## E-Videos

# Endoscopic ultrasound-guided biliary recanalization with a novel rendezvous inflated balloon-assisted technique for isolated bile leakage





► Fig. 1 Cholangiography performed after surgery through the inserted intraabdominal drainage tube (red triangle) outlined only the right posterior branch (RPB) and indicated isolated bile leakage at the RPB.

Bile leakage after hepatectomy has been reported to occur in 5%-8% of cases [1, 2]. In particular, isolated bile leakage is intractable and may require surgical reanastomosis. In general, endoscopic treatment for isolated bile leakage by transpapillary biliary drainage for recanalization is challenging [3]; the procedure is often unsuccessful because of surgically altered anatomy and disconnection of the bile duct. Here, we report a case of successful endoscopic ultrasound (EUS)guided biliary recanalization for isolated bile leakage that employed a novel approach assisted by rendezvous balloon inflation.

A 74-year-old man with gallbladder cancer underwent cholecystectomy with partial hepatectomy and bile duct resection. Following the surgery, isolated bile leakage occurred at the right posterior branch (RPB) ( $\triangleright$  Fig. 1). Initially, percutaneous transhepatic biliary drainage (PTBD) of the RPB was attempted; how-









ever, percutaneous guidewire negotiation across the obstructed duct failed because of the complete disconnection. We then performed EUS-guided biliary drainage (EUS-BD) to create internal drainage (**> Video 1**). Investigation of the RPB by EUS failed because of nondilation of the RPB. We introduced a 6-mm dilation balloon catheter via the PTBD route and inflated the balloon, which served as a target for EUS-guided needle puncture (**> Fig. 2 a, b**). The inflated balloon was successfully punctured, and a guidewire was inserted under EUS guid-



► Fig. 3 Duodenography via the percutaneous transhepatic biliary drainage (PTBD) route showing internal drainage successfully achieved via the rendezvous approach after insertion of a cholangioscope from the PTBD route allowed the guidewire coming from the endoscopic ultrasound-guided biliary drainage route to be grasped with biopsy forceps, so that a plastic stent could be deployed via the percutaneous route into the duodenum along the guidewire.

ance and grasped with biopsy forceps (SpyBite; Boston Scientific, Natick, Massachusetts, USA) under direct cholangioscopic visualization (SpyGlass DS; Boston Scientific) via the percutaneous rendezvous approach. Finally, we were able to advance a 10.2-Fr catheter into the duodenum along the guidewire and achieve successful internal drainage (► Fig. 3). Rendezvous cholangioscopic assistance has been reported to be a useful technique for successful recanalization of postoperative biliary disconnection [4]. In addition, EUS-guided drainage of an open pancreaticocutaneous fistula using the balloon as a target has been reported [5]. Rendezvous balloon-inflation assistance is also a useful option for EUS-BD in the treatment of refractory isolated bile leakage.

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## **Competing interests**

The authors declare that they have no conflict of interest.

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