

## Open peroral endoscopic myotomy (O-POEM) for the treatment of achalasia

W. Liu, H.-Z. Zeng, H.-L. Chen, C.-C. Wu, L.-S. Ye, B. Hu

Department of Gastroenterology, West China Hospital, Sichuan University, Chengdu, Sichuan, China

**SUMMARY.** With the development of endoscopic interventions and inspired by the success of peroral endoscopic myotomy (POEM) for the treatment of achalasia, we investigated an old method of direct peroral endoscopic myotomy without a submucosal tunnel for the treatment of achalasia, which we call open peroral endoscopic myotomy (O-POEM). In this study, Clinical success was achieved in the patient after O-POEM. A reduction of LES pressure, Eckardt score, and a timed barium esophagogram were observed during follow-up. There were no severe complications and no recurrences during two months of follow-up. Therefore, open peroral endoscopic myotomy is a feasible and effective endoscopic treatment modality for achalasia. However, long-term outcomes of O-POEM requires further follow-up.

**KEY WORDS:** Achalasia, endoscopic surgery, treatment.

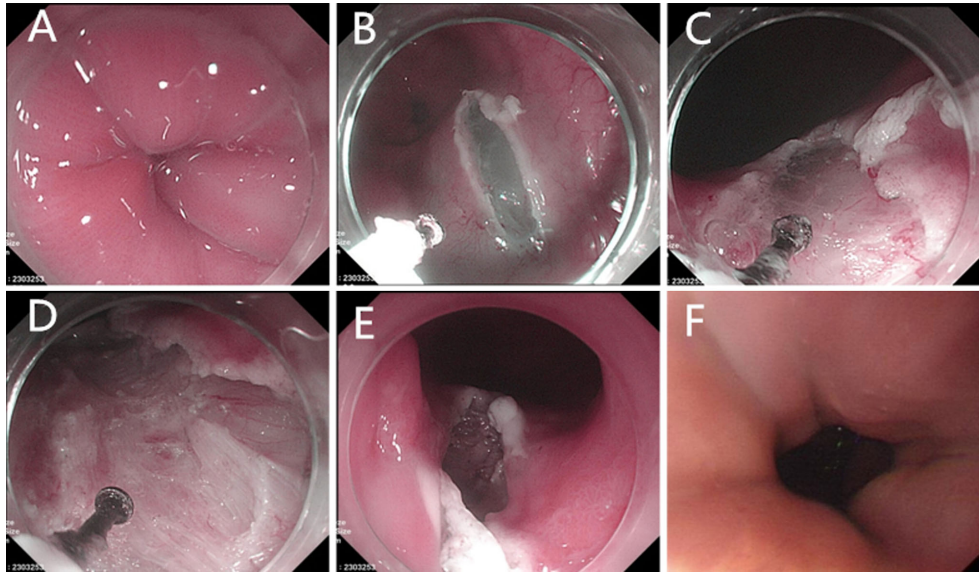
A 42-year-old man received clinical consultation because of dysphagia for >10 years, this patient with an Eckardt score of 13 was diagnosed as achalasia (type II) based on esophageal motility testing, upper endoscopy, barium esophagography, and clinical presentations. We investigated a technique of peroral endoscopic myotomy directly without a submucosal tunnel for the treatment of achalasia, which we call open peroral endoscopic myotomy (O-POEM). O-POEM was successfully performed with a post O-POEM Eckardt score of 2 and with no procedure-related adverse events (Fig. 1). The procedure time for O-POEM was 17.0 minutes and the length of the myotomy was 7.0 cm. Prophylactic antibiotics were given intravenously 30 minutes before O-POEM, and a nasogastric tube placement was continued for 2 days postoperatively. A liquid diet was allowed at postoperative day 3 and then this patient was fitted for

discharge. A regular diet was allowed at postoperative day 10 and his symptoms resolved completely during the follow-up of two months. A reduction of lower esophageal sphincter pressure and a timed barium esophagogram were observed during follow-up one month later. The follow-up endoscopy performed for the patient one month later revealed healing mucosa in the area of O-POEM.

### DISCUSSION

Treatment options available for achalasia include laparoscopic Heller myotomy, botulinum toxin injection, pneumatic dilation, and pharmacological therapies.<sup>1</sup> This O-POEM technique takes advantages of the peroral endoscopic myotomy to achieve selective myotomy of the circular muscle dissection and the remarkable capacity of esophageal epithelial cells for tissue repair and wound healing.<sup>2,3</sup> Open peroral endoscopic myotomy is a feasible and effective endoscopic treatment modality for achalasia. However, further randomized controlled clinical trial studies are needed to focus on the question of whether or not this technique has the potential to replace traditional POEM.

Address correspondence to: Bing Hu, Department of Gastroenterology, West China Hospital, Sichuan University, No. 37 Guo Xue Xiang, Chengdu, Sichuan 610041, China.  
Email: [hubingnj@163.com](mailto:hubingnj@163.com)



**Fig. 1** (A) Preoperative gastroscopy showing a tightly closed cardia. (B, C) Mucosotomy performed after submucosal saline injection. (D) Cutting off a circular layer of the esophagus after mucosectomy. (E) Postoperative gastroscopy with a relaxed cardia. (F) Endoscopic sight of postoperative cardia revealed healing mucosa in the area of O-POEM during follow-up.

## References

- 1 Moonen A, Boeckstaens G. Finding the right treatment for achalasia treatment: risks, efficacy, complications. *Curr Treat Options Gastroenterol* 2016; 14: 420–8.
- 2 Akintoye E, Kumar N, Obaitan I, *et al.* Peroral endoscopic myotomy: a meta-analysis. *Endoscopy* 2016; 48: 1059–68.
- 3 Barbera M, di Pietro M, Walker E, *et al.* The human squamous oesophagus has widespread capacity for clonal expansion from cells at diverse stages of differentiation. *Gut* 2015; 64: 11–9.