Despite advances in biliary stenting in patients with altered gastrointestinal anatomy, it is still a challenging procedure [1]. We present a case where percutaneous transhepatic cholangioscopy (PTCS) was combined with double-balloon endoscopy (DBE) for biliary stenting in a patient with complete obstruction of a choledochojejunal anastomosis.

A 71-year-old woman, who had a history of distal cholangiocarcinoma and had undergone pancreaticoduodenectomy 7 years previously, experienced recurrent cholangitis. DBE-assisted balloon dilation had been performed 7 months previously for stricture of the choledochojejunal anastomosis. A 7.2-Fr percutaneous transhepatic biliary drainage (PTBD) catheter was initially placed, and the fistula tract was dilated up to 12 Fr within 4 weeks. DBE-assisted endoscopic retrograde cholangiopancreatography was then attempted. First, the double-balloon endoscope (EI-580BT; Fujifilm, Tokyo, Japan) was advanced to the afferent limb, and a percutaneous transhepatic cholangiogram revealed complete obstruction of the anastomosis. Next, a PTCS scope (BF type P260F; Olympus, Tokyo, Japan) was inserted via the PTBD route. However, a guidewire (0.018-inch, Pathfinder Exchange; Boston Scientific Japan, Tokyo, Japan) through the PTCS scope could not pass the anastomosis (Video 1). Therefore, we attempted direct precutting (KD-V451M; Olympus) at the anastomosis, using the double-balloon endoscope and guided by transillumination from the percutaneous transhepatic cholangioscope (Video 1). A small incision was carefully made in order to create a fistula (Fig. 3). This was followed by successful passage of the guidewire (0.032-inch, Radifocus Guidewire M; Terumo, Tokyo, Japan).
completely through the anastomotic obstruction (▶Fig. 4, ▶Video 1). We then grasped the guidewire with an ultraslim basket catheter (Zero Tip Retrieval Basket; Boston Scientific) using the cholangioscope (▶Fig. 5, ▶Video 1). Finally, a 12-Fr PTBD catheter was placed across the obstruction without any complications (▶Fig. 6, ▶Video 1).

The rendezvous technique in combination with PTCS and DBE facilitates biliary recanalization of complete biliary obstruction [1, 2]. However, blind incision has the risk of gastrointestinal tract perforation or bile leakage. Although caution should be exercised, incision guided by transillumination from the peroral transhepatic cholangioscope is a safe and less invasive technique compared with surgery.

**Competing interests**

None

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**Fig. 3** Radiograph showing direct precutting at the choledochojejunal anastomosis, under fluoroscopic guidance and transillumination from the percutaneous transhepatic cholangioscope. Left inset: enteroscopy view. Right inset: percutaneous transhepatic cholangioscopy view.

**Fig. 4** Radiograph showing the guidewire passing through the obstruction. Inset: percutaneous transhepatic cholangioscopy view.

**Fig. 5** The guidewire is grasped by means of a snare under fluoroscopic and percutaneous transhepatic cholangioscopic guidance.

**Fig. 6** Insertion of the percutaneous transhepatic biliary drainage catheter, using a rendezvous technique, across the previously obstructed choledochojejunal anastomosis. Inset: percutaneous transhepatic cholangioscopic view.

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