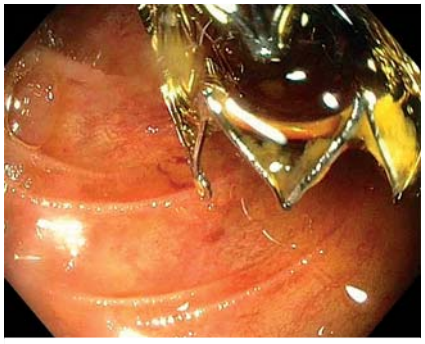
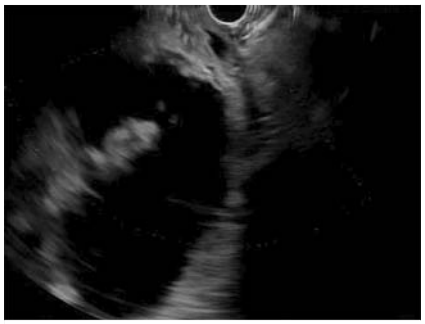
Endoscopic ultrasound- and fluoroscopy-guided jejunojejunostomy with a lumen-apposing metal stent for malignant afferent loop obstruction

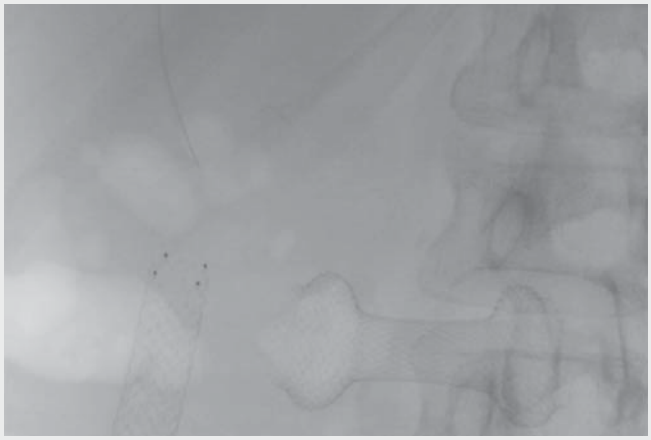


▶ **Fig. 1** Endoscopic image showing a self-expanding metal stent placed across an afferent loop stenosis near the hepatico-jejunostomy.

▶ **Fig. 2** Computed tomography image showing C-loop formation after placement of the self-expanding metal stent, indicating persistent afferent loop obstruction.



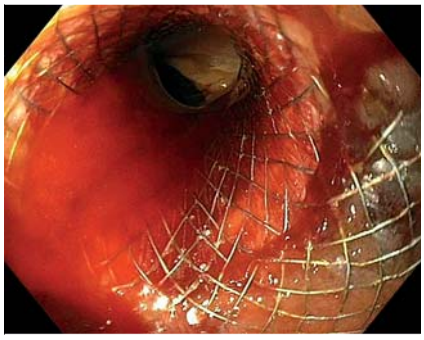
▶ **Fig. 3** Endoscopic ultrasound image showing the dilated afferent loop prior to advancement of the needle.



Video 1 Endoscopic ultrasound- and fluoroscopy-guided jejunojejunostomy with a lumen-apposing metal stent to treat malignant afferent loop obstruction.

A 57-year-old white woman with history of stage IV signet ring cell adenocarcinoma of the ampulla, who had previously undergone a Whipple procedure with Billroth II reconstruction followed by adjuvant chemotherapy, was referred for afferent loop obstruction due to newly diagnosed peritoneal metastatic pancreatic cancer. Small-bowel enteroscopy found a 3-cm segment of extrinsic stenosis near the hepaticojejunostomy, with upstream dilatation. A 10×80-mm uncovered self-expanding metal stent (SEMS) was deployed across the stenosis under fluoroscopic guidance (▶ **Fig. 1**). Drainage of bile was immediate; however, within 72 hours, the patient developed cholangitis, with evidence of persistent afferent loop obstruction on repeat computed tomography imaging (▶ **Fig. 2**). After multidisciplinary team discussion, endoscopic ultrasound (EUS)-guided transmural drainage of the dilated afferent loop was pursued (▶ **Video 1**).

On repeat EUS, the dilated afferent loop was endosonographically visualized from about 2 cm distal to the gastrojejunal anastomosis (▶ **Fig. 3**). A 19-gauge needle was advanced into the dilated afferent loop and 200 mL of saline was injected to adhere it to the gastrojejunal anastomosis. The decision was then made to create a jejunojejunostomy. The common wall between the distal jejunum and afferent loop was imaged using color Doppler to identify any interposed vessels. A cautery-enhanced lumen-apposing metal stent (LAMS) delivery system was used to create a stoma and working



▶ **Fig. 4** Endoscopic direct visualization of the lumen-apposing metal stent (LAMS) placed between the distal jejunum and the afferent loop.

channel. A 15 × 15-mm Axios stent (Boston Scientific, Natick, Massachusetts, USA) was deployed and then balloon dilated to a maximum diameter of 15 mm. There was minimal bleeding after dilation and there was no evidence of free gas or a pneumoperitoneum. Direct visualization showed the LAMS to be in an appropriate position (▶ **Fig. 4**). Over the next 24 hours, the patient defervesced, and both her symptoms and liver function tests improved.

EUS- and fluoroscopy-aided enteroenterostomy is a novel way to palliatively treat afferent loop obstruction as an alternative to, or in addition to, conventional methods.

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Competing interests

S. K. Amateau, M. L. Freeman and G. Trikudanathan have provided consultancy to Boston Scientific. The remaining authors declare that they have no conflict of interest.

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Bibliography

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