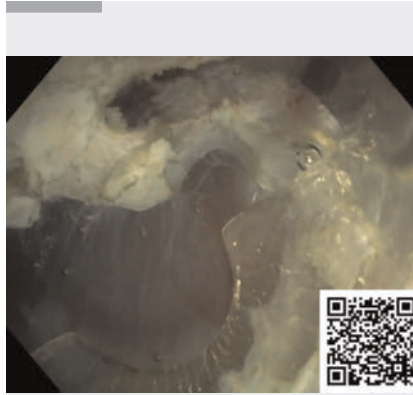


First report of gastric endoscopic intermuscular dissection



Although endoscopic intermuscular dissection (EID) has been used successfully to treat rectal pathology [1], its application in stomach procedures has not been reported. EID involves the dissection of the circular layer from the longitudinal layer of the muscularis propria to achieve a clear vertical dissection margin [2, 3].

A 43-year-old woman was referred to our center for endoscopic resection of a 15-mm type 1 neuroendocrine tumor (NET) located in the lower gastric body (► **Fig. 1**). Saline immersion therapeutic endoscopy-facilitated EID was performed under general anesthesia (► **Video 1**). A gastroscope (GIF-1TH-190; Olympus, Tokyo, Japan) with a water jet was used for saline exchange and aspiration of bubbles or gas. EID was performed using a 1.5-mm ball-tip knife (FlushKnife BTS; Fujifilm, Tokyo, Japan) and a prototype partially circumferential cap attachment, designed to provide tissue counter-traction, a wide endoscopic field of view, and facilitate instrument passage without friction (Micro-tech, Nanjing, China) (► **Video 1**). Despite previous endoscopic ultrasound having shown the NET to be entirely submucosal, our procedure revealed it to be adherent to the muscularis propria, necessitating EID to achieve a tumor-free deep resection margin. The resection site was closed in two layers using through-the-scope clips (Resolution Clip; Boston Scientific, Natick, Massachusetts, USA). Histopathological analysis confirmed the tumor to be a type 1 gastric NET, arising on a background of chronic atrophic gastritis with enterochromaffin-like cell hyperplasia (► **Fig. 2**, ► **Fig. 3**), with no lymphovascular or perineural invasion (World Health Organization Grade 2), and an R0 resection was achieved. Following our protocol, the patient was discharged after 72 hours without any adverse events.



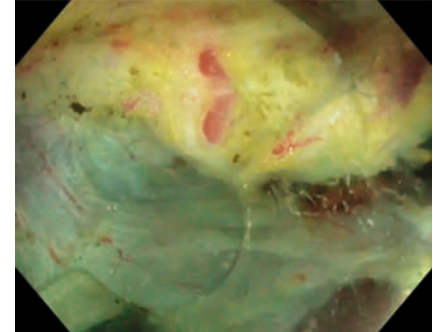
► **Video 1** Saline immersion therapeutic endoscopy-facilitated endoscopic intermuscular dissection (EID) of a type 1 neuroendocrine tumor (NET) located in the lower gastric body.

This first report of gastric EID demonstrates the feasibility of this technique for gastric pathology when deeper excision margins are required to achieve R0 resection. Further studies on the wider application of gastric EID in clinical practice would be worthwhile. Furthermore, the use of saline immersion therapeutic endoscopy is crucial for ensuring clear visualization and buoyancy during EID [4].

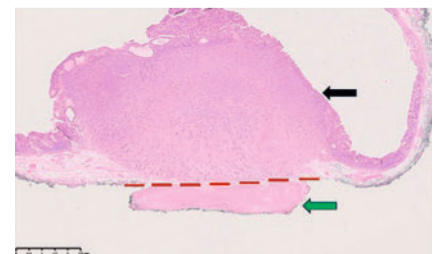
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Conflict of Interest

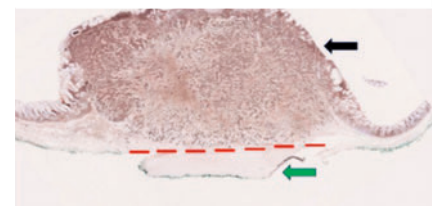
Edward J. Despott was a consultant for Boston Scientific and Ambu. He has received academic grants and speaker honoraria from Fujifilm, Aquilant Endoscopy, Norgine, and Olympus. Laura A. Lucaciu and Alessandro Rimondi have no conflicts of interest. Alberto Murino was a consultant for Boston Scientific and GI supply. He has received academic grants from Fujifilm, Aquilant Endoscopy, Norgine, and Olympus. Kenneth Binmoeller is the inventor of the visor cap.



► **Fig. 1** Neuroendocrine tumor adherent to the inner oblique layer of the muscularis propria.



► **Fig. 2** Histopathological analysis of hematoxylin and eosin-stained section demonstrating a grade 2 neuroendocrine tumor (black arrow). The green arrow indicates the inner oblique layer of gastric muscularis propria. Dissection only above the interrupted red line would have resulted in an R1 (noncurative) resection.



► **Fig. 3** Histopathological analysis of chromogranin-stained section demonstrating a grade 2 neuroendocrine tumor (black arrow) invading the inner oblique layer of the muscularis propria (green arrow). Dissection above the interrupted red line would have resulted in an R1 (non-curative) resection.

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