



A case of dysphagia secondary to a double-lumen esophagus: endoscopic management with septotomy

Rohit Rao, MBBS, MRCP, Rami Sweis, MBChB, PhD, Martin Everson, MBBS, MRCP, Andrew Plumb, BMBCh, PhD, MRCP, FRCR, Rehan Haidry, MBBS, MD, FRCP

A double-lumen esophagus is a rare condition that describes a “false” and a “true” esophageal lumen separated by a septum. The underlying cause is unclear, but the condition has been previously described in GERD and Crohn’s disease.¹ Patients can present with dysphagia, chest pain, and respiratory compromise resulting from an accumulation of contents within the false lumen. Dividing the septum can restore a single lumen, with subsequent improvements in symptoms. Here we report a novel endoscopic treatment approach with use

of a scissor-type knife, avoiding the need for invasive surgery.

PATIENT

A 23-year-old woman was admitted to her local hospital with vomiting and odynophagia. The patient had a history of asthma and GERD. Gastroscopy identified a passable benign stenosis 20 cm from the incisors. Additionally, a posterior defect of the esophagus was noted at 23 cm, with a septum dividing the native esophagus from a false lumen that was blind-ending just proximal to the esophagogastric junction (EGJ). A CT scan with oral and intravenous contrast medium demonstrated that the true esophageal lumen was compressed posteriorly by the distended false lumen (Fig. 1).

The patient was transferred to a specialist center, and on arrival, repeated gastroscopy identified an esophagus with a “false” lumen abutting a “true” lumen that emptied into the stomach. Separating the 2 structures was a septum 13 cm long. A nasogastric tube was inserted initially for aspiration and later for feeding (Fig. 2). A swallow study with oral contrast medium confirmed the endoscopic findings and the passage of the nasogastric tube within the native esophagus. A false lumen was noted to extend from below the cricopharyngeus to 3 cm above the EGJ. Virtually all of the contrast medium ran down the false lumen (Fig. 3).

After discussion at a multidisciplinary meeting, a decision was made to avoid surgery and to attempt an endoscopic septotomy.

ENDOSCOPIC SEPTOTOMY

At 23 cm, a septum was seen that extended for a further 13 cm. At the distal end of the pseudolumen, a 2- to 3-mm defect was noted, which emptied into the true lumen. A scissor-type (SB junior) monopolar knife (Fig. 4) was then used to divide the septum from the proximal end to the distal end, thereby laying open the full length of the septum (Fig. 5) (Video 1, available online at www.VideoGIE.org). Endocut Q (Erbe Elektromedizin GmbH, Tuebingen, Germany) was used with effect 1 and cut interval 1. No immediate adverse events were noted.



Figure 1. Sagittal reformatted CT image after intake of oral and intravenous iodinated contrast medium. The true esophageal lumen is compressed posteriorly (arrow) by the distended false lumen (asterisks). Note multiple threadlike streaks of soft tissue within the false lumen, outlined by the contrast medium. More inferiorly, a single normal-caliber lumen is present (arrowhead).

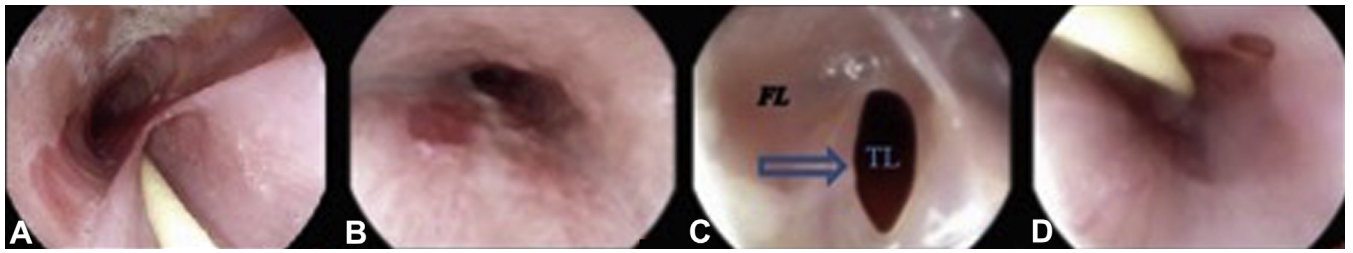


Figure 2. **A,** Endoscopic appearance of the double-lumen esophagus 23 cm from the incisors, with a nasogastric tube placed in the true esophagus. **B,** Endoscopic appearance of the 13-cm false lumen. **C,** Blind ending base of false lumen (FL) with small breach (*arrow*) showing the true lumen (TL) and the esophagogastric junction (EGJ) below. **D,** Endoscopic view of the true lumen and small base of the false lumen proximal to the EGJ with small breach at the base of the false lumen visible.

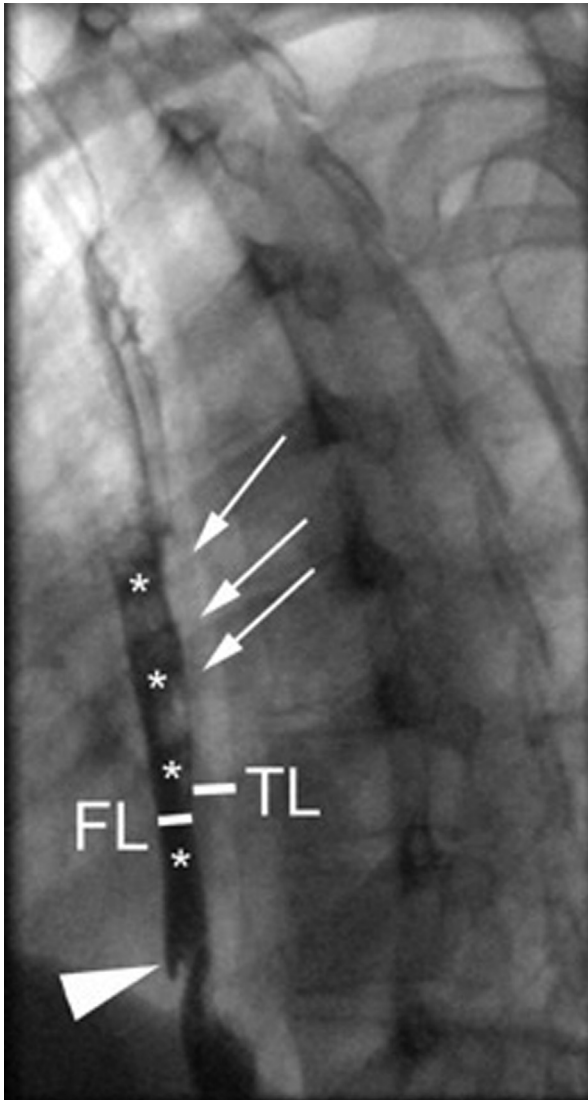


Figure 3. Left anterior oblique fluoroscopic images after intake of oral contrast medium. Contrast medium (*asterisks*) passes primarily into the anterior false lumen (FL, span marked) rather than the true lumen (TL, span marked), which contains a correctly positioned nasogastric tube (*arrows*). There is a mucosal flap at the site of union of the 2 lumina (*arrowhead*).



Figure 4. A scissor-type knife (SB knife).

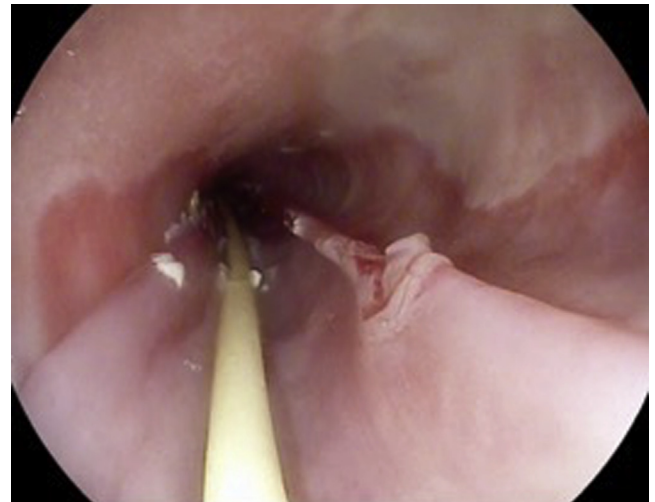


Figure 5. Endoscopic appearances of the divided esophagus.

POSTPROCEDURE TREATMENT

A postoperative swallow study with oral contrast medium demonstrated no leak. The appearance was now that of a single lumen (Fig. 6), with no evidence of

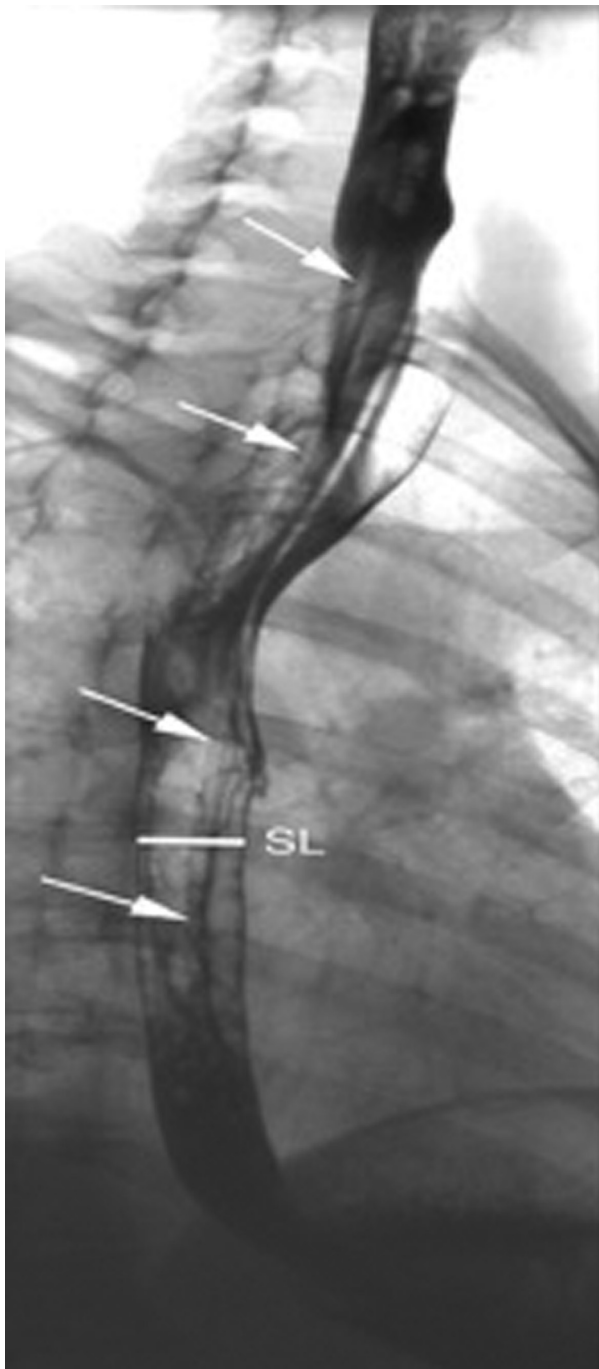


Figure 6. Right anterior oblique fluoroscopy images after intake of oral iodinated contrast medium now depicts a single lumen (SL, span marked) with a correctly positioned nasogastric tube (arrows).

contrast medium leakage. Examination of biopsy specimens from the upper and lower parts of the esophagus showed active inflammation, and fibromuscular tissue was seen in the midesophageal samples. There was no evidence of eosinophilic esophagitis. The patient was discharged 72

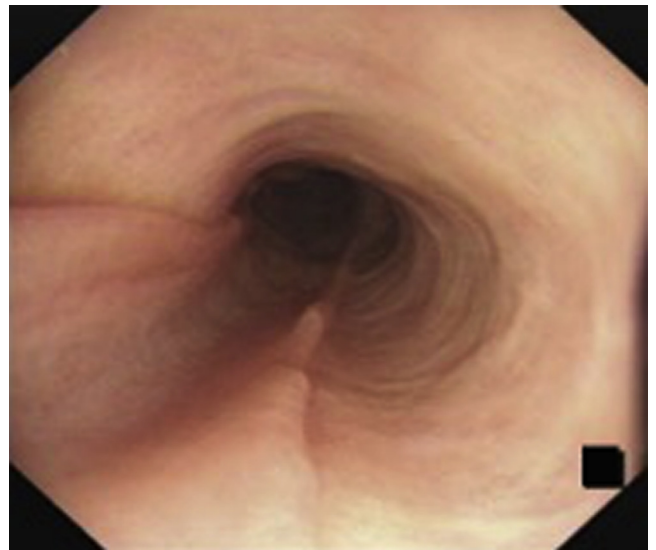


Figure 7. Esophageal appearances at endoscopy 3 months after the septotomy. The esophagus is now a single lumen.

hours after the procedure with advice to use a soft diet and oral topical steroids. At a 1-month follow-up visit, no further symptoms were described, and a repeated gastroscopy at 3 months demonstrated a patent single lumen (Fig. 7).

CONCLUSIONS

A double-lumen esophagus is a rare entity with an unclear cause. With no pharmacologic treatment available, endoscopic and surgical interventions provide the route for restoration of a single lumen. Surgery carries a significant risk of morbidity and mortality,² and accordingly, endoscopic alternatives are preferable.

A recent case report describes the use of a flush knife to divide the septum.³ We describe an alternative method that uses a scissor-type knife, typically used for Zenker's diverticulotomy, which enables precise and controlled cutting in a single plane. Clear visibility is maintained throughout, minimizing adverse events such as perforation. In this case, the scissor-type knife was used to restore a single lumen and to allow oral intake within 24 hours.

DISCLOSURE

All authors disclosed no financial relationships relevant to this publication.

Abbreviation: EGJ, esophagogastric junction.

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Department of Gastrointestinal Services, University College London Hospital, London, UK.

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