Peroral endoscopic myotomy for a residual Zenker’s diverticulum following endoscopic myotomy

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Symptomatic Zenker’s diverticulum can be associated with significant morbidity. Zenker’s diverticulum can persist after flexible endoscopic myotomy. Several endoscopic and surgical techniques can be considered, but it is unclear which interventions are feasible and appropriate for residual Zenker’s diverticulum.

A 49-year-old man with a medical history of GERD presented with a symptomatic Zenker’s diverticulum. The patient noted 2 years of intermittent dysphagia to solids and at times to liquids. A rigid endoscopy was performed by otolaryngology, with planned cricopharyngeal myotomy. However, despite multiple attempts, the septum was not visualized, and the procedure was aborted. The patient was referred for flexible endoscopic myotomy.

The patient was placed in the supine position and underwent general anesthesia (Video 1, available online at www.giejournal.org). The endoscope was passed under direct visual guidance, and a small posterior Zenker’s diverticulum (Fig. 1) was noted. An orogastric tube was placed to orient the diverticulum and expose the cricopharyngeal septum. At the center of the septum, a perpendicular incision into the submucosal space was made using an endoscopic submucosal dissection IT2 knife (Endocut Q Current, Olympus, Center Valley, Pa, USA) (Table 1). Myotomy was performed through the septum muscle fibers and extended to the apex of the diverticulum (Fig. 2). After myotomy, 2 Hemoclips (ConMed, Utica, NY, USA) were applied to close the mucosotomy.

The patient was admitted for observation for 1 night after the procedure, and no antibiotics were given. The patient noted immediate symptom relief. Two months later, recurrent dysphagia was reported, and symptoms progressed. Repeat esophagram revealed a residual Zenker’s diverticulum. Endoscopy was planned with potential repeat myotomy with the tunneled Zenker’s peroral endoscopic myotomy (Z-POEM) technique.

The patient was again placed in the supine position and under general anesthesia for the second procedure. The endoscope was passed under direct visual guidance, and a residual Zenker’s diverticulum with a pronounced septum was found. A scar was noted from the prior myotomy. The decision was made to perform Z-POEM. The center of the septum was injected with a methylene blue/saline solution (Fig. 3), and a good lift was noted at the prior septotomy scar site. A transverse mucosotomy along the septum was performed with an endoscopic submucosal dissection Dualknife (Endocut Q Current, Olympus) (Table 1). Intermittent injection of saline/methylene blue solution was continued into the Zenker’s diverticulum and the esophageal submucosal sides of the cricopharyngeal septum, and submucosal dissection was performed. After dissection, the full septum was exposed. Septum myotomy was performed (Endocut Q Current), extending directly to the visualized apex of the diverticulum (Fig. 4). The mucosotomy was closed using 5 duraclips (Fig. 5), and no antibiotics were given. After the Z-POEM, the patient was discharged home. At the 2-month follow-up, the patient noted marked symptom relief.

**Figure 1.** Esophagram showing the Zenker’s diverticulum.

| TABLE 1. Electrosurgical generator unit type and settings for the first and second procedures |
| Mode | ENDO CUT Q | FORCED COAG | DRY CUT | SOFT COAG |
| Effect  | 3 | 2 | 3 | 5 |
| Max watts | NA | 50 | 80 | 80 |
| Cut duration/interval | 1 | NA | NA | NA |

NA, Not available.
Flexible endoscopic myotomy is an effective intervention for treating Zenker’s diverticulum.\textsuperscript{1,2} Repeat endoscopic assessment is important in recurrent/persistent Zenker’s diverticulum. Z-POEM is a viable rescue intervention because it may safely permit more aggressive division of the septum.\textsuperscript{3,4}

DISCLOSURE

Dr Carr-Locke is a consultant for Boston Scientific; receives royalties from Steris and Telemed; and is a patient holder for Valent, Ergogrip, and Screewire. Dr Sharaiha is a consultant for Cook, Boston Scientific, and Olympus. All other authors disclosed no financial relationships.

Abbreviation: Z-POEM, Zenker’s peroral endoscopic myotomy.

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