VIDEO CASE REPORT

EUS-guided stent placement for afferent limb and gastrojejunal obstruction in a patient with pancreatic cancer

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Gastric outlet obstruction occurs in 10% to 25% of patients with pancreatic cancer and is a common manifestation of postsurgical recurrence.[1] Afferent loop syndrome can occur in patients with recurrence and is defined by distal obstruction and accumulation of bile and pancreatic fluid, causing distension of the afferent loop and recurrent cholangitis.

EUS-guided gastroenterostomy is a novel technique that bypasses an area of obstruction by creating a lumen-to-lumen direct anastomosis using a fully covered lumen-apposing metal stent (LAMS). Excellent technical and clinical success rates of 92% and 85%, respectively, were reported in recent prospective studies. EUS-guided gastroenterostomy offers a less-invasive approach compared with surgical gastroenterostomy, which is performed laparoscopically or open, and might be a more durable option compared with enteral stent placement, which is performed using therapeutic endoscope under fluoroscopy.[2,3]

A 46-year-old woman with pancreatic adenocarcinoma status post-Whipple procedure presented with a 1-week history of nausea, nonbloody emesis, and abdominal pain. CT of the abdomen and pelvis on admission revealed a high-grade small-bowel obstruction secondary to new serosal disease in the left upper quadrant with increased dilatation of the biliary limb and alimentary tract.

The procedure was performed with the patient in the supine position and under general anesthesia. A GIF-1H gastroscope was advanced into the stomach. Evidence of post-Whipple anatomy was seen in the antrum. A previously placed fully covered self-expandable metal stent was found in the stomach body and was removed using rat-toothed forceps. A tumor growth was causing severe stricture in the gastrojejunostomy (GJ) into the efferent limb. A guidewire was passed and coiled into the efferent limb. The gastroscope traversed the GJ into the efferent limb with resistance. The stricture was 3 cm long and 8 mm in diameter (Fig. 1). Attempts to traverse the GJ into the afferent limb or to pass a wire into this limb were unsuccessful owing to another severe stricture (Fig. 2). The decision was made to bypass the strictures on both limbs. Intravenous antibiotics were given before the procedure. Glucagon was administered intravenously 1 minute before LAMS placement.

A linear echoendoscope was advanced into the lesser curve of the stomach facing the dilated afferent loop. Using a 19-gauge needle, we punctured the afferent loop. Two hundred milliliters of sterile water mixed with contrast and no methylene blue was injected into the afferent loop to create further distension. A capnocholangiogram was seen, which confirmed the position in the afferent limb. Next, a 15-mm diameter cautery-enhanced tip LAMS

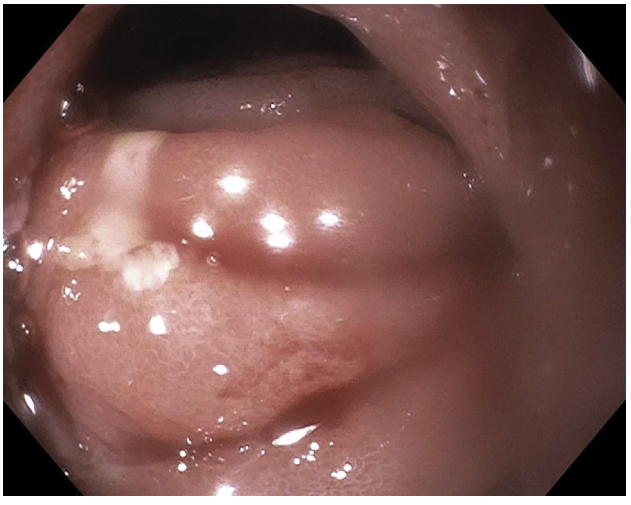

Figure 1. Endoscopic view showing the efferent loop of jejunum stricture.

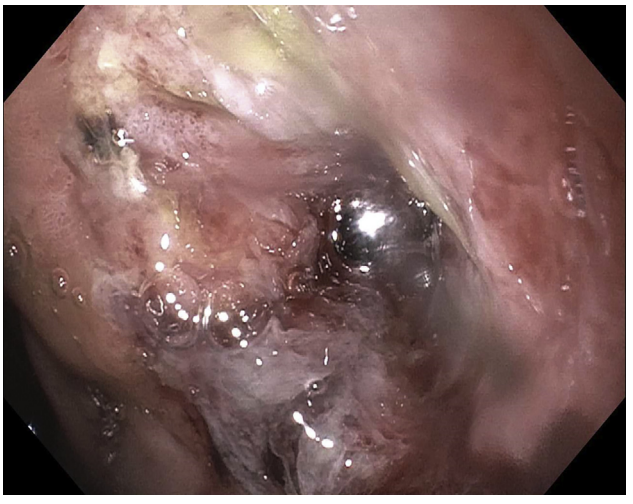

Figure 2. Endoscopic view showing the afferent loop of jejunum stricture.

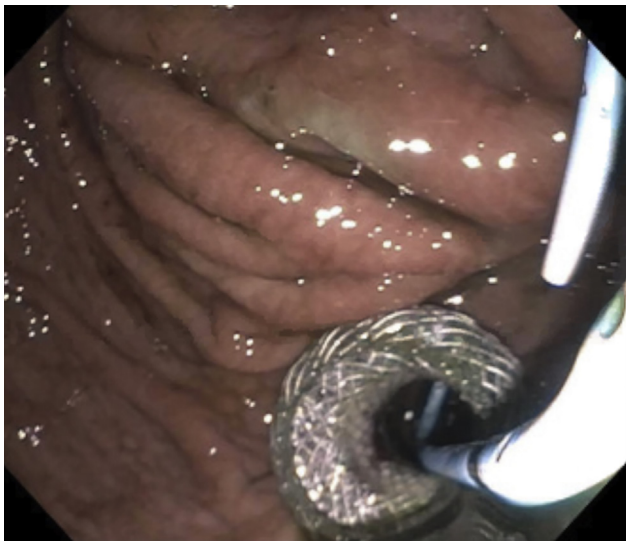

Figure 3. Lumen-apposing metal stent deployed in the afferent limb, anchored by a double-pigtail plastic stent.

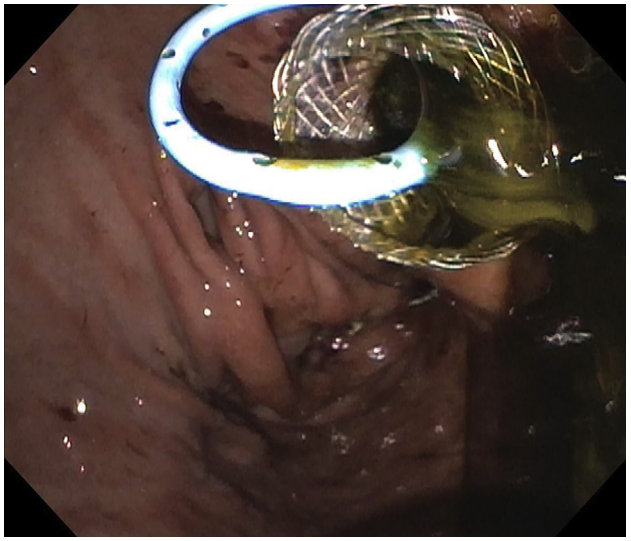

Figure 4. Lumen-apposing metal stent deployed in the efferent limb, anchored by a double-pigtail plastic stent.

(Axios, Boston Scientific, Marlborough, Mass) was advanced into the dilated afferent limb using the free-hand technique and by slow advancement of the catheter. The LAMS was deployed with the distal end in the afferent limb and the proximal end in the stomach, under endoscopic, fluoroscopic, and endosonographic guidance. The lumen of the LAMS was dilated using a 12- to 15-mm controlled radial expansion balloon, and a 7F × 10-cm double-pigtail plastic stent was deployed across the LAMS for anchoring (Fig. 3).

After successful placement of the first LAMS, the GIF-1H endoscope was advanced into the efferent limb just distal to the stricture. Five hundred milliliters of water mixed with contrast and methylene blue was injected into the small intestine using a pedal jet pump. Next, the linear echoendoscope was advanced into the distal body of the stomach facing the dilated efferent loop of the small bowel. Using a 19-gauge needle, we punctured the efferent limb, and methylene blue-tinted fluid was aspirated, confirming the position of the needle in the efferent loop. The needle was withdrawn, and a 15-mm cautery-enhanced LAMS was advanced into the efferent limb using the free-hand technique again. The LAMS was deployed with the distal end in the efferent limb and the proximal end in the stomach under endoscopic, fluoroscopic, and endosonographic guidance. The lumen of the LAMS was dilated with a 12- to 15-mm controlled radial expansion balloon, and finally, a 7F × 5-cm double-pigtail plastic stent was deployed across the LAMS for anchoring (Fig. 4). Both stents were in a good position. Contrast was injected through the stents, showing no leak and confirming appropriate positions (Fig. 5). Abdomen decompression with a needle was not performed. The patient was discharged home on hospital day 4. The patient reported improved symptoms on follow-up, and a repeat CT of the abdomen and pelvis nearly 3 weeks later revealed marked improvement in gastric distension.

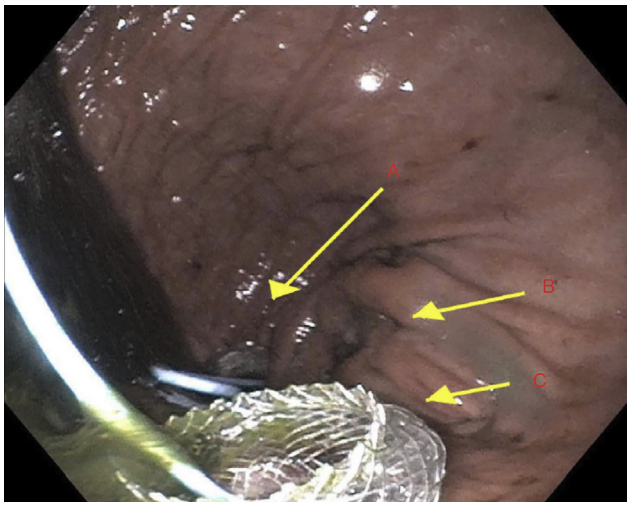

Figure 5. A, Efferent limb stent. **B,** Surgical gastrojejunostomy anastomosis. **C,** Afferent limb stent.

Palliation of malignant gastric outlet obstruction and afferent limb syndrome remains a challenging problem for physicians and patients alike. Endoscopic GJ is a novel therapeutic technique that appears noninferior to a surgical approach, with less invasiveness and fewer adverse events in retrospective studies (Video 1, available online at www.giejournal.org).

DISCLOSURE

Dr Sharaiha is a consultant for Boston Scientific, Cook, and Olympus. All other authors disclosed no financial relationships.

Abbreviations: GJ, gastrojejunostomy; LAMS, lumen-apposing metal stent.

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