

Use of a Lumen-Apposing Metal Stent for Management of Pouch Outlet Stenosis After Vertical Banded Gastroplasty

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ABSTRACT

Lumen-apposing metal stents (LAMSs) offer a novel alternative for the treatment of anastomotic strictures or short, benign gastrointestinal strictures. In the bariatric realm, LAMSs provide a potentially safer, efficacious, and nonsurgical approach to surgical revision. Here, we present a case where a LAMS was successfully used to manage pouch outlet stenosis from a previous vertical banded gastroplasty.

INTRODUCTION

The need for bariatric surgery in the United States parallels the rising obesity epidemic, with current estimates suggesting that nearly 40% of the adult population is categorically overweight or obese.¹ Bariatric surgery can have serious complications, including hemorrhage, obstruction, anastomotic leaks, internal hernias, or anastomotic stenoses, any of which may ultimately require surgical revision.² Unfortunately, these revisions also present unique challenges and carry an even higher risk of perioperative and postoperative complications.³ One common complication is a anastomotic stricture or short, benign gastrointestinal stricture (SBGS). Current nonsurgical management for SBGS includes balloon dilation, steroid injection, incisional therapy, and placement of a fully covered self-expandable metal stent (FCSEMS).⁴ However, these therapies carry high recurrence rates and risks of stent migration.⁴ The emergence of lumen-apposing metal stents (LAMSs) have drastically changed the approach to SBGS.⁵ We present a case where a LAMS was successfully used to treat pouch outlet stenosis as a result from a previous vertical banded gastroplasty (VBG). This use of a LAMS offers a novel alternative to surgical revision for the management of pouch outlet stenosis in the setting of previous VBG.

CASE REPORT

A 69-year-old woman with history of VBG, performed in 1987, presented with long-standing nausea, vomiting, and decreased oral intake. An upper gastrointestinal series was performed which demonstrated an intact VBG with a normal-sized pouch, intact staple line, and pouch outlet stenosis at the banded channel (Figure 1). The stricture was visualized with an esophagogastroduodenoscopy and subsequently dilated with a through-the-scope balloon dilator to 11 mm. The patient had a recurrence of symptoms shortly after dilatation. She was then referred to interventional gastroenterology for further management. Conversion to a Roux-en-Y gastric bypass (RYGB) was discussed with the patient; however, after discussion with the bariatric surgery team, a decision was made to pursue a step-up approach starting with the least invasive option (ie, placement of a LAMS) with consideration to conversion to an RYGB as a last resort. A repeat esophagogastroduodenoscopy was then performed identifying the stenosed VBG, and a contrast medium was injected to identify the length of the stricture (Figure 2). Next, a 20-mm × 10-mm LAMS was deployed across the 7-mm stricture under fluoroscopic guidance (Figure 3). The stent was then dilated under fluoroscopic guidance and secured in place with a single 2-0 polypropylene suture in an interrupted fashion with the use of the overstitch device (Figure 4). The patient was discharged home without any intraop or postop complications. At 6-week follow-up, she was able to tolerate a regular diet and remained

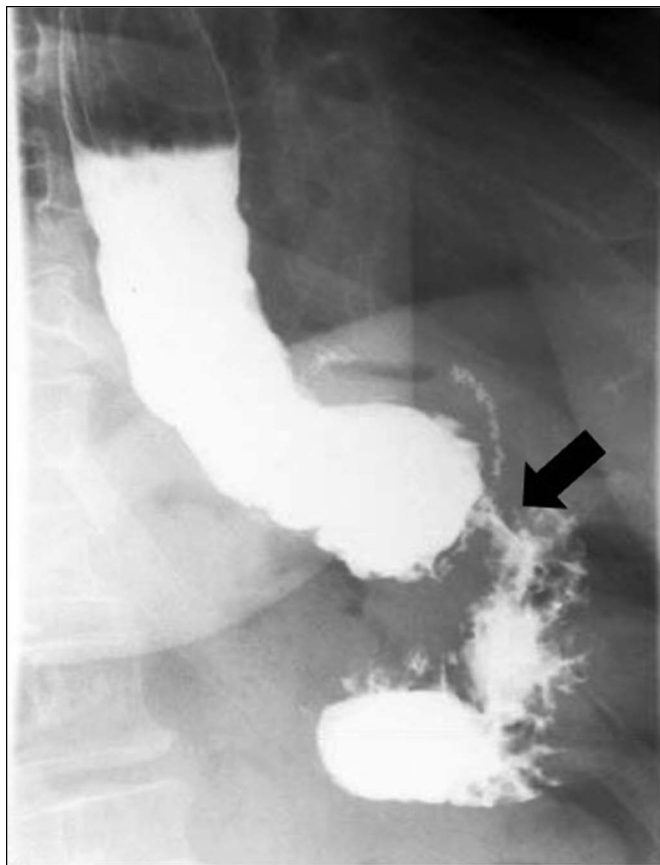


Figure 1. Stenosed vertical banded gastroplasty as seen on an upper gastrointestinal series.

symptom-free. The decision was made to keep the LAMS in place for 6 months to avoid recurrence of symptoms given extrinsic compression from the VBG. The stent was successfully removed at the 6-month follow-up visit, and she continues to remain symptom-free.



Figure 2. Stenosed vertical banded gastroplasty as seen on esophagogastroduodenoscopy.

DISCUSSION

The literature reports that upward of 56% of bariatric surgery will require some revision, with VBG being among the most common.⁶ VBG, first described in 1978, is a restrictive procedure that involves creating a gastric pouch.⁷ The pouch is partitioned along the lesser curvature of the stomach by a vertical staple line and connected to the remainder of the stomach by a stoma, encircled with a band. VBG has fallen out of favor with the evolution of bariatric surgical techniques; however, bariatric surgeons and gastroenterologists still face late post-operative complications of VBG, which include stenosis of the banded channel, staple line dehiscence, pouch dilatations, and fistula formation.⁸⁻¹⁰ Given the clinical complexity of the disease and after considering the pros and cons of a second procedure, most surgeons favor revisional bariatric surgery or reoperation; yet, guidelines concerning the bariatric surgical standard for reoperation do not exist.⁸ However, several options do exist for VBG reoperation: a new restrictive procedure (re-VBG), conversion to an RYGB, or conversion to a biliopancreatic diversion. Revisional bariatric surgery, most commonly conversion to an RYGB,⁸ remains the mainstay of therapy but is often technically challenging and carries a high risk of complications such as anastomotic leak, strictures, and infection.¹¹ However, reports do indicate that conversion to an RYGB to be more effective than a re-VBG.⁶ Nonsurgical management offers an alternative to revisional bariatric surgery for the management of complications such as SBGS in the setting of previous VBG.

The mainstay of therapy for nonsurgical management for SBGS in the setting of previous VBG includes balloon dilation, steroid injection, incisional therapy, and placement of an FCSEMS.⁴ Although through-the-scope balloon dilation is the initial recommended management in postbariatric strictures, dilation carries a risk of perforation and high likelihood for recurrence

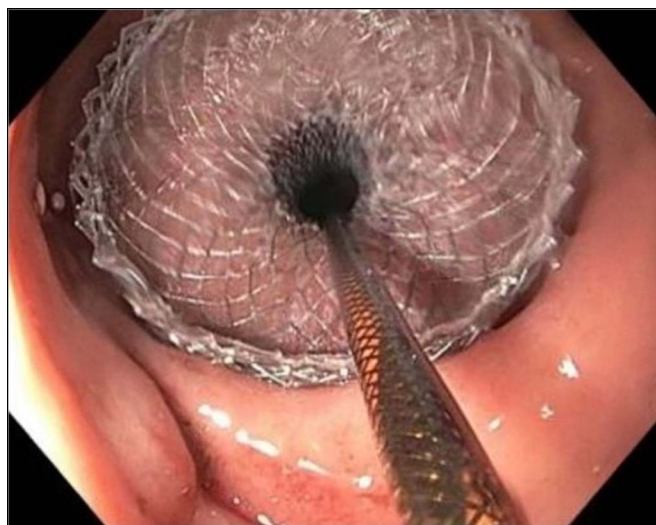


Figure 3. Lumen-apposing metal stent deployed across stricture as seen on esophagogastroduodenoscopy.

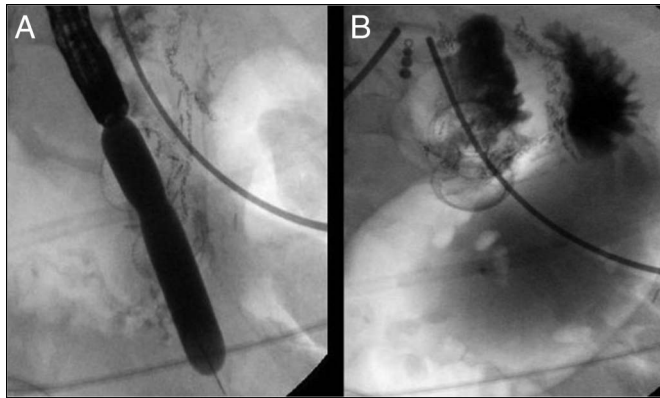


Figure 4. (A) Dilation of a lumen-apposing metal stent (LAMS) under fluoroscopic guidance. (B) Contrast seen readily passing after deployment of LAMS.

of symptoms, necessitating additional procedures, a drawback that could be overcome by placement of an FCSEMS or LAMS.^{12,13} Although effective, these therapies carry significant stent migration rates.^{4,12} To prevent stent migration, stent fixation suturing and over-the-scope clip have been described in the literature but are often challenging, adding procedural time and expense.¹⁴ However, this technique allows for increased dwell time, which may be necessary for some patients with significant stenosis.¹²

The literature supports the use of LAMSs as a safe and effective therapy in the treatment of SBGS.¹⁵ The use of LAMSs for SBGS has been documented to achieve high technical success and higher clinical success than other nonsurgical treatments.¹⁵ In a multicenter review of LAMSs to treat SBGS, short-term clinical success was achieved in 90.5% of cases and long-term success was achieved in 66.7% of cases.¹⁵ The most common late complication affecting long-term clinical success was stent migration, albeit at lower rates than other endoscopic interventions because of its firmer anchorage to the surrounding mucosa.¹² Review of the literature supports this finding wherein a 7.1% migration rate was reported in a total of 70 reported cases.¹⁶ Other less common complications included ulceration at the stent site, stent angulation, and de novo and recurrent strictures.⁴

In summary, the use of a LAMS in our patient was both technically and clinically successful as our patient denies any recurrence of symptoms to date. Our case is among the first to demonstrate the use of a LAMS as an effective and potentially safer alternative to conventional treatments of pouch outlet stenosis after VBG.

DISCLOSURES

Author contributions: LB Cundra wrote and edited the manuscript. M. Marcuard edited the manuscript. PJ Parekh wrote and edited the manuscript and is the article guarantor.

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Informed consent was obtained for this case report.

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