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

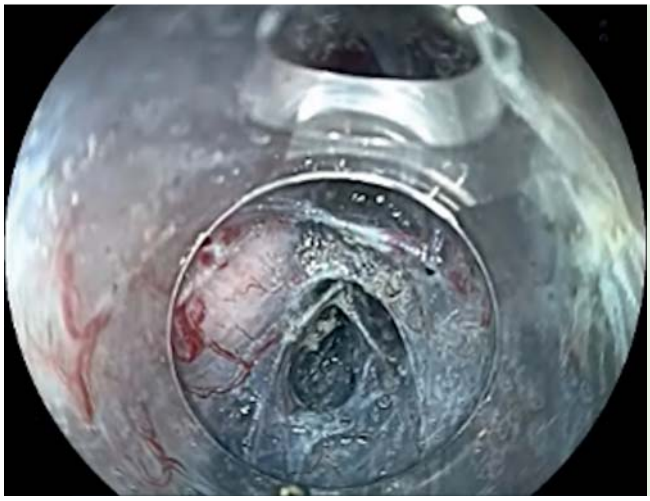

Fig. 1 Gastric peroral endoscopic myotomy (G-POEM) for refractory gastroparesis in a patient with diabetes: creation of the submucosal tunnel by endoscopic dissection.

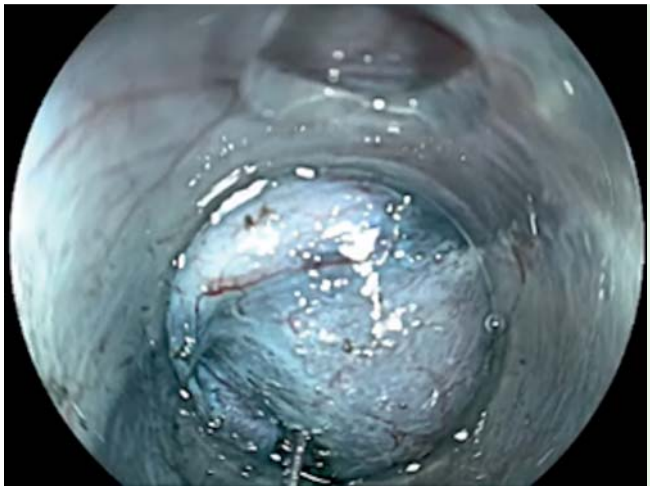

Fig. 2 The pyloric muscle seen endoscopically from inside the submucosal tunnel.

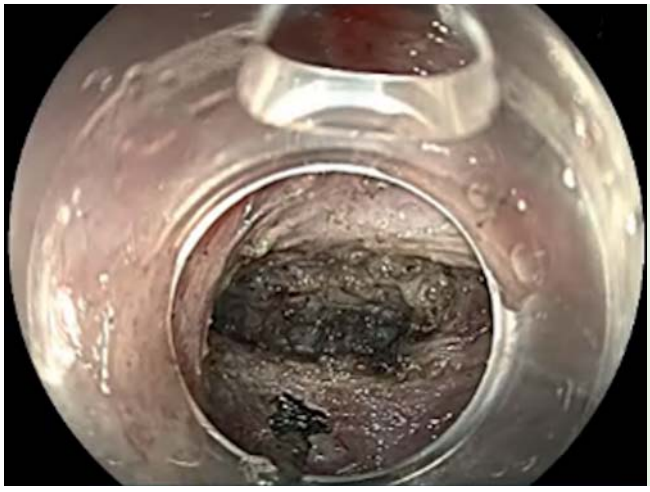

Fig. 3 Appearance of the pyloric muscle after myotomy with a Triangle Tip knife.

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, erythrocin), surgery (pyloroplasty, gastric electrical stimulation), or endoscopy (botulinum toxin injection) remain insufficiently effective [3–7]. However, the physiopathology 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.

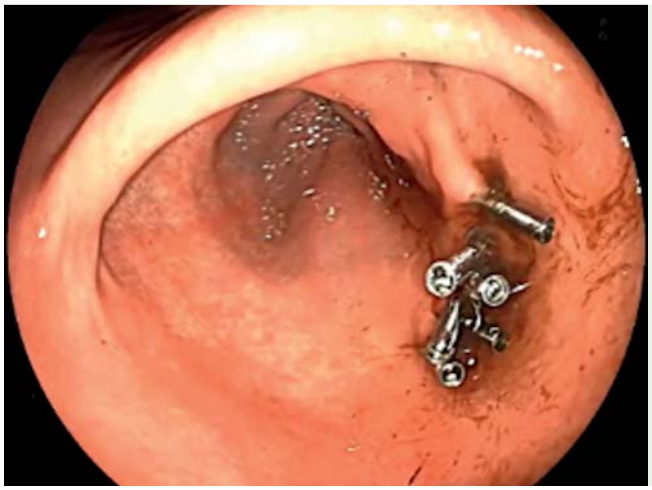

Fig. 4 Endoscopic monitoring of the closure of the mucosal defect that had been performed using endoclips.

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 Gonzalez[1], Geoffroy Vanbiervliet[2], Veronique Vitton[1], Alban Benezech[1], Valentin Lestelle[1], Jean-Charles Grimaud[1], Marc Barthet[1]

[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*, *Dietl 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

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