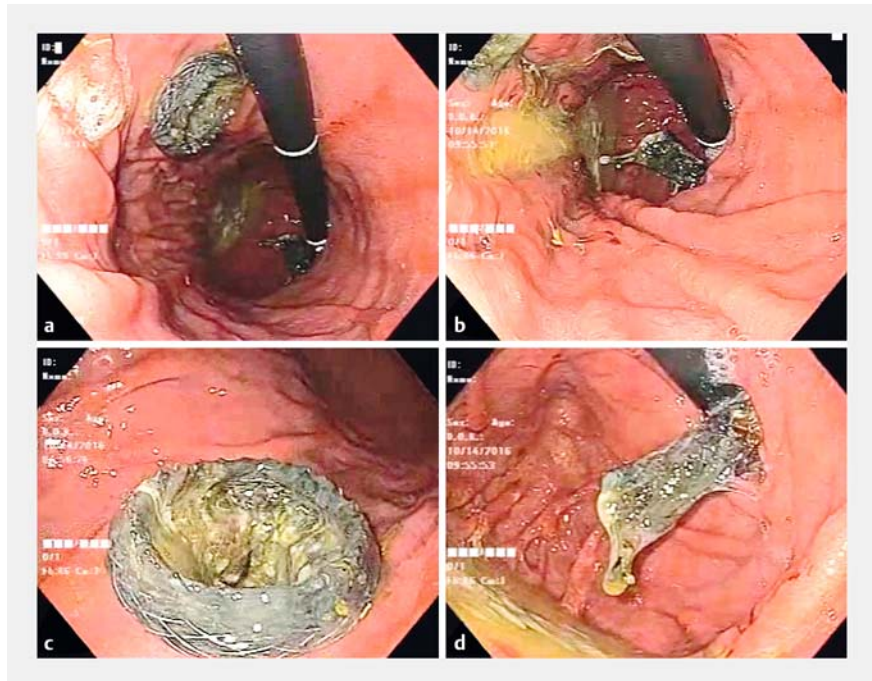


Single-session EUS-guided hepaticogastrostomy and dual-scope gastroenterostomy: a modified technique for palliative double endoscopic biliary and gastric bypass

A 59-year-old man with unresectable ampullary adenocarcinoma causing gastric outlet and biliary obstruction was palliated by placement of biliary and duodenal self-expandable metal stents (SEMSs). His symptoms relapsed 4 months later and tumor ingrowth was noted through both SEMSs at endoscopy. Single-session endoscopic ultrasound (EUS)-guided biliary drainage and EUS-guided gastroenterostomy were undertaken.

EUS-guided hepaticogastrostomy was performed first. A curved linear-array echoendoscope was positioned in the upper gastric body. A 19-gauge needle was used to puncture the left intrahepatic bile duct, with access being confirmed by aspiration of bile and by cholangiography. A 0.035-inch guidewire was advanced through the needle. A 6-mm biliary balloon dilator was used to dilate the tract, and this was followed by transgastric placement of a 10-mm × 10-cm fully-covered SEMS, which was then clipped to the gastric mucosa.

A 7-mm pediatric endoscope was next introduced into the proximal jejunum through the duodenal SEMS, which was partially blocked by tumor ingrowth. Water was instilled through the scope to distend the jejunal lumen. With the echoendoscope placed in the gastric cavity alongside the pediatric endoscope, the water-filled jejunal loop was identified by EUS and punctured with a 19-gauge needle. A 0.035-inch guidewire was passed through the needle and grasped with a forceps that was passed through the pediatric scope. A Hot Axios delivery system was inserted over the wire, while traction was maintained on both ends of the guidewire. The distal end of the stent delivery system was inserted through the stomach wall into the jejunal lumen by applying electrocautery. The lumen-apposing metal stent was then deployed under combined EUS, fluoroscopic, and endoscopic guidance. Maximal opening



► **Fig. 1** Images from the follow-up endoscopy showing: **a, b** both stents remaining in situ; **c** the gastroenteric lumen-apposing stent is in situ and patent; **d** the hepaticogastrostomy stent is in situ and patent.



► **Video 1** The video shows step by step the creation of the endoscopic ultrasound-guided hepaticogastrostomy and the dual-scope gastroenterostomy, as well as images from the follow-up endoscopy 7 months later.

of the stent was achieved by dilating it with a 15-mm CRE balloon (► **Video 1**). The patient recovered fully; 7 months later, he has normal bilirubin values and shows no signs of recurrent gastric outlet obstruction. Follow-up endoscopy shows that both stents remain in situ and patent (► **Fig. 1**).

EUS-guided double endoscopic bypass offers minimally invasive and durable palliation [1]. Gastroenterostomy can be performed either with standard devices [2] or with a dedicated double-balloon catheter [1]. The use of a pediatric endoscope alongside the echoendoscope is another way to help stabilize the guide-wire during gastroenterostomy, which is a challenging intervention [3].

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Competing interests

None

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