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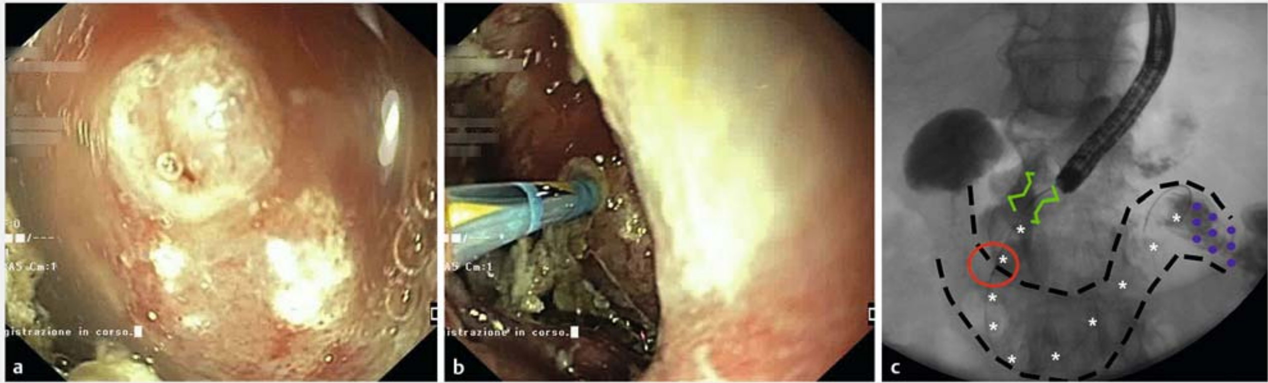
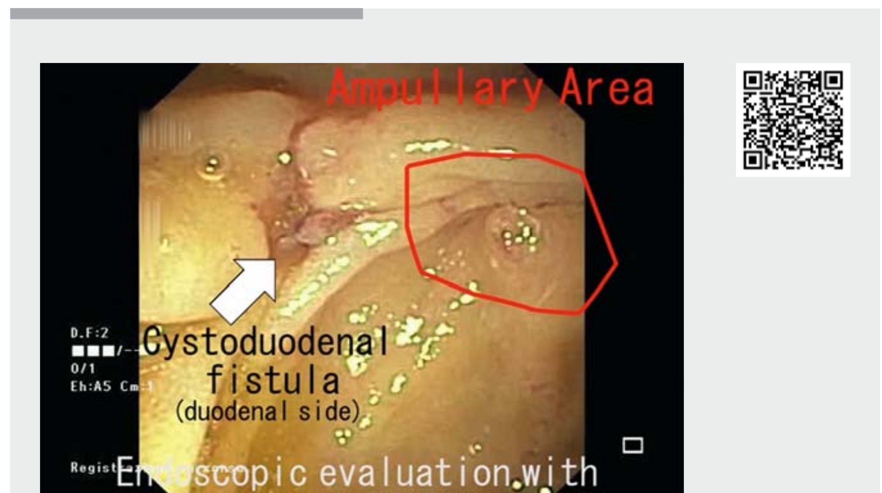
Cystoduodenal fistula: unusual complication after acute necrotizing pancreatitis with collection



▶ **Fig. 1** Detection of the fistula. **a** A forward-viewing endoscope detected a small opening in the anterior wall of the inferior portion of the walled-off pancreatic necrosis. **b, c** A SwingTip cannula (Olympus Medical Systems, Tokyo, Japan) was inserted through the fistula, confirming active communication with the duodenum. Red circle, cystoduodenal fistula; green lines, lumen-apposing metal stent; asterisks, guidewire; blue dots, contrast medium.

A 56-year-old man was admitted to our hospital with severe acute necrotizing gallstone pancreatitis. Computed tomography showed a 15-cm infected walled-off pancreatic necrosis (WOPN) extending to the anterior pararenal space with free air bubbles inside. After multidisciplinary evaluation and according to septic status, endoscopic ultrasound-guided drainage was planned.

Using a linear echoendoscope (GF-UC140P; Olympus Europa, Hamburg, Germany), the collection was accessed from the antrum by placing a 20 × 10-mm electrocautery-enhanced lumen-apposing metal stent (LAMS; Hot AXIOS; Boston Scientific, Marlborough, Massachusetts, USA). Balloon dilation up to 20 mm and direct endoscopic necrosectomy (DEN) using a basket catheter and instillation of saline solution diluted with hydrogen peroxide were successfully performed using a standard gastroscope.



Video 1 A rare spontaneous cystoduodenal fistula effectively treated with conservative management after endoscopic ultrasound-guided drainage with a lumen-apposing metal stent.

A second DEN procedure was performed after 48 hours and a modest amount of yellowish fluid was observed inside the cavity without a clear source. Owing to suspicion of a biliary fistula, magnetic resonance cholangiopancreatography was performed and showed a regular biliary profile.

During the next DEN procedure in a dedicated X-ray room, and after having completely cleansed the WOPN walls, a small orifice was detected, through which we inserted a bending cannula (SwingTip; Olympus Medical Systems, Tokyo, Japan) (▶ **Fig. 1**). Contrast medium injection revealed clear communication with the descending duodenum without fluid passage into the biliary system (▶ **Video 1**). A guidewire was then passed through the cannula, confirming WOPN fistulization

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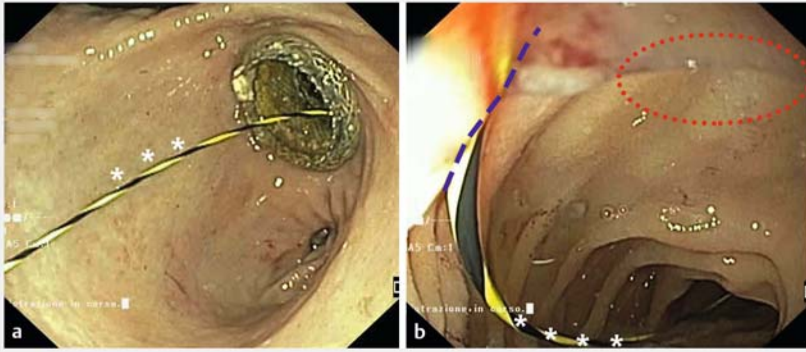

▶ **Fig. 2** Endoscopic images. **a** The guidewire (asterisks) was left in place crossing the lumen-apposing metal stent. **b** The duodenal side of the fistula (blue dashed line) was endoscopically recognized near the major papilla (red dashed line).

just a few centimeters above the major papilla (▶ **Fig. 2**). Considering the regular craniocaudal transit of the contrast dye without retrograde reflux of acid bile into the collection (which might increase pancreatic damage) or "free" leakage into the peritoneal cavity, the patient was treated conservatively with targeted antibiotics and with clinical efficacy. After radiological confirmation of WOPN resolution, the LAMS was removed 28 days later and the patient remained asymptomatic after 4 months' follow-up.

Cystoduodenal fistula is rare [1], with generally good outcomes including in children [2]. Therapeutic management depends on the site and the involved linked organ [3]. Although direct perforation into the peritoneum requires immediate surgery or a minimally invasive approach such as endosuturing or application of over-the-scope clips, if technical feasible, conservative therapy may be a valid solution for spontaneous internal fistulization into the stomach or duodenum.

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Competing interests

The authors declare that they have no conflict of interest.

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