Transmural cystoscopy with an ultra-slim basket for migrated stent removal after endosonography-guided hepatic cyst drainage

► **Fig. 1** Computed tomography suggested cyst infection and cholestasis due to obstructed bile ducts.

A 55-year-old woman with a huge hepatic cyst was admitted because of abdominal pain, fever, and jaundice. Computed tomography suggested cyst infection and cholestasis due to obstructed bile ducts (► **Fig. 1**). Because surgical or percutaneous interventions were refused, endoscopic ultrasound (EUS)-guided drainage with double-guidewire technique [1] was attempted via the stomach. However, the gastric end of a 7-Fr double-pigtail plastic stent was misplaced in the peritoneal cavity. Although a fully covered metal stent was deployed over another guidewire to catch the double-pigtail plastic stent in the cyst, the hepatic end of the fully covered metal stent was misplaced in the peritoneal cavity again (► **Fig. 2**). Following additional EUS-guided drainage with an external tube from the duodenal bulb, a standard endoscope was inserted into the peritoneal cavity through the fully covered metal stent, but the double-pigtail plastic stent could not be found (► **Fig. 3**).

After 2 weeks of waiting for fistula maturation, removal of the double-pigtail plastic stent was attempted again using a duodenoscope (TJF-260V; Olympus Medical Systems, Tokyo, Japan). A guidewire was inserted into the cyst along the

► **Fig. 2** An abdominal X-ray after endoscopic ultrasound-guided drainage. Double-pigtail plastic stent: the hepatic end (arrow) was in the cyst whereas the gastric end (arrowhead) was in the peritoneal cavity. Fully covered metal stent: the gastric end (open arrowhead) was in the stomach whereas the hepatic end (open arrow) was in the peritoneal cavity.

► **Fig. 3** An endoscopic view in the peritoneal cavity. The migrated plastic stent could not be found.

► **Fig. 4** A fluoroscopic view of grasping the plastic stent with a SpyBasket in the hepatic cyst.

► **Fig. 5** A SpyScope DS II view of grasping the plastic stent with a SpyBasket in the hepatic cyst.

external tube followed by fistula dilation with a balloon catheter. Grabbing the double-pigtail plastic stent was attempted with a wire-guided basket (TetraCatch V; Olympus Medical Systems) but failed. Thus, a SpyScope DS II (Boston Scientific, Natick, Massachusetts, USA) was inserted into the cyst, and the double-pigtail plastic stent was grasped by a dedicated forceps (SpyBite; Boston Scientific) under direct visualization but was lost during extraction owing to its weak grasping force. Finally, the double-pigtail plastic stent was caught tightly by a dedicated basket (SpyBasket; Boston Scientific) and successfully removed together with the SpyScope DS II (► **Fig. 4**, ► **Fig. 5**, ► **Video 1**). At last, two plastic stents were placed.

Stent migration is one of the serious adverse events during EUS-guided drainage of abdominal fluid collections [2]. The application of a SpyBasket through a SpyScope DS II might be a useful option for removal of a migrated stent.

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Competing interests

The authors declare that they have no conflict of interest.

► **Video 1** Transmural cystoscopy with a SpyScope DS II for migrated stent removal after endosonography-guided hepatic cyst drainage using an ultra-slim basket.

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