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CASE REPORT | STOMACH

A Successful 12-Month Trial of a Lumen-Apposing Self-Expandable Metallic Stent on a Benign Recalcitrant After Surgical Stricture

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ABSTRACT

Gastrojejunal anastomotic strictures are common postsurgical complications that may be treated endoscopically. In some cases, conventional endoscopic dilations may prove ineffective, prompting consideration of covered self-expandable metal stents as the next step. However, the efficacy of these stents may be limited by their risk of migration. Lumen-apposing self-expandable metallic stents pose a lower migration risk because of their unique design and offer a possible off-label solution for recalcitrant strictures. We describe a patient with a postsurgical, gastrojejunal anastomotic stricture refractory to several interventions, who achieved long-lasting remission of symptoms after a 12-month trial of lumen-apposing self-expandable metallic stent placement.

KEYWORDS: lumen-apposing metal stents; endoscopic stent; gastrointestinal strictures; benign strictures

INTRODUCTION

Benign gastric outlet strictures refractory to conventional dilation methods are a common challenge to endoscopists. Etiologies of these strictures include postsurgical anastomosis changes and long-standing peptic ulcer disease.[1] Current guidelines offer limited evidence favoring endoscopic vs surgical management, although initial attempts usually involve endoscopic intervention.[2] Endoscopic therapy typically comprises serial balloon dilations, with or without intralesional corticosteroid injections.[3,4] Recalcitrant strictures may necessitate the consideration of covered self-expandable metallic stents. However, these stents carry a 30%–40% risk of migration because of their tubular shape.[1,5,6]

An alternative approach is the lumen-apposing self-expandable metallic stent (LAMS). Characterized by a saddle shape, these stents have 6- to 20-mm-diameter lumens with flanges on both sides ranging 21–29 mm in diameter. Their unique shape makes them appealing for strictures, given a significantly lower risk of migration of 13.7%.[6] However, optimal deployment duration and long-term success are not yet known. We describe a case to explore these questions: a postsurgical, gastrojejunal anastomotic stricture refractory to numerous interventions achieved years of symptomatic relief after a 12-month LAMS trial.

CASE REPORT

A 49-year-old woman with a history of Roux-en-Y gastric bypass began experiencing progressive nausea, vomiting, anorexia, and early satiety 4 years after surgery. She denied the use of nonsteroidal anti-inflammatory drugs and rarely drank alcohol. Unable to tolerate solid foods, she had adopted a liquid diet, resulting in profound weight loss and a body mass index of 16. An upper endoscopy revealed a tight gastrojejunal anastomotic stricture. This stricture transiently responded to balloon dilation, but returned within months. She underwent 7 serial upper endoscopies with dilations and intralesional steroid injections without significant relief in symptoms. Her condition continued to deteriorate, and she eventually required hospitalization for hypovolemic shock. An endoscopy at that time revealed a "pinpoint" anastomotic stricture, measuring 4 mm in diameter (Figure 1). A through-the-scope dilation was performed to 8 mm under fluoroscopic guidance, and a 20 × 10-mm LAMS was successfully placed through the stricture. She was

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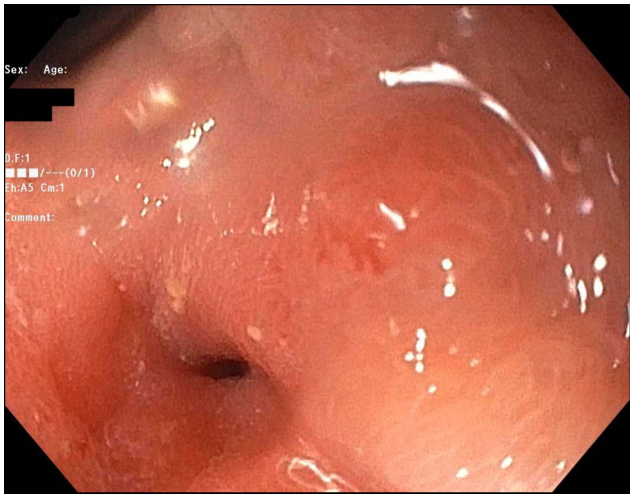

Figure 1. Gastrojejunal anastomotic stricture before LAMS trial. LAMS, lumen-apposing self-expandable metallic stents.

advised to start a full liquid diet for 48 hours and advance to solids as tolerated. The stent was removed endoscopically 8 weeks later. The patient had relief in symptoms, tolerating solid food and gaining weight, although this lasted less than 4 months. A repeat upper endoscopy demonstrated recurrence of the tight stricture (Figure 2). The decision was made to place another 20 × 10-mm LAMS, with the intent of an extended trial. Acknowledging the manufacturer's warning of epithelialization risk after 2 months, the patient underwent stent exchanges every 2 months, culminating in a cumulative 12-month dwell time before permanent removal. Notably, the patient was able to eat a regular diet in between stent exchanges without any medication needs. Moreover, there was no evidence of epithelialization during each scheduled stent exchange. At the conclusion of the trial, the anastomosis measured 18 mm and remained patent at a 2-month follow-up endoscopy (Figure 3). She had one additional surveillance endoscopy at a 10-month follow-up, which showed

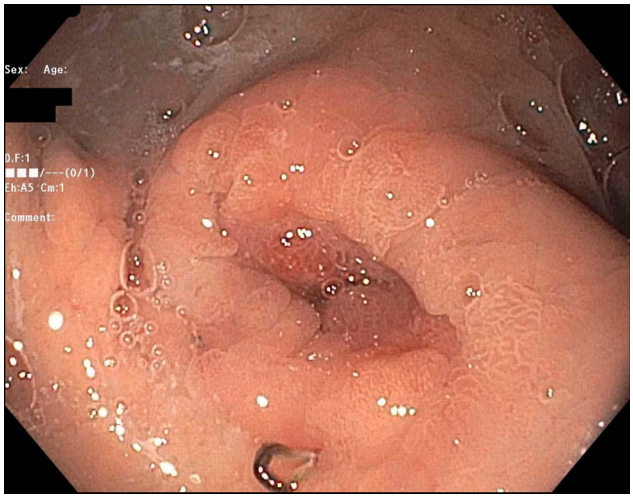

Figure 2. Recurrence of "pinpoint" gastrojejunal anastomotic stricture after 8-week LAMS trial. LAMS, lumen-apposing self-expandable metallic stents.

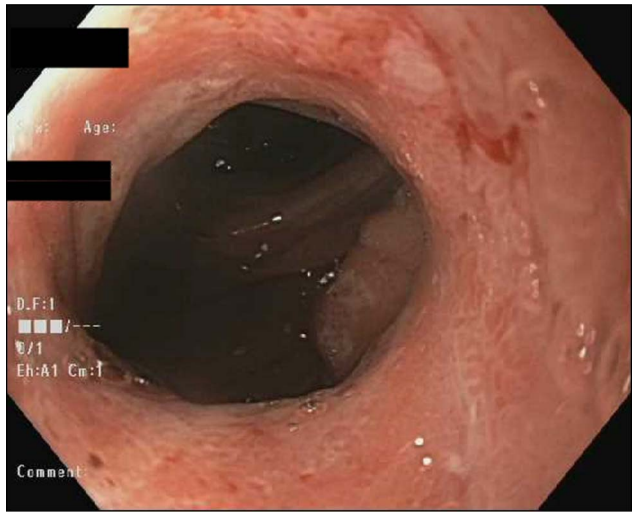

Figure 3. Patent gastrojejunal anastomosis after 12-month LAMS trial at 2-month follow-up study. LAMS, lumen-apposing self-expandable metallic stents.

continued patency at a diameter of 16–17 mm (Figure 4). Two years after this examination, she continues to tolerate solid foods and maintain a healthy body mass index.

DISCUSSION

Gastrojejunal anastomotic strictures, common postbariatric surgery complications, are often managed with serial balloon dilations.[7] This case details the clinical course of a patient with a stricture unresponsive to conventional endoscopic treatment, who achieved relief in symptoms after an extended interval trial of LAMS.

Although LAMS are Food and Drug Administration-approved for drainage of pancreatic fluid collections, their versatility and

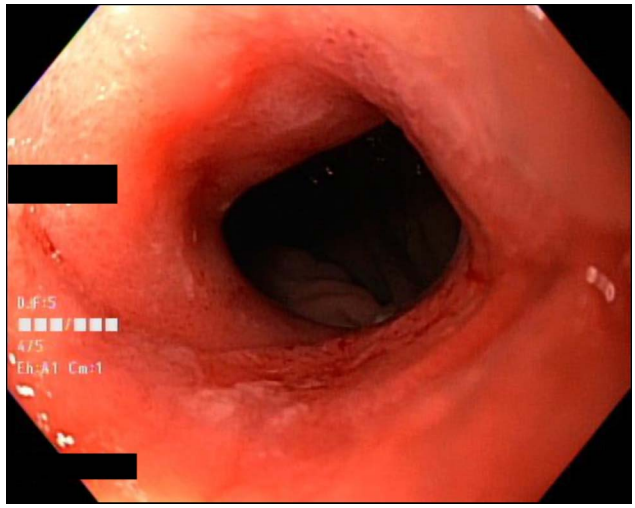

Figure 4. Patent gastrojejunal anastomosis after 12-month LAMS trial at 10-month follow-up study. LAMS, lumen-apposing self-expandable metallic stents.

safety offer several off-label treatment opportunities. The unique design offers lower migration risk, enhanced comfort, and extended dwell times in the treatment of benign anastomotic strictures. A meta-analysis noted a relatively low pooled major and minor adverse event rate of 13.5% for use in benign strictures.[8] Major events included fistulation to an adjacent organ (1.8%), ulceration (0.5%), bleeding (2.3%), and perforation (0.1%). Minor events included periprocedural heartburn (11.1%) and pain (5.7%).[8] However, evidence for its long-term efficacy has been inconsistent. Technical success, defined as stent deployment across a stricture with endoscopically confirmed patency, is typically $>$ 95%.[9] Clinical success, on the other hand, is limited by frequent stricture recurrence, which is possibly associated with the dwell time of the stent before removal. A retrospective review by Choi et al found a clinical success rate of only 59.5% at 6 months, with median dwell time of 70 days.[9] As observed in our patient, an 8-week dwell time provided only 4 months of symptomatic relief.

Similarly, a retrospective review of 109 LAMS placements noted 58.3% of patients required repeat intervention after removal after a median 119-day dwell time.[10] These authors suggest a 3- to 6-month trial of dwell time before removal and consideration of destination stent placement and interval monitoring for epithelialization on trial failure. However, our patient's avoidance of destination therapy suggests extended dwell times may be worth pursuing. The recommended time frame for such therapy requires further research. Our patient's 12-month trial has culminated in at least 3 years of symptom relief, and some authors have suggested durations of minimum 4–6 months.[7,11] Therefore, future efficacy studies comparing extended interval LAMS dwell times may be beneficial to inform therapy in this patient population.

In conclusion, if placement of LAMS is being planned for a benign, postsurgical, recalcitrant stricture, an adequate trial duration should be carefully considered to ensure sustained efficacy.

DISCLOSURES

Author contributions: K. Bhowmick: primary manuscript writer and literature reviewer. F. Habr: manuscript editor. P. Perera: endoscopist for reported patient, implemented LAMS trial, manuscript editor, and is the the article guarantor.

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REFERENCES

1. Jain D, Patel U, Ali S, Sharma A, Shah M, Singhal S. Efficacy and safety of lumen-apposing metal stent for benign gastrointestinal stricture. *Ann Gastroenterol Hepatol.* 2018;31(4):425–38.
2. ASGE Standards of Practice Committee, Jue TL, Storm AC, Naveed M, et al. ASGE guideline on the role of endoscopy in the management of benign and malignant gastroduodenal obstruction. *Gastrointest Endosc.* 2021;93(2):309–22.e4.
3. Solt J, Bajor J, Szabó M, Horváth OP. Long-term results of balloon catheter dilation for benign gastric outlet stenosis. *Endoscopy.* 2003;35(6):490–5.
4. Kochhar R, Poornachandra KS. Intralesional steroid injection therapy in the management of resistant gastrointestinal strictures. *World J Gastrointest Endosc.* 2010;2(2):61–8.
5. Irani S, Jalaj S, Ross A, Larsen M, Grimm IS, Baron TH. Use of a lumen-apposing metal stent to treat GI strictures (with videos). *Gastrointest Endosc.* 2017;85(6):1285–9.
6. Mohan BP, Chandan S, Garg R, et al. Lumen-apposing metal stents, fully covered self-expanding metal stents, and biodegradable stents in the management of benign of gi strictures: A systematic review and meta-analysis. *J Clin Gastroenterol.* 2019;53(8):560–73.
7. Simsek C, Ichkhanian Y, Fayad L, et al. Secured lumen-apposing fully covered metallic stents for stenoses in post-bariatric surgery patients. *Obes Surg.* 2019;29(8):2695–9.
8. Giri S, Vaidya A, Kale A, Jearth V, Sundaram S. Efficacy of lumen-apposing metal stents for the management of benign gastrointestinal stricture: A systematic review and meta-analysis. *Ann Gastroenterol Hepatol.* 2023;36(5):524–32.
9. Choi JH, Kozarek RA, Larsen MC, et al. Effectiveness and safety of lumen-apposing metal stents in endoscopic interventions for off-label indications. *Dig Dis Sci.* 2022;67(6):2327–36.
10. Mahmoud T, Beran A, Bazerbachi F, et al. Lumen-apposing metal stents for the treatment of benign gastrointestinal tract strictures: A single-center experience and proposed treatment algorithm. *Surg Endosc.* 2023;37(3):2133–42.
11. D'Souza LS. Lumen-apposing metal stents in benign gastrointestinal luminal strictures. *Clin Gastroenterol Hepatol.* 2021;19(7):1337–40.