Endoscopic treatment of a cystic duct stump leak complicated by aberrant bile duct communication

A 53-year-old man was referred to our clinic with the problem of continuous bile drainage (approximately 200 mL bile per day) that was still occurring 10 days after an intra-abdominal drain had been placed into the operation area following a laparoscopic cholecystectomy. At endoscopic retrograde cholangiography (ERC), a stone was detected at the distal site of the common bile duct (CBD), sphincterotomy was performed, and the stone was extracted via balloon. During ERC, injection of contrast medium together with

balloon occlusion revealed the presence of a leak from the cystic stump at the level of the percutaneous drain (● Fig. 1 a). Surprisingly, the endoscopist also noticed that intrahepatic ducts in a segment of the right posterior hepatic lobe were not filled during balloon occlusion cholangiogram (● Fig. 1 a).

Suspecting both aberrant bile duct injury and cystic stump leakage, we planned contrast injection via a percutaneous drain. The right posterior intrahepatic ducts, which ran to the cystic stump,

were filled retrogradely with contrast medium (● Fig. 1 b). Unfortunately, a guidewire could not be passed into the hepatic duct although several attempts were made. A 7-Fr nasobiliary drain was placed through the CBD.

On a subsequent percutaneous transhepatic cholangiogram, slightly dilated right posterior intrahepatic bile ducts were visualized. The posterior right hepatic duct was seen to communicate with the cystic duct stump, from which contrast medium was leaking into the intra-abdominal space (● Fig. 1 c). A guidewire introduced via percutaneous access into the duodenum was then caught by a snare using a rendezvous technique and was eventually passed all the way to the patient's mouth to provide through-and-through access. Using this guidewire, a 10-Fr bili-

Fig. 1 A 53-year-old man with permanent bile duct drainage from an intra-abdominal drain underwent endoscopic retrograde cholangiography. **a** During balloon occlusion cholangiogram, leakage from the cystic duct stump was seen (arrows) and intrahepatic ducts in a segment of the right posterior hepatic lobe were not filled (circle). **b** The right posterior intrahepatic ducts, which ran to the cystic stump were filled retrogradely (arrows) with contrast injection via a percutaneous drain. **c** Slightly dilated right posterior intrahepatic bile ducts (blue arrows) and the right posterior hepatic duct communicating with the cystic duct stump (white arrow) was seen on percutaneous transhepatic cholangiogram (PTC). Also, contrast leakage from the cystic stump was seen on PTC (black arrows). **d** A biliary stent was placed through the cystic stump into the right posterior hepatic duct (arrows). **e** 3 months later, the stent was removed and bile leakage and/or biliary stricture was no longer seen (arrows).

ary stent was placed through the cystic stump into the right posterior hepatic duct (● Fig. 1 d). The stent was removed 3 months later and no bile leakage and/or biliary stricture was seen (● Fig. 1 e).

In patients with a suspicious leakage from the cystic stump, and in whom the right posterior intrahepatic ducts cannot be filled during ERC, contrast injection via percutaneous drain is a technically easy method, which also prevents losing time during patient management, and can eliminate the need for further advanced examination methods such as magnetic resonance cholangiography.

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