



# Peroral endoscopic myotomy (POEM) for achalasia developing after vertical banded gastroplasty with asymptomatic gastro-gastric fistula

Edoardo Vespa, MD,<sup>1,2</sup> Roberta Maselli, MD, PhD,<sup>1,2</sup> Marco Spadaccini, MD,<sup>1,2</sup> Alessandro Repici, MD<sup>1,2</sup>

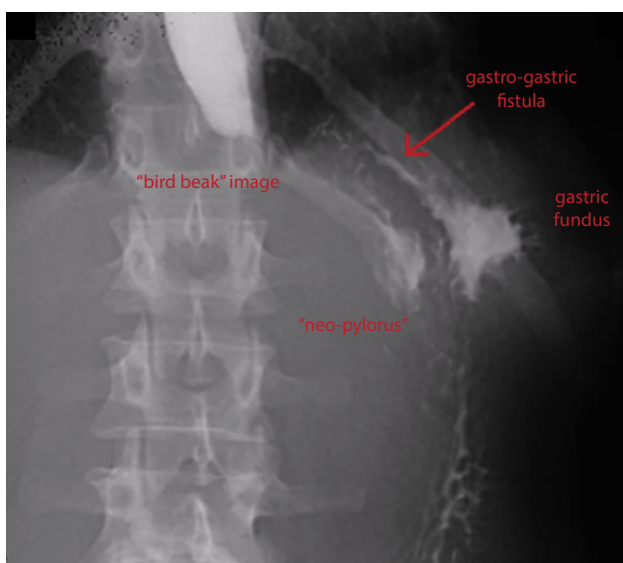
## BACKGROUND

Peroral endoscopic myotomy (POEM) has revolutionized the treatment landscape for achalasia. Randomized trials and meta-analyses have shown that its efficacy is comparable to the traditional reference-standard surgical approach represented by laparoscopic Heller's myotomy (LHM), with an outstanding safety profile<sup>1,2</sup>; higher postoperative reflux rates seem to be associated with POEM over LHM, owing to the absence of an antireflux procedure. POEM has consequently been proposed as a first-line option over LHM, which may carry higher perioperative and postoperative risk, for patients with previous abdominal surgery or obesity.<sup>3</sup>

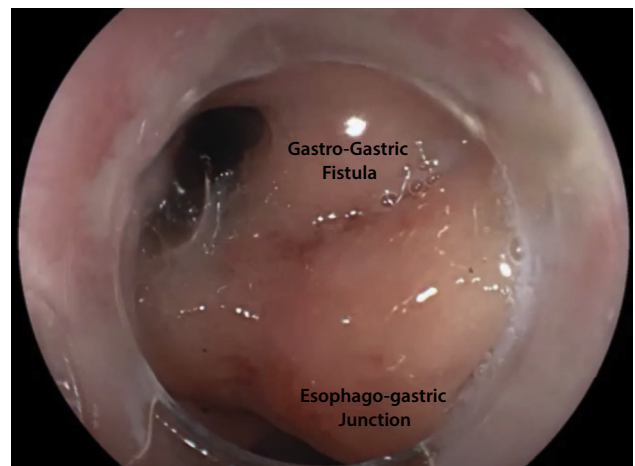
Although most data have accumulated from treatment-naïve patients or those with a previous pneumatic dilation, over the past years, POEM has also been successfully performed in patients with previous LHM, confirming its feasibility even in a surgically altered gastroesophageal junction (GEJ). Some concerns have been raised about the technical feasibility of POEM after bariatric surgery: surgical su-

tures may be found in the dissection plane (especially in the gastric side after laparoscopic sleeve gastrectomy [LSG])<sup>4</sup>; Roux-en-Y gastric bypass (RYGB) and LSG are both procedures that may cause adherence formation near the GEJ, making submucosal tunneling challenging; the reduced gastric lumen may hamper tunneling into the gastric side; and, in RYGB, a theoretical risk of regurgitation has been proposed because of the presence of a small gastric pouch that may be associated with a patulous GEJ after POEM.<sup>5</sup>

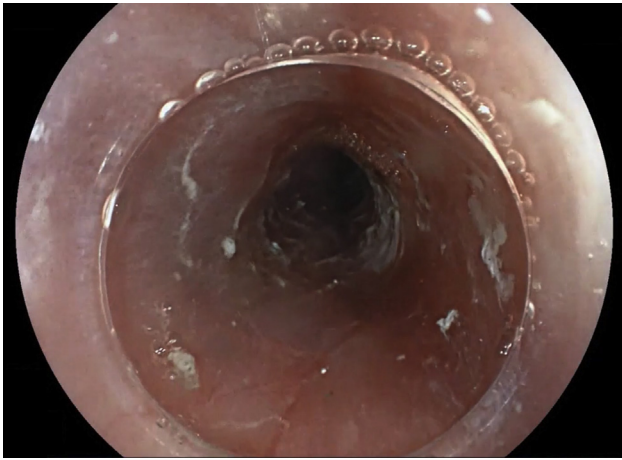
The technical feasibility of POEM after vertical banded gastroplasty, another bariatric surgical procedure, is not known. To date, no cases have been reported. For reasons similar to those explained for RYGB and LSG, POEM may be difficult in this setting: Stapling during vertical banded gastroplasty is usually performed vertically and close to the GEJ, which may hinder tunneling into the gastric side. Another obstacle to POEM in this setting is the banding, which creates a small gastric pouch for myotomy. Here, we present a case with clinical details, procedural description, and subsequent outcomes.



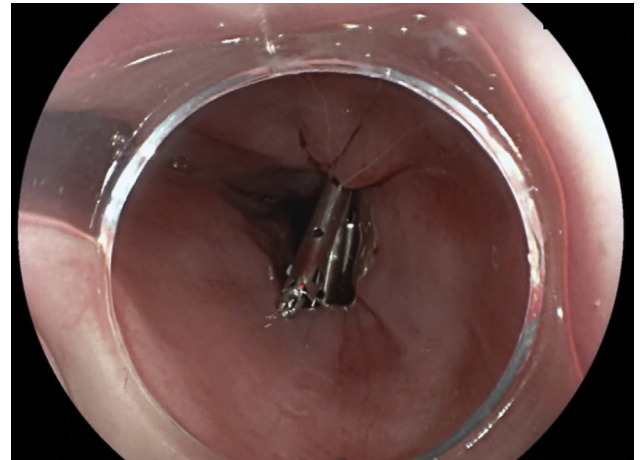
**Figure 1.** Preoperative barium esophagram.



**Figure 2.** Cardia with proximal opening of the gastro-gastric fistula.



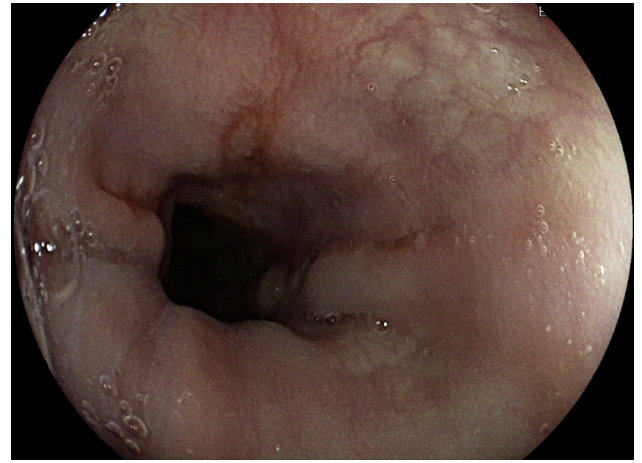
**Figure 3.** Submucosal esophageal tunnel.



**Figure 5.** Clip closure of the tunnel entry.



**Figure 4.** Myotomy of circular fibers.



**Figure 6.** Twenty-four-month follow-up on upper endoscopy, showing mild (Los Angeles grade A) esophagitis.

## CASE REPORT

A 40-year-old woman was admitted to our gastroenterology ward for worsening dysphagia, regurgitation, chest pain, and weight loss of 20 kg (body mass index [BMI] 16.7). Symptoms had started nearly 12 months earlier. In her medical history, she had undergone Mason's vertical banded gastroplasty at the age of 19 years (BMI 44); she had been taking selective serotonin reuptake inhibitors and a long-acting benzodiazepine for a mood disorder. An Eckardt score of 12 was found at clinical evaluation. Timed barium esophagram showed a dilated esophagus with marked esophageal contrast stasis, with nearly absent passage through the cardia; a gastro-gastric fistula was also found (Fig. 1). CT showed a megaesophagus and ruled out malignancy. Upper endoscopy confirmed esophageal dilation with food stasis and a difficult passage across the cardia (GEJ at 42 cm from incisors); the presence of the

gastro-gastric fistula was confirmed to be a result of the previous surgery (Fig. 2). High-resolution manometry diagnosed type II achalasia with a lower esophageal sphincter integrated relaxation pressure (LES-IRP) of 19.6 mm Hg.

POEM was therefore planned during the same admission after anesthesiologist evaluation. We decided not to proceed to any treatment for the gastro-gastric fistula because no related symptoms (ie, reflux) were reported by the patient.

Informed consent was obtained before the procedure. The POEM procedure was performed with the patient under general anesthesia and with CO<sub>2</sub> insufflation with the patient in the supine position. After submucosal injection, the mucosal incision was carried out at 30 cm from the incisors, on the anterior wall of the esophagus (Video 1, available online at [www.giejournal.org](http://www.giejournal.org)). Submucosal tunneling was performed to 2 cm below the cardia into the gastric pouch (44 cm from the incisors), with no issues related to the past surgery (Fig. 3). Myotomy was

started 2 cm below the mucosal incision and prolonged to the end of the tunnel (total myotomy length 12 cm) (Fig. 4). Closure of the mucosal incision was achieved with endoclips (Fig. 5). No procedural adverse events occurred. The postoperative course was uneventful, and a soft oral diet was started after 24 hours.

At the first postprocedural follow-up visit (3 months), the patient had no symptoms of recurrence aside from rare chest pain (Eckardt score 1) with a weight regain of 5 kg. She reported mild reflux symptoms. Endoscopy showed Los Angeles grade B esophagitis despite pH-metry with normal acid exposure time (0.5%) and a Demeester score of 1.6. High-resolution manometry showed a normal LES-IRP after POEM (10.7 mm Hg). She started esomeprazole 40 mg/daily.

At the last follow-up visit (24 months), the patient still showed no symptoms of recurrence (Eckardt score 1) with an overall weight regain of 12 kg from POEM (BMI 21.2). Reflux symptoms were controlled with a proton pump inhibitor; endoscopy showed grade A esophagitis (Fig. 6), with persistently normal pH-metry with normal acid exposure time (0%) and a Demeester score of 0.9. LES-IRP decreased to 2.0 mm Hg.

## CONCLUSIONS

POEM is effective in treating achalasia despite altered anatomy due to vertical banded gastroplasty.

## DISCLOSURE

*Dr Maselli is a consultant for Fujifilm and ERBE. Dr Repici is a consultant for Medtronic, Fujifilm, and Boston*

*Scientific. All other authors disclosed no financial relationships.*

*Abbreviations: BMI, body mass index; GEJ, gastroesophageal junction; LES-IRP, lower esophageal sphincter-integrated relaxation pressure; LHM, laparoscopic Heller's myotomy; LSG, laparoscopic sleeve gastrectomy; POEM, peroral endoscopic myotomy; RYGB, Roux-en-Y gastric bypass.*

## REFERENCES

1. Werner YB, Hakanson B, Martinek J, et al. Endoscopic or surgical myotomy in patients with idiopathic achalasia. *N Engl J Med* 2019;381:2219-29.
2. Mundre P, Black CJ, Mohammed N, et al. Efficacy of surgical or endoscopic treatment of idiopathic achalasia: a systematic review and network meta-analysis. *Lancet Gastroenterol Hepatol* 2021;6:30-8.
3. Oude Nijhuis RAB, Prins LI, Mostafavi N, et al. Factors associated with achalasia treatment outcomes: systematic review and meta-analysis. *Clin Gastroenterol Hepatol* 2020;18:1442-53.
4. Kolb JM, Jonas D, Funari MP, et al. Efficacy and safety of peroral endoscopic myotomy after prior sleeve gastrectomy and gastric bypass surgery. *World J Gastrointest Endosc* 2020;12:532-41.
5. Sanaei O, Draganov P, Kunda R, et al. Peroral endoscopic myotomy for the treatment of achalasia patients with Roux-en-Y gastric bypass anatomy. *Endoscopy* 2019;51:342-5.

Department of Gastroenterology and Hepatology, Humanitas Research Hospital IRCCS, Rozzano, Italy (1), Department of Biomedical Sciences, Humanitas University, Rozzano, Italy (2).

Copyright © 2022 American Society for Gastrointestinal Endoscopy. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

<https://doi.org/10.1016/j.vgje.2022.02.001>