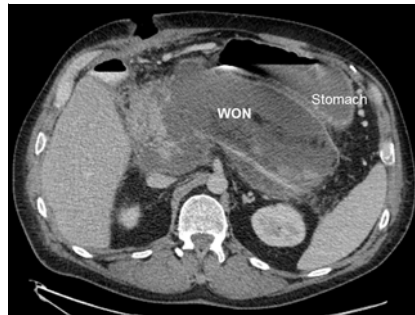


## Endoscopy-guided percutaneous stapled pancreatic cystgastrostomy and necrosectomy

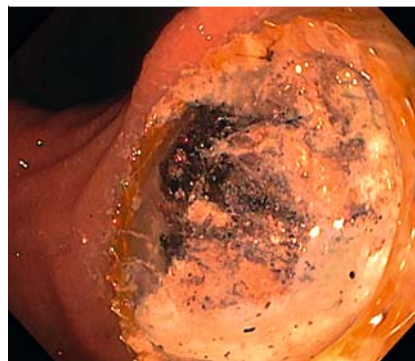
Endoscopic ultrasound (EUS)-guided transmural drainage of symptomatic pancreatic fluid collections using plastic or metal stents has become first-line therapy [1,2]. However, stents can become occluded despite direct endoscopic necrosectomy (DEN) of the walled-off necrosis (WON), and an alternative management plan is required.

A 57-year-old man with necrotizing pancreatitis developed an 18-cm WON (► Fig. 1), producing significant mass effect on the stomach and surrounding bowel. EUS-guided cystgastrostomy was performed with placement of two lumen-apposing metal stents (LAMS) in the body and the antrum of the stomach. Despite undergoing seven sessions of extensive DEN, the massive cavity could not be completely cleared of necrotic material, and the patient repeatedly presented with infection due to recurrent clogging of the LAMS (► Fig. 2). We therefore reviewed the case with our minimally invasive surgical colleagues and devised an innovative approach utilizing endoscopic and laparoscopic tools for definitive therapy.

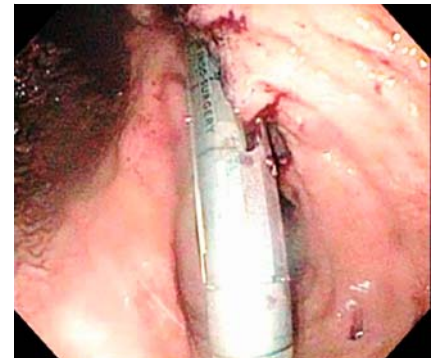
Under endoscopic guidance, we created an anchored percutaneous gastrostomy site on the anterior gastric wall, through which we placed a 12-mm port directly into the stomach. The distal LAMS was removed, and the stapler was placed via the port into the existing cystgastrostomy site. The stapler was aimed towards the proximal LAMS (► Fig. 3). Several applications of the stapler were used to create a wide opening of the cavity into the gastric lumen. This allowed extensive debridement of the cavity using laparoscopic tools under endoscopic guidance, which could not be performed with purely endoscopic techniques (► Video 1). Large pieces of necrotic material were retrieved (► Fig. 4). A percutaneous endoscopic gastrostomy tube was placed at the newly created gastrostomy site.



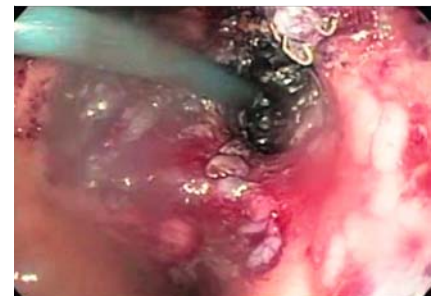
► Fig. 1 Large pancreatic walled-off necrosis collection causing gastric outlet obstruction.



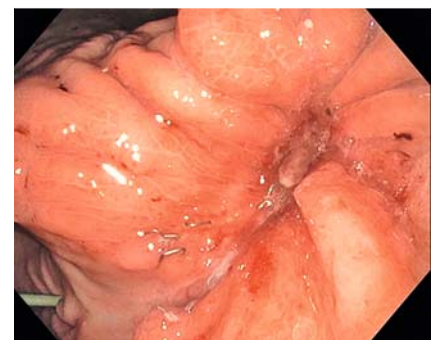
► Fig. 2 Persistent infection due to recurrent stent occlusion despite multiple endoscopic necrosectomy sessions.



► Fig. 3 Percutaneous stapler used via the anterior abdominal wall gastrostomy port to extend the existing cystgastrostomy site on the posterior abdominal wall under endoscopic guidance.



► Fig. 4 Percutaneous necrosectomy using laparoscopic tools under endoscopic guidance.



► Fig. 5 Complete resolution of the walled-off necrosis cavity at 3-month follow-up.

Follow-up endoscopy and computed tomography scan 3 months later showed complete resolution of the WON cavity (► Fig. 5). The combined laparoscopic and endoscopic approach created a wide cystgastrostomy and allowed for one-step debridement after repeated endoscopic necrosectomies failed.

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### Competing interests

The authors declare that they have no conflict of interest.



**Video 1** Endoscopically guided percutaneous stapled cystgastrostomy and necrosectomy of a large walled-off pancreatic necrosis collection refractory to endoscopic debridement.

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