



## Greater-curvature peroral endoscopic myotomy with diverticuloseptotomy for the treatment of achalasia in a patient with a large epiphrenic diverticulum

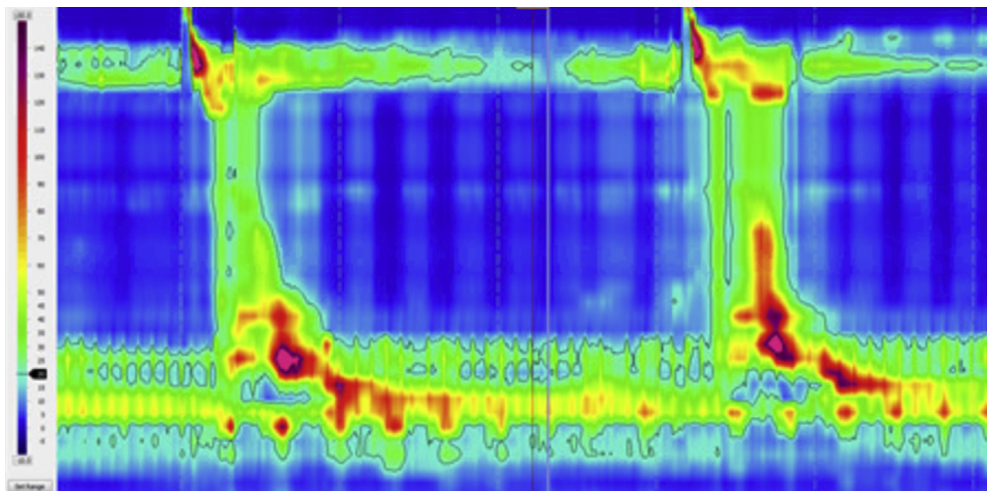
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Epiphrenic diverticula occur in the distal esophagus and are considered pulsion-type diverticula inasmuch as they occur secondary to a congenital weakness of the esophageal wall in conjunction with an esophageal motility disorder.<sup>1,2</sup> They have been associated with esophageal dysmotility, predominantly achalasia.<sup>3,4</sup> Symptomatic epiphrenic diverticula are usually managed surgically with laparoscopy involving diverticulectomy, myotomy, and anterior fundoplication.<sup>5</sup> Alternative therapeutic options are limited for patients deemed poor surgical candidates. Peroral endoscopic myotomy (POEM) has proved to be successful in treating patients with achalasia, with newer reports suggesting that a similar approach can be considered in patients with a concomitant epiphrenic diverticulum.<sup>6</sup> Two methods of POEM have been described for this clinical scenario: salvage POEM, or S-POEM, and diverticular POEM, or D-POEM. S-POEM involves performing a submucosal endoscopic myotomy on the wall opposite the epiphrenic diverticulum.<sup>7</sup> D-POEM involves submucosal tunneling to expose and isolate the diverticular septum, followed by a septotomy.<sup>8</sup>

A 93-year-old man presented to our institution 2 years after his initial presentation for ongoing intermittent dysphagia and food regurgitation. As part of his initial evaluation, standard

upper endoscopy found evidence of a large epiphrenic esophageal diverticulum and high-resolution esophageal manometry revealed type III achalasia (Fig. 1). After this evaluation, he subsequently sought care elsewhere and underwent an anterior POEM. He returned to our institution for evaluation, given his lack of symptom improvement after POEM. A repeated barium esophagram revealed severe esophageal dysmotility, suggesting ongoing functional esophageal obstruction and a persistent, large esophageal diverticulum above the esophagogastric junction with intermittent passage of contrast material (Fig. 2). He underwent surgical evaluation but was thought to be a suboptimal surgical candidate in the setting of his advanced age and poor functional status. He subsequently underwent repeated POEM with diverticuloseptotomy (Video 1, available online at [www.VideoGIE.org](http://www.VideoGIE.org)).

On endoscopy, the large epiphrenic diverticulum was visualized in the distal esophagus at approximately the 7 o'clock position, 35 cm from the incisors. The remaining distal esophagus was noted to be quite narrowed, with a tangential takeoff beyond the diverticulum. Before endoscopic intervention we performed endoflip. At a 40-mL fill, the distensibility was 2.5 mm<sup>2</sup>/mm Hg, and the diameter at the lower esophageal sphincter



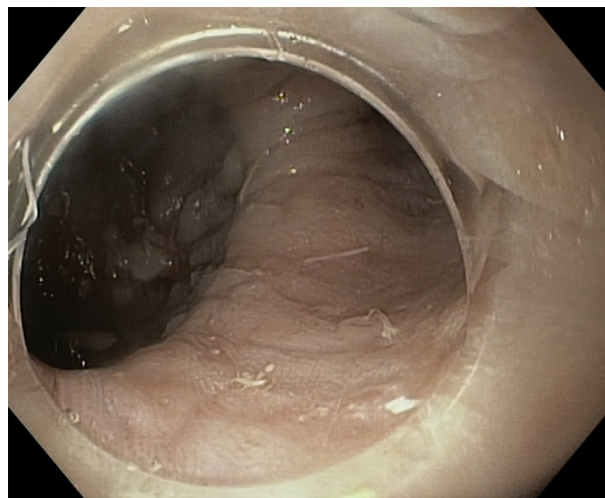
**Figure 1.** High-resolution esophageal manometry demonstrating type III achalasia.



**Figure 2.** Barium esophagram revealing esophageal dysmotility and a large epiphrenic diverticulum.

(LES) was 10.7 mm. We elected to perform a greater curvature POEM in addition to a diverticuloseptotomy for the treatment of the patient's ongoing symptoms. A mucosotomy was created 33 cm from the incisors, followed by creation of a submucosal tunnel between the diverticular mucosa and the diverticular septum. A parallel tunnel was then created within the submucosa of the true esophageal lumen, with extension through the LES and into the gastric cardia (Fig. 3).

Scar tissue was encountered within the dissection plane near the esophagogastric junction, possibly caused by the prior POEM. After creation of the parallel tunnels and isolation of the septum, repeated POEM was performed by dividing the circular muscle fibers of the distal esophagus and proximal stomach. The endoscope was withdrawn and entered into the diverticular submucosal tunnel. The muscle fibers of the diverticular septum were then divided (Fig. 4). Repeat endoflip was performed. At a 40-mL fill, the distensibility was 5.8 mm<sup>2</sup>/mm Hg, and the diameter at the LES was 14.9 mm. No intraoperative adverse events occurred.



**Figure 3.** Endoscopic view before diverticuloseptotomy. The epiphrenic diverticulum can be seen to the left of the thick diverticular septum. The true esophageal lumen is to the right and takes off tangentially opposite the diverticulum.



**Figure 4.** Endoscopic septum division from within the submucosal tunnel. The submucosal diverticular space can be seen to the left, with the esophageal submucosal space to the right.

On postoperative day 1, a CT esophagram showed expected postprocedural changes without evidence of leak, and the patient was discharged home in good condition. At his 3-week follow-up visit, the patient reported complete resolution of his dysphagia and regurgitation symptoms and tolerance of a near-normal diet.

## DISCLOSURE

*Dr Law is a consultant for Olympus America. All other authors disclosed no financial relationships relevant to this publication.*

*Abbreviations: LES, lower esophageal sphincter; POEM, peroral endoscopic myotomy; D-POEM, diverticular POEM; S-POEM, salvage POEM.*

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