



Endoscopic removal of a migrated plastic stent from the peritoneal cavity after an EUS-guided gallbladder drainage procedure

Mayu Nishiyama, MD, Shigeto Ishii, MD, Toshio Fujisawa, MD, PhD, Hiroaki Saito, MD, PhD, Hiroyuki Isayama, MD, PhD

EUS-guided gallbladder drainage is useful as palliative therapy for acute cholecystitis but is associated with adverse events such as biliary peritonitis, abdominal bleeding, intestinal injury, and stent migration. Stent migration is a particularly severe adverse event because it frequently necessitates surgical removal of the stent.¹ We report here a case in which a migrated stent in the peritoneal cavity was removed endoscopically under fluoroscopic guidance.

A 74-year-old man with hilar cholangiocarcinoma was admitted to our hospital for the treatment of obstructive jaundice and underwent placement of a 7F plastic stent (Flexima; Boston Scientific, Marlborough, Mass, USA) in the left hepatic duct. Four days after stent placement, he experienced acute cholecystitis (Fig. 1) and underwent EUS-gallbladder drainage. The patient's gallbladder was punctured through the wall of the duodenal bulb with a 19-gauge EUS needle (EZshot 3; Olympus, Tokyo, Japan).

Two 0.025-inch guidewires (VisiGlide 2; Olympus and Revo-Wave Ultrahard; Piolax, Yokohama, Japan) were placed in the gallbladder by use of a double-lumen catheter (Uneven; Piolax), and the fistula was dilated with a 6-mm dilation balloon (Ren; Kaneka, Tokyo, Japan). Finally, a 7F 9-cm double-pigtail stent and nasogallbladder catheter were placed through the fistula (Fig. 2). One day after the procedure, abdominal CT revealed that the duodenal end of the 7F 9-cm double-pigtail stent had migrated into the peritoneal cavity, leading to biliary peritonitis (Fig. 3). Abdominal and gallbladder drainage tubes were inserted percutaneously (Fig. 4), but the patient's condition did not improve because of continuous bile leakage. Therefore, we decided to remove the migrated stent endoscopically (Video 1, available online at www.VideoGIE.org).

First, we exchanged the nasobiliary catheter for a 7F straight-type plastic stent through the fistula between



Figure 1. Ultrasonographic view of the gallbladder showing debris accumulation.



Figure 2. Drainage of the gallbladder using a double-pigtail stent and nasogallbladder catheter, and drainage of the bile duct using a double-flap stent.



Figure 3. Migration into the peritoneal cavity of the duodenal edge of a double-pigtail stent placed in the gallbladder, and continued leakage of bile juice into the peritoneal cavity.

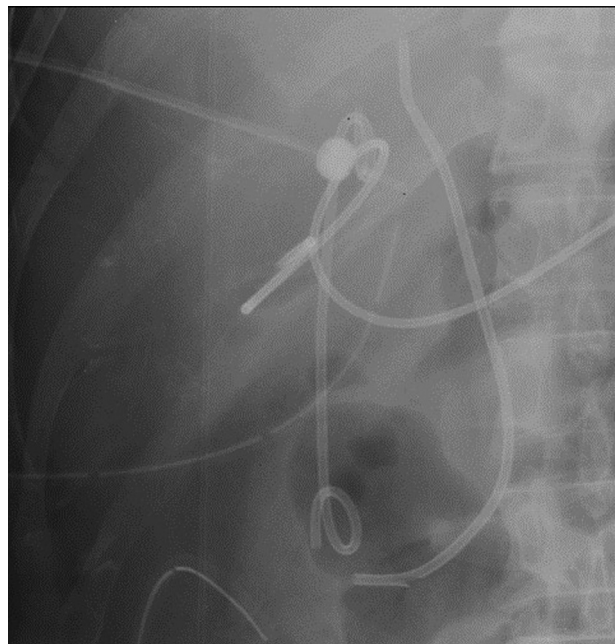


Figure 4. Additional drainage from the gallbladder and peritoneal cavity. Drainage tubes were percutaneously inserted into the gallbladder and the peritoneal cavity.

the duodenal bulb and the gallbladder (Fig. 5). We placed a guidewire into the abdominal cavity through the fistula toward the migrated stent, and proceeded with alligator forceps to bite the guidewire. Finally, the migrated stent

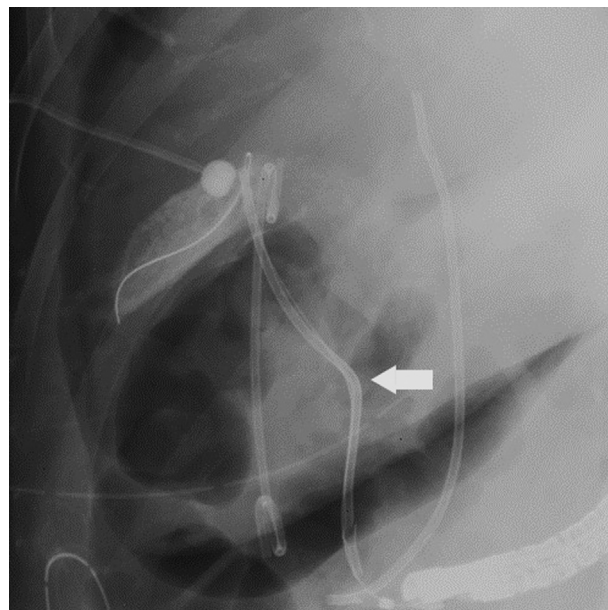


Figure 5. Exchange of a nasobiliary catheter for a straight-type plastic stent: placement of a 7F stent in the gallbladder through the duodenal fistula (white arrow).

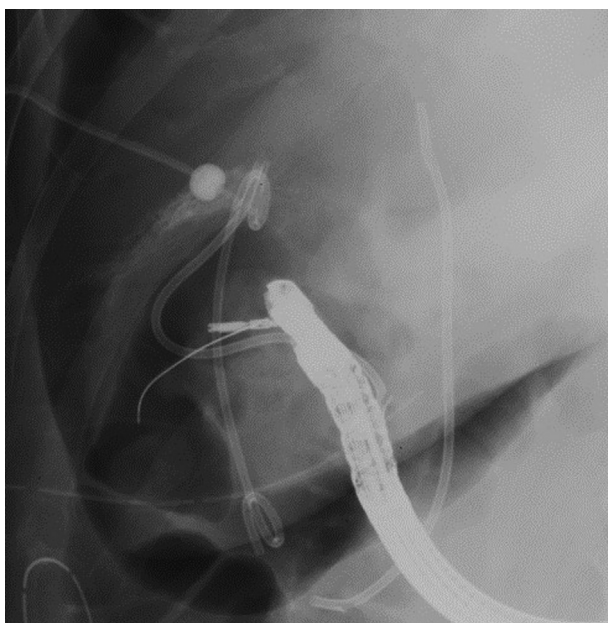


Figure 6. Removal of a migrated double-pigtail stent from the peritoneal cavity by grasping it and pulling it out through the fistula.

was grasped and pulled out through the fistula (Fig. 6). The fistula was not clipped because of its small size. The guidewire could prevent organ injury caused by the alligator forceps. No adverse events occurred, and the percutaneous drainage tubes were removed 1 week after the procedure.

Cases in which a migrated plastic stent can be removed from the peritoneal cavity have never been reported, although

a migrated metal stent has been endoscopically removed from the peritoneal cavity.² In this case, we chose a relatively short stent because the distance between the gallbladder and duodenum is short. However, a longer stent might be better for preventing release-related migration. Moreover, a pull-back stent may be useful for retrying the deployment if the length of the stent is inappropriate or stent advancement is impossible across the fistula. Endoscopic removal using alligator forceps, as reported here, shows promise for stents that migrate into the abdominal cavity.

DISCLOSURE

All authors disclosed no financial relationships relevant to this publication.

REFERENCES

1. Okuno N, Hara K, Mizuno N, et al. Stent migration into the peritoneal cavity following endoscopic ultrasound-guided hepaticogastrostomy. *Endoscopy* 2015;47:E311.
2. Fujisawa T, Saito H, Isayama H. Endoscopic removal of a metal stent that migrated into the peritoneal cavity after EUS-guided hepaticogastrostomy. *Dig Endosc* 2019;31:e74-5.

Department of Gastroenterology, Graduate School of Medicine, Juntendo University, Tokyo, Japan.

Copyright © 2019 American Society for Gastrointestinal Endoscopy. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

<https://doi.org/10.1016/j.vgie.2019.03.008>

Read Articles in Press Online Today!
Visit www.videogie.org

VideoGIE posts in-press articles online in advance of their appearance in a monthly edition of the journal. These articles are available on the *VideoGIE* website by clicking on the “Articles in Press” tab. Articles in Press represent the final edited text of articles that are accepted for publication but not yet scheduled to appear in a specific issue. They are considered officially published as of the date of Web publication, which means readers can access the information and authors can cite the research months prior to its availability in an issue. To cite Articles in Press, include the journal title, year, and the article’s Digital Object Identifier (DOI), located in the article footnote. Visit the website today to stay current on the latest research in the field of gastrointestinal endoscopy.