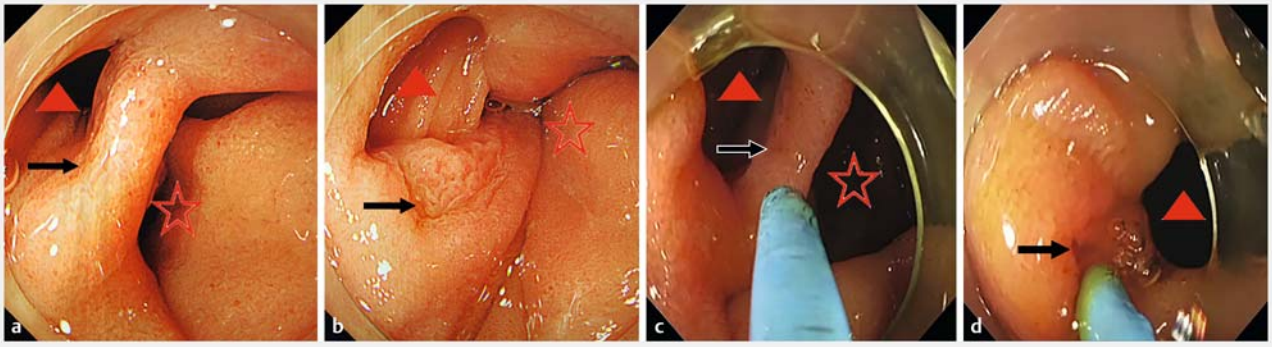
Make mission impossible successful: clip-with-line traction facilitates difficult pancreatic duct cannulation in a patient with duodenal duplication

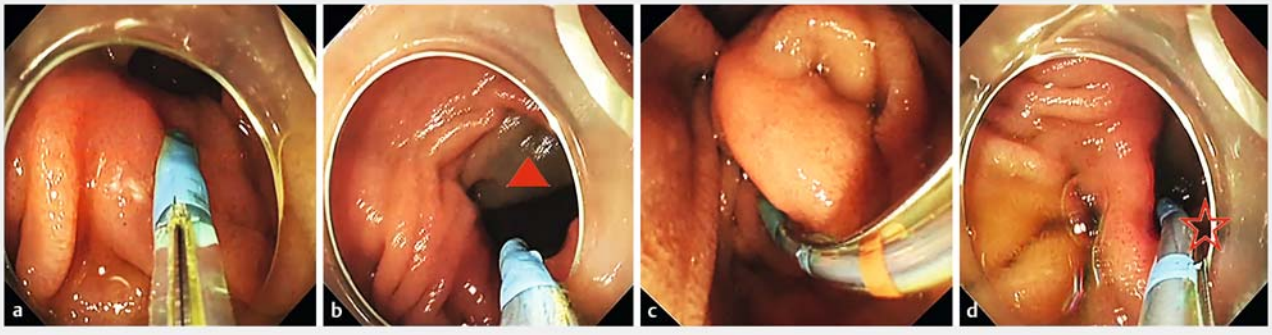
We describe a novel clip-with-line traction method to rescue a difficult pancreatic cannulation that failed with traditional techniques during endoscopic retrograde cholangiopancreatography (ERCP) in a patient with duodenal duplication (▶ **Video 1**).

A 24-year-old woman suffered from repeated acute pancreatitis with no obvious reason, and was referred to our endoscopy center 1 day after a failed ERCP. The gastroscopy identified two intestinal lumens in the descending duodenum, indicating duodenal duplication (▶ **Fig. 1 a, c**). The papilla was hidden in the ridge between the two lumens (▶ **Fig. 1 b, d**). Because it was very hard to target the ampullary orifice owing to frequent bowel movements and the specific angulation, pancreatic duct cannulation could not be achieved using various different traditional techniques, including wire-guided cannulation (▶ **Fig. 2 a**), submucosal injection [1] (▶ **Fig. 2 b**), cannulation with a duodenoscope (▶ **Fig. 2 c**), and remolding the sphincterotome (▶ **Fig. 2 d**). Therefore, the clip-with-line traction method was introduced.

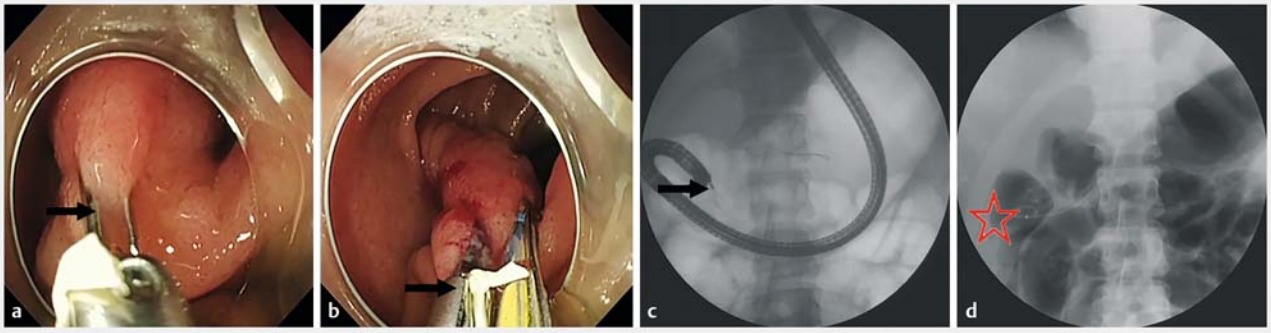
A clip with a long dental floss attached was fixed near the papillary orifice at 9 o'clock (▶ **Fig. 3 a**) after several adjustments. As the papilla was lifted towards the tip of the sphincterotome, the sphincterotome was successfully advanced into the pancreatic duct, taking 2 minutes (▶ **Fig. 3 b, c**). After a small endoscopic



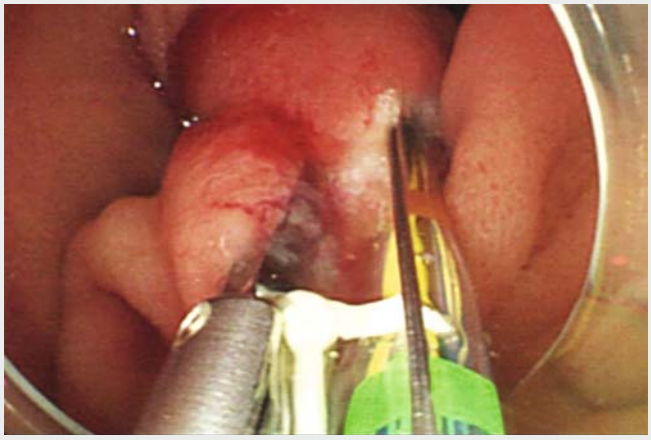
▶ **Fig. 1** Endoscopic views showing: **a** the two bowel lumens in the descending part of the duodenum: the superior, real duodenal cavity (triangle), and the inferior, cecum cavity (star); **b** the orifice of the major papilla (arrow) on the ridge between the two bowel lumens; **c** the relationship further clarified with the help of a cannula; **d** yellow bile fluid spilling out from the papillary orifice.



▶ **Fig. 2** Endoscopic views showing failed attempts at cannulation of the pancreatic duct using: **a** a cap-fitted forward-viewing gastroscope (unsuccessful owing to the awkward orientation of ampullary orifice); **b** eversion and fixation of the papilla by saline injection at 10 o'clock (triangle); **c** a tangential approach toward the papilla by a side-viewing endoscope (the papilla was too distant to target with the sphincterotome); **d** the cap-fitted forward-viewing endoscope with the sphincterotome tip molded to a beak-like shape (star) so as to be angled slightly toward the ampullary orifice.



▶ **Fig. 3** Endoscopic (**a, b**) and radiographic (**c, d**) views of the successful cannulation using an oblique cap-fitted gastroscope showing: **a** the clip anchored with the dental floss fixed to the lateral mucosa of the papillary orifice (9 o'clock; arrow); **b** the papilla being tightly pulled by the clip-with-line traction instrument (arrow) to expose the ampullary orifice and the shaped sphincterotome, advanced through the same working channel in parallel with the dental floss, smoothly cannulating the pancreatic duct; **c** the cholangiogram confirming the presence of the guidewire in the pancreatic duct and the clip beside (arrow); **d** a single-pigtail plastic stent inserted into the main pancreatic duct.



Video 1 Endoscopy showing a difficult pancreatic duct cannulation in a patient with duodenal duplication and several failed attempts at pancreatic duct cannulation. The procedure was rescued using the clip-with-line traction method, which allowed the ampullary orifice to be turned outward and the pancreatic axis to be changed to align with the direction of the sphincterotome movements, so it could be smoothly and successfully advanced into the pancreatic duct. Pancreatography confirmed a slightly dilated pancreatic duct, a small endoscopic sphincterotomy was performed, and a 5-Fr × 7-cm pancreatic plastic stent was placed. Finally, the clip-with-line was removed with foreign body forceps.

sphincterotomy was made, a 5-Fr × 7-cm pancreatic plastic stent was successfully inserted (▶ **Fig. 3 d**). At the 2-month follow-up visit, the patient was asymptomatic.

Several traction methods have been devised to facilitate ERCP, such as submucosal injection [1], traction with a snare [2], a cannula [3], endobiliary forceps [4], or pediatric biopsy forceps [5]. However, in this case, the submucosal injection provided little value in helping pancreatic cannulation and other methods with complex instruments were impractical in such a narrow and mobile area with duodenal duplication. In conclusion, the clip-with-line method is a very convenient and effective technique in patients with difficult access to the ampullary orifice.

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Competing interests

The authors declare that they have no conflict of interest.

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