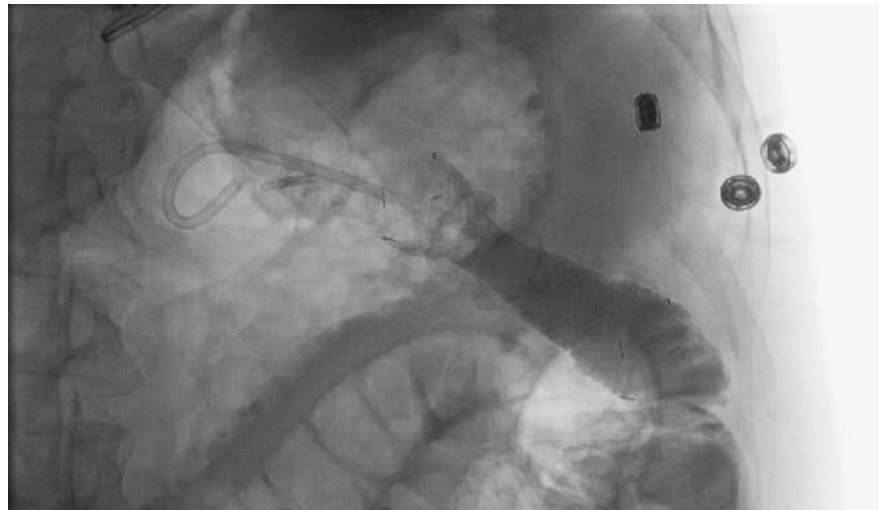


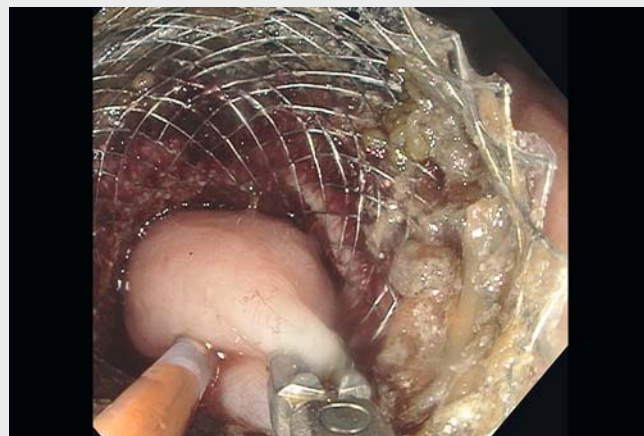
## Using NOTES to salvage a misdeployed lumen-apposing metal stent during an endoscopic ultrasound-guided gastroenterostomy

Endoscopic ultrasound (EUS)-guided gastroenterostomy with placement of a lumen-apposing metal stent (LAMS) is a minimally invasive endoscopic option for patients with gastric outlet obstruction (GOO) [1–3]. The procedure involves accessing the small bowel and deploying a LAMS to connect the stomach to the small bowel. In rare cases, stent misdeployment results in one end of the stent being deployed outside the targeted lumen. When wire access is preserved, the misdeployed stent can be successfully salvaged by placing a fully covered self-expanding metal stent (FCSEMS) through the misdeployed LAMS using fluoroscopy guidance [4]. In this report, we present a case of a misdeployed LAMS without preserved wire access that was salvaged using the natural orifice transluminal endoscopic surgery (NOTES) technique. A 56-year-old woman with cholangiocarcinoma presented with recurrent GOO after enteral stenting. EUS-guided gastroenterostomy was performed. An echoendoscope was advanced into the stomach. The jejunum was identified endosonographically and accessed with a 19-gauge needle. A wire was advanced through the needle and coiled in the jejunal lumen. A LAMS with cautery (Axios; Boston Scientific, Natick, Massachusetts, USA) was then deployed over the wire. Relookendoscopy revealed that the distal end of the LAMS was positioned in the peritoneum, likely due to dislodgement from retraction prior to deploying the proximal flange in the setting of adhesions.

A double-channel endoscope was advanced into the stomach and into the lumen of the LAMS. The jejunal loop was visualized and grasped with a rat-tooth forceps. A needle-knife catheter was advanced through the second endoscope channel and was used to access the jejunal loop (► **Fig. 1**). A wire was advanced through the catheter and coiled in the jejunum. A through-the-scope FCSEMS



► **Fig. 1** Fluoroscopy imaging showing a transgastric bridging fully covered esophageal stent placed in the lumen-apposing metal stent and terminating in the small bowel.



► **Video 1** The natural orifice transluminal endoscopic surgery (NOTES) technique is used to salvage a lumen-apposing metal stent by placing a bridging through-the-stent fully covered esophageal stent.

(Esophageal TTS; Taewoong Medical, Seoul, South Korea) was deployed through the LAMS with the distal end in the jejunum and the proximal end in the stomach (► **Video 1**). Contrast confirmed the stent position. At 1-month follow-up,

the patient continues to tolerate an oral diet.

The NOTES technique is a feasible and safe way to salvage a misdeployed LAMS in patients undergoing EUS-guided gastroenterostomy.

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## Competing interests

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