



Per-oral endoscopic myotomy with endoscopic septum division in a case of achalasia with large epiphrenic diverticulum

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A 75-year-old man presented to our institution with symptoms of dysphagia and regurgitation. Evaluation with EGD, barium swallow, and esophageal manometry revealed achalasia cardia with a large esophageal epiphrenic diverticulum (EED) (Figs. 1 and 2). Endoscopic myotomy was performed in this case (Video 1, available online at www.VideoGIE.org).

The steps of the procedure were as follows. Submucosal injection of saline solution mixed with indigo carmine was performed at about 3 cm above the esophageal diverticulum. Mucosal incision and submucosal tunneling were performed by use of a triangular-tip knife with integrated water jet system in the standard fashion. Careful submucosal dissection was performed at the site of EED to avoid mucosal injury and to delineate the boundaries of the diverticulum (Fig. 3). The submucosal tunnel was extended to 2 cm below the lower esophageal sphincter. Myotomy was begun from 2 cm below the mucosal incision.

Near the diverticulum, the orientation of the myotomy was changed so that the diverticular septum could be included in the dissection (Fig. 4). Subsequently, the

direction of the myotomy was reoriented toward the submucosal tunnel. After completion of the myotomy, the remaining part of the septum was divided from the diverticular end toward the tunnel (right to left) (Figs. 5 and 6).

The esophagogastric mucosa was carefully inspected for any mucosal injury. There was no resistance at the gastroesophageal junction after the myotomy. In the final step, the mucosal incision was closed with endoclips. A barium swallow the next day revealed a free flow of contrast material across the gastroesophageal junction (Fig. 7). In addition, there was a significant reduction in the diameter of the esophagus, which suggested elimination of the gastroesophageal junction outflow obstruction.

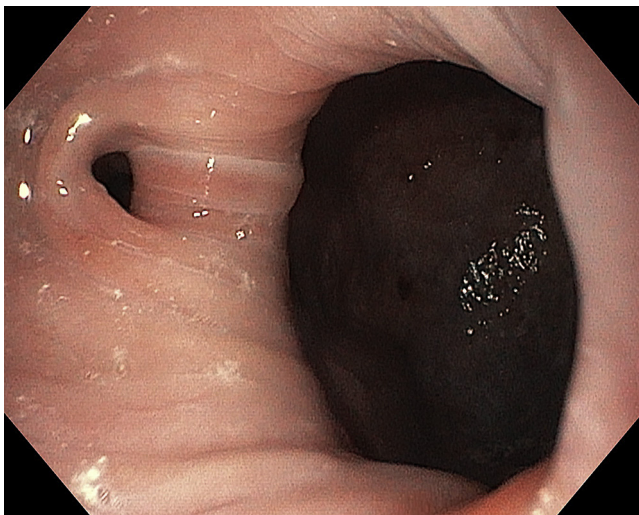


Figure 1. Endoscopic image revealing a large epiphrenic diverticulum at the lower end of esophagus. Note the lower esophageal sphincter along the side of the diverticulum.

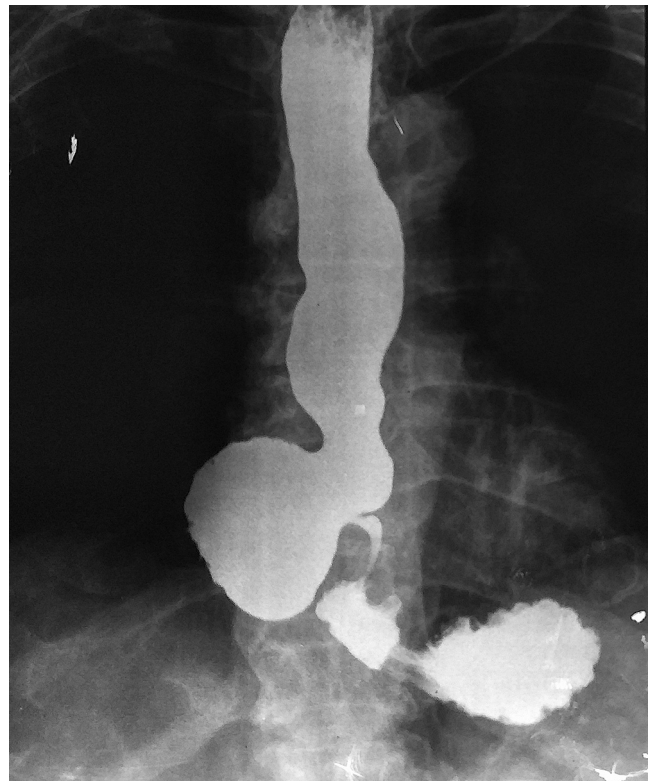


Figure 2. Barium swallow showing esophageal diverticulum. A thin streak of barium is visible flowing across lower-esophageal sphincter.

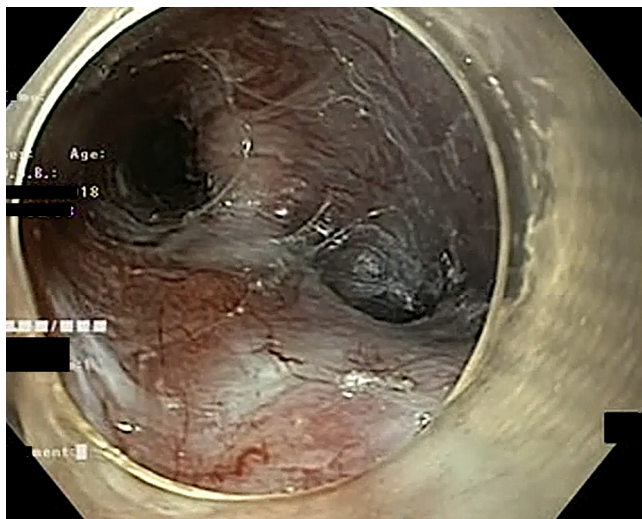


Figure 3. Endoscopic view of the diverticulum from within the submucosal tunnel.

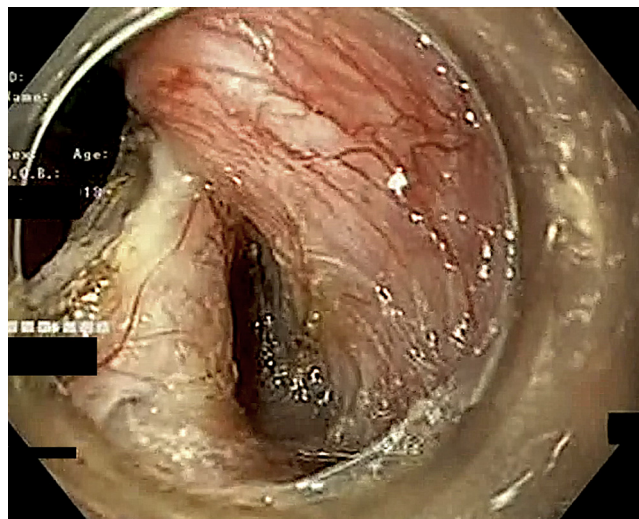


Figure 5. Remnant part of septum between the diverticulum and submucosal tunnel.

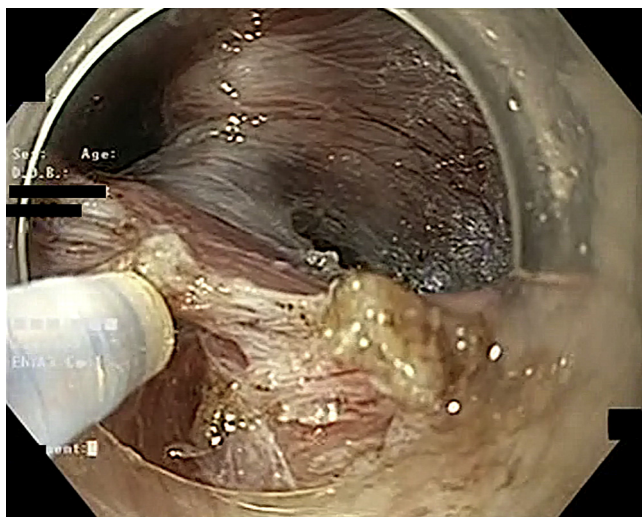


Figure 4. Endoscopic myotomy near the diverticulum.

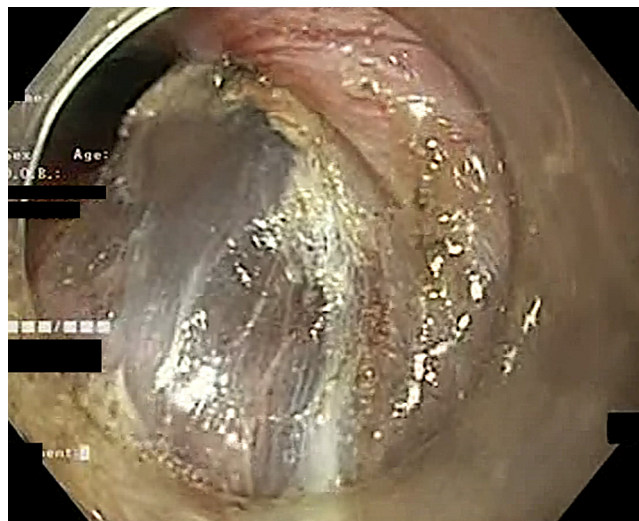


Figure 6. Endoscopic image after complete division of the septum.

There was substantial improvement in the patient's clinical symptoms as well.

Some cases of achalasia have a coexisting EED. Small EEDs with minimal symptoms do not require treatment. However, large and symptomatic EEDs need treatment. In the past, most of these cases have been treated with surgery. The surgical management in these cases includes laparoscopic or thoracoscopic diverticulectomy along with myotomy. Surgical treatment in these cases is associated with high morbidity (35%), including esophageal leaks in about 3% of cases.¹

Per-oral endoscopic myotomy has emerged as a safe and efficacious treatment option for achalasia. However, endoscopic myotomy can be challenging in cases with

EED because of the presence of diverticulum.² Recently, per-oral endoscopic myotomy has been reported as an effective option in cases with EED.²⁻⁴

In addition to the regular myotomy along the submucosal tunnel, division of the septum is also performed in these cases. The division of the septum in EED is akin to that recently reported in Zenker's diverticulum, ie, submucosal tunneling endoscopic septum division.⁵ In cases of EED without coexisting achalasia, submucosal tunneling endoscopic septum division alone may be sufficient, whereas in cases with coexisting EED and achalasia, myotomy needs to be extended beyond the gastroesophageal junction in addition to division of the septum.



Figure 7. Barium swallow after endoscopic myotomy showing the free flow of contrast material across the gastroesophageal junction.

DISCLOSURE

All authors disclosed no financial relationships relevant to this publication.

Abbreviation: EED, esophageal epiphrenic diverticulum.

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