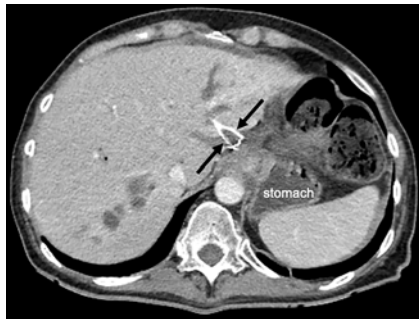
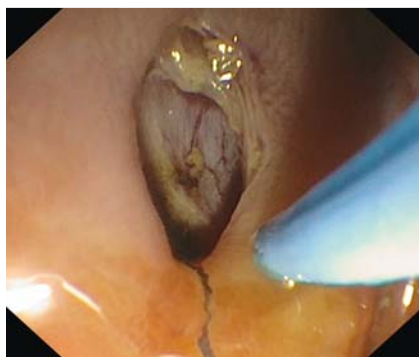


## Endoscopic ultrasound-guided stent-in-stent placement for management of migrated hepaticogastrostomy stent



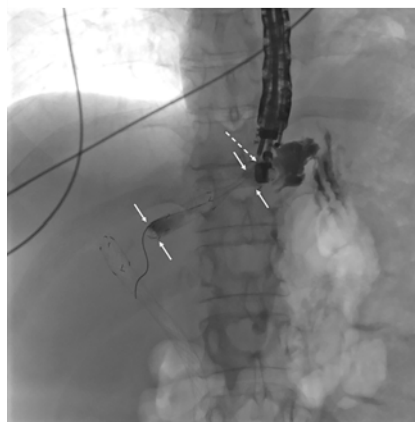
► **Fig. 1** Enhanced computed tomography showing the proximal portion of the migrated hepaticogastrostomy stent (arrows) and a fluid accumulation between the stomach and left liver lobe.



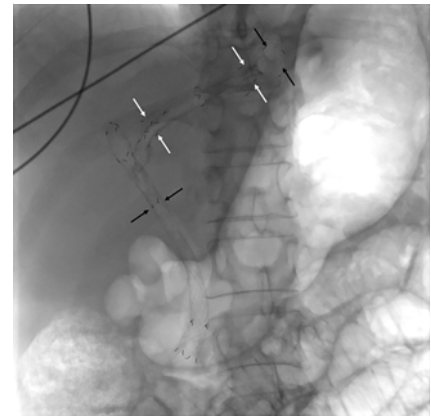
► **Fig. 2** Endoscopic image of a defect of the wall of the gastroesophageal junction at the hepaticogastrostomy site just above the Z-line. The proper muscle layer is visible at the bottom of the defect. The proximal end of the hepaticogastrostomy stent cannot be identified.



► **Fig. 3** Endoscopic ultrasound image of the proximal portion of the migrated hepaticogastrostomy stent (arrowheads) embedded in the left liver lobe parenchyma. Arrows indicate guidewire introduced through an endoscopic ultrasound-guided needle into the stent.



► **Fig. 4** Fluoroscopy image of a guidewire introduced into the lumen of the migrated stent (white arrows) through an endoscopic ultrasound-guided needle (dashed white arrow).



► **Fig. 5** Fluoroscopy image of the salvage stent (black arrows) deployed in the migrated hepaticogastrostomy stent (white arrows). The proximal end of the salvage stent is in the gastrointestinal lumen at the gastroesophageal junction, the distal end in the biliary stent draining the right liver lobe.

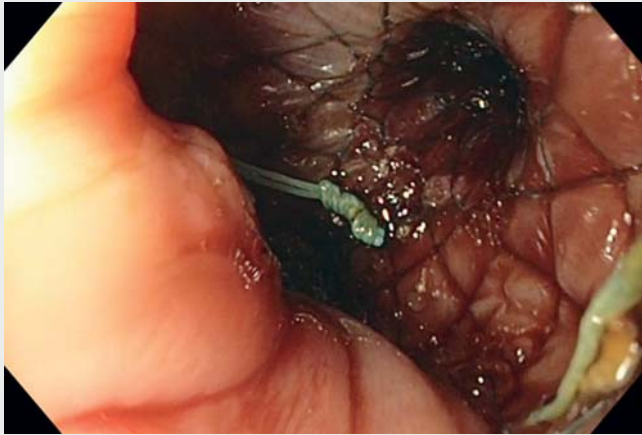
Stent misdeployment or migration into the peritoneal cavity is a dreaded complication of endoscopic ultrasound (EUS)-guided hepaticogastrostomy. It occurs in around 2.5% procedures, is potentially fatal, and usually treated surgically [1]. A few cases have been reported in which this complication was managed by repositioning the stent using transluminal endoscopic surgery techniques [2, 3] or by EUS-guided stent-in-stent insertion [4, 5]. Here we present a case of EUS-

guided puncture of the migrated stent through the wall of the gastroesophageal junction followed by stent-in-stent insertion.

A 58-year-old woman with a malignant hilar obstruction, a self-expandable metal stent (SEMS) in the right hepatic duct, and a failure to drain the left hepatic duct during endoscopic retrograde cholangiography underwent EUS-guided hepaticogastrostomy with a fully covered biliary SEMS (Hanarostent BCG-10-060; M.I.

Tech, Gyeonggi-do, Republic of Korea). The next day the patient developed abdominal pain and vomiting. Computed tomography (CT) revealed stent migration into abdominal cavity and a fluid collection between the stomach and left liver lobe (► **Fig. 1**).

The stent could not be identified in the hepaticogastrostomy site on endoscopy (► **Fig. 2**), but it was well visible on EUS close to the wall of the gastroesophageal junction. Using fluoroscopy control of the echoendoscope tip position and EUS guidance, the proximal end of the stent was punctured with a 19G needle (Easy-Shot3 Plus; Olympus, Tokyo, Japan), followed by insertion of a 0.035-mm guidewire (Visiglide; Olympus), dilation of the track with a 6-mm balloon (Hurricane RX; Boston Scientific, Marlborough, Massachusetts, USA), and insertion of a partially covered SEMS, 10 cm in length, in a stent-in-stent fashion (Hanarostent, BPD-10-100; M.I. Tech) (► **Fig. 3–5**, ► **Video 1**). The postprocedural course was uneventful, clinical symptoms sub-



**Video 1** Successful endoscopic ultrasound-guided stent-in-stent placement for salvage management of migrated hepaticogastrostomy stent.

sided, and bilirubin level dropped from 8.5 mg/dl to 3.1 mg/dl within 14 days allowing chemotherapy to resume. CT and endoscopy at 6 weeks confirmed the correct position of the salvage stent.

Endoscopy\_UCTN\_Code\_CPL\_1AK\_2AJ

### Competing interests

M. Polkowski has had consultancy and speaker agreements with Boston Scientific and Olympus. M. F. Kaminski has had speaker agreements with Olympus, Fujifilm, Medtronic, and Boston Scientific, consultancy agreements with Olympus and AlfaSigma, and received research support from Fujifilm.

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