



Novel suture placement to affix overlapping metal stents in the treatment of an acute leak after sleeve gastrectomy

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Vertical sleeve gastrectomy (VSG) is an effective option for bariatric surgery, with weight loss comparable to that with Roux-en-Y gastric bypass.¹ Staple line leaks are rare but morbid adverse events after VSG. Early leaks are often treated with placement of fully covered self-expandable metal stents (FCSEMSs), although migration rates of 22% to 28% have been reported.^{2,3} We present a novel method for endoscopic fixation of overlapping stents to treat a leak after VSG and to minimize migration risk.

CASE PRESENTATION

A 45-year-old woman with obesity presented to our institution with a leak 6 weeks after undergoing VSG. Cross-sectional imaging demonstrated a large perigastric fluid collection for which an indwelling percutaneous drain had been placed (Fig. 1). Upper endoscopy was performed, revealing a leak site in the midgastric body (Fig. 2). A 23-mm × 15.5-cm FCSEMS was deployed but was not anchored because of difficulty in advancing the endoscopic suturing device through the patient's small mouth. After the procedure, the patient reported persistent nausea and abdominal pain. A follow-up upper

GI series revealed a persistent leak and stent migration, necessitating stent removal.

Repeat endoscopy was performed to place overlapping FCSEMSs to limit migration risk, given the difficulty with suture fixation during the index procedure (Video 1, available online at www.VideoGIE.org). After placement of overlapping FCSEMSs, we secured the stents to each other using the following technique. The therapeutic gastroscope was advanced into the stent complex and positioned at the junction of the 2 stents. The endoscopic suture needle tip was backloaded onto the tip of a 19-gauge FNA needle after stylet retraction (Fig. 3). The FNA needle catheter with suture was advanced down the working channel and into position. Under direct visualization, the needle with the endoscopic suture tip was then advanced through the interstices of both FCSEMSs, and the suture was dropped between the gastric wall and the wall of the outer FCSEMS by advancing the stylet. The suture was then cinched into place, securing the stents together. This procedure was repeated 3 more times (Fig. 4). The proximal end of the proximal FCSEMS was then affixed to the esophageal wall using conventional endoscopic suturing.

At 1 month after stent placement, cross-sectional imaging revealed resolution of the fluid collection (Fig. 5). An upper GI series demonstrated no evidence of an ongoing gastric leak. The patient then presented with hematemesis. She

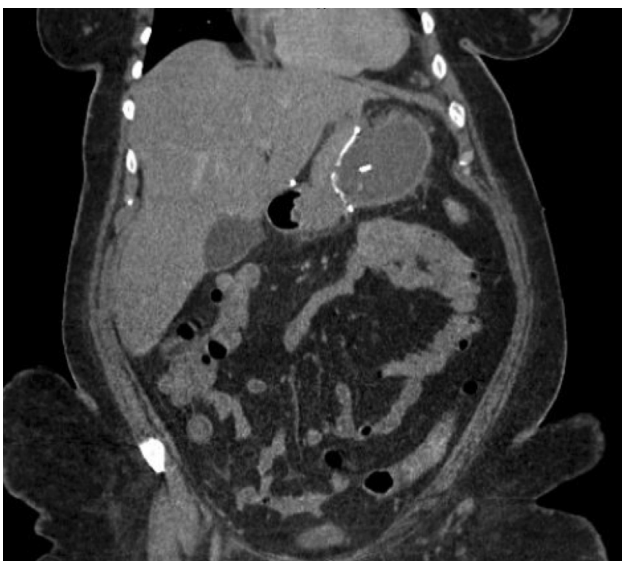


Figure 1. Cross-sectional imaging demonstrating a large loculated fluid collection adjacent to staple line.

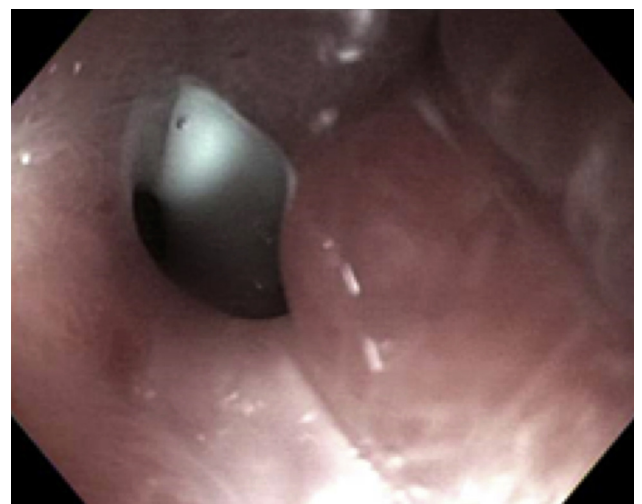


Figure 2. Upper endoscopy revealing leak site in the midgastric body.

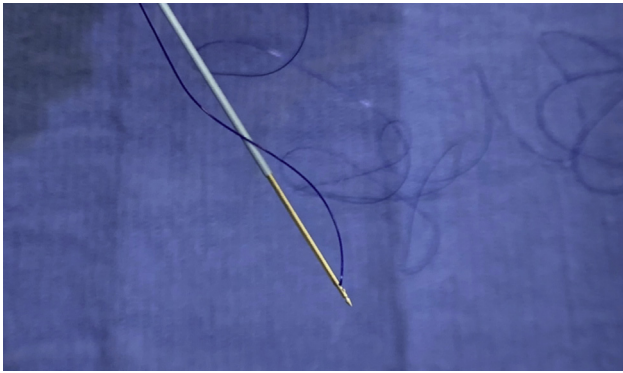


Figure 3. The endoscopic suture needle tip was back-loaded onto the tip of a 19-gauge FNA after stylet removal.



Figure 4. The suture was cinched into place, securing the stents together.

was hemodynamically stable despite a 2-g drop in her baseline hemoglobin. An upper endoscopy was performed. The stents were noted to be in place, with the distal end of the distal FCSEMS causing ulceration of the gastric antrum. Given her presentation and imaging results, the overlapping stents were removed (Fig. 6).

Despite multiple imaging studies suggesting leak resolution, the patient presented to our institution 2 weeks later with abdominal discomfort. Repeat upper GI series revealed a small linear tract of contrast extravasation. A 10F nasojejunal feeding tube was placed for 4 weeks to allow healing. The patient is currently clinically well and tolerating a normal diet.

DISCUSSION

Leaks occur after 2.4% to 2.9% of sleeve gastrectomies.⁴ Treatment of early leaks with FCSEMSs is highly successful.³ However, migration remains a common adverse event, arising in up to 28.2% of cases.³ Suture fixation of the stent

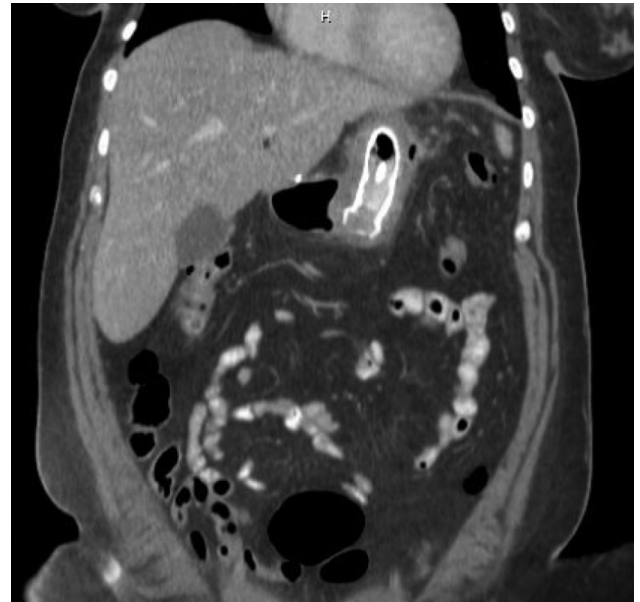


Figure 5. Resolved fluid collection on subsequent cross-sectional imaging.



Figure 6. Overlapping fully covered self-expandable metal stents after removal.

can mitigate but not eradicate migration risk. In our case, we chose to secure overlapping FCSEMSs by tethering them together using an endoscopically delivered suture via an FNA needle. The authors acknowledge that the sleeve

gastroectomy leak initially recurred after stent removal; however, the patient had durable resolution with conservative management thereafter. This case provides proof of concept that this technique can prevent stent separation or intussusception. Such techniques can be considered in the treatment of acute VSG leaks given the paucity of other reliable treatment options currently available.⁵

DISCLOSURE

Dr Law is a consultant for Olympus America. All other authors disclosed no financial relationships.

Abbreviations: FCSEMS, fully covered self-expandable metal stent; VSG, vertical sleeve gastrectomy.

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