Endoscopic ultrasound (EUS)-guided transluminal endoscopic removal of gallstones

Although laparoscopic cholecystectomy is the standard treatment for cholecystitis, including cholecystolithiasis [1,2], endoscopic ultrasound (EUS)-guided cholecystenterostomy is an alternative treatment for patients at high surgical risk [3–5]. Here we report on using the fistula created by the EUS-guided cholecystenterostomy to remove gallstones for successful radical treatment of cholecystolithiasis without cholecystectomy.

A 62-year-old man with significant dementia presented with severe acute cholecystitis. Cholecystectomy was deemed unsuitable because of the presence of sepsis, and EUS-guided cholecystoduodenostomy was carried out. An echoendoscope (GF-UCT240-AL5, Olympus, Tokyo, Japan) was introduced into the duodenum, and a 19-G needle (Echo-Tip; Cook, Winston-Salem, North Carolina, USA) was used to puncture the gallbladder (Fig. 1).

Cholecystocholangiography revealed gallstones and sludge in the gallbladder (Fig. 2).

A 0.035-inch guide wire (Revowave, Olympus, Tokyo, Japan) was passed through the needle until it was coiled within the gallbladder, and then 6, 7 and 9-Fr dilators (Soehendra Biliary Dilation Catheters, Cook, Winston-Salem, North Carolina, USA) were serially advanced over the guide wire to dilate the tract. A one-sided pigtail-type stent (Catex, Tokyo, Japan) was deployed in the gallbladder. By day 11 the cholecystitis had improved. However, on day 145 after the procedure, the patient had a relapse. Duodenoscopy (JF260V, Olympus, Tokyo, Japan) revealed obstruction of the stent and the need for reintervention to treat the cholecystitis. After the stent was extracted with a snare, a 0.035-inch guide wire was passed through the catheter (Swing Tip, Olympus Medical Systems, Tokyo, Japan) via the fistula until it reached the gallbladder. A covered metal stent (CMS) (Wallflex, diameter 10 mm; length 4 cm, Boston Scientific, Boston, Massachusetts, USA) was placed to bridge the gallbladder with the duodenum (Fig. 3), and the gallstones and sludge were discharged into the bowel tract by irrigating the gallbladder with saline (Fig. 4).

Finally, the CMS was removed with forceps, and a 7-Fr pigtail-type stent was de-

Fig. 1 Endosonographic image of the gallbladder puncture. Arrows indicate the puncture needle.

Fig. 2 Cholecystographic image of the gallbladder puncture.

Fig. 3 Fluoroscopic image of the deployment of the covered metal stent (arrows).

Fig. 4 Endoscopic image of a stone discharged from the gallbladder through the covered metal stent (arrows).

ployed in the gallbladder instead. On day 5 after the operation, the patient's condition improved and he could resume eating. The stent has been in place for 5 months now with no recurrence of symptoms.

Competing interests: None

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