

# A rare case of a spontaneous duodenum fistula in a patient on endoscopic ultrasound–guided treatment of large walled-off pancreatic necrosis

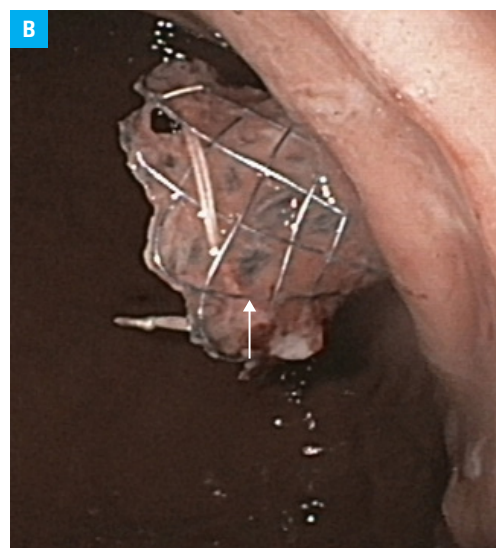
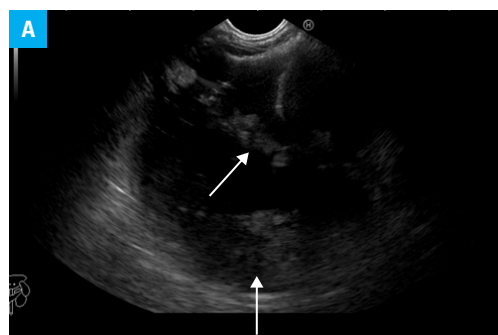
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A 51-year-old male patient with a history of severe acute necrotizing pancreatitis (ANP) was admitted to our center with a partial ileus in the upper gastrointestinal tract. An abdominal contrast-enhanced computed tomography (CECT) scan showed walled-off pancreatic necrosis (WOPN) (250 × 170 × 220 mm), which was pressing on the posterior wall of the stomach. The patient was considered a good candidate for endoscopic treatment. Cystogastrotomy was performed under endoscopic ultrasound guidance (FIGURE 1A). A lumen-apposing metal stent (NAGI Stent, 30 × 16 mm) was introduced transmurally (through the fistula), with a subsequent drainage of the dense necrotic contents (FIGURE 1B). No complications developed, and on day 2 after the procedure, the patient

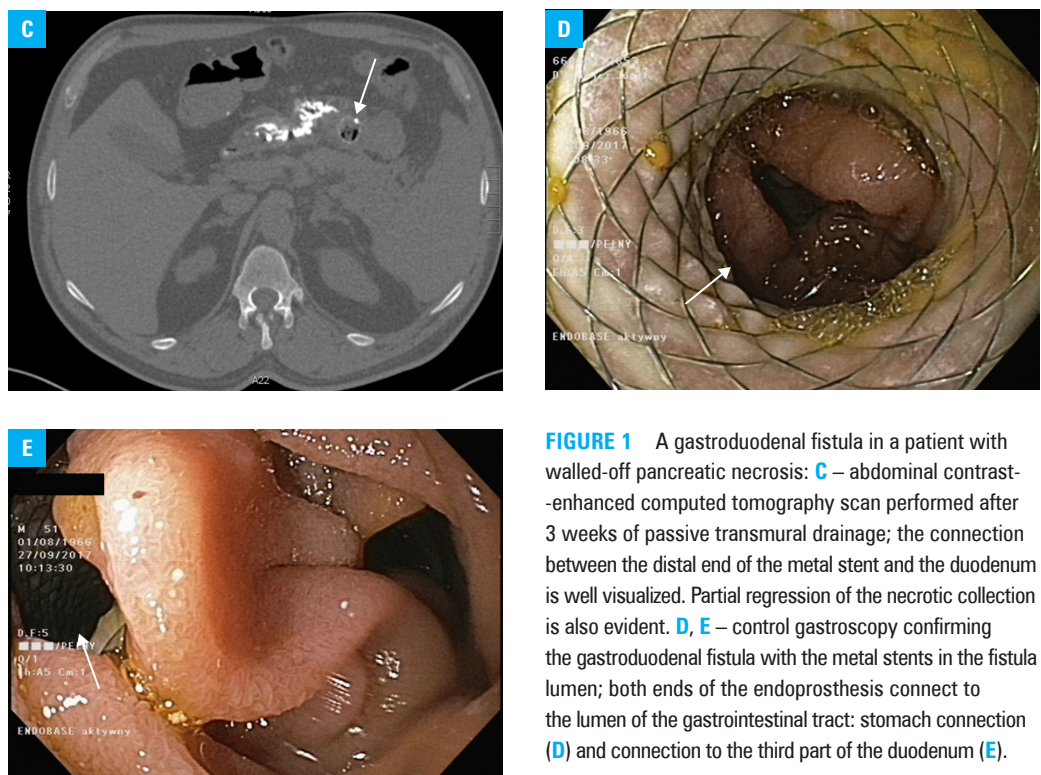
was asymptomatic and was discharged home in generally good condition.

The patient was readmitted to our department 3 weeks later to evaluate the effectiveness of prior endotherapy. At that time, he reported no complaints. A control CECT revealed a partial decrease in the size of the necrotic debris collection (54 × 56 × 67 mm); however, there was evidence that a gastroduodenal fistula had developed (FIGURE 1C). Gastroscopy confirmed the gastrointestinal fistula connecting the self-expanding metal stent with the lumen of the fistula (FIGURE 1D and 1E). Both ends of the endoprosthesis were connected to the lumens of the gastrointestinal tract (one end to the stomach, and the other to the third part of the duodenum). The decision was made to continue passive endoscopic



**FIGURE 1** A gastroduodenal fistula in a patient with walled-off pancreatic necrosis: **A** – endoscopic ultrasound image showing walled-off pancreatic necrosis; hyperechogenic structures (fragments of necrotic tissue) are visible in the lumen of the tissue collection; **B** – a self-expanding metal stent is introduced through the gastropancreatic fistula that is visible on the endoscopic image.

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**FIGURE 1** A gastroduodenal fistula in a patient with walled-off pancreatic necrosis: **C** – abdominal contrast-enhanced computed tomography scan performed after 3 weeks of passive transmural drainage; the connection between the distal end of the metal stent and the duodenum is well visualized. Partial regression of the necrotic collection is also evident. **D, E** – control gastroscopy confirming the gastroduodenal fistula with the metal stents in the fistula lumen; both ends of the endoprosthesis connect to the lumen of the gastrointestinal tract: stomach connection (**D**) and connection to the third part of the duodenum (**E**).

drainage. After 3 months, a follow-up abdominal CECT showed that the collection of necrotic debris had completely resolved. The stent was removed during gastroscopy without complications. The patient remained in good condition at 6 months, with no evidence of pancreatic fluid collection on a follow-up imaging examination.

Pancreatic fistulas can occur in the upper and lower gastrointestinal tract (spontaneous fistulization) in conjunction with the inflammatory process of ANP.<sup>1,2</sup> The occurrence of fistulas during episodes of acute pancreatitis ranges from 4% to 41% of cases, depending on the population studied.<sup>1-3</sup> Most fistulas in the upper gastrointestinal tract can be successfully managed with conservative treatment.<sup>1,2</sup> Endoscopic ultrasound-guided transmural drainage is an effective treatment method for patients with postinflammatory pancreatic fluid collections.<sup>4</sup> Passive drainage through a single transmural access is often insufficient in patients with WOPN.<sup>5</sup> Our patient experienced spontaneous fistulization of WOPN to the duodenum, most likely caused by the inefficient passive drainage through the single transmural access. The inefficient drainage was enhanced by the inflammatory process associated with ANP.

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