Acute iatrogenic gastric perforation during endoscopic ultrasound (EUS) for malignant biliary obstruction: intraoperative over-the-scope clip closure and EUS-guided biliary drainage with lumen-apposing metal stent

A 72-year-old woman presented with a 2-month history of jaundice and abdominal pain. A computed tomography scan revealed a large mass in the pancreatic head with dilated bile ducts. Endoscopic ultrasound (EUS)-guided fine-needle biopsy (FNB) and endoscopic retrograde cholangiopancreatography were scheduled for tissue acquisition and jaundice resolution.

The EUS was performed under general anesthesia using a linear echoendoscope (GF-UCT140; Olympus, Tokyo, Japan) with carbon dioxide insufflation. A neoplastic infiltration of the duodenal bulb (Mutilgnani type I [1]) was observed. However, during the advancing maneuvers of the echoendoscope toward the duodenum, we detected a full-thickness, round-shaped defect, of 14 mm in diameter, in the gastric lesser curvature, with direct access into the peritoneal cavity (▶ Fig.1, ▶ Video 1).

A gastroscope preloaded with an over-the-scope (OTS) clip (14/6t) was immediately used to close the iatrogenic perforation, with margin apposition and subsequent restoration of intraluminal distension (▶ Fig.2).

EUS-FNB of the pancreatic lesion was then performed and a duodenal uncovered self-expandable metal stent was deployed over-the-wire across the stricture. A trans-stent duodenoscopy was carefully performed and, under fluoroscopy, sphincterotomy was attempted multiple times without successful cannulation of the bile ducts.

Finally, under EUS and radiologic guidance, an EUS-guided choledochoduodenostomy was performed using a 10 × 20 mm electrocautery-enhanced lumen-apposing metal stent (Hot Spaxus; Taewoong Medical, Gimpo-si, South Korea) (▶ Fig.3).

A broad-spectrum antibiotic was administered for 7 days and the patient was asymptomatic at the 3-month follow-up, with a progressive drop in bilirubin. Although rare, iatrogenic gastric perforation is a critical complication of EUS and may be fatal in elderly patients and those with neoplasia, especially if not recognized rapidly [2]. Immediate diagnosis is crucial and, even if technically demanding, the intraprocedural application of minimally invasive endoscopic treatment is feasible and safe, reducing the necessity for urgent surgery and its complication-related morbidity and mortality. Moreover, the completion of the required

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procedure should be always pursued in order to avoid delayed diagnosis and potential medicolegal issues.

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Competing interests

The authors declare that they have no conflict of interest.

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