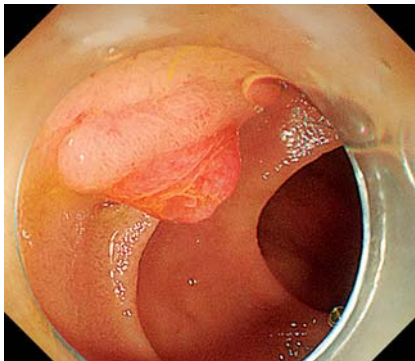
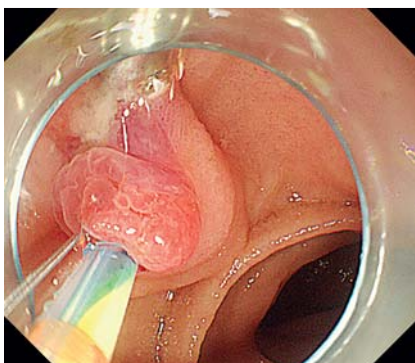


Novel technique using metal clip and dental floss facilitates difficult biliary cannulation in Billroth II gastrectomy

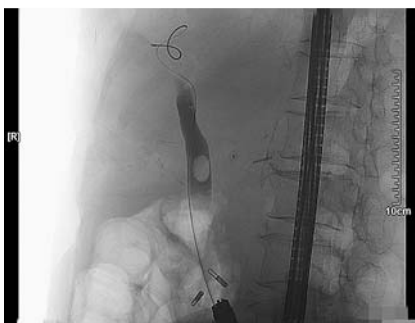
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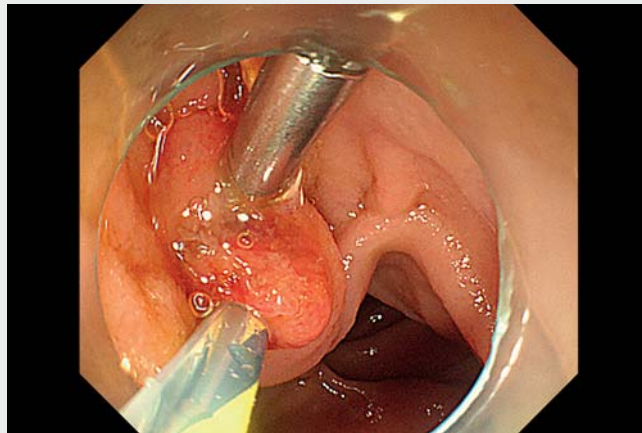
► **Fig. 1** The major papilla was inverted compared with the normal anatomical position.



► **Fig. 2** The metal clip held the ampullary mucosa above the major papilla, and dental floss traction on the metal clip fixed the papilla in position, facilitating biliary cannulation.

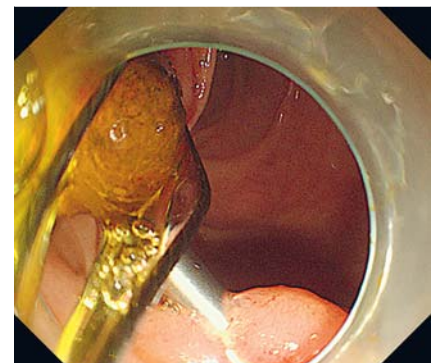


► **Fig. 3** A large stone was discovered in the common bile duct.



► **Video 1** Metal clip and dental floss as an alternative technique for treating difficult biliary cannulation in Billroth II anatomy.

We report the case of a 79-year-old woman with a previous Billroth II gastrectomy for gastric cancer who presented with jaundice (total bilirubin 120.72 mg/dL, direct bilirubin 96.3 mg/dL) and abdominal pain. Magnetic resonance pancreatobiliary imaging demonstrated extrahepatic bile duct dilation and a distal common bile duct (CBD) stone (1.2 × 1 cm). Endoscopic retrograde cholangiopancreatography in patients with Billroth II anatomy is associated with low success rates of selective access to the afferent loop and cannulation of the CBD owing to the inverted position, as well as a high incidence of complications [1, 2]. For the current case, a forward-viewing colonoscope with a clear cap was chosen over a duodenoscope to decrease the difficulty of entry and limit potential adverse events, such as perforation [3]. On initial inspection, the major papilla was located on the left side of the screen and was inverted compared with normal anatomy, making cannulation difficult (► **Fig. 1**, ► **Video 1**). A metal clip was employed to hold the ampullary mucosa above the major papilla, and dental floss



► **Fig. 4** The stone was removed with a stone basket.

traction on the metal clip fixed the papilla in position, improving the CBD axis and maximizing traction for biliary cannulation (► **Fig. 2**, ► **Video 1**). Cannulation was then achieved without incident. Fluoroscopy evaluation revealed a dilated CBD with a large biliary stone (► **Fig. 3**). Endoscopic large-balloon dilation up to 10 mm was performed [4]. The stone was removed without any problems using a stone basket. Final radiography indicated no residual stones (► **Fig. 4**, ► **Video 1**). A

plastic stent was placed into the CBD. The metal clip was removed after the operation. No adverse events occurred.

The pulling force of the metal clip and dental floss can change the orientation of the major papilla, allowing swift and successful cannulation, which is especially useful in patients with surgically altered gastrointestinal anatomy.

Endoscopy_UCTN_Code_CCL_1AZ_2AI

Competing interests

The authors declare that they have no conflict of interest.

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