

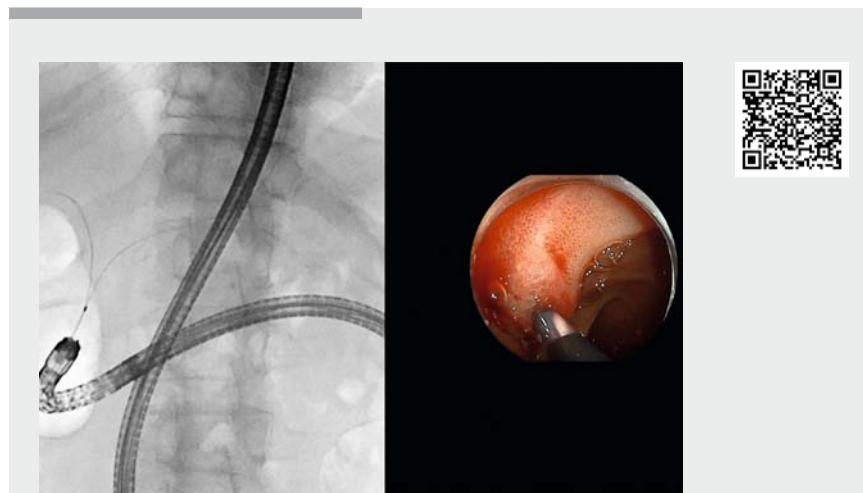
Salvage antegrade endoscopic ultrasound-guided pancreatic guidewire placement allowing subsequent double-balloon ERCP

During endoscopic retrograde cholangiopancreatography (ERCP), biliary cannulation is still challenging in patients with anatomical variations, such as an intradiverticular ampulla or surgically altered anatomy [1, 2]. While the double-guidewire (DGW) technique is one of the possible rescue techniques [3, 4], pancreatic duct (PD) guidewire placement for DGW is sometimes impossible. Endoscopic ultrasound (EUS)-guided biliary access, such as the rendezvous technique, is increasingly used when cannulation has failed but this technique also needs a dilated biliary duct for EUS-guided puncture. We present a successful DGW biliary cannulation using PD guidewire placement under EUS guidance [5] in a patient with failed biliary access by ERCP and EUS (**► Video 1**).

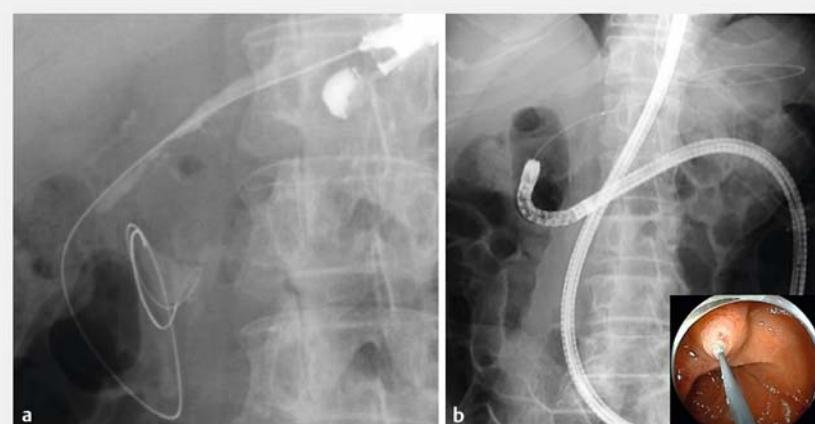
A 74-year-old man with a history of distal gastrectomy and Roux-en-Y reconstruction was admitted with cholangitis due to choledocholithiasis. Double-balloon endoscopy-assisted ERCP (DBE-ERCP) was attempted, but biliary cannulation failed owing to poor visualization of the ampulla. EUS-guided biliary access was then attempted but was unsuccessful because the intrahepatic bile ducts were not at all dilated.

We therefore proceeded to EUS-guided placement of a PD guidewire for subsequent DGW cannulation. Under EUS guidance, a 3-mm PD was punctured using a 19-gauge needle, which was followed by placement of a guidewire through the ampulla into the duodenum (**► Fig. 1a**). Leaving the guidewire in place, we changed the echoendoscope to a double-balloon endoscope. With the PD guidewire caught through the channel of double-balloon endoscope, the ampulla was facing the endoscope and well visualized (**► Fig. 1b**).

Biliary cannulation was successfully achieved by the DGW technique using a double-lumen cannula with uneven outlets (Uneven Double Lumen Cannula; Pio-



► Video 1 Endoscopic ultrasound-guided pancreatic guidewire placement for the double-guidewire technique.



► Fig. 1 Endoscopic ultrasound (EUS)-guided pancreatic guidewire placement for the double-guidewire technique showing: **a** the pancreatic duct punctured under EUS guidance and a guidewire placed through the ampulla into the duodenum; **b** the pancreatic duct guidewire caught through the double-balloon endoscope, making the ampulla well visualized.

Iax Medical Devices, Kanagawa, Japan) [4] (**► Fig. 2a**). Subsequently, biliary stones were removed after large-balloon papillary dilation and the procedure was completed (**► Fig. 2b**). A pancreatic drain was not placed, but no pancreatitis or pancreatic fistula was observed.

This case illustrates that EUS-guided PD access can be used for biliary cannulation when ERCP or EUS-guided biliary access has failed.

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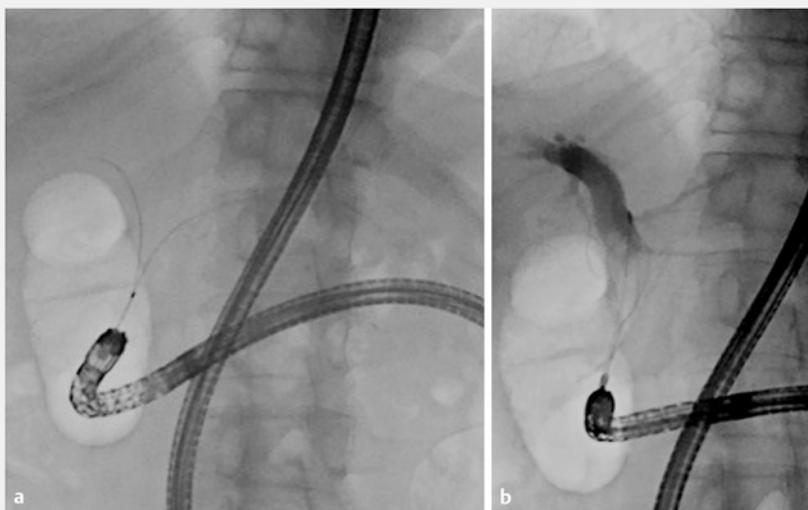
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► **Fig. 2** Biliary cannulation using the double-guidewire technique showing: **a** selective biliary cannulation using the double-guidewire technique by inserting a double-lumen cannula over the pancreatic guidewire; **b** removal of biliary stones via double-balloon endoscopy-assisted endoscopic retrograde cholangiopancreatography using a basket catheter after large-balloon papillary dilation.

Competing interests

Dr. Nakai received research grants from Fujifilm and Piolax. The remaining authors declare that they have no conflict of interest.

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