A simple ex vivo pig stomach model for learning endoscopic submucosal dissection

Endoscopic submucosal dissection (ESD) is an accepted technique for the resection of early neoplasia of the luminal gastrointestinal tract. ESD is a routine procedure in many Asian countries [1], however, its utility is now being recognized worldwide [2]. It is an advanced endoscopic technique with a steep learning curve [3]. Training in animal models is thought to improve technical skills and result in a rapid progression in the learning process for various advanced endoscopic procedures including endoscopic retrograde cholangiopancreatography, hemostasis, endoscopic mucosal resection, and ESD [4]. Most models used at the present time are not widely available and are cumbersome to use. Herein we present an ex vivo pig stomach model which we have used to perform ESD and other advanced endoscopic procedures (Fig. 1). Video 1 shows the key aspects of this model. A hole is made in one of the sides of a plastic box and a syringe is placed in the hole and used to simulate the mouth and esophagus (a “pseudoesophagus”). The pig’s stomach placed inside the box is then attached to the syringe using a zip tie and sutures through which the scope and ESD accessories are introduced. Target lesions for resection are produced and the ESD procedure is conducted according to established standards. We recommend that, at an initial stage, the basic movements and techniques of ESD should be learned in ex vivo models, as these are potentially widely available, inexpensive, and mimic human anatomy reliably [5].

Competing interests: None

Nicolás González1,2, Klaus Mönkemüller1, C. Mel Wilcox1, Andrés Taullard2, Miguel Villa-Gómez2, Adolfo Parra-Blanco3
1 Division of Gastroenterology and Hepatology, Basil Hirschowitz Endoscopic Center of Excellence, University of Alabama, Birmingham, United States
2 Department of Gastroenterology, Hospital de Clínicas, Montevideo, Uruguay
3 Department of Gastroenterology, Pontificia Universidad Católica de Chile, Santiago, Chile

References
1 Saito Y, Sakamoto T, Fukunaga S et al. Endoscopic submucosal dissection (ESD) for colorectal tumors. Dig Endosc 2009; 21 (Suppl. 01): 7–12

Bibliography
DOI http://dx.doi.org/10.1055/s-0034-1377942
Endoscopy 2014; 46: E589
© Georg Thieme Verlag KG
Stuttgart · New York
ISSN 0013-726X

Corresponding author
Klaus Mönkemüller, MD, PhD
Basil Hirschowitz Endoscopic Center of Excellence
Division of Gastroenterology and Hepatology
University of Alabama, Birmingham
Endoscopy Unit
JF 664
619 19th Street S
Birmingham
AL 35249
United States
klaus1@uab.edu