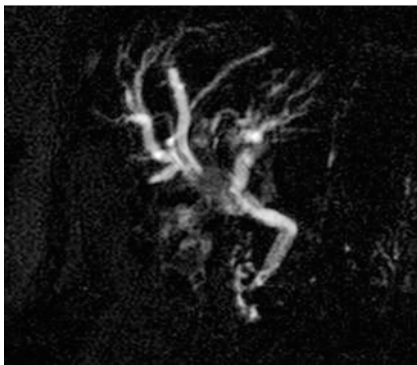


## Intrabiliary resection of metastasis originating from colorectal carcinoma during direct peroral cholangioscopy: a new tool for biliary palliation

Intrabiliary growth of a liver metastasis originating from colorectal carcinoma is a rare manifestation of metastatic liver carcinoma, with only a few cases reported in the literature [1–3]. Radiological characteristics of the “classic” liver metastases are well established, and generally preoperative biopsy to plan a proper surgical strategy is not required. However, the radiological features of intrabiliary liver metastasis



► **Fig. 1** Magnetic resonance imaging showed dilation of the intrahepatic biliary ducts and common bile duct, with an intraductal nodule at the hepatic hilum.

may not be distinctive, leading to possible misdiagnosis.

We present the case of an 83-year-old woman who was referred to our unit because of jaundice. The medical history reported left hemicolectomy for cancer (pT3N0) 15 years earlier and hepatic segmentectomy for metastatic nodule 5 years earlier. Computed tomography and magnetic resonance imaging scans showed dilation of the common bile duct and intrahepatic bile ducts, with an intraductal nodule at the hepatic hilum (► **Fig. 1**). Carcinoembryonic antigen and  $\alpha$ -fetoprotein levels were normal. Endoscopic retrograde cholangiopancreatography showed a dilated biliary duct (14 mm) with a “negative” image of about 20 mm at the bifurcation.

After sphincterotomy and papiloplasty up to 12 mm, direct peroral cholangioscopy (POC) was performed using a slim scope (8.5 mm diameter, EG 530FP; Fujifilm, Tokyo, Japan). A polypoid mass with irregular vascular pattern, highly suggestive of malignancy, was observed at the hepatic hilum (► **Fig. 2a**). Endoscopic resection of the lesion, under direct visuali-

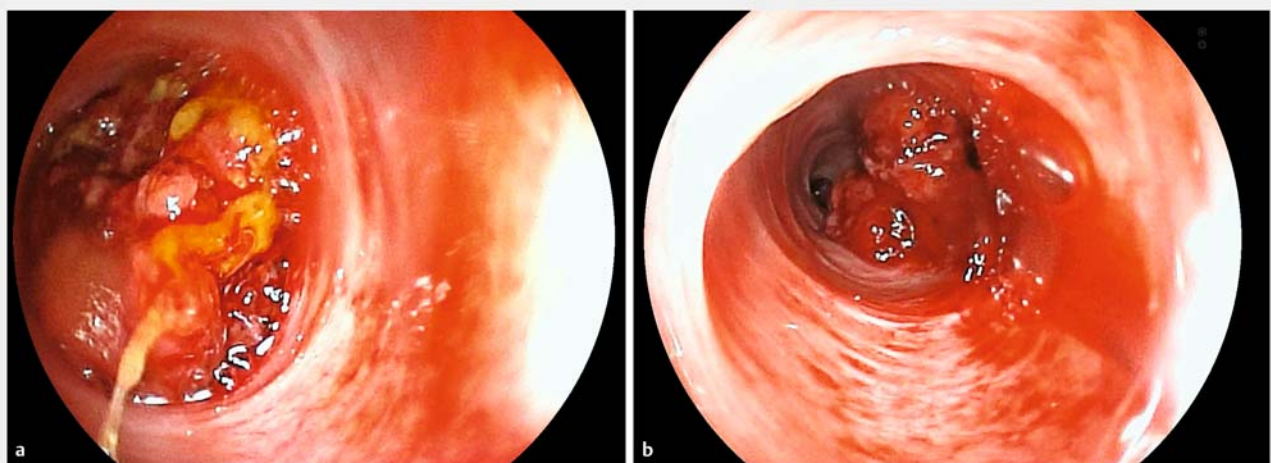
zation, with a hot snare (15 mm, Captivator II; Boston Scientific Corp., Marlborough, Massachusetts, USA) was performed, thus avoiding the need for biliary stent placement (► **Fig. 2b**, ► **Video 1**). Histology revealed a metastasis of colorectal carcinoma (► **Fig. 3**). The patient remained free of symptoms with normal bilirubin level for 12 months.

To our knowledge this is the first case of an intrabiliary endoscopic resection performed under direct visualization. The POC is an advanced technique for intraluminal visual inspection and for therapeutic intervention of the biliary ducts [4], and shows potential as a promising approach in the diagnosis and treatment of a subgroup of patients with biliary obstruction secondary to intraductal masses.

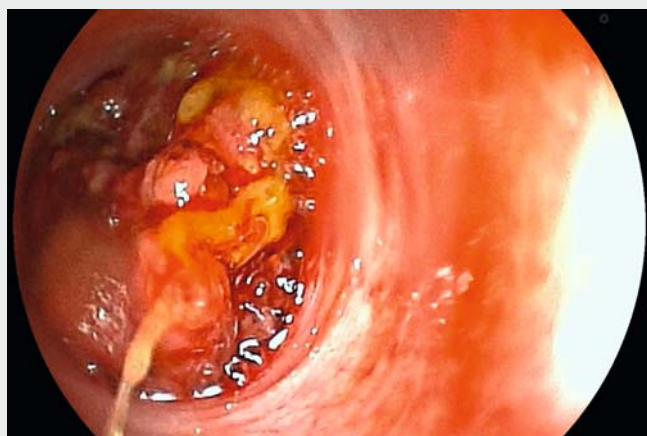
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### Competing interests

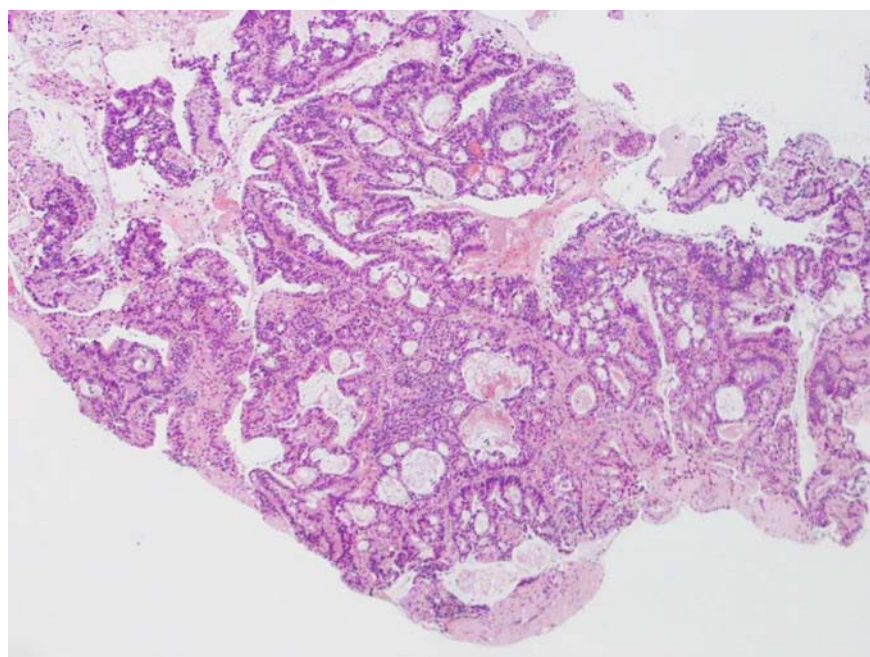
Andrea Anderloni is a consultant for Boston Scientific.



► **Fig. 2** Direct peroral cholangioscopy. **a** Visualization of an obstructive polypoid mass, with irregular vascular pattern and surface at the hepatic hilum. **b** Evaluation after resection showed no more obstruction of the hilum and visualization of the intrahepatic biliary ducts.



► **Video 1** Filling defect at cholangiography. Sphincterotomy and papiloplasty up to 12 mm. Direct peroral cholangioscopy (POC) performed using a slim endoscope (8.5 mm diameter, EG 530FP; Fujifilm, Tokyo, Japan) showed an obstructive polypoid mass with irregular vascular pattern (FICE, Fujifilm). Endoscopic resection of the lesion was performed using a hot snare.



► **Fig. 3** Histology revealed metastasis of colorectal carcinoma (hematoxylin and eosin).

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## The authors

Andrea Anderloni<sup>1</sup>, Alessandro Fugazza<sup>1</sup>,  
Francesco Auriemma<sup>1</sup>, Roberta Maselli<sup>1</sup>,  
Ferdinando D'Amico<sup>1</sup>, Edoardo Troncone<sup>1</sup>,  
Alessandro Repici<sup>1,2</sup>

1 Digestive Endoscopy Unit, Division of  
Gastroenterology, Humanitas Research  
Hospital, Rozzano, Milan, Italy

2 Humanitas University, Rozzano, Milan, Italy

## Corresponding author

Andrea Anderloni, MD, PhD

Digestive Endoscopy Unit, Division of  
Gastroenterology, Humanitas Research  
Hospital, Via Manzoni 56, 20089 Rozzano  
(Milano), Italy

Phone: +39-02-82247308

[andrea.anderloni@humanitas.it](mailto:andrea.anderloni@humanitas.it)