VIDEO CASE REPORT

EUS-guided gastrojejunostomy and hepaticogastrostomy for malignant duodenal and biliary obstruction

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Malignancies in the upper abdomen can cause both biliary obstruction and gastric outlet obstruction (GOO), leading to acute illness and significant impairment in quality of life. Surgical intervention is invasive and morbid, especially in the presence of malignant ascites. Recent advances in therapeutic EUS-guided techniques have provided minimally invasive approaches to offer these patients relief and palliation.[1-3]

We present a case of a 59-year-old woman with metastatic ovarian cancer who presented with new-onset nausea and vomiting and poor peroral intake. CT showed an infiltrative soft tissue mass in the mesenteric root, causing obstruction of the third duodenum, with prestenotic dilation of the more proximal duodenum and stomach. New small-volume ascites was noted as well. An upper endoscopy revealed an obstructed duodenum. A nasogastric tube was placed for decompression. She was initiated on total parenteral nutrition and transferred to our institution for further management. On presentation, the patient was found to have concomitant biliary obstruction (aspartate aminotransferase/alanine aminotransferase 300-400, alkaline phosphatase 840, total bilirubin 4.3). After a multidisciplinary discussion with the patient and her physicians and careful consideration of all treatment options, we proceeded with endoscopic intervention (Video 1, available online at www.VideoGIE.org).

Conventional ERCP was attempted; however, the ampulla could not be identified (Fig. 1). Potential targets for EUS-guided biliary decompression were then briefly assessed using a linear-array echoendoscope. Choledochoduodenostomy and cholecystoduodenostomy were not considered, given a nondilated common bile duct and a thick-walled, contracted gallbladder with surrounding

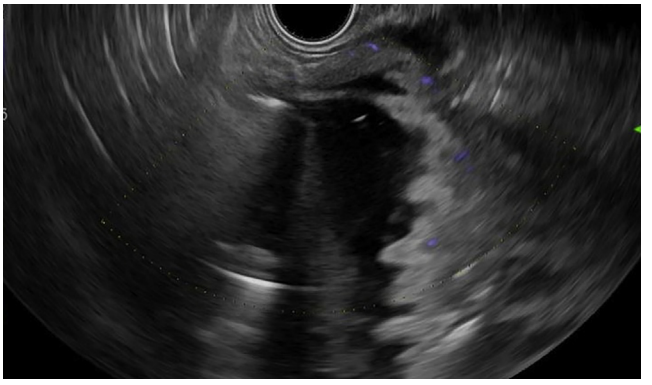

Figure 2. Endosonographic image showing identification of jejunal limb for creation of gastrojejunostomy.

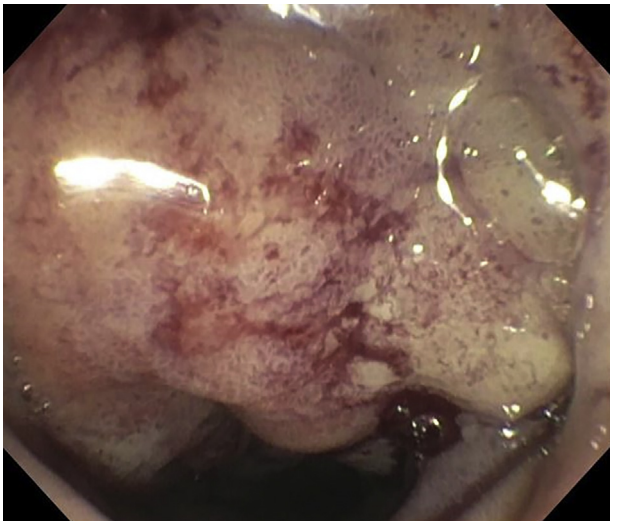

Figure 1. Endoscopic image demonstrating edematous duodenum, in which the ampulla could not be identified.

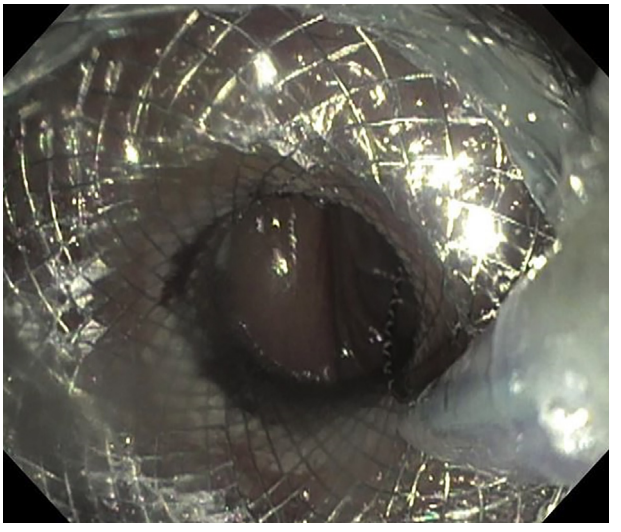

Figure 3. Endoscopic image of gastrojejunostomy created by the lumen-apposing metal stent, with visualization of jejunal mucosa.

Figure 4. Fluoroscopic image of deployment of through-the-scope, fully covered self-expanding metal stent through the lumen-apposing metal stent to secure the gastrojejunostomy.

Figure 6. Fluoroscopic image at completion of procedure demonstrating both gastrojejunostomy and hepaticogastrostomy.

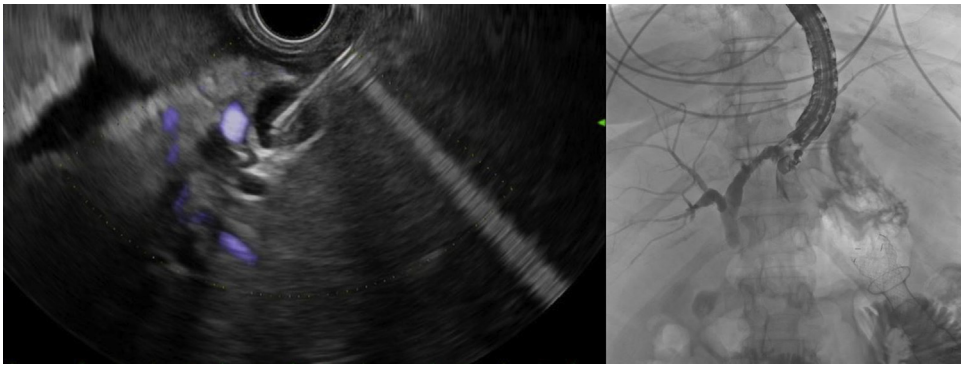

Figure 5. Endosonographic and fluoroscopic image demonstrating puncture of dilated left intrahepatic duct to create hepaticogastrostomy and antegrade cholangiogram.

ascites, respectively. The presence of a dilated left main bile duct made hepaticogastrostomy (HGS) the optimal approach.

Before EUS-HGS, we performed antegrade EUS-guided gastrojejunostomy (EUS-GJ) using the freehand approach to place a 20-mm electrocautery-enhanced lumen-apposing metal stent (LAMS) (Axios; Boston Scientific, Marlborough, Mass, USA) to bypass the GOO (Figs. 2 and 3). Given anecdotal reports of anastomotic dehiscence in patients with ascites, a 20-mm × 60-mm esophageal through-the-scope, fully covered self-expanding metal stent (FCSEMS) (Taewoong, Seoul, South Korea) was deployed within the LAMS to further secure the tract (Fig. 4). EUS-GJ was performed first to minimize the risk of HGS stent dislodgement.

After EUS-GJ, the echoendoscope was withdrawn to the proximal stomach, and a dilated left hepatic duct was identified. EUS-HGS was created in standard fashion (bile aspiration, contrast injection, guidewire passage, tract dilation, biliary FCSEMS placement) (Fig. 5). A 7F × 15-cm double-

pigtail plastic biliary stent was deployed within the FCSEMS to secure the HGS tract (Fig. 6). Of note, the LAMS, esophageal FCSEMS, and biliary FCSEMS were used for non–Food and Drug Administration–approved indications.

No adverse events occurred. The patient's signs and symptoms of GOO and biliary obstruction resolved. She was advanced to a low-residue diet. Given the advanced nature of her underlying malignancy, she was discharged home with hospice care. The patient died after spending the last 2 weeks of her life at home with her family.

This case demonstrates that same-session EUS-GJ and EUS-HGS is feasible for the management of concurrent malignant biliary and duodenal obstruction. In the presence of ascites, consideration should be given for a coaxial self-expanding metal esophageal stent to prevent migration. This minimally invasive intervention confers advantages because it avoids surgery, avoids percutaneous drains, and mitigates the risk of recurrent luminal obstruction seen with enteral stent placement.[4-9]

DISCLOSURE

Dr Law is a consultant for Olympus America. All other authors disclosed no financial relationships.

Abbreviations: GOO, gastric outlet obstruction; HGS, hepaticogastrostomy; EUS-GJ, EUS-guided gastrojejunostomy; LAMS, lumen-apposing metal stent; FCSEMS, fully covered self-expanding metal stent.

REFERENCES

1. Khashab MA, Kumbhari V, Grimm IS, et al. EUS-guided gastroenterostomy: the first U.S. clinical experience (with video). Gastrointest Endosc 2015;82:932-8.
2. Sharaiha RZ, Khan MA, Kamal F, et al. Efficacy and safety of EUS-guided biliary drainage in comparison with percutaneous biliary drainage when ERCP fails: a systematic review and meta-analysis. Gastrointest Endosc 2017;85:904-14.
3. Khan MA, Akbar A, Baron TH, et al. Endoscopic ultrasound-guided biliary drainage: a systematic review and meta-analysis. Dig Dis Sci 2016;61:684-703.
4. Ge PS, Young JY, Dong W, et al. EUS-guided gastroenterostomy versus enteral stent placement for palliation of malignant gastric outlet obstruction. Surg Endosc 2019;33:3404-11.
5. Chen YI, Itoi T, Baron TH, et al. EUS-guided gastroenterostomy is comparable to enteral stenting with fewer re-interventions in malignant gastric outlet obstruction. Surg Endosc 2017;31:2946-52.
6. Iqbal U, Khara HS, Hu Y, et al. EUS-guided gastroenterostomy for the management of gastric outlet obstruction: a systematic review and meta-analysis. Endosc Ultrasound 2020;9:16-23.
7. Troncone E, Fugazza A, Cappello A, et al. Malignant gastric outlet obstruction: which is the best therapeutic option? World J Gastroenterol 2020;26:1847-60.
8. Khashab MA, Bukhari M, Baron TH, et al. International multicenter comparative trial of endoscopic ultrasonography-guided gastroenterostomy versus surgical gastrojejunostomy for the treatment of malignant gastric outlet obstruction. Endosc Int Open 2017;5:E275-81.
9. Kerdsirichairat T, Irani S, Yang J, et al. Durability and long-term outcomes of direct EUS-guided gastroenterostomy using lumen-apposing metal stents for gastric outlet obstruction. Endosc Int Open 2019;7:E144-50.

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