

Successful endoscopic ultrasound-guided hepaticogastrostomy with use of a novel drill dilator for challenging tract dilation

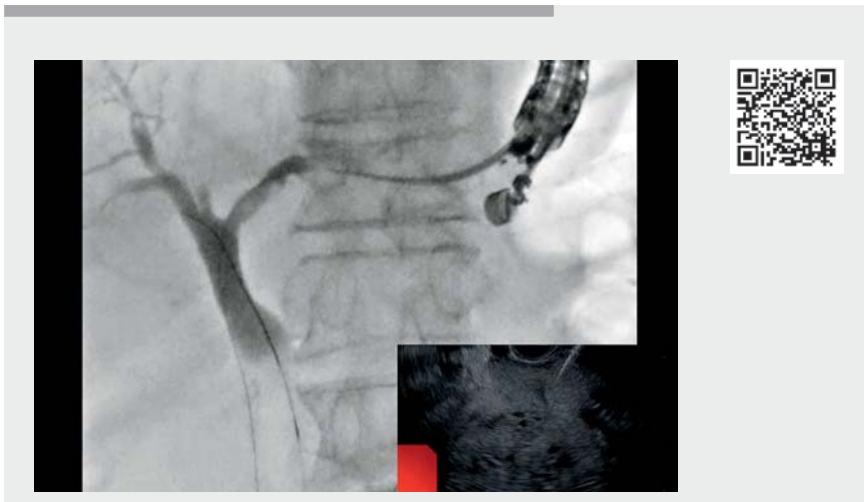
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► **Fig. 1** Photograph showing the novel drill dilator (Tornus ES; Asahi Intecc Co., Ltd.), which is advanced by clockwise rotation and withdrawn by counterclockwise rotation.



► **Fig. 2** Endoscopic ultrasound image showing a hypoechoic area around the intrahepatic bile duct because of the patient's frequent episodes of cholangitis (arrow), with the diameter of the intrahepatic bile duct being only 0.7 mm.



► **Video 1** Endoscopic ultrasound-guided hepaticogastrostomy is successfully performed following tract dilation using a novel drill dilator.

When endoscopic retrograde cholangiopancreatography (ERCP) fails, patients with benign biliary disease, such as common bile duct (CBD) stones or hepaticojunostomy stricture, are currently treated using the transhepatic approach after fistula creation by endoscopic ultrasound-guided hepaticogastrostomy (EUS-HGS) [1]. During EUS-HGS, tract dilation is required prior to stent deployment. Various devices have been reported for this purpose [2–4]; however, tract dilation can be challenging if the intrahepatic bile duct (IHBD) is not dilated and the bile duct wall is hard because of frequent epi-

sodes of cholangitis. A novel drill dilator (Tornus ES; Asahi Intecc Co., Ltd., Seto, Japan) that can overcome these difficulties has become available in Japan (► **Fig. 1**) [5]. This device guarantees tract dilation owing to its design based on screw mechanics. We describe a case of successful EUS-HGS in which the novel dilator was used for a challenging tract dilation. A 59-year-old man presented with frequent cholangitis due to CBD stones. As he had previously undergone distal gastrectomy with Roux-en-Y anastomosis for gastric cancer, EUS-HGS was considered to be an option. EUS revealed a

hypoechoic area around the IHBD owing to his frequent episodes of cholangitis (► **Fig. 2**). The diameter of the IHBD was 0.7 mm, and the IHBD was gently punctured using a 19G needle. After the successful puncture, contrast medium was injected. A 0.025-inch guidewire was then deployed into the CBD (► **Fig. 3 a**). Tract dilation was attempted with a balloon catheter, but the device could not be inserted into the biliary tract. Therefore, a Tornus dilator was inserted into the echoendoscope and was successfully advanced across the stomach and bile duct wall using clockwise rotation (► **Fig. 3 b**). After the tract had been dilated, an 8.5-Fr stent delivery system was successfully inserted and a metal stent was then deployed (► **Fig. 3 c**; ► **Video 1**). In conclusion, the Tornus ES dilator appears to be useful as a dilation device, particularly when tract dilation is difficult, as was the case in the patient described.

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Competing interests

The authors declare that they have no conflict of interest.



► **Fig. 3** Fluoroscopic images showing: **a** a 0.025-inch guidewire deployed after successful bile duct puncture; **b** tract dilation being performed using the novel drill dilator; **c** endoscopic ultrasound-guided hepaticogastrostomy successfully performed.

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