Endoscopic ultrasound (EUS)-guided duodenogastroenterostomy: why not do it from the other side?

Fig. 1 In a 76-year-old woman, with previous resection of a metastatic tumor of small-bowel origin and presenting with gastric outlet obstruction, computed tomography showed an 1.8-cm submucosal mass in the third duodenal portion at a transition (TP) that was resulting in upstream gastroduodenal dilatation (D). The fourth duodenal portion was in intimate contact with the stomach (arrow).

Fig. 2 Fluoroscopic imaging shows the echoendoscope advanced distally from the stenosis. **a** Gastric puncture, using a 19-gauge fine-needle aspiration (FNA) needle, from the duodenum into the stomach with injection of contrast under fluoroscopic guidance. **b** An 0.025-inch guidewire advanced into the stomach and looped once. Then the echoendoscope was withdrawn and reintroduced to grasp the gastric part of the guidewire, enabling control of both ends of the guidewire.

A 76-year-old woman, with previous resection of a metastatic mixed adenocarcinoma-neuroendocrine tumor of small-bowel origin presented with gastric outlet obstruction. Abdominal computed tomography revealed a submucosal mass in the third portion of the duodenum, with upstream gastroduodenal dilatation. There was intimate contact between the wall of the fourth duodenal portion and the stomach (● Fig. 1).

Retrograde gastroenterostomy was performed as follows, with the patient under general anesthesia. A forward-viewing curved linear endoscopic ultrasound (EUS) scope (TGF-UC180J; Olympus) was advanced distally from the stenosis and proximally to the ligament of Treitz, with the tip of the echoendoscope apposed to the gastric wall under fluoroscopic view. Instillation of water into the stomach via a nasogastric tube aided echo visualization. Direct puncture into the stomach was done with a standard 19-gauge fine-needle aspiration (FNA) needle and a gastrogram was obtained using contrast under fluoroscopic guidance (● Fig. 2a). A 0.025-inch guidewire (450 cm, angled-tip VisiGlide; Olympus) was advanced into the stomach and allowed to loop once (● Fig. 2b). The echoendoscope was withdrawn and re-introduced to grasp the gastric portion of the wire, allowing control of both ends. Then the echoendoscope was re-introduced over the duodenal portion of the guidewire and a 15-10 biflanged lumen-apposing stent (Axios; Boston Scientific) was advanced into the stomach (● Fig. 3) and deployed without cautery or balloon dilation (● Fig. 4a, ● Fig. 4b). The patient did well without adverse events.

Despite previous reports of EUS gastroenterostomies [1–4], to our knowledge this has never previously been performed from the duodenum to the stomach, as described here. This approach avoids puncture into the duodenal lumen, which has a small caliber and is mobile, and obviated the need for a targeting balloon [2]. In addition, the forward-viewing endoscope allows stent advancement without the need for tract dilation, minimizing the risk of luminal leakage. Although the gastric wall may tent away during stent advancement, having both ends of the wire under pressure allows this to be overcome.

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Fig. 3 The echoendoscope was then reintroduced again over the duodenal part of the guidewire. Fluoroscopy shows the delivery system of the stent advanced into the stomach without cautery or balloon dilation.

Fig. 4 After stent deployment. **a** Fluoroscopic image: the 15-10 biflanged lumen-apposing stent with both flanges in correct positions. **b** Endoscopic image: gastric view of the gastroduodenostomy after stent deployment. Both ends of the wire are still in position.

Competing interests: Dr. Baron is a consultant and speaker for Boston Scientific and Olympus.

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References

- 1 Barthelet M, Binmoeller KF, Vanbiervliet G et al. Natural orifice transluminal endoscopic surgery gastroenterostomy with a biflanged lumen-apposing stent: first clinical experience (with videos). *Gastrointest Endosc* 2015; 81: 215–218
- 2 Itoi T, Ishii K, Tanaka R et al. Current status and perspective of endoscopic ultrasonography-guided gastrojejunostomy: endoscopic ultrasonography-guided double-balloon-occluded gastrojejunostomy (with videos). *J Hepatobiliary Pancreat Sci* 2015; 22: 3–11

3 Khashab MA, Baron TH, Binmoeller KF et al. EUS-guided gastroenterostomy: a new promising technique in evolution. *Gastrointest Endosc* 2015; 81: 1234–1236

4 Khashab MA, Kumbhari V, Grimm IS et al. EUS-guided gastroenterostomy: the first U.S. clinical experience (with video). *Gastrointest Endosc* 2015; 82: 932–938. Epub 2015 Jul 26. DOI: 10.1016/j.gie.2015.06.017

Bibliography

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