



# Creation of new anastomosis for management of obstructive symptoms related to gastrojejunal anastomosis in patients who undergo gastric bypass: a case series

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**Background and Aims:** Roux-en-Y gastric bypass (RYGB) is associated with gastrojejunal (GJ) strictures in up to 20% of patients. Surgical revision of the GJ anastomosis is technically challenging and carries significant morbidity, making endoscopic therapies such as endoscopic balloon dilation (EBD) and stent placement the preferred approach. In addition, the angulation of GJ anastomosis relative to the Roux limb can cause obstructive symptoms, which are less amenable to EBD or stent placement. In patients with refractory strictures and/or angulation, we evaluate the safety and feasibility of a new anastomosis EUS-guided gastroenterostomy as an alternative to surgical revision.

**Methods:** In patients with refractory GJ strictures and/or angulation, a new anastomosis EUS-guided gastroenterostomy between the gastric pouch and Roux limb is created.

**Results:** Our case series includes 6 patients with a history of RYGB referred for management of obstructive symptoms. Upper endoscopy revealed severe GJ stenosis in 2 patients, complete obliteration of GJ anastomosis in 1 patient, stenosis with angulation in 1 patient, and angulation only in 2 patients. Four patients underwent previous unsuccessful attempts at balloon dilation. Lumen-apposing metal stent (LAMS) placement was initially performed in 4 patients, resulting in resolution of symptoms. However, their symptoms recurred after LAMS removal. EUS-guided anastomosis between the gastric pouch and Roux limb was created successfully in all patients, with no major adverse events. One patient experienced LAMS migration after 54 days. Patients had complete resolution of symptoms after the new anastomosis was created.

**Conclusions:** Our case series highlights the safety and feasibility of EUS-guided gastroenterostomy as an alternative to surgical revision in such patients. Large prospective studies with longer follow-up are needed to assess long-term outcomes of this intervention. (VideoGIE 2025;10:44-7.)

## INTRODUCTION

Roux-en-Y gastric bypass (RYGB) is the second-most-performed bariatric procedure and is associated with gastrojejunal (GJ) strictures (Fig. 1) in up to 20% of patients.<sup>1,2</sup> Surgical revision of the GJ anastomosis is technically challenging and carries significant morbidity, making endo-

*Abbreviations:* EBD, endoscopic balloon dilation; GJ, gastrojejunal; LAMS, lumen-apposing metal stent; RYGB, Roux-en-Y gastric bypass.

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scopic therapies the preferred approach.<sup>3,4</sup> Endoscopic balloon dilation (EBD) is highly effective for early strictures but has a response rate as low as 40% for late strictures.<sup>5</sup> Lumen-apposing metal stents (LAMSs) are increasingly being used for strictures refractory to EBD, but these strictures often recur after LAMS removal.<sup>6</sup> In addition, the angulation of GJ anastomosis relative to the Roux limb can cause obstructive symptoms, which are less amenable to EBD or stent placement. We present a case series on the safety and feasibility of EUS-guided gastroenterostomy between the gastric pouch and Roux limb for the management of obstructive symptoms related to GJ anastomosis as an alternative to surgical revision.

## PROCEDURE

Procedures were performed by 1 of 2 interventional endoscopists with patients under general anesthesia and

**TABLE 1. Characteristics of patients included in our cohort**

Pathology	Age, years	Sex	Date of surgery	Previous therapy	Reason for new anastomosis EUS-guided GJ	Dwelling time of LAMS, days	Symptom resolution	AE	Follow-up after LAMS removal, days	Weight change postprocedure, kg
GJ stenosis	69	Female	2003	Ballon dilation + LAMS placement	Restenosis	231	Yes	No	82	+0.1
	61	Female	2003	Ballon dilation + LAMS placement	Restenosis	433	Yes	No	42	+0.4
	39	Female	2019	Balloon dilation	Complete obliteration of GJ anastomosis	348	Yes	No	290	−0.6
GJ stenosis (with or without stenosis)	71	Female	2008	Ballon dilation + LAMS placement	Angulation and stenosis	Pending removal	Yes	No	NA	+4.1
	49	Female	2012	Ballon dilation + LAMS placement	Angulation only	149	Yes	No	77	−4.7
	72	Female	2010	No prior dilation or LAMS	Angulation only	54	Yes	No	87	+3.2

AE, Adverse event; GJ, gastrojejunal; LAMS, lumen-apposing metal stent; NA, not available.

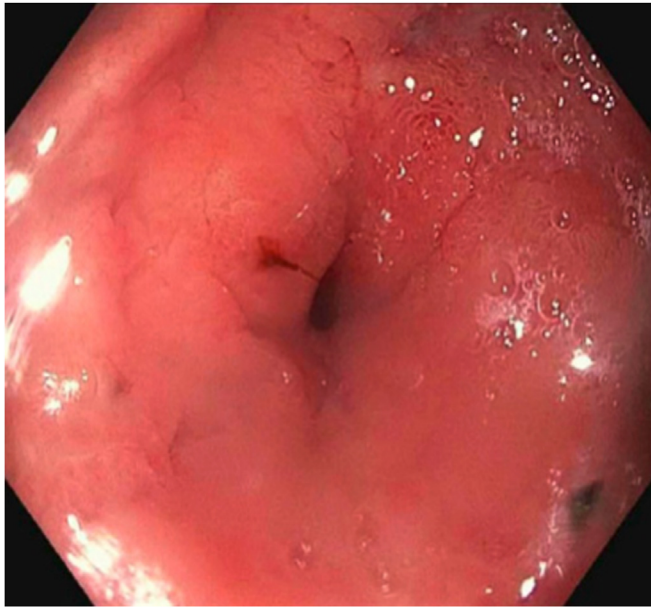
endotracheal intubation. Prophylactic antibiotics were given per institutional policy. The procedure began with examination of the GJ anastomosis using an adult gastro-scope. A 0.035-inch straight guidewire was passed across the anastomosis, followed by advancement of a 15- to 18-mm biliary extraction balloon over the guidewire under fluoroscopic guidance. Dilute contrast was injected through the balloon to identify the appropriate jejunal Roux limb just distal to the stricture. With the guidewire and balloon left distal to the stricture, the adult gastro-scope was exchanged for a linear echoendoscope, which was then advanced to the gastric pouch alongside the wire and balloon. The target jejunal loop was identified from the gastric pouch, just distal to the anastomosis, facilitated by further injections of dilute contrast and water into the Roux limb via the biliary extraction balloon. A cautery-enhanced 20- × 10-mm LAMS was placed with the distal flange in the Roux limb and the proximal flange in the gastric pouch. The stents were not dilated or fixated, and neither were double-pigtail stents placed across the stricture. All patients were discharged on the same day with instructions to follow a full liquid diet for 48 hours, then advance their diet as tolerated. Patients with concomitant GJ ulcers or gastric inflammation were prescribed an open-capsule proton pump inhibitor twice daily; others received once-daily dosing. Follow-up endoscopy for either removal or replacement of the LAMS was repeated at 3- to 4-month intervals, which was performed with the patient under monitored anesthesia care without fluoroscopic guidance. During these repeat procedures, existing LAMSs were removed and replaced with 20- × 10-mm LAMSs if a 20-mm anastomosis was not observed after stent removal. Subsequent procedure to remove LAMSs was performed at intervals of 6 to 10 months. LAMSs were not replaced after second follow-up proced-

ure. Follow-up duration has been calculated from last endoscopic procedure to May 31, 2024.

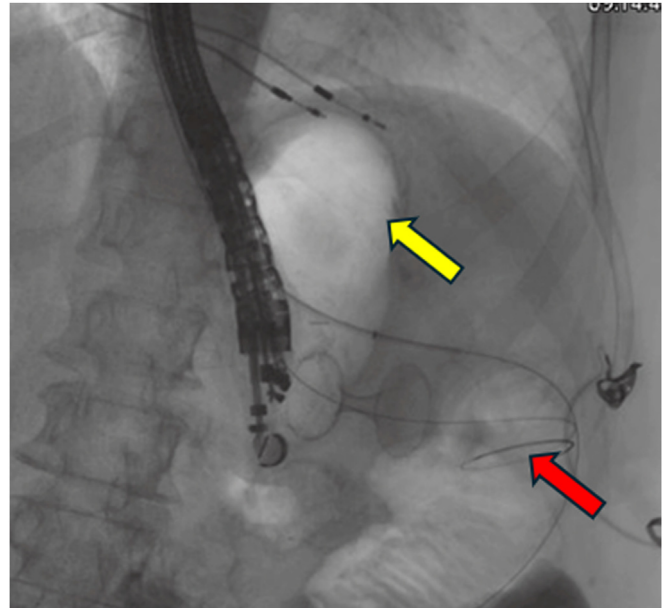
## CASE PRESENTATIONS

Our case series included 6 patients with a history of RYGB. The patients were referred for management of obstructive symptoms such as abdominal discomfort, bloating, nausea, vomiting, and/or weight loss. Index upper endoscopy revealed severe GJ stenosis in 2 patients, complete obliteration of GJ anastomosis in 1 patient, stenosis with angulation in 1 patient, and angulation only in 2 patients (Table 1). Four patients underwent previous unsuccessful EBD procedures. The refractory strictures, defined as those strictures that failed at least 5 endoscopic dilations to a size of 14 mm at 2-week intervals or had recurrence of stricture after dilation to 14 mm within a month, were treated initially with LAMS placement across the stricture. Most strictures showed resolution of symptoms but had recurrence after LAMS removal.

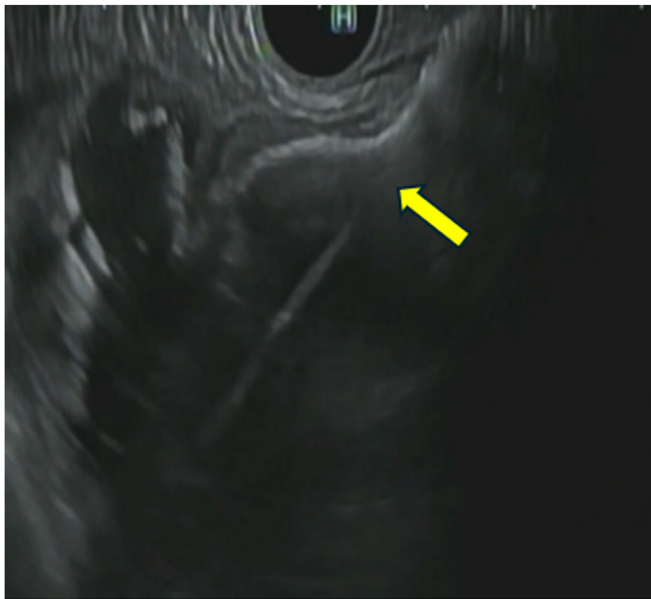
We then opted for the creation of an EUS-guided anastomosis between the gastric pouch and Roux limb to alleviate obstructive symptoms related to GJ stenosis and/or angulation (Video 1, available online at [www.videogie.org](http://www.videogie.org); Figs. 1-6). The procedure was successful in all patients, with no major adverse events reported. For the 3 patients who had EUS-guided gastroenterostomy for the management of GJ stricture, the LAMS was replaced at 3- to 4-month intervals and then subsequently removed after 6 to 10 months. Over a follow-up period ranging from 42 to 290 days after the removal of the LAMS, these patients remained asymptomatic. The patient with GJ stenosis and angulation is pending follow-up endoscopy for LAMS removal. Among the 2 patients who had GJ



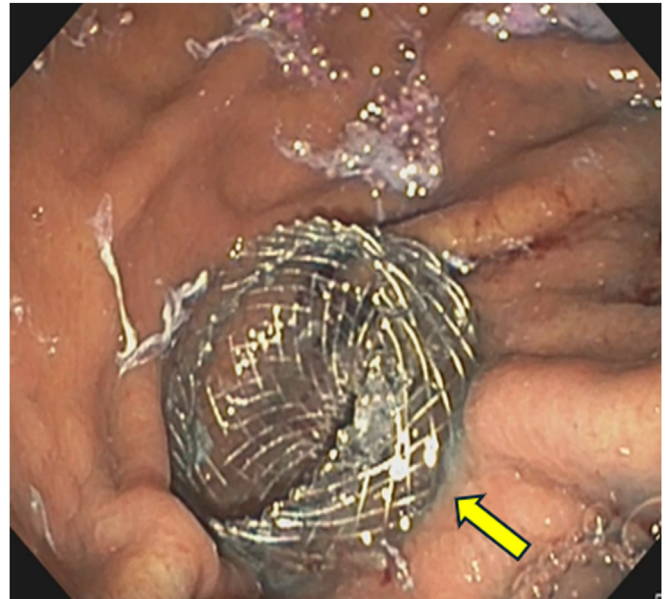
**Figure 1.** Severe gastrojejunal stricture.



**Figure 3.** Fluoroscopic image of lumen-apposing metal stent between the gastric pouch (yellow arrow) and Roux limb (red arrow).



**Figure 2.** EUS-guided lumen-apposing metal stent deployment (yellow arrow) in the Roux limb.

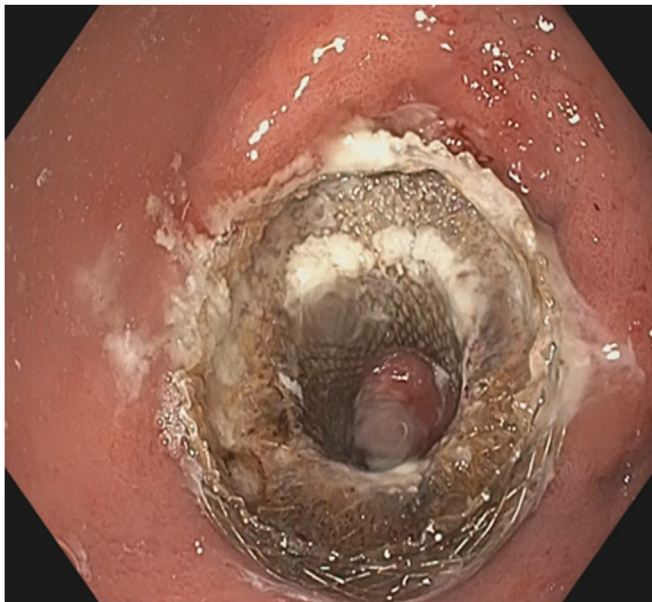


**Figure 4.** Lumen-apposing metal stent (yellow arrow) between the gastric pouch and Roux limb.

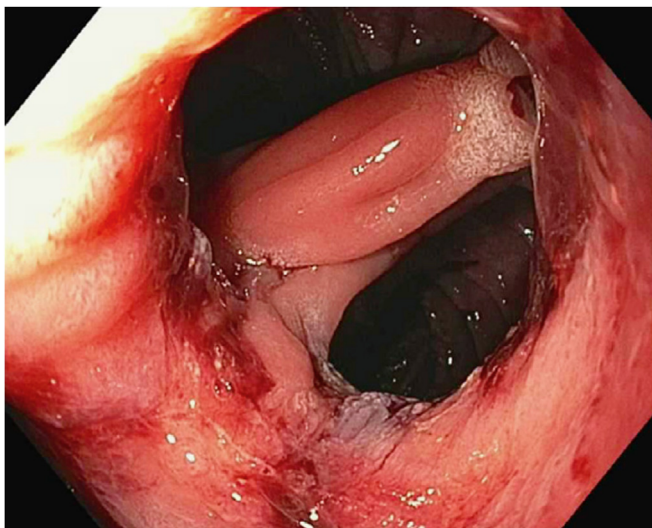
angulation only, 1 experienced LAMS migration after 54 days, without migration-related adverse events. She remained asymptomatic over a follow-up period of 87 days. Another patient with GJ angulation did not require LAMS replacement and remained asymptomatic over a follow-up period of 77 days. There was complete resolution of obstructive symptoms in all patients, with weight gain ranging from 0.1 kg to 4 kg in 4 patients, whereas 2 patients lost 0.6 kg and 4.7 kg.

## DISCUSSION

Surgical revision is the definitive management option for refractory GJ strictures but is associated with significant morbidity.<sup>2,4</sup> Angulated GJ anastomosis also can result in gastric outlet obstruction and may not be responsive to endoscopic therapies, particularly in the absence of stenosis. In such patients, this novel approach of EUS-guided creation of new anastomosis between the gastric pouch



**Figure 5.** Lumen-apposing metal stent across new anastomosis EUS gastrojejunostomy at 3-month follow-up.



**Figure 6.** New anastomosis gastrojejunostomy after lumen-apposing metal stent removal.

and Roux limb can provide a minimally invasive alternative to surgical revision. Although reversal of RYGB with creation of EUS-guided gastrogastic anastomosis can be considered, it can result in loss of other metabolic effects associated with small-bowel diversion associated with RYGB.<sup>7</sup> Our case series highlights the safety and feasibility of this technique. Large prospective studies with longer follow-up are needed to assess long-term outcomes and lasting effects of this intervention. Further studies evaluating the endoscopic techniques that can result in longer patency of anastomosis are needed.

## PATIENT CONSENT

The patients in this article have given written informed consent to publication of their case details.

## DISCLOSURE

All authors disclosed no financial relationships.

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