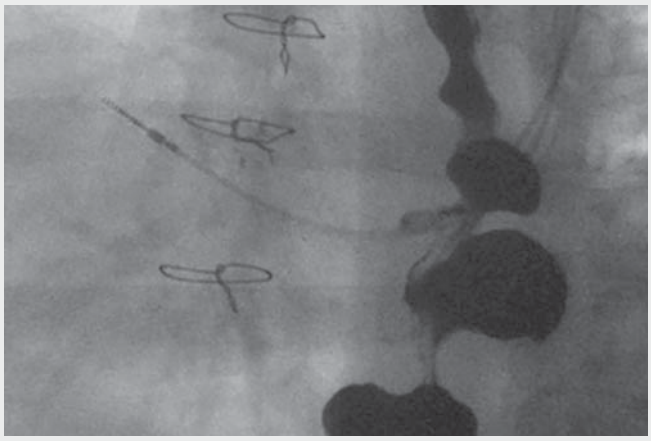
Peroral endoscopic myotomy, septotomy, and restoration of esophageal lumen with over-the-scope clips: closing the circle of esophageal diverticula management



Video 1 Initial barium transit in a patient with type III achalasia and multiple diverticula.

Peroral endoscopic myotomy (POEM) is an option for esophageal diverticula treatment based on septum myotomy. However, a significant number of patients continue to be symptomatic owing to the pouch persistence [1–4].

A 66-year-old man with significant weight loss, dysphagia, and chest pain was referred to our unit. Preoperative workup included: a) endoscopy of large diverticulum above the esophagogastric junction (EGJ); b) barium swallow with dilatation of distal esophagus with two diverticula, contrast hold-up, and tertiary contractions (video image); c) high-resolution impedance manometry indicating type 3 achalasia with a premature contractile segment starting 11 cm above the EGJ; and d) CT scan showing absence of extrinsic lesions.

A POEM was performed. Initial evaluation showed one 2-cm diameter diverticulum without a septum at 29 cm and the 12 o'clock position. Two large diverticula with defined septa were found at 32 cm and 3 o'clock, and 3 cm distally at 9 o'clock (▶ **Fig. 1**). A wide 16-cm long submucosal tunnel exposing 50 % of the esophageal circumference was initiated at 26 cm and extended to 2 cm below the EGJ (▶ **Fig. 2**). An uninterrupted posterior myotomy was started 12 cm above the EGJ to ensure complete dissection of the spastic segment (▶ **Fig. 3**). Then, the myotomy was directed right to dissect the 3 o'clock diverticulum septum; afterwards, it was directed left to the 9 o'clock diverticulum septum and finally to the cardia and fundus, following the direction of the sling fibers. Both diverticulum pouches were everted towards the esophageal lumen and grasped with over-the-scope (OTS) clips (▶ **Fig. 4**). The mucosotomy was closed with through-the-scope (TTS) clips. An early barium swallow demonstrated a restored esophageal anatomy with normal contrast flow (▶ **Fig. 5**). The patient was discharged without complications and remains asymptomatic on a regular diet.

We conclude that a multimodal one-session endoscopic procedure treating both the underlying motility disorder and the diverticula, with restoration of the lumen mechanically (OTS clips), will lead to better rates of therapeutic success.

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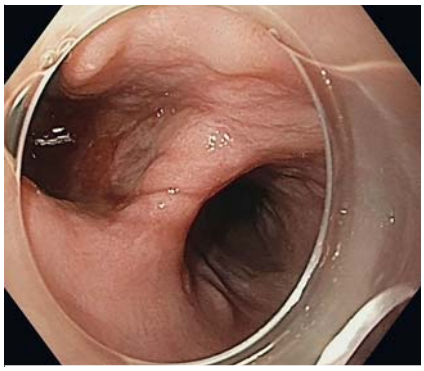
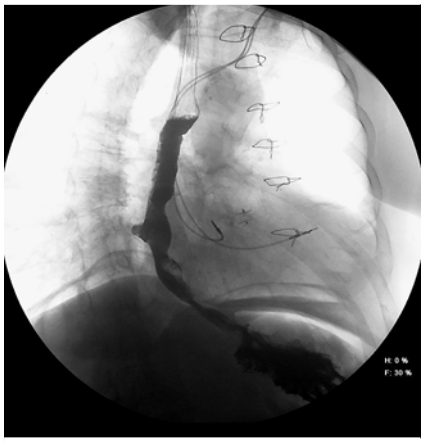


▶ **Fig. 1** Distal diverticulum.

▶ **Fig. 2** Distal diverticulum muscular septum.

▶ **Fig. 3** Septotomy and myotomy.

▶ **Fig. 4** Diverticulum pouch everted towards the esophageal lumen with an over-the-scope clip.



▶ **Fig. 5** Restored esophageal anatomy and normal contrast flow after multimodal treatment.

Competing interests

The authors declare that they have no conflict of interest.

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