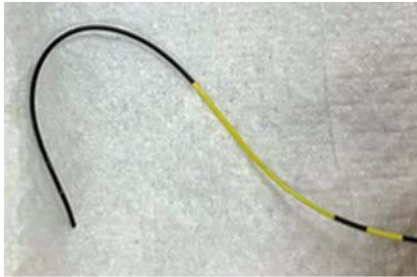


Reverse knuckle guidewire insertion technique for endoscopic ultrasound-guided hepaticogastrostomy using a novel 0.025-inch guidewire

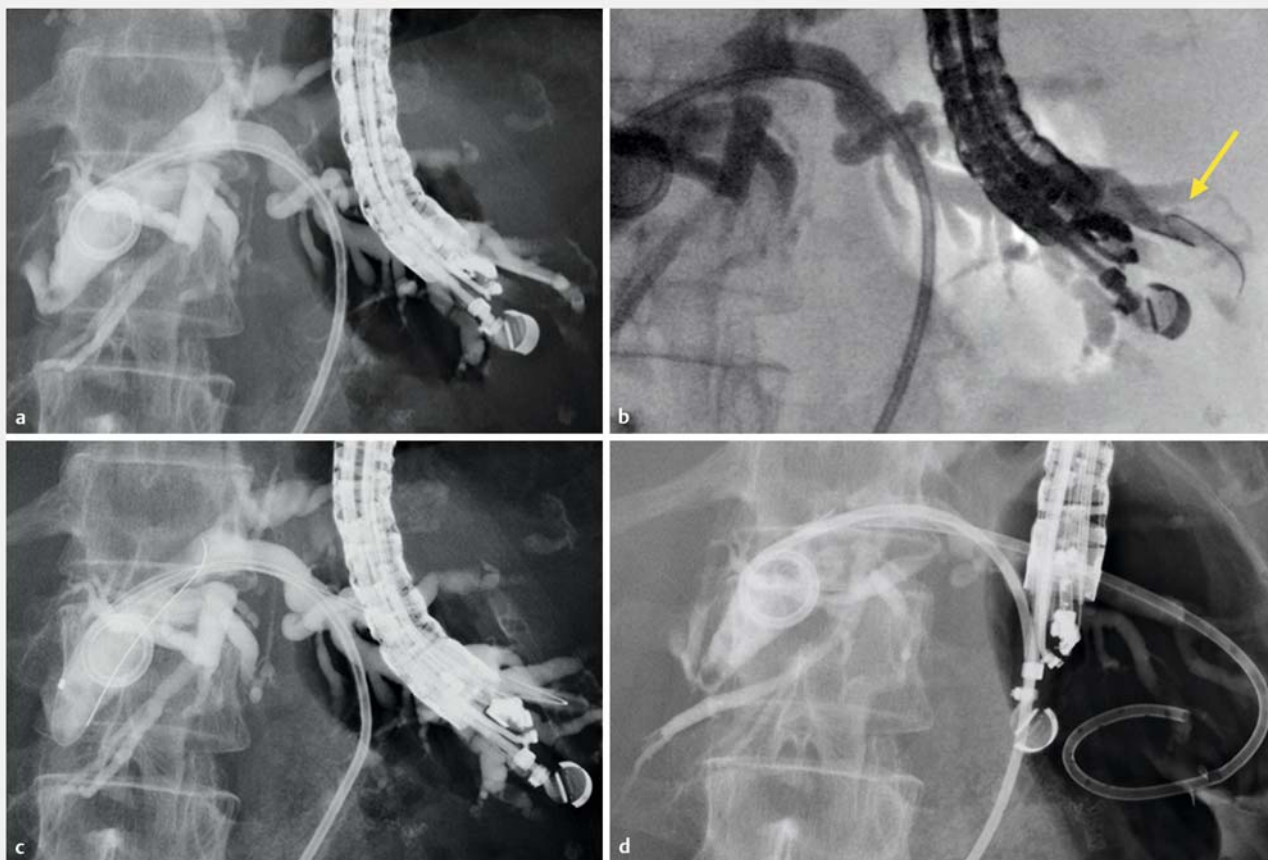


► **Fig. 1** Photograph of the novel 0.025-inch guidewire (MICHISUJI; KANEKA Medical) that is available in Japan.

Endoscopic ultrasound-guided hepaticogastrostomy (EUS-HGS) is one of the biliary drainage options for patients in whom endoscopic retrograde cholangiopancreatography (ERCP) fails [1,2]. Technical tips for EUS-HGS are divided into several steps [3]. Among these steps, guidewire manipulation is one of most challenging parts of EUS-HGS [4]. In achieving successful guidewire insertion, selection of the guidewire is an important issue. A novel, 0.025-inch guide-

wire has recently become available in Japan (MICHISUJI; KANEKA Medical, Osaka, Japan) (► **Fig. 1**). High flexibility, which is one of the characteristics of this guidewire, plays an especially important role in the safe guidewire technique, which we call “knuckle guidewire insertion” [5]. Herein, we describe technical tips for “reverse” knuckle guidewire insertion during EUS-HGS.

A 78-year-old man underwent percutaneous transhepatic biliary drainage be-



► **Fig. 2** Fluoroscopic images showing: **a** contrast medium being injected after the intrahepatic bile duct had been punctured using a 19-G needle; **b** the reverse knuckle shape successfully made with the guidewire; **c** the endoscopic retrograde cholangiopancreatography catheter inserted to dilate the fistula; **d** the endoscopic ultrasound-guided hepaticogastrostomy proceeding with placement of a plastic stent.



▶ Video 1 Contrast medium is injected into the intrahepatic bile duct through the needle. The guidewire is gently inserted into the biliary tract, and a reverse knuckle shape is successfully created. After the intrahepatic bile duct and stomach wall are dilated using the endoscopic retrograde cholangiopancreatography catheter, a plastic stent is successfully deployed.

cause of a hepaticojunostomy stricture. However, internal drainage failed, and he was referred to our hospital for EUS-HGS. The intrahepatic bile duct was identified under EUS guidance but, because the left hepatic parenchyma was enlarged, the direction of EUS scope advancement was from the opposite side of the hepatic hilum. The intrahepatic bile duct was punctured using a 19G needle, and contrast medium was injected (▶ **Fig. 2 a**; ▶ **Video 1**). The novel MICHISUJI guidewire was selected for advancement of the guidewire into the hepatic hilum. As shown in ▶ **Fig. 2 b**, a reverse knuckle shape was successfully made because of the flexibility of this novel guidewire, and the guidewire was inserted into the hepatic hilum. After the bile duct and stomach wall had been dilated using the ERCP catheter (▶ **Fig. 2 c**), plastic stent deployment was successfully performed without any adverse events (▶ **Fig. 2 d**).

As in the present case, if the direction of EUS scope advancement is from the opposite side of the hepatic hilum, reverse knuckle guidewire insertion using this

novel guidewire may be useful for advancement of the guidewire into the hepatic hilum.

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Competing interests

The authors declare that they have no conflict of interest.

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