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GI IMAGE

Laparoscopic Heller Myotomy and Hiatal Hernia Repair After Failed Peroral Endoscopic Myotomy

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Abbreviations

POEM Peroral endoscopic myotomy	GI Gastrointestinal
	pH Potential hydrogen
	POD Postoperative day

A 45-year-old female who underwent peroral endoscopic myotomy (POEM) presented to the general surgery clinic with recurrent regurgitation and reflux. She underwent POEM 2 years prior and had symptomatic relief for 8 months. Over the past 6 months, she had frequent respiratory infections suspected to be from aspiration. Upper GI study (Fig. 1b) demonstrates esophageal dilatation, disordered contractions, significant spontaneous gastroesophageal reflux into the upper esophagus both consistent with recurrent achalasia. High-resolution manometry demonstrated normal lower esophageal sphincter pressures but absent peristalsis. Esophageal pH testing was normal. An upper endoscopy demonstrated a dilated and mildly tortuous esophagus, but no hiatal hernia was identified. The patient was taken to the operating room for a laparoscopic Heller myotomy.

Upon immediate entry to the abdomen, the patient was found to have a moderate sized hiatal hernia (Fig. 2a). There was significant posterior scarring of the esophagus—likely from the prior myotomy—especially to the left sided pleura. Intra-operative endoscopy confirmed the posterior location of the prior myotomy. The prior myotomy site transilluminated and the edges of the myotomy were readily visible (Fig. 2b). We performed a posterior pledgeted hiatal hernia repair, anterior Heller myotomy, and Toupet fundoplication. The patient underwent an upper GI study on POD#1 that demonstrated significant improvement in esophageal emptying (Fig. 1c). The patient's diet was quickly advanced and she was discharged on POD#2.

POEM has been introduced as a treatment for achalasia over the past decade and has good short-term results. Recurrence of symptoms after 39-month follow-up is less than 10% with the only known risk factor for recurrence being male sex.[1] Though there has been significant recent investigation to utilize POEM as a salvage technique for failed operative myotomy, there is a paucity of data regarding laparoscopic myotomy as a treatment for failed POEM.[2] The largest series of laparoscopic myotomy after failed POEM is 11 patients with five successfully treated (45%).[1] Other treatments for recurrent symptoms after failed POEM are pneumatic dilation and repeat POEM with success rates of 20 and 63%, respectively.[1] However, anatomic considerations such as esophageal diverticula or concomitant hiatal hernia—as was the case in our patient—are best treated surgically.[3] To date, there are no reports of performing a concomitant laparoscopic Heller myotomy and hiatal hernia repair after failed POEM.

As POEM can be performed in multiple directions, it is important to read prior operative notes to determine if an anterior or porsterior myotomy was performed. In addition, we recommend intra-operative endoscopy to additionally confirm prior myotomy position before performing surgical myotomy and risking esophageal injury. Furthermore, despite being an endoscopic and minimally invasive procedure, surgeons

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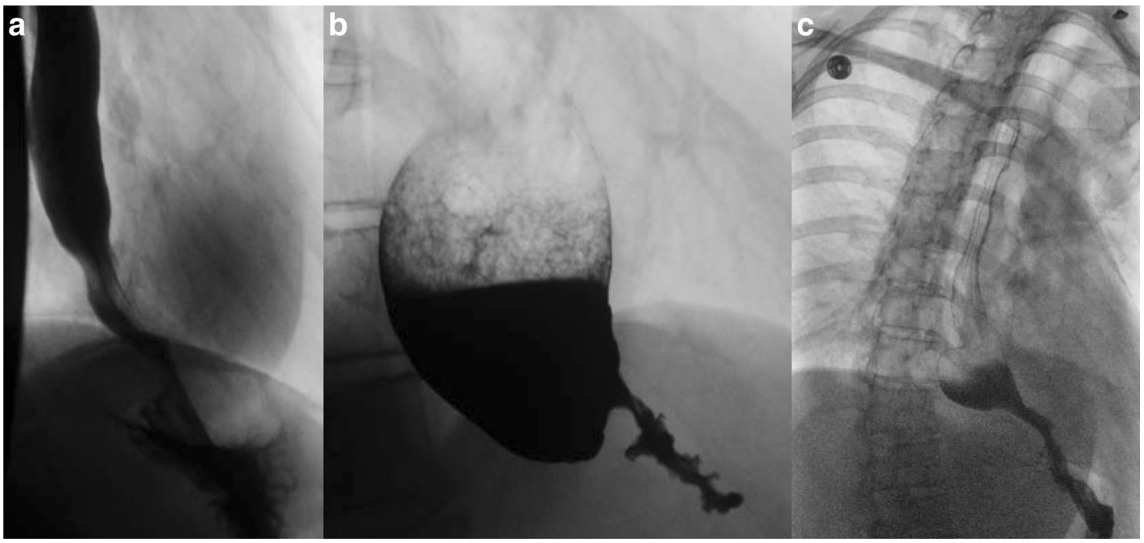

Fig. 1 **a** Upper GI study immediately following initial POEM. **b** Upper GI study 2 years after POEM demonstrating massively dilated distal esophagus. **c** Upper GI study following laparoscopic heller myotomy and hiatal hernia repair

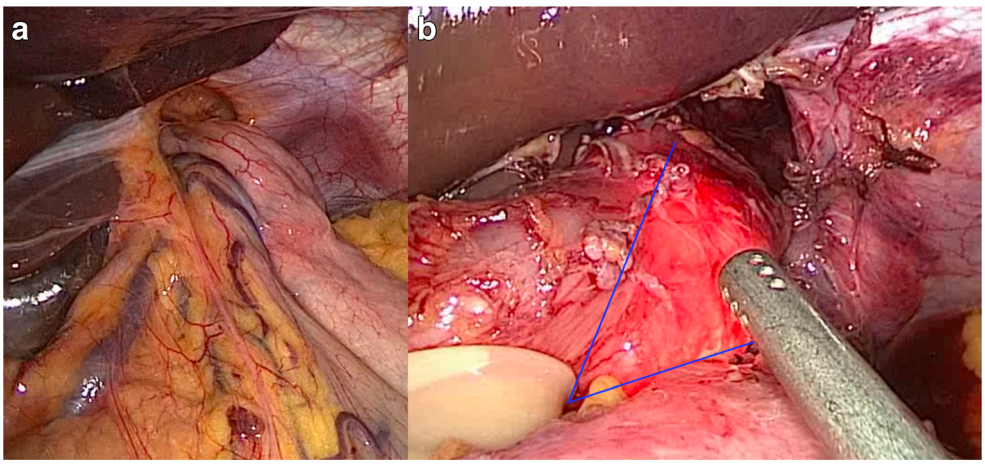

Fig. 2 **a** Demonstration of hiatal hernia. **b** Transillumination of prior endoscopic myotomy site (accentuated by added lines)

should anticipate scarring and adhesions when operating after POEM. We encountered such adhesions to the pleura.

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Paul Brock: acquisition of data, image preparation.
Fadi Balla: acquisition of data, image preparation.
Jamil Stetler: critical revision.
Edward Lin: concept and design, critical revision.

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