

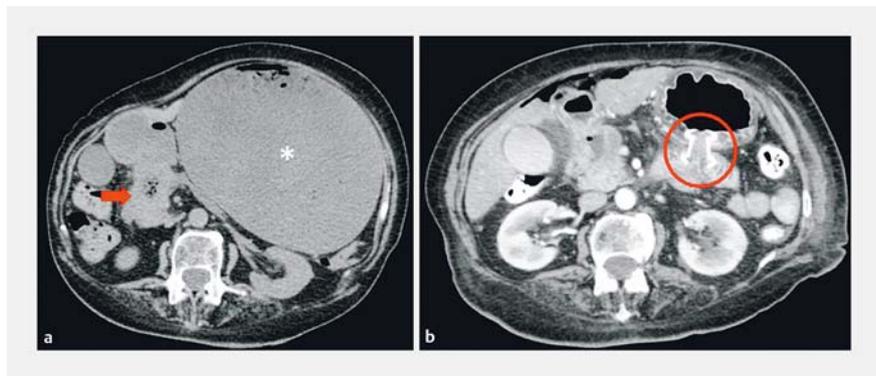
One-step, exchange-free, single-balloon-assisted endoscopic ultrasound-guided gastroenterostomy with lumen-apposing metal stent in malignant gastric outlet obstruction

An 81-year-old woman with malignant gastric outlet obstruction due to pancreatic adenocarcinoma (► Fig. 1a) was referred to our institute for endoscopic ultrasound (EUS)-guided gastroenterostomy.

Under general anesthesia, a 0035-inch guidewire (Navigator; Olympus Medical Systems, Center Valley, Pennsylvania, USA) was inserted through the duodenal stenosis (► Fig. 2a) deep into the small bowel using a standard gastroscope under fluoroscopic assistance (► Fig. 2b). A 20-mm balloon dilator (CRE balloon; Boston Scientific, Marlborough, Massachusetts, USA) was then inserted over the wire across the obstruction and filled with contrast fluid (► Fig. 2c).

A therapeutic linear echoendoscope (GF-UC140P; Olympus Medical Systems) was used to locate the balloon in a small-bowel loop adjacent to the gastric wall (► Fig. 3a, b). The jejunal loop was accessed directly from the stomach with a 15-mm diameter lumen-apposing metal stent (LAMS) contained within an electrocautery-enhanced delivery system (Hot AXIOS; Boston Scientific) (► Fig. 3c), avoiding the multiple accessory exchanges previously described with other techniques [1–3]. In fact, there was no need for a fine-needle aspiration needle, guidewire, or tract dilation, and the stent was released in a single-step, exchange-free fashion (► Video 1).

During the procedure, the small-bowel loop was kept in close apposition to the gastric wall by pulling on the inflated balloon, which was firmly anchored within the bowel loop. The Trendelenburg position of the patient further helped to obtain “gravity countertraction” to puncture. Direct access into the jejunal loop was performed by aiming the electrocautery tip of the delivery system slightly distally to the balloon in order to avoid any eventual entrapment of the distal



► Fig. 1 Computed tomography (CT) scans of patient with gastric outlet obstruction. **a** Pre-procedural CT scan showed duodenal stenosis (arrow) and a distended fluid-filled stomach (*). **b** Follow-up CT scan after the procedure showed good positioning of the stent (circle) and a massive decrease in gastric distension.

flange of the stent inside a popped balloon. As a result, the balloon remained intact and the LAMS was successfully released (► Fig. 4a, b). After deployment of the AXIOS stent, the lumen of the stent was balloon-(over)dilated up to 18 mm (► Fig. 5a). A through-the-stent contrastography revealed no leak of contrast fluid at the end of the procedure (► Fig. 5b).

The patient resumed an oral diet the day after the procedure, after a follow-up computed tomography scan confirmed the correct position of the stent (► Fig. 1b).

Endoscopy_UCTN_Code_TTT_1AS_2AG

Competing interests

None

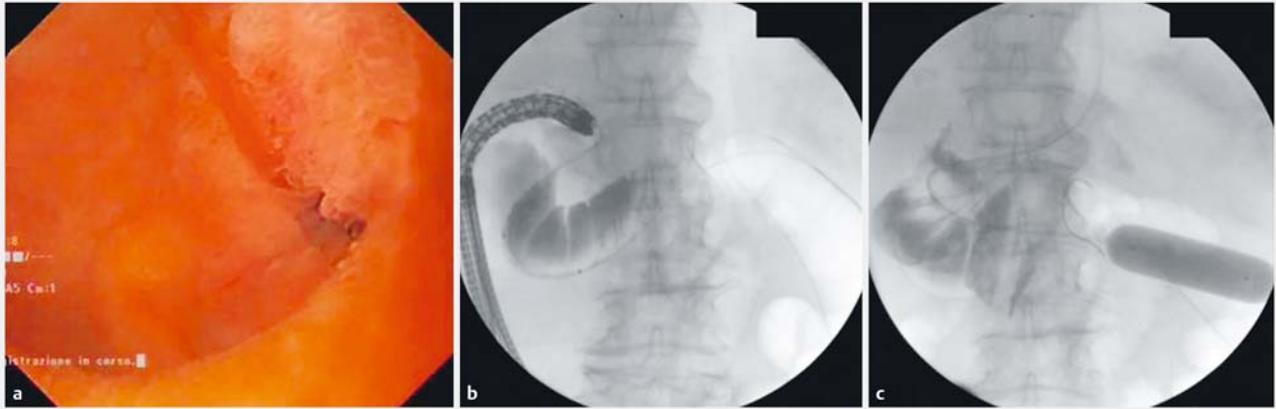
► VIDEO 1

Case

- An 81 year old woman was diagnosed with a GOO due to advanced pancreatic adenocarcinoma infiltrating duodenum
- A CT scan revealed a solid lesion of the neck of the pancreas infiltrating bulb/second portion of duodenum, SMV, portal vein and associated with a severe gastric distension
- EUS guided gastroenterostomy was planned

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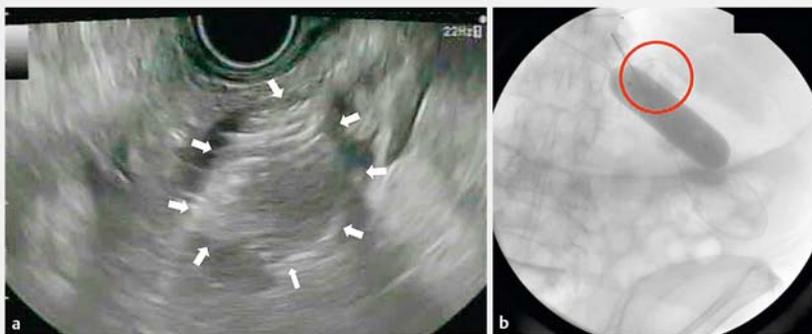
► Video 1: One-step, exchange-free, single-balloon-assisted endoscopic ultrasound-guided gastroenterostomy with lumen-apposing metal stent in malignant gastric outlet obstruction.



► **Fig. 2** Introduction of the guidewire. **a** Endoscopic view of the duodenal stenosis. **b** Fluoroscopic view of the guidewire introduced through the stenosis into the small bowel. **c** Fluoroscopic view of a 20-mm balloon dilator inflated with contrast fluid within the small bowel.



► **Fig. 3** The balloon dilator inside the small-bowel loop. **a** Fluoroscopic view of the echoendoscope in the stomach next to the inflated balloon within the adjacent jejunal loop. **b** Echoendoscopic view showing the inflated balloon. **c** Echoendoscopic view showing the inflated balloon (*), the tip of the delivery system of the stent (fat arrow) inside the jejunal lumen (**), and the gastric wall (thin arrow).



► **Fig. 4** Deployment of the stent. **a** Echoendoscopic view of the released distal flange of the stent (arrows) into the lumen of the jejunal loop. **b** Fluoroscopic view of the fully released stent (circle) and the intact balloon.

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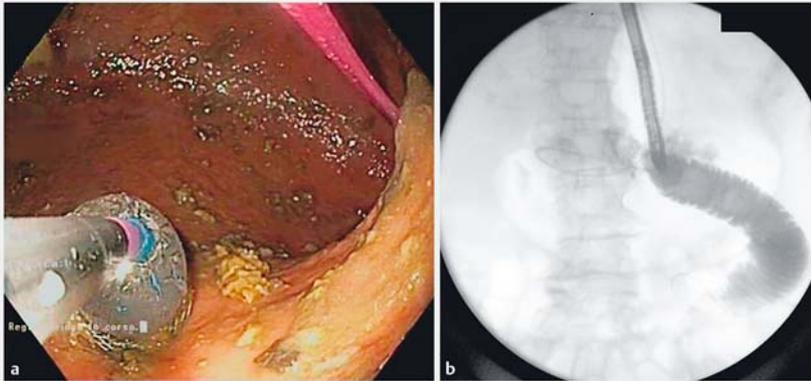
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► **Fig. 5** The stent was then dilated using a balloon. **a** Endoscopic view of balloon dilation of the stent. **b** Through-the-stent contrastography showed no leak of contrast fluid at the end of the procedure.

References

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Bibliography

DOI <http://dx.doi.org/10.1055/s-0043-101509>
Endoscopy 2017; 49: E92–E94
 © Georg Thieme Verlag KG
 Stuttgart · New York
 ISSN 0013-726X