



Natural orifice transendoscopic surgery as a rescue for a dislodged lumen-apposing metal stent in the peritoneum after successful EUS-directed transgastric ERCP

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A 62-year-old woman with a history of GERD and Roux-en-Y gastric bypass surgery was referred for evaluation of right upper quadrant abdominal pain, chills, dark discoloration of urine, elevated liver enzymes, and a dilated common bile duct with choledocholithiasis on MRCP. The patient was admitted to the hospital and options for biliary decompression were discussed. She opted to proceed with the EUS-directed transgastric ERCP. In the first session, a gastro-gastrostomy was created using EUS-guided placement of a lumen-apposing metal stent (LAMS) (Figs. 1 and 2). Then, ERCP was performed through the LAMS in the second session, planned 1 week after the initial session with the removal of the LAMS performed a few weeks later.

A successful ERCP was performed with biliary sphincterotomy and stone extraction (Fig. 3). Occlusion cholangiogram was performed and showed no evidence of filling defects in the bile duct (Fig. 4). Upon withdrawing the duodenoscope, the LAMS was noted to have dislodged from the gastric pouch into the peritoneum. Using a single channel therapeutic gastroscope (GIF-1TH190; Olympus Medical Inc, Center Valley, Pa, USA), we initially attempted to pull the displaced LAMS from the peritoneal defect into the gastric pouch without success. We also tried to bridge the dislodged LAMS with another LAMS. This was not feasible as the distance between the gastric pouch and the remnant stomach hindered the deployment of the proximal flange safely in the gastric pouch. We then switched to the natural orifice transluminal endoscopic surgery (NOTES) approach.

After removal of the 2 LAMSs using the rat-tooth alligator jaw-grasping forceps, a double-channel gastroscope

(GIF-2TH180; Olympus Medical Inc) was advanced over the existing guidewire. The guidewire was selectively back-loaded into the therapeutic (3.7-mm diameter) channel of the gastroscope. The standard (2.8-mm diameter) channel was free for use. The gastric remnant was visualized at approximately 3 to 4 cm from the peritoneal side of the gastric pouch. We advanced another 20- × 10-mm LAMS through the therapeutic channel over the guidewire into the remnant stomach and then deployed the inner flange.



Figure 1. Expansion of the remnant stomach with the use of methylene blue and dilute contrast.

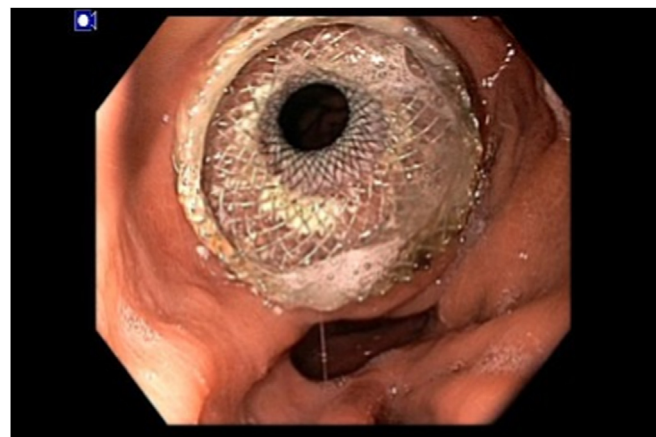


Figure 2. Endoscopic view after lumen-apposing metal stent placement.

Abbreviations: LAMS, lumen-apposing metal stent; NOTES, natural orifice transluminal endoscopic surgery.

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Figure 3. Stone extracted during ERCP.

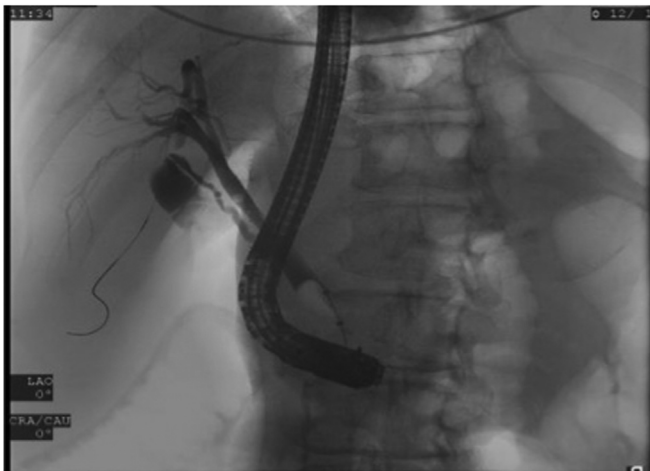


Figure 4. Occlusion cholangiogram.

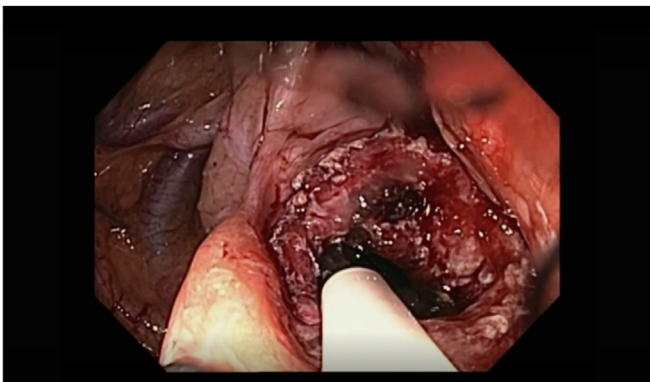


Figure 5. Replacement of the lumen-apposing metal stent to approximate the gastric remnant to the gastric pouch.

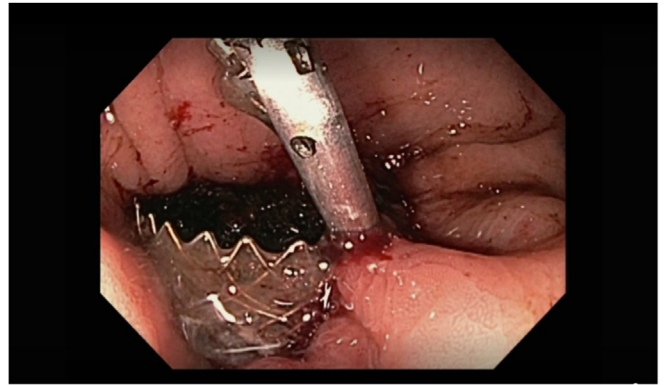


Figure 6. Successful lumen-apposing metal stent deployment to bridge the peritoneal gap.



Figure 7. Lumen-apposing metal stent noted in position on endoscopy prior to removal.

Using the rat-tooth forceps through the standard scope channel, we grasped the edge of the remnant stomach, pulling it proximally toward the gastric pouch. After confirming the edge of the gastric remnant was inside the gastric pouch, we successfully fully deployed the stent (Figs. 5 and 6). We then used 2 hemostatic clips to secure the stent in the gastric pouch (Fig. 6).

The patient was admitted postprocedure for monitoring. She underwent a successful laparoscopic cholecystectomy a day later and did well. After discussion with the medical and surgical teams, she was started on intravenous Unasyn 1.5 g daily and discharged on oral antibiotics to complete a 5-day course. At her follow-up visit 1 month later, the patient was asymptomatic with resolution of abdominal pain. The LAMS was noted to be in the correct position and was removed using rat-tooth alligator jaw-grasping forceps (Fig. 7). The gastro-gastrostomy site was examined, and no evidence of peritoneal exposure was noted.

Our case highlights the adverse event of the LAMS dislodgement into the remnant gastric stomach during an ERCP after the establishment of the gastro-gastrostomy access.¹⁻³

This serious adverse event can be managed endoscopically through methods such as stent repositioning or deployment of another stent to bridge the stent.^{4,5} Endoscopic suturing to secure LAMS prior to performing ERCP has shown to be effective in preventing LAMS dislodgement.³ Our case highlights that NOTES is safe and effective as a rescue management for this adverse event. Prospective studies are warranted to better investigate the safety and efficacy of NOTES in the management of dislodged LAMS (Video 1, available online at www.videogie.org).

DISCLOSURE

Dr Holzwanger is a consultant for Virgo. Dr Gabr is a consultant for Medtronic, ConMed, Olympus, Boston Scientific, Fuji, and Adaptiv Endo. Dr Berzin is a consultant for Boston Scientific, Medtronic, and Fuji. Dr Pleskow is a

consultant for Boston Scientific, Medtronic, Olympus, and Fuji. The other authors did not disclose any financial relationships.

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