

Adaptation of peroral endoscopic myotomy for cricopharyngeal bar

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Cricopharyngeal bar (CPB) refers to a posterior indentation at the pharyngoesophageal junction, caused by the cricopharyngeus (CP) muscle, and found during a modified barium swallow. Although it can occur in asymptomatic patients, its presence in patients with dysphagia may be indicative of dysfunction of the upper esophageal sphincter (UES).^{1,2} Although high-resolution manometry and functional lumen imaging probe have been used to assess a defective UES, there are no standardized criteria for the diagnosis of CPB.^{3,4} Traditionally the treatment for CPB included dilation, Botox injection (Allergan, Irvine, Calif, USA), and open and endoscopic surgery.⁵

Peroral endoscopic myotomy has been used for cricopharyngeal myotomy in patients with Zenker diverticulum and can be adapted for patients with CPB, with good results in terms of relief of dysphagia.⁶

A 75-year-old woman with intermittent dysphagia to solids ongoing during 10 years developed daily dysphagia to liquids associated with some episodes of regurgitation. She had an Eckardt score of 5 and was found to have a cricopharyngeal bar during a modified barium swallow (Fig. 1). After discussion of multiple options for treatment, the patient agreed to an endoscopic myotomy and informed consent was obtained.

During endoscopy, the CP muscle is identified as a posterior bulging at the level of the UES. After identification of the CP muscle, the submucosal space above it was injected using a prefilled lifting solution, then a hybrid endoscopic submucosal dissection knife was used to perform a horizontal incision in the mucosa to access the submucosal space above the CP muscle (Video 1, available online at www.giejournal.org). After this, a submucosal tunnel was created using the hybrid knife, alternating submucosal injection of

saline mixed with methylene blue, followed by short bursts of dissection. After the CP muscle was dissected from the mucosa, the submucosal tunnel was extended to the proximal upper esophagus (Fig. 2). The electrocautery parameters were Endocut Q effect 2 for mucosal incision and effect 3 for submucosal tunneling, both at 70 W (ERBE, Marietta, Ga, USA). Once the submucosal tunnel was created, a myotomy was performed at the CP muscle and extended to the muscle of the proximal upper esophagus (Figs. 3 and 4). The electrocautery parameter used for the myotomy was Swift Coag, effect 4, at 70 W. Once the myotomy was completed, 80 mg of gentamycin diluted in 40 mL of water was instilled at the tunnel for prophylaxis, although this practice is of unproven benefit. Then the horizontal mucosal defect was closed in a vertical fashion, using 11-mm endoscopic clips with short stem, in an attempt to minimize post-procedural dysphagia, and the procedure was terminated.

The CPB resolved during follow-up modified barium swallow (Fig. 5). The patient was discharged the day after the procedure with only minimal dysphagia on clear liquids. The diet was advanced once discharged, and no dysphagia or regurgitation was reported at 2 months' follow-up, Eckardt score 0. Currently, the relief of symptoms as well as



Figure 1. Modified barium swallow showing a posterior indentation at the pharyngoesophageal junction.

Abbreviations: CP, cricopharyngeus; CPB, cricopharyngeal bar; UES, upper esophageal sphincter.

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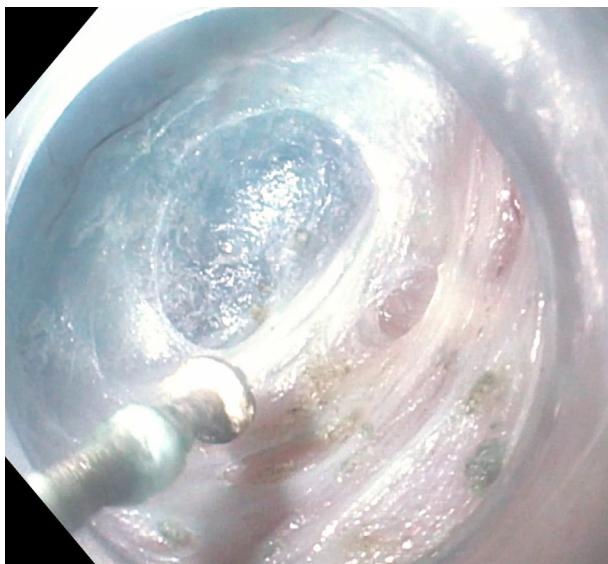


Figure 2. Submucosal tunnel extending into the proximal upper esophagus.

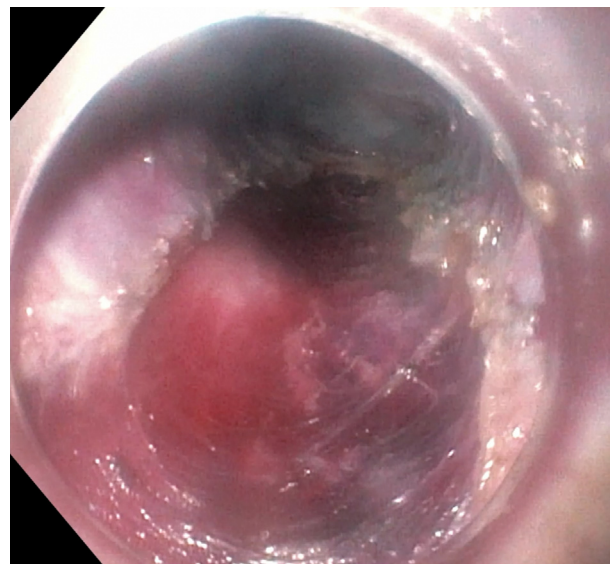


Figure 4. Extension of the cricopharyngeal myotomy into the esophageal muscle.

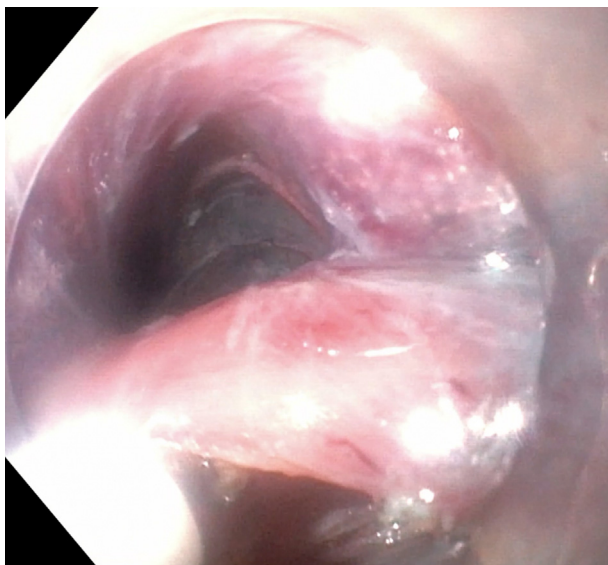


Figure 3. Myotomy of the cricopharyngeus muscle.



Figure 5. Modified barium swallow after cricopharyngeal myotomy using the peroral endoscopic myotomy technique, showing resolution of the cricopharyngeal bar.

the resolution of the CPB on imaging constitute the only parameters used to document a successful procedure. The use of a functional lumen imaging probe is another objective parameter that could be used for this purpose.

Cricopharyngeal myotomy using the peroral endoscopic myotomy technique is effective in the treatment of dysphagia secondary to CPB.

DISCLOSURE

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