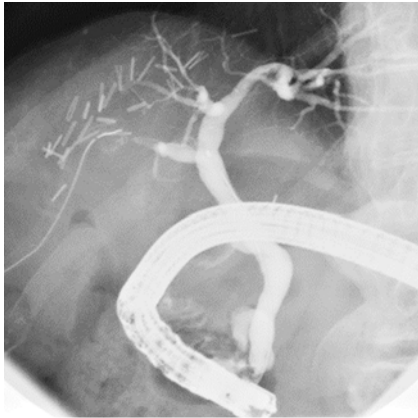
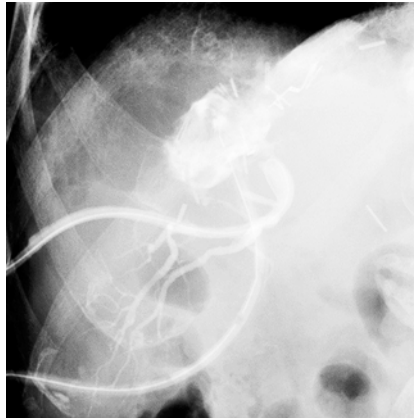


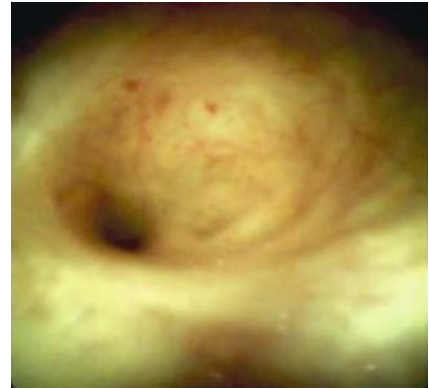
## Recanalization of postoperative biliary disconnection with intraductal cholangioscopy-assisted forceps retrieval of rendezvous guidewire



► **Fig. 1** Endoscopic retrograde cholangiography showing complete bile duct obstruction after laparoscopic right anterior hepatectomy with no flow of contrast into the right posterior branch.



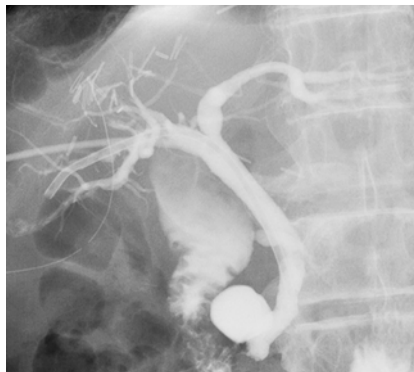
► **Fig. 2** Percutaneous transhepatic cholangiography showing bile leakage into the peritoneal cavity with no flow of contrast into the common bile duct.



► **Fig. 3** Direct cholangioscopy showing the narrow orifice of the biliary obstruction.



► **Fig. 4** Fluoroscopic imaging showing the guidewire grasped by forceps under intraductal cholangioscopy guidance.



► **Fig. 5** Cholangiography after endoscopic insertion of a plastic stent across the biliary disconnection showing biliary recanalization.

Biliary recanalization is a vital procedure to restore postoperative bile duct obstruction. However, selective guidewire negotiation across the disconnected sites under fluorescence imaging is challenging. We present a case of formidable biliary disconnection after hepatectomy that was recanalized by rendezvous technique using digital cholangioscopy.

An 86-year-old man with hepatocellular carcinoma in the right anterior segment showed bile leakage at the resection site

after laparoscopic right anterior hepatectomy. Complete obstruction at the right hepatic duct (RHD) and bile spillage at the edge of the right posterior branch (RPB) indicated complete disconnection between the RHD and RPB (► **Fig. 1**, ► **Fig. 2**), and guidewire negotiation across the lesion failed both endoscopically and percutaneously.

Selective negotiation with an intraductal cholangioscope (SpyGlass DS; Boston Scientific, Natick, Massachusetts, USA)

allowed the guidewire to reach the obstructed site of the RHD (► **Fig. 3**). After balloon dilation of the duct, the cholangioscope was advanced to the intraperitoneal cavity through the obstructed site. Nevertheless, the guidewire passed through the cholangioscope was unable to reach the disconnected RPB because of deep angular misalignment between the RHD and RPB. To create a fistula, a straight-type guidewire was inserted percutaneously through the disconnected RPB. The guidewire was grasped using biopsy forceps (SpyBite; Boston Scientific) under direct visualization (► **Fig. 4**) and pulled out into the duodenum, so that the percutaneous catheter could then be advanced into the duodenum (► **Video 1**). Finally, a plastic stent was inserted endoscopically, followed by removal of the percutaneous catheter (► **Fig. 5**).

Complete biliary disconnection is an intractable adverse effect of hepatectomy. Moreover, angular misalignment between the disconnected ducts is a serious obstacle for recanalization, which can mean surgical re-operation is required. Several studies have reported the utility of cholangioscopy-assisted guidewire placement in biliary obstruction.



**Video 1** Successful biliary recanalization with retrieval of a rendezvous guidewire using intraductal cholangioscopy (SpyGlass DS)-assisted biopsy forceps (SpyBite) in a patient with biliary disconnection after laparoscopic right anterior hepatectomy.

tion [1–4]. However, to the best of our knowledge, this is the first report demonstrating the combinational utility of the SpyGlass DS and SpyBite forceps for recanalization of a complete biliary disconnection with angular misalignment. The SpyGlass DS can work as a “guide-wire retriever,” as well as a “guidewire inserter.”

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### Competing interests

None

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