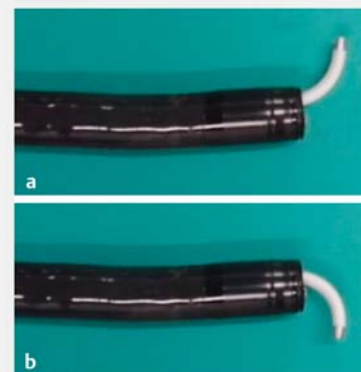


## A novel cannula with a movable tip facilitates cannulation during endoscopic retrograde cholangiopancreatography in reconstructed intestinal tracts

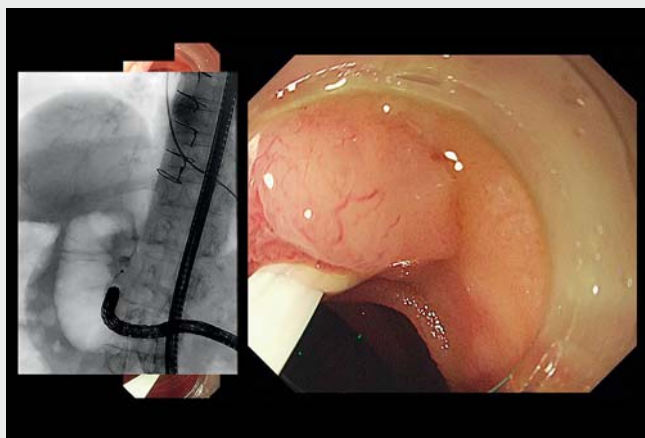
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► **Fig. 1** Obstructive jaundice due to pancreatic head cancer in a patient who previously underwent total gastrectomy with Roux-en-Y reconstruction.



► **Fig. 2** A novel cannula that bends in two directions near the tip.



► **Video 1** A novel cannula that aligns with the bile duct axis by the bi-directional movement of the cannula tip. This cannula simplifies bile duct cannulation.

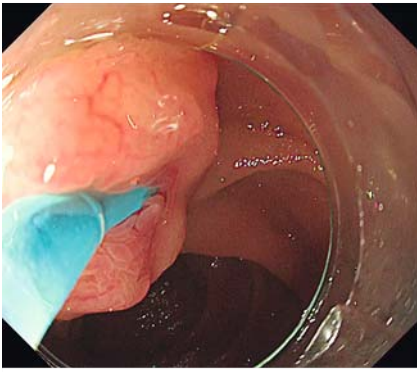
An 83-year-old woman was admitted with obstructive jaundice. She was diagnosed with pancreatic head cancer after a close examination (► **Fig. 1**). She had previously undergone total gastrectomy with Roux-en-Y reconstruction and caudal pancreatectomy for pancreatic body cancer. Thus, we attempted to treat the obstructive jaundice via endoscopic retrograde cholangiopancreatog-

raphy (ERCP) using a short-type single-balloon enteroscope. The bile duct axis was not aligned due to the anatomic reconstruction, making intubation difficult and time consuming. The patient underwent placement of a covered self-expandable metal stent (cSEMS) followed by chemotherapy. However, ERCP was required again due to cSEMS deviation. Therefore, we plan-

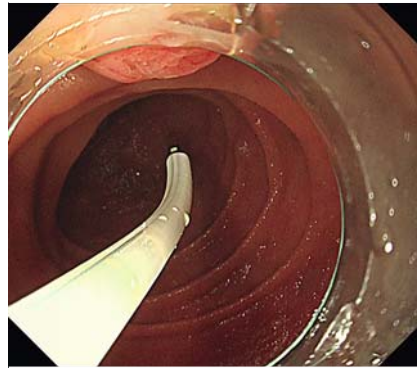
ned to use a novel cannula with a movable tip (Zeon Medical Inc., Tokyo, Japan). The special feature of this cannula is that the area about 15 mm from the tip can be bent in two directions (► **Fig. 2**, ► **Video 1**).

During ERCP (► **Video 1**), a regular cannula failed to intubate the bile duct because it could not align with the bile duct axis (► **Fig. 3**). The cannula with a movable tip could be turned around in the bile duct by moving the tip (► **Fig. 4**), capturing the bile duct axis, and successfully intubating the bile duct (► **Fig. 5**). It was then possible to place a plastic stent.

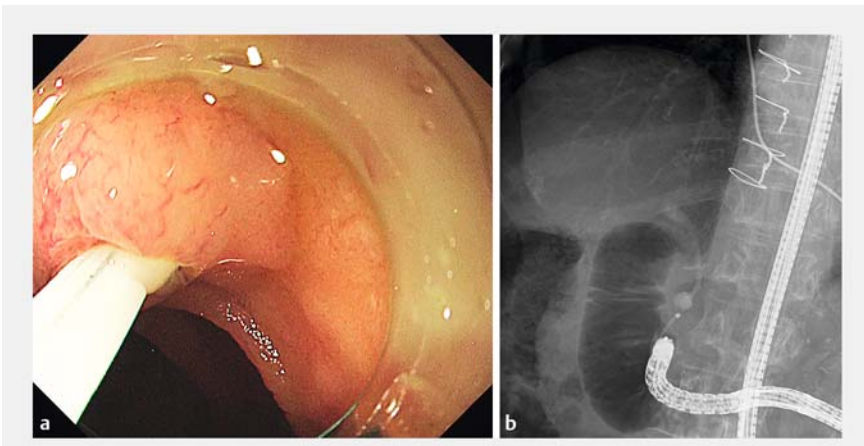
An endoscopic approach using a balloon endoscope is currently available for treating biliopancreatic diseases in reconstructed anatomy. There are also reports of ERCP using balloon-assisted enteroscopy [1]. However, many case reports describe difficulty in bile duct intubation due to reconstructed anatomy. In such cases, several solutions have been suggested during normal ERCP [2]. We also have previously reported a new method that involves a traction device in the case of reconstructed intestinal tract [3]. We consider that the movability of the tip of



► **Fig. 3** A regular cannula failed to intubate the bile duct.



► **Fig. 4** The tip can bend and move around in this novel cannula.



► **Fig. 5** The bile duct was intubated successfully.


this novel cannula facilitates the alignment of the cannula with the bile duct axis. This approach can achieve bile duct intubation during ERCP in reconstructed intestinal tracts.

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### Competing interests

T. Suda has received a consultant fee from Zeon Medical Inc. S. Inagaki, S. Sugimoto, K. Kaji, and S. Terasaki declare that they have no conflict of interest.

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