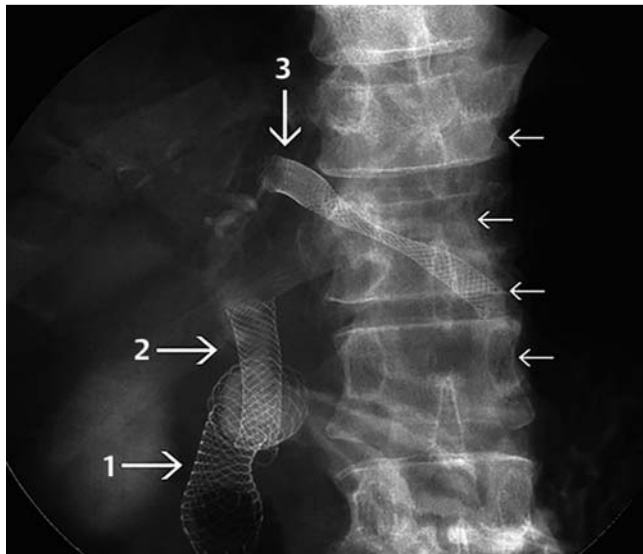
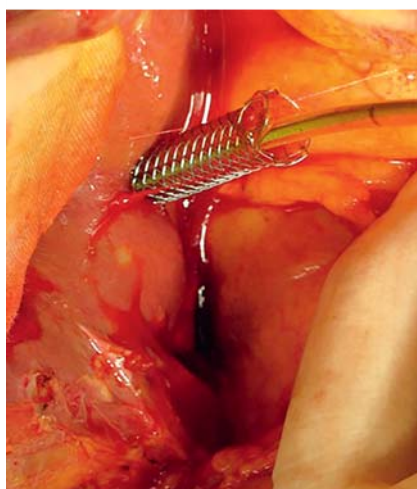


## Stent migration into the peritoneal cavity following endoscopic ultrasound-guided hepaticogastrostomy



**Fig. 1** Stent migration following endoscopic ultrasound (EUS)-guided hepaticogastrostomy in a 54-year-old man with unresectable pancreatic cancer. The proximal end of the stent is located outside the gastric wall. 1, duodenal stent, 2, choledochoduodenostomy stent, 3, hepaticogastrostomy stent; small arrows, gastric wall.



**Fig. 2** Endoscopic ultrasound-guided hepaticogastrostomy was attempted for biliary drainage in a 54-year-old man with unresectable pancreatic cancer. The stent immediately migrated into the peritoneal cavity; drainage was therefore done by open surgery. The migrated proximal end of the stent can be seen in the peritoneal cavity.

It is not always possible to perform endoscopic retrograde cholangiopancreatography, and endoscopic ultrasound-guided biliary drainage (EUS-BD) has been performed as an alternative to percutaneous or surgical approaches [1,2]. The 2008 EUS Working Group summarized the indications, techniques, and complications of EUS-guided hepaticogastrostomy

(EUS-HGS) [3]. The rate of complications reported for EUS-BD performed by experts was 0%–30%. Major complications included stent migration, bile leakage, peritonitis, and cholangitis [3,4].

A 58-year-old man had unresectable pancreatic cancer. He had undergone EUS-guided choledochoduodenostomy and duodenal stent placement. Because obstructive jaundice was recurrent, EUS-HGS was performed with the patient's consent. A linear EUS scope was used. The intrahepatic bile duct (B3) was punctured with a 19-gauge needle (Sono Tip Pro Control 19G; Medi-Globe GmbH, Rosenheim, Germany; Medico's Hirata Inc., Osaka, Japan). After contrast medium was injected, a 0.025-inch guide wire (VisiGlide; Olympus Medical Systems, Tokyo, Japan) was introduced through the needle and placed into the common bile duct. The fistula was dilated using a 9-Fr tapered biliary dilation catheter (Soehendra biliary dilation catheter; Cook Endoscopy; Bloomington, Indiana, USA). Finally, a fully covered metallic stent (8 mm × 8 cm Wallflex; Microvasive Endoscopy, Boston Scientific, Natick, Massachusetts, USA) was placed. Inward stent migration occurred immediately (● Fig. 1), which would be a fatal complication [4,5], and thereafter open surgical drainage was performed (● Fig. 2). Fortunately, the man was able to resume oral intake after surgery; however, 44 days

later, he died as a result of peritonitis carcinomatosa.

Anatomically, the stomach is not directly attached to the liver, and during EUS-HGS there is no space between these organs when the echoendoscope is pressed against the stomach wall. Pulling back the echoendoscope for stent placement creates space between the liver and stomach wall. Given this complication, stents with lengths of 10 or 12 cm should be used to avoid inward stent migration.

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