Endoscopic ultrasound-guided pancreatico-gastrostomy using a lumen-apposing metal stent plus a double-pigtail plastic stent

Endoscopic ultrasound (EUS)-guided pancreatic duct drainage remains one of the most technically challenging endosonography interventions. There is a lack of specific devices for the technique, and the question of which kind of stent should be used remains controversial: plastic (straight, single or double pigtail) or self-expanding metal [1–4].

The lumen-apposing metal stent (LAMS) has been used in different scenarios (transmural drainage of collections and EUS-guided anastomosis). There are various sizes of LAMS available, and some of them, specifically designed to be used in the bile duct, are small (e.g. 6×8 mm) [5].

To our knowledge, this is the first report to date of successful EUS-guided pancreatic duct drainage using a LAMS plus a pigtail stent. A 44-year-old man, with chronic pancreatitis and pancreatic duct stricture causing abdominal pain, was referred to our unit. Endoscopic retrograde cholangiopancreatography was attempted, but cannulation was unsuccessful. After a failed rendezvous, EUS-guided transluminal pancreatic duct drainage (pancreaticogastrostomy) was successfully performed using a biliary LAMS (6×8 mm, HotAXIOS; Boston Scientific, Marlborough, Massachusetts, USA) plus a double-pigtail plastic stent.

Fig. 1 Endoscopic ultrasound (EUS)-guided access to the pancreatic duct. a Transgastric puncture of the dilated pancreatic duct using a 19-gauge needle (Expect Flex; Boston Scientific, Marlborough, Massachusetts, USA). b EUS-guided pancreatography revealed a dilated, tortuous main pancreatic duct, and severe stricture in the cephalic pancreatic area. A 0.035-inch guidewire was advanced through the pancreatic duct. c Fluoroscopic view of the 6 Fr cystotome over the guidewire.

Fig. 2 Placement of a lumen-apposing metal stent (LAMS). a Endoscopic ultrasound (EUS) image of the HotAXIOS catheter (9 Fr; Boston Scientific, Marlborough, Massachusetts, USA), energized and inserted inside the pancreatic duct. b EUS-guided deployment of the distal end of the LAMS (6 × 8 mm, HotAXIOS). Image shows the LAMS distal flange located inside the pancreatic duct.

Video 1 Endoscopic ultrasound-guided transluminal pancreatic duct drainage (pancreaticogastrostomy) using a lumen-apposing stent plus a double-pigtail plastic stent.
pigtail stent, with the purpose of avoiding self-occlusion, food impaction, dislodgement, and migration (Video 1). First, the dilated pancreatic duct (up to 5.6 mm) was punctured directly from the gastric wall, using a 19 G needle, and tract dilation was carried out using a 6 Fr cystotome over a 0.035-inch guidewire (Fig. 1). Second, a LAMS was inserted and deployed using the HotAXIOS system. All four steps of the delivery system were performed under EUS, endoscopic, and fluoroscopic guidance (Video 2). Finally, a double-pigtail plastic stent (7 Fr × 5 cm, Advanix; Boston Scientific) was advanced through the LAMS under endoscopic vision (Fig. 3). The total procedure duration was 48 minutes. The patient's condition evolved satisfactorily without any adverse events.

The use of a LAMS plus a double-pigtail stent in EUS-guided pancreatic duct drainage was technically feasible and safe, and reduced the potential risk of pancreatic fluid leak or stent migration. For these reasons, it should be considered as a new option in this scenario.

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