

A minimally invasive technique utilizing percutaneous and endoscopic rendezvous for successful treatment of a proximal bile leak following partial hepatectomy

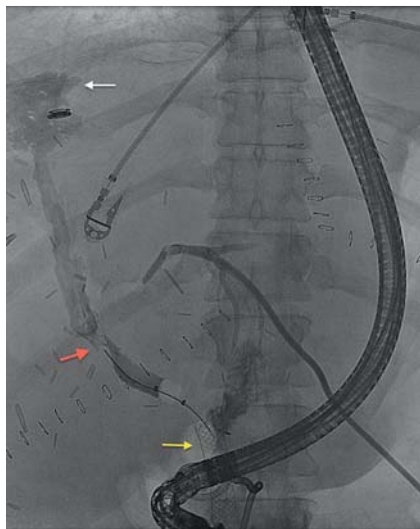


Fig. 1 Balloon occlusion cholangiogram obtained by passing a retrieval balloon through a fully covered self-expandable metallic biliary stent (yellow arrow) demonstrates a leak at the confluence of the left hepatic and common bile ducts (red arrow). Contrast is seen filling within a subhepatic collection (white arrow). Contrast in the left hepatic ducts is from concurrent percutaneous cholangiogram performed through an indwelling anchor drain.

A 43-year-old woman presented with a grade B [1] bile leak after right hepatectomy for metastatic colon cancer. She developed subhepatic bilomas which were managed with percutaneous drains. Endoscopic retrograde cholangiography (ERC) demonstrated a high-grade bile leak secondary to a large defect in the left hepatic duct, possibly due to complete dehiscence of the staple line of the right hepatic bile duct. Despite placement of a fully covered self-expandable metallic stent (SEMS), the bile leak persisted. Percutaneous transhepatic biliary drainage (PTBD) was attempted. The left hepatic duct was accessed in an antegrade fashion; however, the guidewire repeatedly entered the subhepatic space and could not be directed into the common bile duct. Simultaneous ERC and PTBD were performed. The leak (● Fig. 1) and discontinuity between the left hepatic duct and common bile duct was redemonstrated at ERC. A guidewire was advanced in a retrograde manner to the area just distal to the

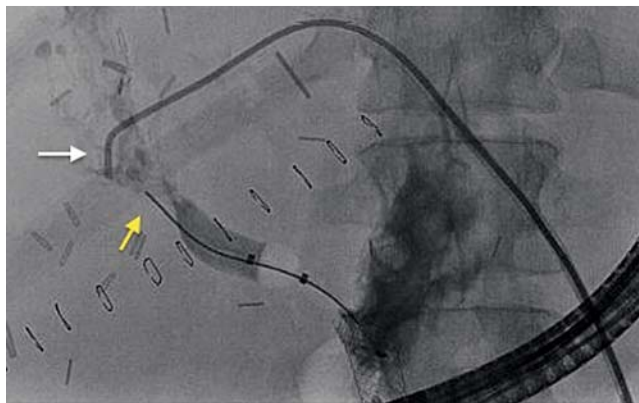


Fig. 2 A snare is passed antegrade through the left hepatic duct (white arrow) while a guidewire is passed retrograde through the common bile duct (yellow arrow).

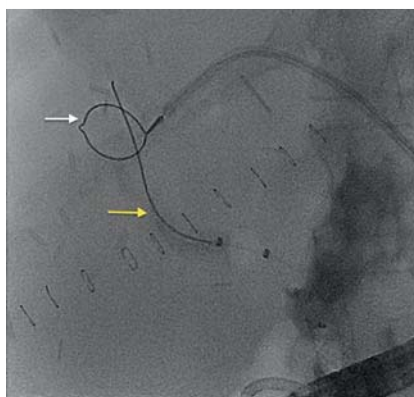


Fig. 3 A snare is passed antegrade through the catheter within the left hepatic duct. The guidewire (yellow arrow) is grasped using a 15-mm snare (white arrow).

leak (● Fig. 2). A 15-mm snare (Amplatz GooseNeck, Covidien, Plymouth, Minnesota, USA) was advanced in an antegrade manner across the left hepatic duct defect to capture the wire (● Fig. 3) and pulled externally to secure biliary access. A percutaneous biliary drainage catheter was directed over the guidewire, through the SEMS, into the distal duodenum using endoscopic guidewire traction (● Fig. 4). The drain was customized with additional side holes which remained within the intrahepatic biliary tree but not in the region of the ductal defect (● Fig. 5). At 6-month follow-up, the subhepatic collections had resolved on imaging. Bile leaks occur in up to 10%–12% [1,2] of patients following hepatic surgery, and are a significant cause of postsurgical morbidity, prolonged hospital stay, and



Fig. 4 The 12-Fr biliary drainage catheter is passed antegrade through the fully covered self-expandable metallic stent previously placed across the papilla (yellow arrow) and directed endoscopically toward the distal duodenum (white arrow).

mortality [2]. Indications for resection of colorectal cancer liver metastasis have expanded in recent times, leading to larger and more complex resections [3]. Pre-operative bevacizumab and surgical technique are independent predictors of bile leaks [2]. Establishing continuity between the biliary tree distal and proximal to the defect is crucial for successful treatment [4]. We describe successful establishment of biliary continuity using an ERC-PTBD rendezvous procedure (after failure of standard endoscopic techniques) to treat a large defect which obviated the need for repeat laparotomy.

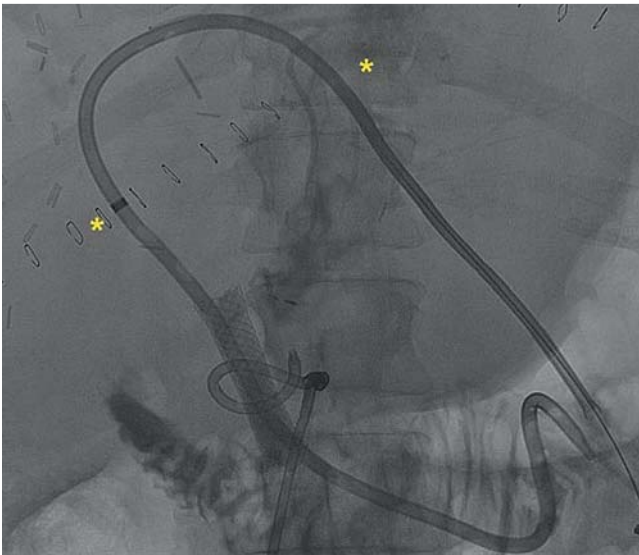


Fig. 5 The percutaneously placed 12-Fr biliary drainage catheter is advanced through the common bile duct while ensuring that side holes are not present in the region of duct discontinuity (in between yellow asterisks).

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