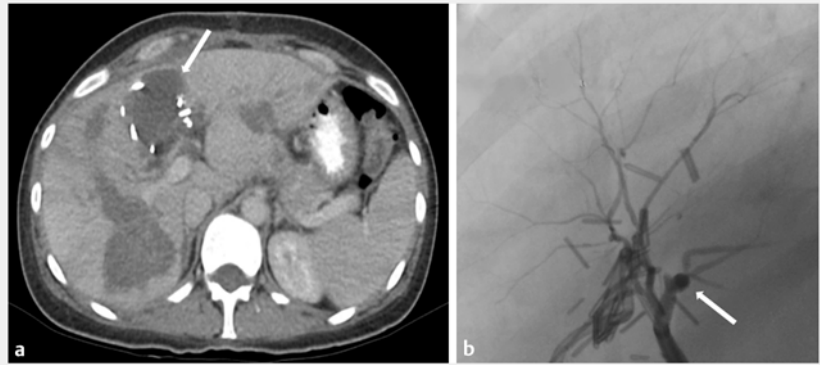


## Bile duct reconstruction with single-operator cholangioscopy and percutaneous radiological rendezvous procedure

Intrahepatic bile leaks secondary to disconnected hepatic segments following liver resection can be difficult to treat [1]. There are only isolated reports of successful endoscopic management [2, 3]. We present the case of a 41-year-old woman with colorectal cancer and hepatic secondaries who received a segment IVb liver resection and multisegment microwave ablation. Surgery was complicated by biliary sepsis and a large biliary leak. Baseline cross-sectional imaging and endoscopic retrograde cholangiopancreatography (ERCP) established the presence of a surgically clipped left hepatic duct and disconnected left lobe leaking into an intrahepatic cavity (► **Fig. 1**). Left-sided percutaneous transhepatic biliary drainage (PTBD) was performed and then, under direct cholangioscopic guidance (SpyGlass DS direct visualization system; Boston Scientific, Marlborough, Massachusetts, USA), the occluded left hepatic duct was dilated and the cavity accessed (► **Video 1**). A rendezvous procedure via the percutaneous transhepatic biliary drain allowed an intracavity guidewire to be cholangioscopically snared and the biliary tree reconstructed by endoscopic placement of bilateral fully covered metal stents (► **Fig. 2**). The bile leak rapidly resolved with reconstitution of the biliary system. Reconstitution of a disconnected intrahepatic biliary tree is challenging, but in this case successful management was achieved by (1) radiologic access to the disconnected biliary tree with an external drain and (2) cholangioscopic access to the cavity via the occluded left hepatic duct with direct retrieval of the radiologically placed guidewire and stenting. The management of a disconnected biliary system may be aided by cholangioscopy-guided therapy.

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► **Fig. 1** a Computed tomography showing a large complex collection at the resection site. b ERCP showed no biliary leak, but occluded left hepatic duct.



► **Video 1** Bile duct reconstruction with single-operator cholangioscopy and percutaneous radiological rendezvous procedure following partial hepatectomy complicated by disconnected biliary system and bile leak.

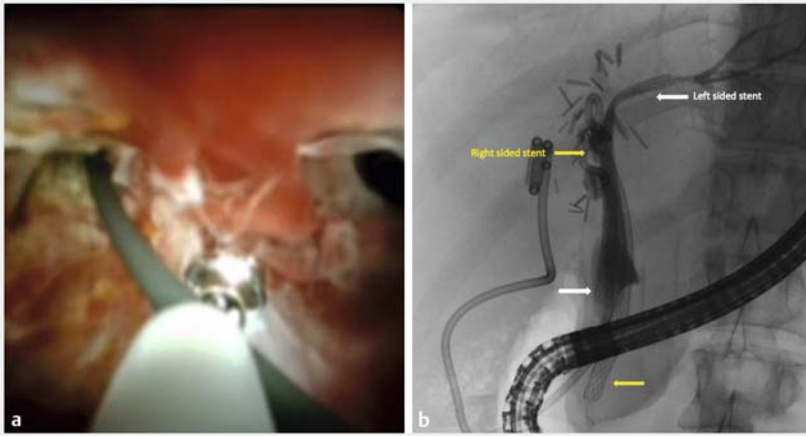
### Competing interests

The authors declare that they have no conflict of interest.

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► **Fig. 2** **a** Cholangioscopic view of the cavity: a snare introduced into the cholangioscope allowed capture of the radiologically placed guidewire. **b** Reconstitution of the disconnected left biliary system with bilateral fully covered metal stents. Left biliary stent, white arrows; right biliary stent, yellow arrows.

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