



Intraperitoneal echoendoscopy for rescue of a gastrojejunal anastomosis

Theodore W. James, MD, Ian S. Grimm, MD, Todd H. Baron, MD

A 74-year-old man with a history of diabetes mellitus, hypertension, and pancreatic adenocarcinoma, who had undergone covered metal biliary stent placement 1 year earlier for relief of biliary obstruction, presented with nausea, vomiting, and progressive intolerance to oral intake over a 1-week period. A CT scan of the abdomen and pelvis demonstrated a distended, fluid-filled stomach due to a gastric outlet obstruction from invasion of the tumor into the adjacent duodenum (Fig. 1). A surgical consultation led to the belief that the perioperative morbidity and mortality would be prohibitively high. The gastroenterology department was consulted, and the decision was made to create an EUS-guided gastrojejunostomy for relief of the gastric outlet obstruction (Video 1, available online at www.VideoGIE.org).

A 7F orojejunal tube was advanced over a guidewire beyond the obstruction and into the jejunum. Contrast material mixed with saline solution and methylene blue was infused through the tube to distend the jejunum for localization by fluoroscopy and EUS. The stomach wall and jejunum were punctured under EUS guidance with a 20-mm × 10-mm lumen-apposing metal stent (LAMS) and an electrocautery device. The distal end of the LAMS was believed to be deployed into the jejunum; however, upon release of the proximal flange into the stomach, a

lack of blue-tinged fluid was noted, raising concern for maldeployment of the distal end of the stent. This was confirmed on EUS interrogation of the tract and on fluoroscopy with injection of contrast material through the LAMS, which was seen leaking into the peritoneum (Fig. 2). Upon recognition of maldeployment, intravenous antibiotics were administered.

To rescue the anastomosis, the LAMS was dilated to 15 mm with a through-the-scope balloon dilator, and the EUS endoscope was advanced through the LAMS into the peritoneum. The target bowel was brought into close proximity, and a repeated puncture of the jejunum was performed (Fig. 3). The correct position was confirmed on fluoroscopic view before advancement of the electrocautery-enhanced tip of the LAMS delivery system. A second 20-mm × 10-mm LAMS was deployed with the distal end within the jejunal lumen. The bowel was pulled in apposition against the stomach before release of the proximal flange. The second stent was deployed coaxially, and a flash of blue fluid confirmed positioning (Fig. 4). Contrast material was injected through the LAMS to confirm an adequate seal between the 2 stents, and no leak was observed.

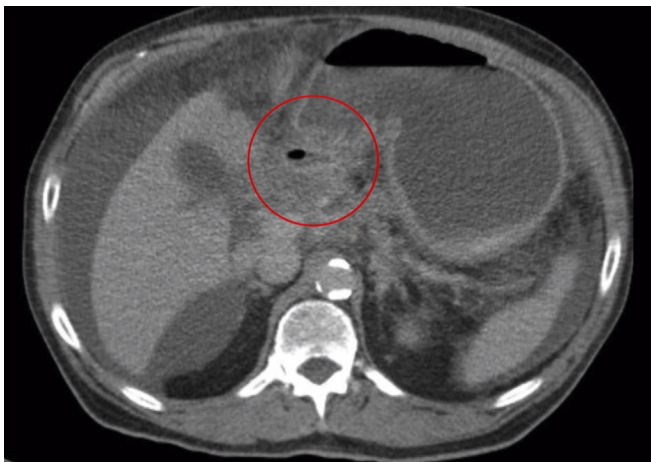


Figure 1. CT scan of the abdomen and pelvis demonstrating a distended, fluid-filled stomach resulting from a gastric outlet obstruction from invasion of the tumor into the adjacent duodenum.

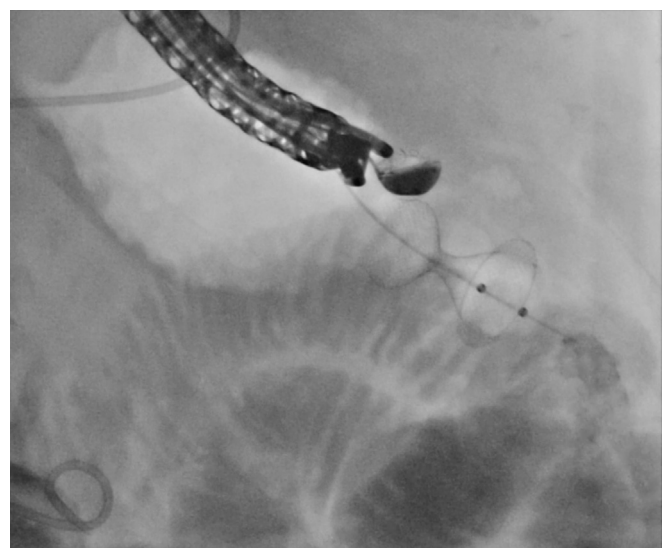


Figure 2. Fluoroscopic interrogation of gastrojejunostomy tract after initial lumen-apposing metal stent deployment demonstrating leaking into the peritoneum.

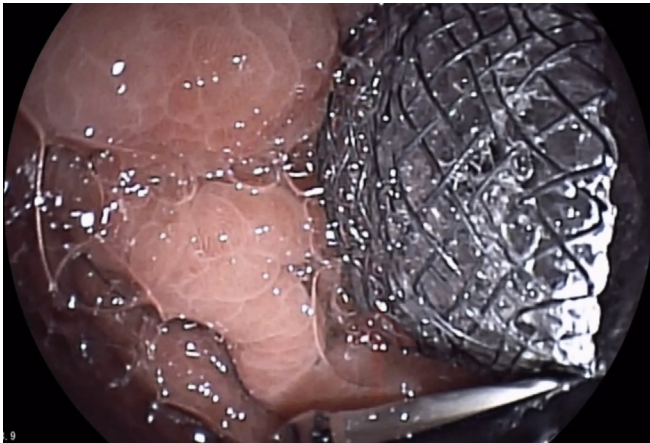


Figure 3. Endoscopic view of second stent deployed coaxially within the first.

After gastrojejunostomy creation, the patient was placed on a clear liquid diet before being advanced to a low-residue diet. He was discharged to home with palliative care support 2 days after the procedure, receiving oral antibiotics for 5 additional days. The patient died 3 months after the procedure as a result of his underlying malignancy. There were no symptoms of recurrent gastric outlet obstruction while he was in hospice care. Since our initial abstract, we have performed an additional case in this fashion with a similar favorable outcome.

This case demonstrates the feasibility of rescuing a maldeployed LAMS by placing a second LAMS with EUS guidance within the first to create a bridge between the small bowel and the stomach. The use of a 20-mm-diameter LAMS in this case allowed for the original EUS endoscope to be used in the rescue maneuver and removed the additional time required for endoscope exchange. This allowed the rescue to be performed more expeditiously and may have led to a more favorable outcome. Other techniques for LAMS rescue have been described¹⁻³; however, here we demonstrate the feasibility of using a linear echoendoscope for this purpose. Although the presence of ascites is not an absolute contraindication to EUS-guided gastroenteric anastomosis, it does increase the technical complexity and risk for postprocedural infection. This should be considered when the optimal treatment modality is determined for patients with malignant gastric outlet obstruction. The use of intraperitoneal EUS may have further implications for therapeutic endoscopy.

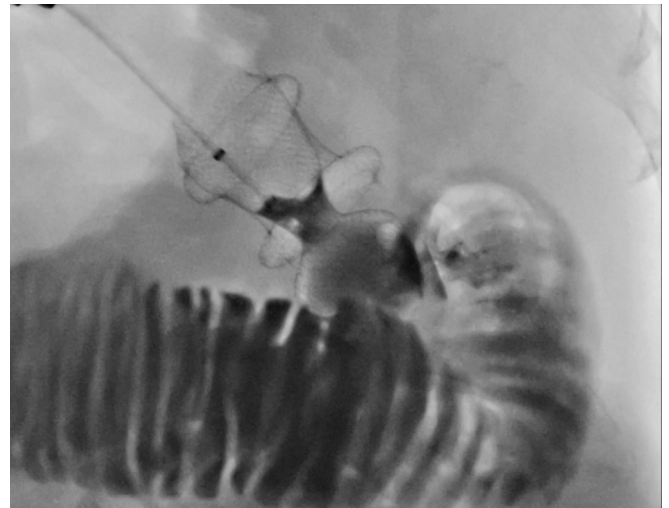


Figure 4. Fluoroscopy with injection of contrast material through the LAMS confirming an adequate seal between the 2 stents.

DISCLOSURE

Dr Baron is a consultant and speaker for Medtronic, Boston Scientific, W.L. Gore, Cook Endoscopy, and Olympus America. Dr Grimm is a consultant for Boston Scientific. Dr James receives research and training support by a grant from the NIH (T32DK007634).

Abbreviation: LAMS, lumen-apposing metal stent.

REFERENCES

1. Sanchez-Ocana R, Penas-Herrero I, Gil-Simon P, et al. Natural orifice transluminal endoscopic surgery salvage of direct EUS-guided gastrojejunostomy. *VideoGIE* 2017;2:346.
2. Ligresti D, Amata M, Barresi L, et al. The lumen-apposing metal stent (LAMS)-in-LAMS technique as an intraprocedural rescue treatment during endoscopic ultrasound-guided gastroenterostomy. *Endoscopy*. Epub 2019 Jun 4.
3. Abdelqader A, Nasr J. Natural orifice transluminal endoscopic salvage of dislodged endoscopic ultrasound-guided jejunogastrostomy stent after endoscopic retrograde in Roux-en-Y anatomy. *Am J Gastroenterol*. Epub 2019 Jun 18.

Division of Gastroenterology and Hepatology, University of North Carolina, Chapel Hill, North Carolina, USA.

Copyright © 2019 American Society for Gastrointestinal Endoscopy. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

<https://doi.org/10.1016/j.vgie.2019.07.019>

If you would like to chat with an author of this article, you may contact Dr James at tedjms@gmail.com.