"Posterior-like" anterior per-oral endoscopic myotomy

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Per-oral endoscopic myotomy (POEM) can be performed by an anterior or a posterior approach to the esophageal wall, depending on the operator's preference. Recent data, however, show that posterior POEM is faster in accomplishing myotomy and in mucosal closure time, with less risk for inadvertent mucosal injury. These advantages are attributed to the axis of the dissection plane, which naturally parallels the endoscope working channel.

Conversely, anterior POEM has been shown to result in less esophageal acid exposure after myotomy in 2 randomized studies.[1,2] Although this relation to acid reflux has not been confirmed in other studies,[3] anterior POEM may still

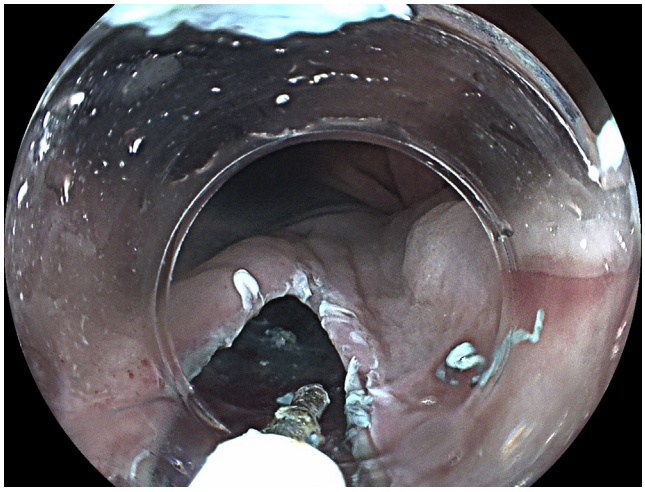

Figure 1. Entrance to the tunnel at 6 o'clock.

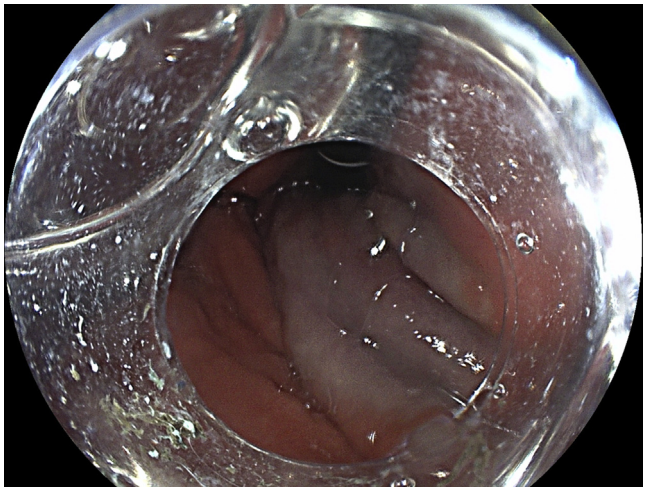

Figure 3. Sufficient progression into the cardia as demonstrated in retroflexion.

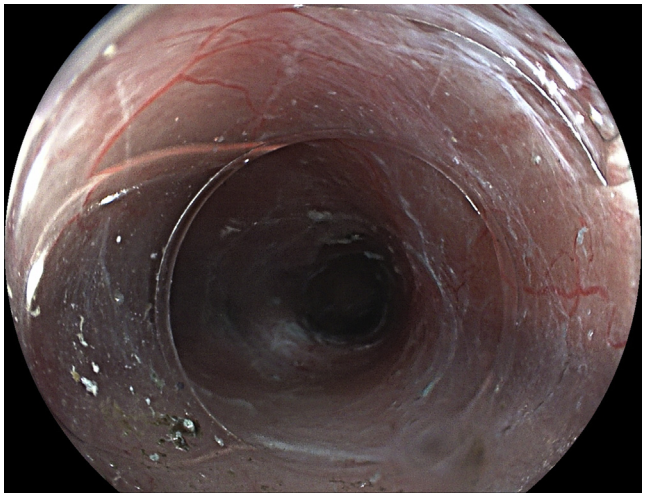

Figure 2. Tunnel.

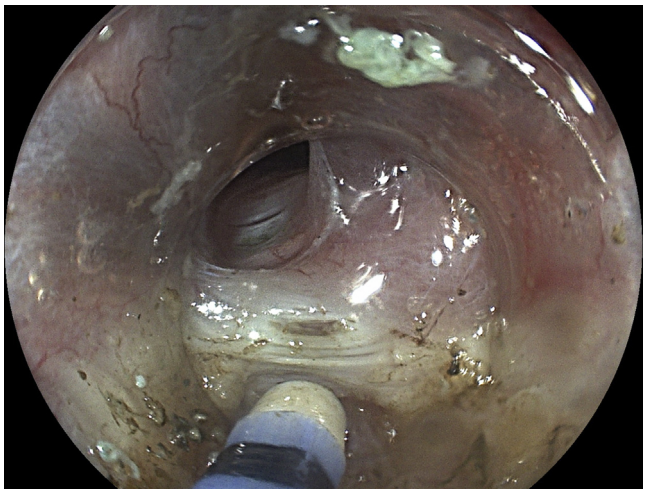

Figure 4. Myotomy at 6 o'clock.

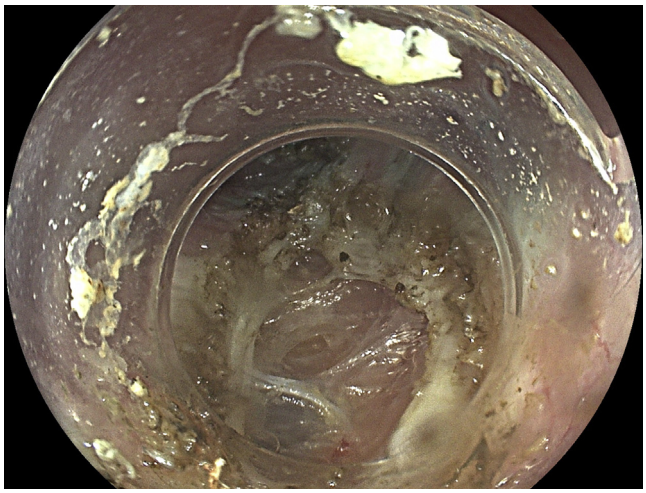

Figure 5. Full-thickness myotomy.

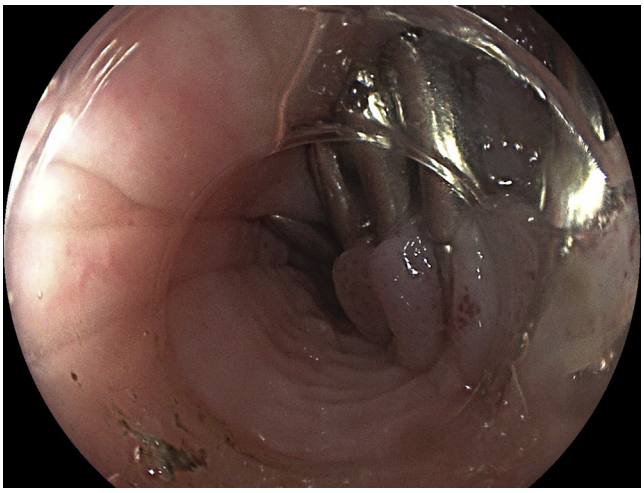

Figure 6. Closure of the entrance to the tunnel.

be advantageous in achieving superior intraprocedural visibility, because the gravity-dependent pooling of liquids occurs away from the dissection plane, when this technique is applied. Therefore, we have recently introduced a modified version of anterior POEM, named "posterior-like" anterior POEM (PL-POEM), in which the operator simulates the experience of posterior POEM while performing anterior POEM, by means of ergonomic shifts.[4] This is achieved through anticlockwise rotation of the endoscope shaft during simultaneous rotation of the operator's body to face another monitor placed by the patient's feet. In this fashion, the tunnel and the myotomy axis are positioned at 6 o'clock, as in posterior POEM. The purpose of this video is to present this technique step by step, applied in a case of type I achalasia (Video 1, available online at www.VideoGIE.org).

With the patient in the supine position, one monitor is installed at the right side of the bed by the patient's head and the endoscopy tower with a second monitor at the left side of the bed by the patient's feet. The procedure starts as an anterior POEM with a standard gastroscope fitted with a tapered hood (EG-600ZW and ST Hood CH28; Fujifilm, Tokyo, Japan). A mucosal incision is created at the 2 o'clock position with a needle-type knife (Hybrid Knife I type; Erbe, Tübingen, Germany), and a short submucosal tunnel is created, with the muscularis propria layer at the 2 o'clock position (Swift Coag, effect 3, Vio3; Erbe). Thereafter, the shaft of the endoscope is rotated anticlockwise, and the endoscopist turns his or her body toward the patient's feet, where the second monitor is positioned.

At this point, the axis of the tunnel now appears at the 5 o'clock to 7 o'clock position (Figs. 1 and 2). Endoluminally, the dissection appearance mirrors a posterior POEM despite the fact that the actual dissection takes place at the anterior esophageal wall. The tunnel in this case is extended 4 cm beyond the gastroesophageal junction. Retroflexion into the stomach shows sufficient progression into the cardia (Fig. 3). Then, full-thickness myotomy is commenced at the 6 o'clock position (Swift Coag effect 3 and Endocut Q effect 2, duration 3, interval 3), starting at the proximal esophagus and progressively extending caudally toward the cardia (Figs. 4 and 5). This critical step is now easier in comparison with standard anterior POEM because of the location of the myotomy line, which parallels the axis of the working channel. Clips are then placed in a zipline fashion to close the tunnel entrance (Fig. 6). At the end of the procedure, insertion of the gastroscope through the cardia is achieved easily without significant resistance.

In our experience, PL-POEM has been applied in the treatment of 4 consecutive patients, performed by the same operator, including 2 patients with sigmoid esophagus. The posterior-like position achieved endoscopic stability for tunneling and myotomy of the esophageal body without compromising ergonomic quality. Dissection of the cardia was challenging in 1 case because of acute angulation. The procedure was therefore completed using a standard anterior POEM technique.

In conclusion, PL-POEM may achieve the ergonomic advantages of posterior POEM while working within an anterior tunnel. Potential drawbacks include the need for an additional monitor and the need to proceed to standard anterior myotomy for patients with acute angulation of the gastroesophageal junction.

DISCLOSURE

All authors disclosed no financial relationships relevant to this publication.

Abbreviations: PL-POEM, "posterior-like" anterior per-oral endoscopic myotomy; POEM, per-oral endoscopic myotomy.

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