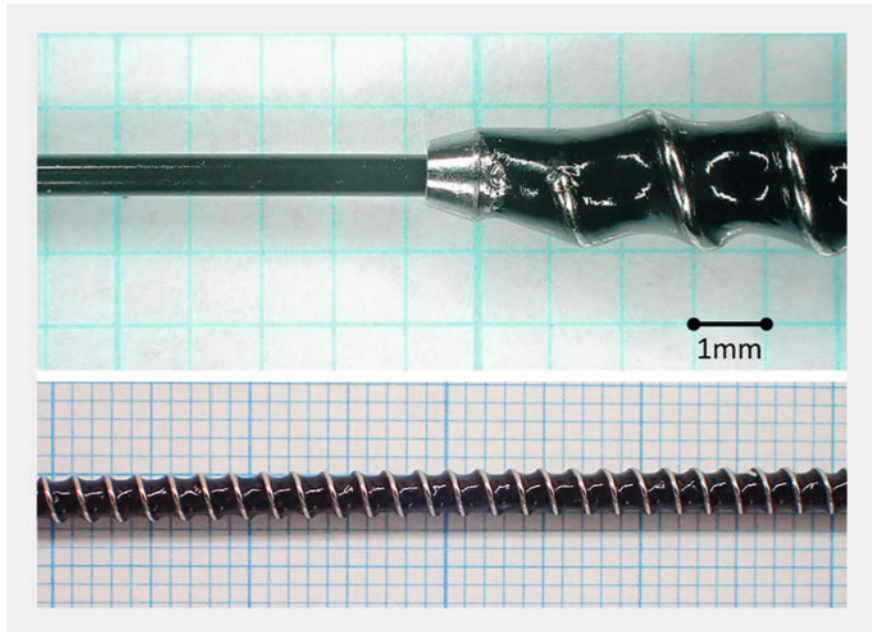


## Successful dilation of a hard biliary stricture associated with primary sclerosing cholangitis using a novel drill dilator ▶

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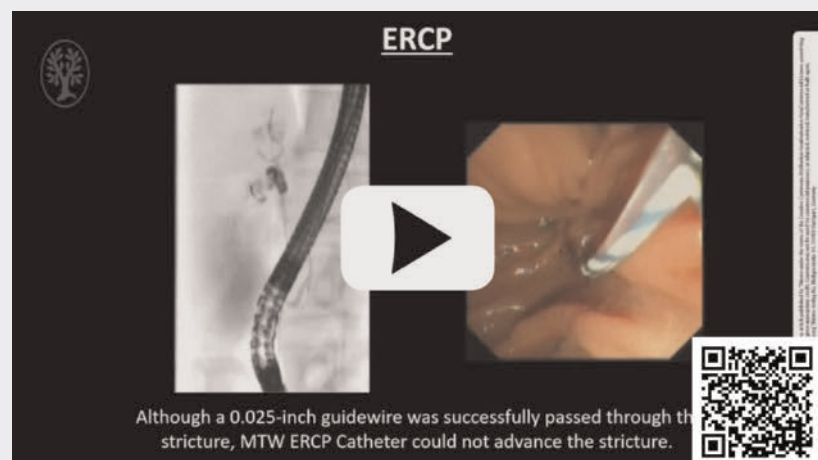
Primary sclerosing cholangitis (PSC) is characterized by focal intrahepatic and extrahepatic bile duct stricture, and often causes jaundice due to dominant biliary strictures during its course [1]. The biliary stricture is usually dilated via mechanical dilation under endoscopic retrograde cholangiopancreatography (ERCP) guidance; however, PSC-related biliary strictures are sometimes too stenotic due to rich fibrosis to allow the passage of conventional dilation devices. Recently, a novel drill dilator (Tornus ES, Asahi Intecc, Aichi, Japan) has been developed and made commercially available which is design to traverse difficult pancreaticobiliary strictures [2, 3, 4]. The spiral-threaded part of the dilator allows it to pass through the stricture on clockwise rotation (▶ Fig. 1). The tip of the dilator is finely tapered to allow insertion of a guidewire with a diameter  $\leq 0.025$  inch. Here, we report successful use of the novel drill dilator for challenging severe biliary stricture when other conventional accessories would not work.

A 27-year-old male patient with a 6-year history of PSC was referred to our hospital with jaundice. Magnetic resonance cholangiopancreatography revealed a dominant biliary stricture at the hepatic hilum (▶ Fig. 2). ERCP was performed to manage the hilar biliary stricture. A 0.025-inch guidewire was successfully passed through the stricture, although dilated intrahepatic bile ducts could not be imaged on the cholangiogram. Subsequently, mechanical dilation was attempted; however, neither the cannulation catheter, bougie dilator (ES dilator, Zeon Medical, Tokyo, Japan) (▶ Fig. 3) [5], nor the Soehendra stent retriever (Cook Medical, Winston-Salem, North Carolina, United States) was able to advance past the stricture. Therefore, a novel drill dilator was used. The drill dilator passed smoothly through the hard biliary stricture without strong pressure on the

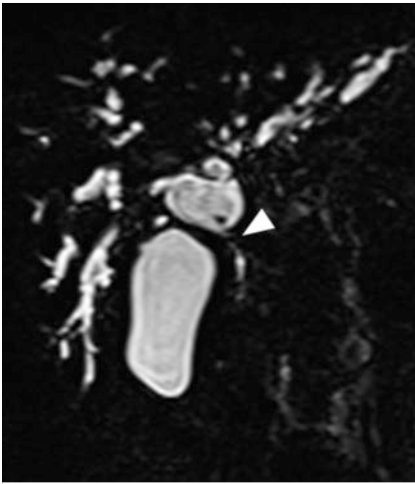


▶ **Fig. 1** Magnification of the tip of a novel drill dilator (Tornus ES, Asahi Intecc, Aichi, Japan). The drill dilator consists of spiral threads around the shaft. The outer diameter of the dilator is 7F. The tip of the dilator is finely tapered to allow insertion of a guidewire with a diameter  $\leq 0.025$  inch.

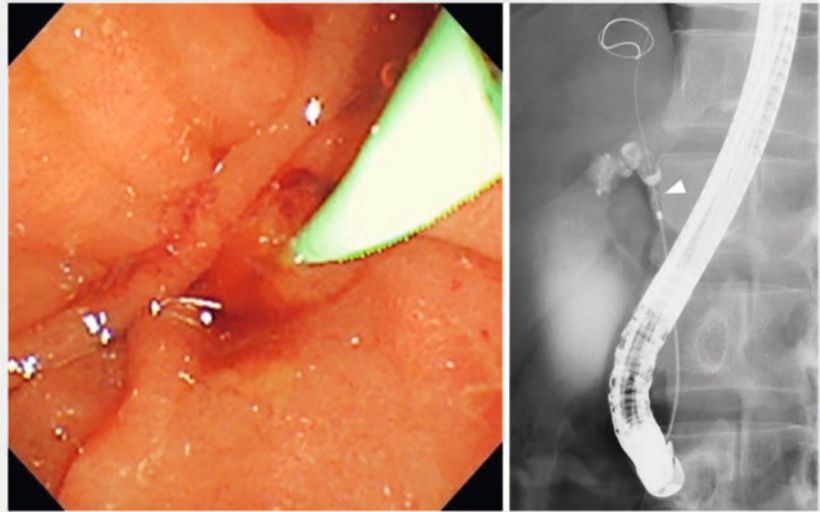
### ▶ VIDEO



▶ **Video 1** Successful dilation of a hard hilar biliary stricture using a novel drill dilator.



► **Fig. 2** Magnetic resonance cholangiopancreatography showing a dominant biliary stricture at the hepatic hilum (arrowhead)



► **Fig. 3** Although a 0.025-inch guidewire was successfully passed through the stricture at the hepatic hilum, a tip-tapered bougie dilator (ES dilator, Zeon Medical, Tokyo Japan) could not advance the stricture. a Endoscopic image. b Fluoroscopic image.

device by clockwise rotation (► **Fig. 4**, ► **Video 1**). The biliary stricture was further dilated using a 4-mm balloon dilator. The patient's jaundice resolved in a few weeks after ERCP, without any adverse events.

### Conflict of Interest

The authors declare that they have no conflict of interest.

### The authors

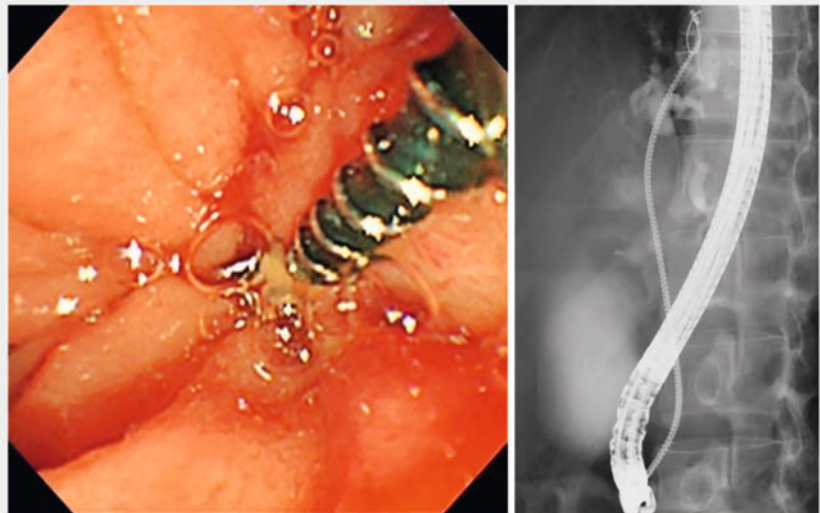
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► **Fig. 4** Clockwise rotation allows the drill dilator to pass smoothly through the severe biliary stricture. a Endoscopic image. b Fluoroscopic image.

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