

First European human gastric peroral endoscopic myotomy, for treatment of refractory gastroparesis

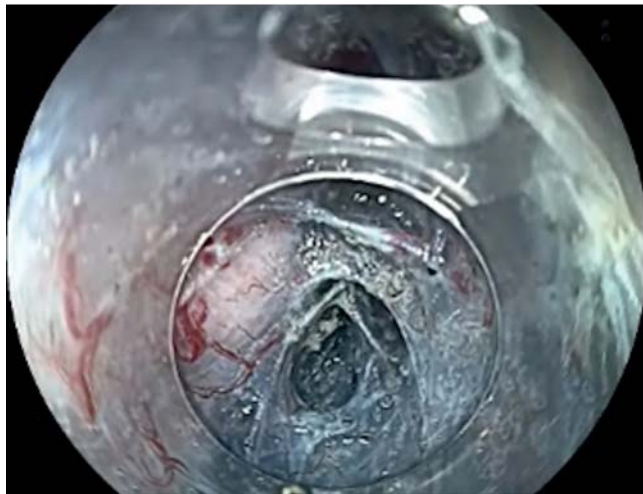


Fig. 1 Gastric peroral endoscopic myotomy (G-POEM) for refractory gastroparesis in a patient with diabetes: creation of the submucosal tunnel by endoscopic dissection.

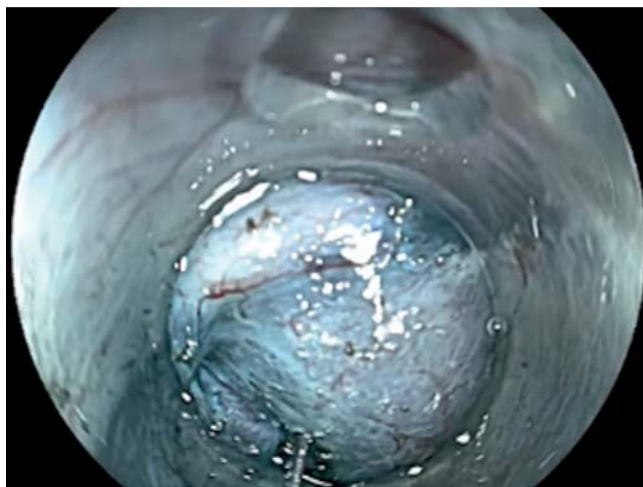


Fig. 2 The pyloric muscle seen endoscopically from inside the submucosal tunnel.

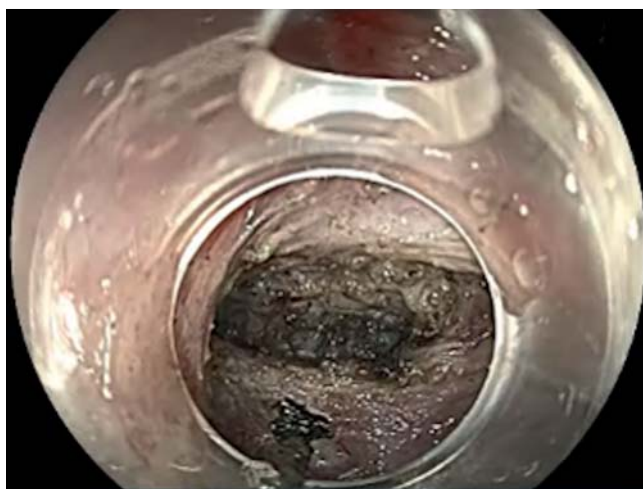


Fig. 3 Appearance of the pyloric muscle after myotomy with a Triangle Tip knife.

Gastroparesis is a chronic functional syndrome that affects 4% of the population [1] with an impact on quality of life. The etiologies include diabetic, post gastric surgery, and idiopathic forms [2]. Diagnosis is based on symptoms related to gastric emptying and on endoscopy and scintigraphy. The therapeutic options, including drugs (metoclopramide, erythrocine), surgery (pyloroplasty, gastric electrical stimulation), or endoscopy (botulinum toxin injection) remain insufficiently effective [3–7]. However, the pathophysiology of gastroparesis implies stomach motility disorders as well as pyloric hypertonicity [8], and a US team has recently described the first case of gastric peroral endoscopic myotomy (G-POEM) by submucosal tunnel creation, and has reported a good outcome [9,10].

We have therefore carried out G-POEM in a 51-year-old diabetic woman who suffered from disabling and refractory clinical gastroparesis; this was confirmed with by gastric emptying scintigraphy that showed an increased gastric emptying half-time. The option of gastric electrical stimulation was not available. Consequently, G-POEM was proposed to the patient, with clear information being given and written consent obtained.

The procedure was done with a wide-channel gastroscope (3.8 mm; Pentax, Tokyo, Japan) and using carbon dioxide insufflation after orotracheal intubation. The procedural steps were: (i) submucosal injection in the antrum, 5 cm upstream from the pylorus; (ii) mucosal incision in the posterior part of the antrum, using a DualKnife (Olympus, Japan); (iii) tunnel creation up to the pylorus (▶ Fig. 1 and ▶ Fig. 2); and (iv) pyloromyotomy of length 3 cm, using a Triangle Tip knife (Olympus, Tokyo, Japan) (▶ Fig. 3). The mucosal defect was closed using endoclips (Instinct; Cook Medical, Bloomington, Indiana, USA) (▶ Fig. 4). The procedure took 80 minutes (▶ Video 1), with no intraoperative or postoperative complications. The patient resumed oral intake on postoperative day 1 and was discharged after postoperative day 5.

Video 1

Gastric peroral endoscopic myotomy (G-POEM) for refractory gastroparesis in a patient with diabetes.

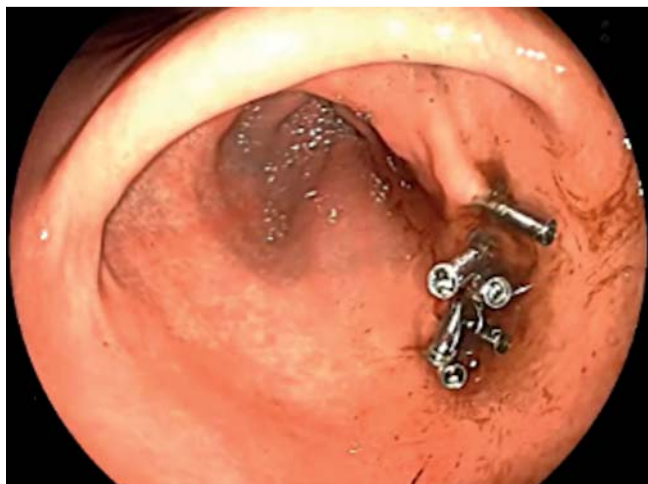


Fig. 4 Endoscopic monitoring of the closure of the mucosal defect that had been performed using endoclips.

The patient was followed up clinically after 1 month, and reported significant improvement in her symptoms. This improvement persisted after 3 months and a gastric scintigraphy showed normalization of the gastric emptying half-time. In conclusion, this first European procedure has shown that G-POEM for gastroparesis is feasible and seems effective. This needs to be confirmed in a prospective study.

Endoscopy_UCTN_Code_TTT_1AO_2AN

Competing interests: None

Jean-Michel Gonzalez¹, Geoffroy Vanbiervliet², Veronique Vitton¹, Alban Benezech¹, Valentin Lestelle¹, Jean-Charles Grimaud¹, Marc Barthet¹

¹ Aix-Marseille University, Division of Gastroenterology, APHM Hôpital Nord, Marseille, France

² Nice University, Division of Gastroenterology, Hôpital L'Archet, Nice, France

References

- 1 Hasler WL. Gastroparesis: symptoms, evaluation, and treatment. *Gastroenterol Clin North Am* 2007; 36: 619–647, ix
- 2 Soykan I, Sivri B, Sarosiek I et al. Demography, clinical characteristics, psychological and abuse profiles, treatment, and long-term follow-up of patients with gastroparesis. *Dig Dis Sci* 1998; 43: 2398–2404
- 3 Van der Voort IR, Becker JC, Diel KH et al. Gastric electrical stimulation results in improved metabolic control in diabetic patients suffering from gastroparesis. *Exp Clin Endocrinol Diabetes* 2005; 113: 38–42
- 4 Ezzeddine D, Jit R, Katz N et al. Pyloric injection of botulinum toxin for treatment of diabetic gastroparesis. *Gastrointest Endosc* 2002; 55: 920–923
- 5 Arts J, Holvoet L, Caenepeel P et al. Clinical trial: a randomized-controlled crossover study of intrapyloric injection of botulinum toxin in gastroparesis. *Aliment Pharmacol Ther* 2007; 26: 1251–1258
- 6 Hibbard ML, Dunst CM, Swanström LL. Laparoscopic and endoscopic pyloroplasty for gastroparesis results in sustained symptom improvement. *J Gastrointest Surg* 2011; 15: 1513–1519
- 7 Toro JP, Lytle NW, Patel AD et al. Efficacy of laparoscopic pyloroplasty for the treatment of gastroparesis. *J Am Coll Surg* 2014; 218: 652–660
- 8 Mearin F, Camilleri M, Malagelada JR. Pyloric dysfunction in diabetics with recurrent nausea and vomiting. *Gastroenterology* 1986; 90: 1919–1925
- 9 Clarke JO, Sharaiha RZ, Kord Valeshabad A et al. Through-the-scope transpyloric stent placement improves symptoms and gastric emptying in patients with gastroparesis. *Endoscopy UCTN* 2013; 45: E189–E190. DOI: 10.1055/s-0032-1326400
- 10 Khashab MA, Stein E, Clarke JO et al. Gastric peroral endoscopic myotomy for refractory gastroparesis: first human endoscopic pyloromyotomy (with video). *Gastrointest Endosc* 2013; 78: 764–768

Bibliography

DOI <http://dx.doi.org/10.1055/s-0034-1391821>
Endoscopy 2015; 47: E135–E136
 © Georg Thieme Verlag KG
 Stuttgart · New York
 ISSN 0013-726X

Corresponding author

Jean-Michel Gonzalez, MD
 Aix-Marseille University
 APHM Hôpital Nord
 Chemin des Bourrely
 13915 Marseille
 France
 Fax: +33-4-91968737
 jean-michel.gonzalez@ap-hm.fr
 jmgonza05@yahoo.fr