H S185  
 Suzuki Y S119  
 Svaton R S247  
 Svebisova H S148  
 Syafiq Ismail M S215, S234  
 Syk I S10  
 Szakács Z S38  
 Szalai M S5, S7, S254  
 Szepes A S132  
 Szepes Z S38, S76, S177  
 Szijártó A S132  
 Szymanska A S145, S212, S214
- T**  
 Tacheci I S85, S130, S137  
 Tadic M S58  
 Taghvaei T S57  
 Tahiri Joutei-Hassani M S252  
 Tahiri M S240, S254  
 Tahover E S60  
 Taimr P S236  
 Takagi Y S105, S218  
 Takamaru H S11, S65  
 Takaoka M S120  
 Takebayashi S S77  
 Takeda R S33  
 Takezawa T S64  
 Takita M S33, S35  
 Takuma K S231  
 Tamanini G S128  
 Tambucci R S187  
 Tan AC S113  
 Tan O S144  
 Tan T S144  
 Tanaka H S33  
 Tanaka M S22, S119  
 Tanaka Y S65  
 Tang TJ S21  
 Tanigawa T S185  
 Taniguchi H S185  
 Tantau A S231  
 Tantau M S231  
 Tarantino I S18, S27, S37, S184, S186, S195  
 Tarantino O S55  
 Tardieu E S154  
 Targarona E S174  
 Tariq Z S133, S217  
 Tasende JD S13  
 Tateiri Y S119  
 Tatsumi N S105, S218  
 Tavares Rezende D S14  
 Taveira F S44, S86, S191, S197  
 Teci E S84  
 Teixeira AF S53  
 Teixeira C S53  
 Tejedor Tejada J S25  
 Tejedor J S24, S111, S226, S229  
 Tejedor-Tejada J S121  
 Tejerina Gonzalez E S132  
 Teles T S49  
 Telese A S65, S106, S119, S167, S245  
 ten Bokkel-Huinink S S42  
 ten Hove WR S114  
 ter Borg F S21  
 Teran Lantaron A S62  
 Terán Á S13
- Terán-Lantarón Á S11, S13  
 Teresa Seoane-Pillado M S212  
 Terhaar sive Droste JS S126  
 Tesarikova J S148  
 Testoni PA S83, S173, S184, S193  
 Testoni S S58  
 Testoni SGG S37, S59, S173, S193  
 Thayalasekaran S S34, S102, S131  
 Theocharis G S216  
 Theodorou D S241  
 Theopistos V S140  
 Thieringer F S81, S176, S222  
 Thomas-Gibson S S73  
 Thomopoulos K S16, S54, S151, S197, S216  
 Thompson H S70, S71  
 Thorburn D S45  
 Thorlaciuc H S10  
 Thoufeeq M S199  
 Thursby-Pelham F S102  
 Tiankanon K S59  
 Tikhomirova E S71  
 Tikhomirova EV S166  
 Tikhomorova E S135  
 Tikos G S253  
 Tishkov I S228  
 Tojo H S127  
 Tokuda Y S105, S218  
 Tokuhara M S120  
 Tomba R S83  
 Tomé L S181  
 Tontini GE S8, S29, S64, S161, S176  
 Topa M S8, S31, S161  
 Torrealba L S34, S239, S240  
 Torres Vicente G S36, S122  
 Torres Yuste R S181  
 Torres J S92  
 Torres R S129  
 Torroni F S187  
 Tosetti C S203  
 Tóth B S38  
 Toth E S10, S56, S103, S127, S134, S173  
 Toumpanakis C S45, S106, S167  
 Toyonaga T S104  
 Trad D S170, S214, S240  
 Traina M S18, S27, S37, S186, S195  
 Traini M S37, S58, S59  
 Trauner M S145, S146, S212, S214  
 Trembach L S244  
 Tremols Bruns S S210  
 Triantafyllou E S133  
 Triantafyllou K S54, S58, S101, S131, S133, S151, S158, S164, S197, S249  
 Triantos C S16, S216  
 Trias M S204, S225  
 Tribonias G S72, S248  
 Trikola A S168  
 Tringali A S28, S38, S51, S53, S67, S82, S95, S96, S122, S139, S147  
 Triossi O S29, S30  
 Tristan J S169  
 Trna J S247  
 Troncone E S184  
 Trovato C S207, S220  
 Tschewinski N S73  
 Tsevgas I S27, S68  
 Tsolias C S216  
 Tsubaki T S119  
 Tsutsumi K S175  
 Tubertini P S203  
 Tung J S144  
 Turrin A S116, S117  
 Turró Arau R S52  
 Turró Homedes J S52  
 Turro R S34  
 Tzampouras N S140  
 Tziatzios G S54, S58, S101, S131, S133, S151, S158, S197, S249  
 Tzimas G S247
- Tzouvala M S248
- U**  
 Uchima H S11, S13, S34, S137, S183, S239, S240  
 Uddin B S30, S180  
 Uemura R S168  
 Ueno Y S161  
 Ullerich H S15, S36, S121  
 Ulloa Márquez E S51  
 Ungureanu B S162  
 Ungureanu BS S45  
 Uraoka T S104  
 Urban O S137, S148  
 Uribarri Gonzalez L S43  
 Uribarri L S225  
 Uribarri-González L S18  
 Urrehman A S222  
 Usak J S230  
 Utzeri E S186
- V**  
 Vackova Z S77, S79, S82, S123, S124, S135, S221  
 Valantinas J S224  
 Valats JC S94  
 Valdivieso E S32  
 Valdovinos Andraca F S252  
 Valença F S63  
 Valente A S251  
 Valerii G S122  
 Valette PJ S197  
 Valizadeh SM S57  
 Valkov H S23  
 Valle J S180  
 Van Assche G S165  
 van Balkom B S126  
 van de Haterd M S108  
 van de Ven SEM S236  
 van de Vijver MJ S42  
 van der Bogt RD S19, S107  
 van der Leeden B S237  
 van der Meulen KE S167  
 van der Sluis H S114  
 van der Spek BW S114  
 van der Wilk BJ S19  
 van Esch AAJ S126  
 van Geenen EJM S99, S139  
 van Grinsven E S108  
 van Hooft J S208  
 van Hooft JE S42  
 van Huijgevoort N S42  
 van Huijgevoort NCM S42  
 van Keulen KE S117  
 van Lankveld D S108  
 van Lanschot JJB S19  
 van Munster S S108  
 van Munster SN S107  
 van Noesel CJM S42  
 Vanbiervliet G S19, S83, S84, S115  
 Vanella G S12, S14, S55  
 Vanolli AL S244  
 Varabei A S234  
 Vardas E S153  
 Vargas García A S36, S200  
 Vargas A S165  
 Vargas J S110  
 Varma A S126  
 Varytimiadis L S12, S34, S164, S183  
 Vasile Balaban D S44  
 Vasiliadis K S168  
 Vasilyev G S43  
 Vasquez Quiroga J S217  
 Vásquez J S249  
 Vásquez M S202  
 Vaz Safatle-Ribeiro A S96, S108, S199  
 Vázquez Romero M S164  
 Vazquez Sequeiros E S62  
 Vázquez Sequeiros E S179  
 Vazquez G S89

Vazquez-Sequeiros E S34  
Vázquez-Sequeiros E S143  
Vecchi M S8, S29, S31, S64, S161, S196  
Vedrenne B S36  
Veduti V S203  
Veldhuijzen G S126  
Velegraki M S153, S168  
Velji Z S85  
Venezia L S87, S148, S224, S256  
Verbakel J S108  
Verheij J S42  
Vermeire S S80  
Vermeulen B S237  
Verset L S106  
Veselov A S71  
Veselov V S71  
Vessal S S45  
Vetrano S S82  
Vezakis A S58  
Viale E S83, S184  
Viazis N S164, S183  
Vicente C S49, S169  
Vidal L S165  
Vidyaeva N S238, S241, S243  
Vienne A S110  
Viganò C S29  
Viktor V S164  
Vila Costas J S43, S179  
Vila JJ S18, S94, S192, S225  
Vilas-Boas F S87, S88, S204  
Vilela E S27  
Villanacci V S213  
Villani V S128  
Villanueva Hernández R S179  
Villar Lucas C S130  
Vincze Á S38, S76, S177  
Vitali F S100  
Vitton V S83, S115  
Vivas Alegre S S130  
Vives J S255  
Vladimirov B S23  
Vlazny J S247  
Vleggaar FP S19  
Voiosu A S73, S149, S232  
Voiosu T S73, S147, S149, S211, S232  
Voiosu TA S209  
Vojtechova G S130  
Vojtěchová G S101  
Vollmer C S93  
Volpato Machado N S62  
Volsansky P S137  
Volteau M S71  
Von Renteln D S191  
Voronjak D S195, S244  
Voska M S101, S130  
Voudoukis E S153  
Vrakas S S23  
Vrbnjak M S246  
Vuik FER S131  
Vujnovic G S246

## W

Wagner A S104  
Waisberg J S159, S251  
Waldmann E S146, S212  
Waldmann-Kammerlander E S145  
Wallenhorst T S83, S88  
Walter B S55  
Walter T S111  
Walterova B S79  
Wang G S108  
Warner V S62  
Wasserbauer M S187  
Watanabe K S231  
Watanabe T S4, S185  
Weber A S15, S92  
Weber P S99  
Weber T S93  
Weber-Eibel J S198  
Wedi E S39, S81  
Weigt J S102  
Weissbrod R S165  
Wengrower D S58, S60, S233  
Weusten B S108  
Weusten BLAM S107, S114, S167, S168  
Wichmann D S194  
Wieneke P S126  
Wießner J S33  
Wilhelm D S33  
Willems P S33  
Witteman E S21  
Wolf D S10  
Wolters HJ S114  
Wright A S85  
Wright H S219  
Wu SYS S11

## X

Xourgia E S23  
Xourgias V S23  
Xu Y S22  
Xue L S108

## Y

Yahagi N S65, S104, S175  
Yaiza Carbajo A S24, S26, S46, S95, S110, S111, S163, S179, S229  
Yamada M S11, S65, S185  
Yamada Y S231  
Yamagami H S185  
Yamamoto H S64, S65, S127, S166  
Yamamoto K S105, S218  
Yamasaki T S150  
Yamashita S S119  
Yanagisawa F S65  
Yáñez-González-Doposo L S129, S212  
Yang CH S103, S105, S136, S159, S188, S221  
Yang DH S40, S81, S175  
Yang JI S198  
Yang M S251  
Yang SK S81  
Yano T S64, S127, S166

Yao K S48  
Yao T S48  
Yasuda T S99  
Ye BD S81, S175  
Yeaton P S156  
Yeo SJ S223  
Yeste C S210  
Yi SW S16  
Yilmaz O S174  
Yim HJ S16, S150  
Yodoe K S49, S148  
Yoon H S245  
Yoon HM S104  
Yoon JY S81  
Yoshimoto K S231  
Yoshinaga S S185  
You MS S37  
Young J S120  
Younis F S59, S230  
Yudin OI S166  
Yun O S210  
Yun S S251  
Yung D S10  
Yung DE S8, S9  
Yusuf MA S19  
Yuzari S S64

## Z

Zachariadis D S27, S68  
Zacharopoulou E S248  
Zacheu H S232  
Zagde S S199  
Zahra Ajana F S141  
Zaimi Y S136, S242  
Zaltshendler M S7  
Zamarian Veinert A S53  
Zamarripa-Mottu R S30  
Zamora Nava LE S252, S255  
Zampeli E S102, S241  
Zapater P S100  
Zaragoza Velasco N S36, S122, S200  
Zaragoza A S165  
Zavada F S230  
Zavialov D S71  
Zavoral M S56, S101, S116, S130  
Zecchini R S184  
Zerbi A S224  
Zhang Y S108  
Zia Sana Ullah M S219  
Ziachehabi A S104  
Zimmermann T S176, S222  
Zopf S S100  
Zorzi M S116, S117, S146, S154  
Zoundjiekpon V S148  
Zsobrak K S5, S7, S254  
Zullo A S125  
Zundler S S80, S81  
Zur D S7  
Zussman E S43  
Zvereva L S23, S206  
Zwager LW S114