

## Long-term treatment of an ischemic jejunal stricture: Is stenting a viable option?



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### INTRODUCTION

Small-bowel strictures can present with variable patterns of obstructive symptoms. Determining the etiology can guide the appropriate management. Anastomotic or post-surgical causes from open abdominal surgeries can increase the risk of occurrence. In the setting of long, complex strictures, surgery is the mainstay of treatment.<sup>1</sup> In addition to surgically related adverse events, more than 70% of patients can develop recurrent strictures significantly increasing the risk of malnutrition and short bowel syndrome.<sup>2,3</sup> Endoscopic management with balloon dilation has been used in uncomplicated short length (<5 cm) strictures, although there is a risk of perforation.<sup>1,3</sup>

The fibrostenotic changes around a stricture may be amenable to stenting. Although no fully covered self-expanding metal stents (FCSEMSs) are available for enteral stenting in the United States, biliary and esophageal stents could be repurposed.<sup>4-7</sup> However, their migration rates can be very high; securing them to a percutaneous endoscopic gastrostomy (PEG) tube with a suture can reduce their inward migration.<sup>8</sup> We present a case in which we managed a long, ulcerated, ischemic jejunal stricture with an FCSEMS (Video 1, available online at [www.giejournal.org](http://www.giejournal.org)).



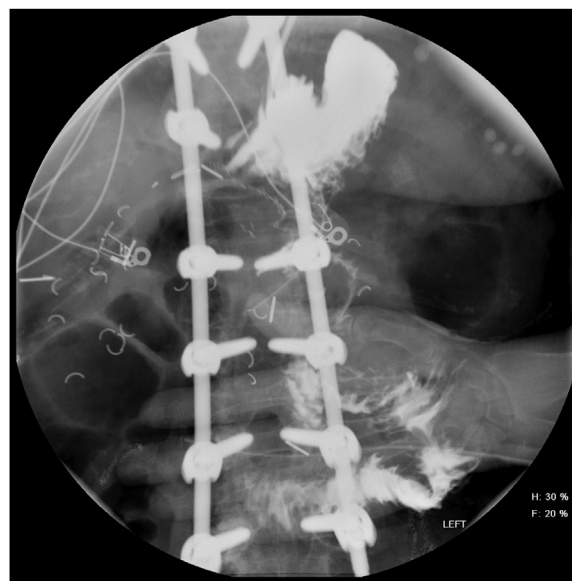
**Figure 1.** Abdominal CT scan showing a thickened elongated jejunal stricture past the gastrojejunostomy.

### CASE

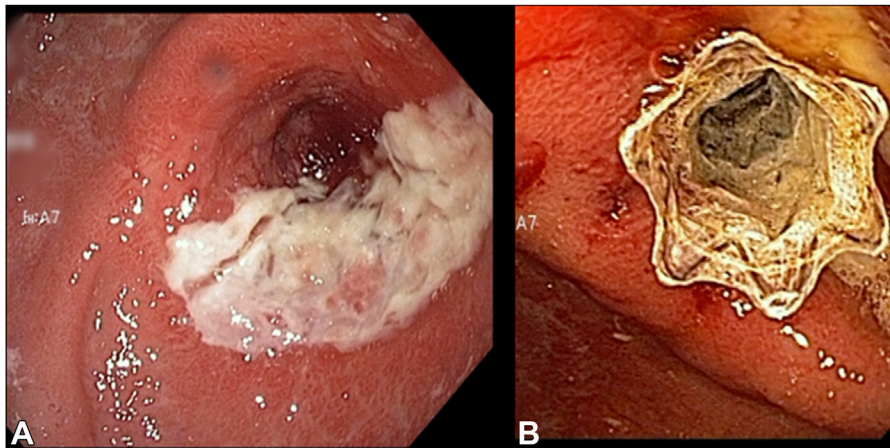
A 71-year-old woman with a history notable for 7 prior surgeries, including a biliopancreatic diversion, left and right colectomy for colon cancer, and laparotomy with small-bowel resection, was referred for nausea, vomiting, abdominal pain, and weight loss. Her symptom onset was after her last surgery 9 months prior, progressing over the last 2 months with inability to tolerate per os intake, a body mass index (BMI) of 17.5, and an albumin of 2.2 g/dL requiring total parenteral nutrition (TPN) to nourish her. Her BMI prior to her first weight loss surgery was 41.6. An abdominal CT scan and upper GI series showed a thickened elongated jejunal stricture, just beyond the gastrojejunostomy, suspicious for an ischemic etiology (no nonsteroidal anti-inflammatory drug use or inflammatory bowel disease) (Figs. 1 and 2).

She was not deemed an ideal operative candidate by 2 bariatric surgeons and was referred for endoscopic management.

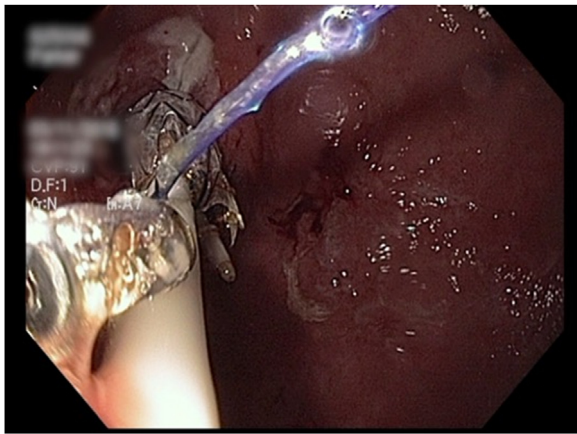
During the endoscopy, a 5-cm-long (3-mm internal diameter) deeply ulcerated stricture, also consistent with an ischemic stricture, was identified. Balloon dilation



**Figure 2.** Upper GI stricture showing a thickened elongated jejunal stricture past the gastrojejunostomy.

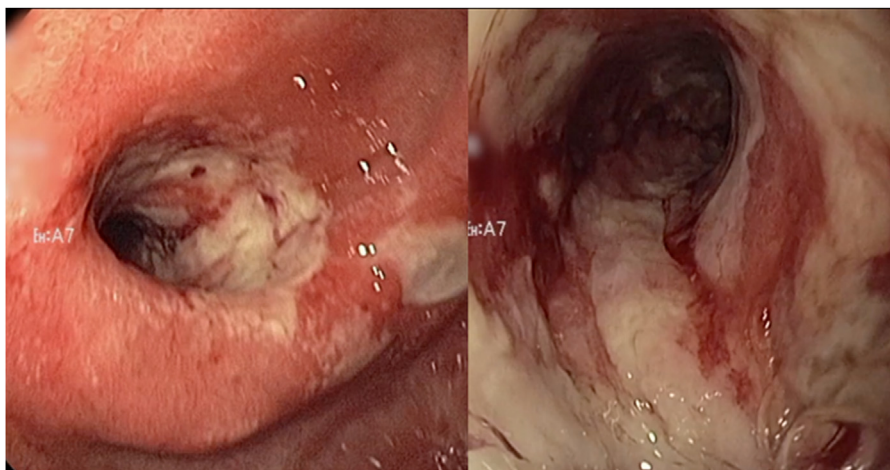


**Figure 3.** Endoscopic view of the initial stricture before (A) and after (B) stent placement.



**Figure 4.** The stent was sutured using a single suture and secured to a percutaneous endoscopic gastrostomy tube to prevent inward migration.

seemed high risk, and thus a 10- × 10-cm biliary FCSEMS (Gore, Viabil, Ariz, USA) was placed (Fig. 3). The stent was then sutured using a single suture and secured to a PEG tube to prevent inward migration (Fig. 4). Jejunal feeds were started, TPN was stopped, and she was discharged on a full liquid diet. The stent was upsized to 14 × 10 cm (Alimaxx-B, CMeritt-Endotek, South Jordan, Utah) (Fig. 5) 41 days later. She was transitioned to a low-residue diet and successfully weaned off jejunal feeds within 4 weeks. Three months later, the stent was upsized to 16 × 10 cm and then 18 × 6 cm (Niti-S, Taewoong, Seoul, Korea). The 18-cm self-expanding metal stent migrated into the stomach and was removed 52 days later uneventfully with stricture resolution. She remained asymptomatic for 2 years until she developed mild symptoms of nausea and vomiting. A mild recurrence of the



**Figure 5.** Stricture after initial stent removal.



**Figure 6.** Repeat endoscopy 5 years later before (A) and after (B) balloon dilation to 15 mm.

stricture, but with complete mucosal healing, was noted, and was easily dilated using a 15-mm balloon (Fig. 6). Throughout a 6-year follow-up, she has consumed a mostly unrestricted diet, needed only 1 additional dilation, and has maintained a BMI of 29.5 without significant symptoms.

## CONCLUSION

Repurposing biliary and esophageal FCSEMSs and securing them to a PEG can allow treatment and healing of a complex ischemic stricture with a good long-term clinical outcome. Further studies are needed to support the widespread applicability of this approach.

## DISCLOSURE

*Dr Irani is a consultant for Boston Scientific and Gore. Dr Canakis declares no relevant funding for this work.*

*Abbreviations: BMI, body mass index; FCSEMS, fully covered self-expanding metal stent; PEG, percutaneous endoscopic gastrostomy; TPN, total parenteral nutrition.*

## REFERENCES

1. Durmush D, Kaffes AJ. Small bowel strictures. *Curr Opin Gastroenterol* 2019;35:235-42.

2. Parker MC, Wilson MS, Menzies D, et al. The SCAR-3 study: 5-year adhesion-related readmission risk following lower abdominal surgical procedures. *Colorectal Dis* 2005;7:551-8.
3. Baars JE, Theyventhiran R, Aepli P, Saxena P, Kaffes AJ. Double-balloon enteroscopy-assisted dilatation avoids surgery for small bowel strictures: A systematic review. *World J Gastroenterol* 2017;23:8073-81.
4. Bazerbachi F, Heffley JD, Abu Dayyeh BK, et al. Safety and efficacy of co-axial lumen-apposing metal stents in the management of refractory gastrointestinal luminal strictures: a multicenter study. *Endosc Int Open* 2017;5:E861-7.
5. Mansoor MS, Tejada J, Parsa NA, Yoon E, Hida S. Off label use of lumen-apposing metal stent for persistent gastro-jejunal anastomotic stricture. *World J Gastrointest Endosc* 2018;10:117-20.
6. Onyimba F, Kumbhari V, Tieu A, et al. Benign distal jejunal stricture treated by a partially covered esophageal stent with the use of spiral enteroscopy. *Endoscopy* 2015;47(Suppl 1 UCTN):E117-8.
7. Bakheet N, Tsao J, Song HY, et al. Fluoroscopic self-expandable metallic stent placement for treating post-operative nonanastomotic strictures in the proximal small bowel: a 15-year single institution experience. *Br J Radiol* 2019;92:20180957.
8. Irani S, Alseidi A. Venting post-Whipple benign gastric outlet obstruction with temporary bilateral fully covered metal stents. *VideoGIE* 2017;2:349-52.

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