



Septal wall divides esophagus into double lumen: successful endoscopic septotomy

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Intraluminal esophageal diverticulum is a rare condition identified by a collection of intraluminal barium with surrounding radiolucent halo on barium swallow.¹⁻³ Historically, management has comprised proton pump inhibitor therapy, lifestyle modification, and esophageal dilation.^{1,2} Limited literature exists on the endoscopic management of this condition. Our case highlights the use of minimally invasive endoscopic techniques to manage intraluminal esophageal diverticulum.

A 27-year-old man with a history of GERD and gastric ulcer presented with progressive dysphagia to solids and liquids leading to 50-pound weight loss over 3 months. Medical therapy with proton pump inhibitor provided mild symptomatic improvement. Initial upper endoscopy revealed an esophageal stricture with double lumen. Repeat endoscopy using a pediatric endoscope (GIF-XP190N, Olympus, Center Valley, Pa, USA) showed a true and false lumen divided by a septal wall located 25 cm

from the incisors. Multiple diverticula were also seen within the false lumen in the middle and lower thirds of the esophagus. A barium swallow study confirmed these endoscopic findings. Owing to persistent symptoms, the patient was referred for further endoscopic evaluation and management.

The double lumen was identified within the esophagus, with the septal wall dividing true and false lumens. To



Figure 1. Esophagram before procedure showing focal narrowing (*red arrow*) in proximal thoracic esophagus.

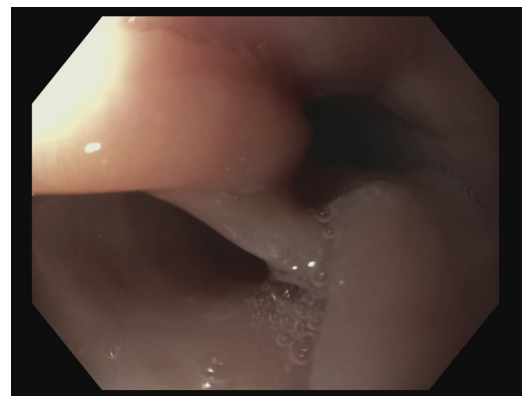


Figure 2. Double lumen identified endoscopically within the esophagus.



Figure 3. Yellow and black guidewires placed into true and false lumens, respectively.

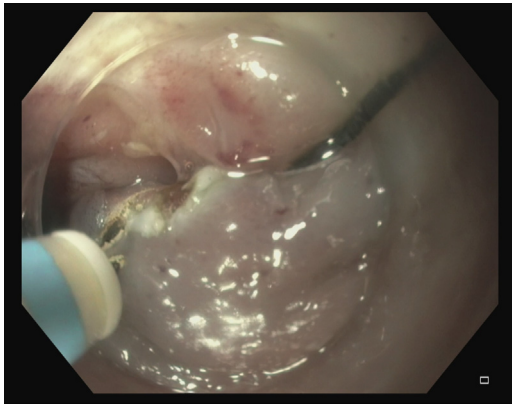


Figure 4. Septotomy performed with various endoscopic submucosal dissection knives.

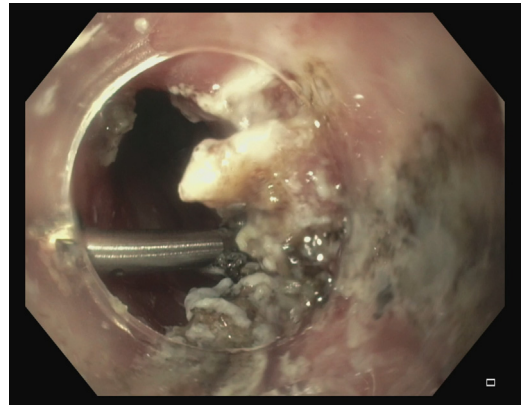


Figure 7. Endoclip used to prevent mucosal division, and single lumen confirmed at conclusion of procedure.

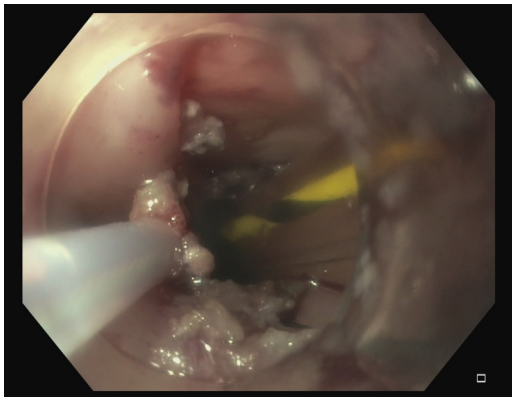


Figure 5. Endoscopic mucosal resection performed intermittently via hot snare.

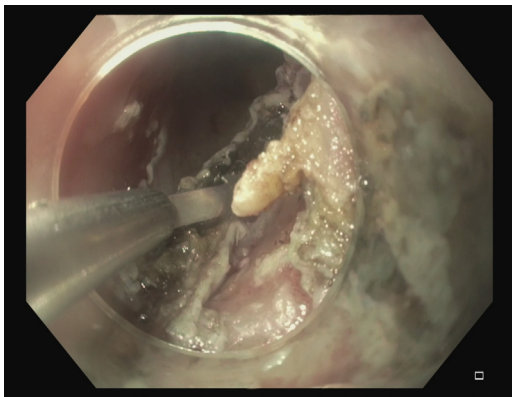


Figure 6. Completed septotomy.

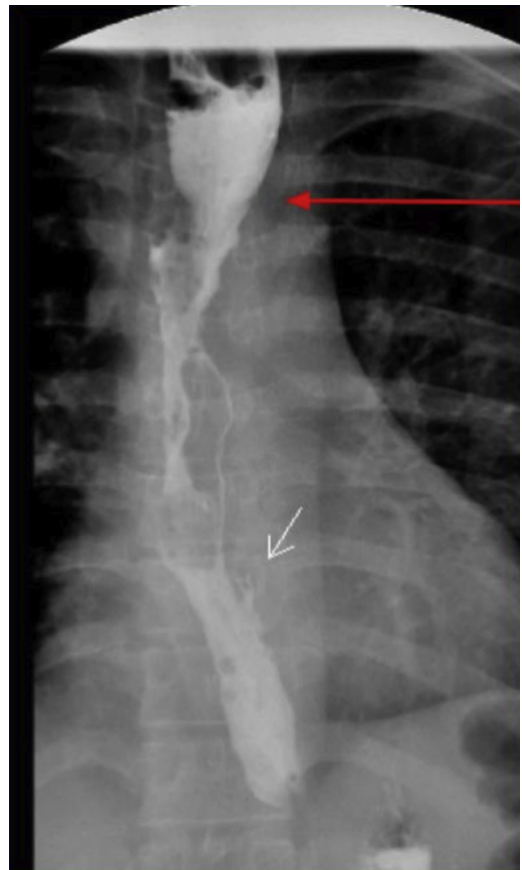


Figure 8. Esophagram 1 day postprocedure showing improvement in proximal thoracic esophageal narrowing (*red arrow*) and scattered diverticula (*white arrow*).

help identify each lumen, yellow 0.035-in and black 0.025-in guidewires were placed into the true and false lumens, respectively. The endoscope (GIF-HQ190, Olympus) was then passed through the true lumen to inspect the stomach, and the distal esophagus was noted to be normal. A nasogastric tube was placed over the yellow 0.035-in

guidewire to further define the true lumen. Next, a methylene blue lifting agent was injected to demarcate the septal wall and avoid any nearby vessels. An endoscopic submucosal dissection DualKnife (Olympus) was then used to perform septotomy, guided by the nasogastric tube and guidewires. At the same time, a distal cap

attachment was used to improve visibility and maintain hemostasis. Septotomy began 25 cm from the incisors and terminated 39 cm from the incisors, for a total length of 14 cm in the mid to distal esophagus. No muscle fibers were encountered in the septum, only mucosa. Intermittent endoscopic mucosal resection was also performed, with redundant tissue removed via hot snare. Finally, 1 endoclip (Resolution 360 Clip, Boston Scientific, Marlborough, Mass, USA) was deployed at the distal end of the esophageal lumen to prevent mucosal division and achieve hemostasis. At the end of the procedure, a single lumen was visualized endoscopically (Figs. 1-8).

Endoscopic septotomy and mucosal resection offer a minimally invasive alternative to surgery for treating intraluminal esophageal diverticulum. Other case reports describe using flush knives or scissor-type knives⁴; however, in our case, a dual knife provided a safe and effective approach to management that has not been reported previously, to our knowledge. The procedure was well tolerated, and follow-up esophagram confirmed a single esophageal lumen (Video 1, available online at www.giejournal.org).

DISCLOSURE

All authors disclosed no financial relationships.

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