Peroral endoscopic myotomy and simultaneous endoscopic diverticuloseptotomy in a case of achalasia with diverticula

► **Fig. 1** Contrast esophagogram before peroral endoscopic myotomy shows a large epiphrenic diverticulum (black triangle) on the right anterolateral esophageal wall. A thin streak of contrast medium is visible across the lower esophageal sphincter (black star).

A 58-year-old man with symptoms of dysphagia and regurgitation was admitted for treatment. Evaluation with endoscopy and contrast esophagogram revealed achalasia cardia with a small mid-esophageal diverticulum and a large epiphrenic diverticulum (► **Fig. 1**, ► **Fig. 2**). Peroral endoscopic myotomy (POEM) and a simultaneous endoscopic diverticuloseptotomy were performed in this case (► **Video 1**). Firstly, submucosal injection and mucosal incision were made at about 5 cm above the epiphrenic diverticulum. Secondly, a submucosal tunnel was created pointing toward the diverticular septum and extended on both sides of the septum, i.e., the diverticular and esophageal lumen side (► **Fig. 3**). Thirdly, complete myotomies of the muscle layer of the diverticular septum and the esophagus were performed separately. Due to technical difficulty, a small mucosal perforation occurred at the most narrow, twisted, and spasmodic part of the distal

► **Fig. 2** Endoscopic images show a small mid-esophageal diverticulum (black arrow) and a large epiphrenic diverticulum (black triangle). White arrows show the entrance of the narrow lumen of distal esophagus.

► **Video 1** Peroral endoscopic myotomy and simultaneous endoscopic diverticuloseptotomy in a case of achalasia with diverticula.

esophagus (► **Fig. 4**). In the final step, the small mucosal injury and the entry of the tunnel were closed with endoclips. An X-ray contrast study 5 days after POEM revealed a free flow of contrast medium across the gastroesophageal junction and a collapsed epiphrenic diverticulum (► **Fig. 5**). There was substantial improvement in the patient's clinical symptoms as well. At the 3-month follow-up, the

patient reported complete resolution of dysphagia.

POEM has been introduced for achalasia treatment as a less invasive alternative to laparoscopic Heller myotomy [1]. However, a few patients with achalasia have a co-existing large epiphrenic diverticulum, which may cause technical difficulties and increase the rates of procedure-related adverse events [2,3]. In our

► **Fig. 3** A submucosal tunnel was created pointing toward the diverticular septum and extended on both sides of the septum.

► **Fig. 4** A small mucosal injury occurred at the most narrow, twisted, and spasmodic part of the distal esophagus during peroral endoscopic myotomy (black arrow).

case, a small esophageal mucosal injury occurred during POEM, which was completely sealed by an endoclip without any postoperative complications. Classically, a diverticulum of the middle esophagus is classified as a Rokitansky diverticulum, and it rarely attains an appreciable size or produces any symptoms [4]. We did not treat the small mid-esophageal diverticulum in this case.

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► **Fig. 5** Contrast esophagogram 5 days after peroral endoscopic myotomy shows quick passage of contrast medium across the gastroesophageal junction into the stomach; the previously large diverticulum has collapsed.

Competing interests

None

The authors

Wen Li¹, Fang Liu¹, Liang Wu²

- 1 Department of Gastroenterology and Hepatology, The First Medical Center of Chinese PLA General Hospital, Beijing, China
- 2 International Center for Diagnosis and Treatment of Liver Diseases, The Fifth Medical Center of Chinese PLA General Hospital, Beijing, China

Corresponding author

Liang Wu

International Center for Diagnosis and Treatment of Liver Diseases, The Fifth Medical Center of Chinese PLA General Hospital, Beijing, 100039, China
Fax: +86-10-55499107
wuliangdoc@163.com

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