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Video Article

Utilizing a novel highly rotatable and dual-action sphincterotome for precise cannulation and endoscopic sphincterotomy in surgically altered anatomy

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BRIEF EXPLANATION

BALLOON ENTEROSCOPY-ASSISTED ENDOSCOPIC retrograde cholangiopancreatography (BE-ERCP) has become increasingly common in the management of pancreatobiliary diseases in patients with surgically altered anatomy.[1,2] In cases of Billroth II or Roux-en-Y reconstruction where the duodenal papilla is preserved,

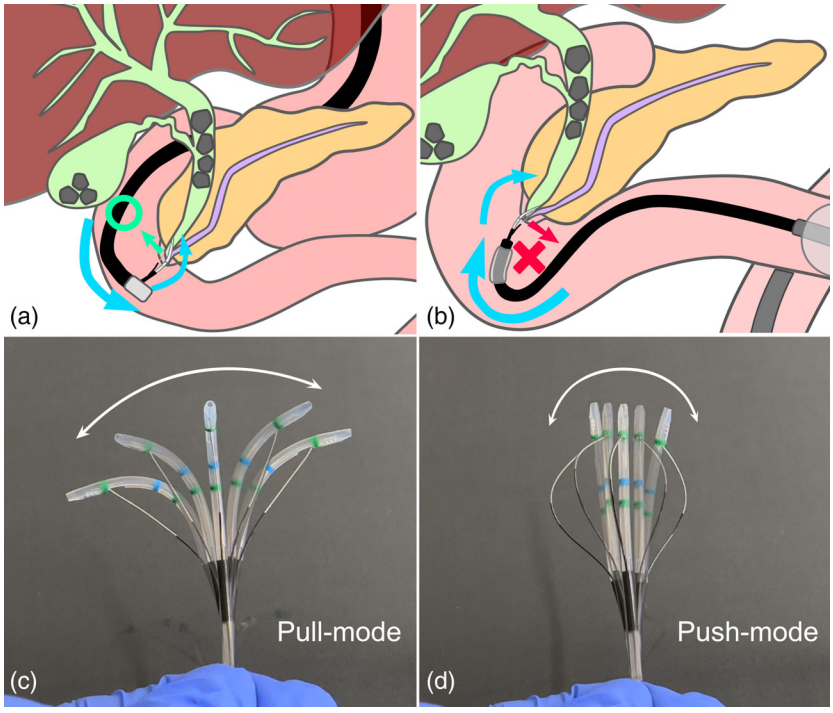

Figure 1 (a) During endoscopic sphincterotomy (EST) using a side-viewing duodenoscope and a conventional sphincterotome for cases with normal anatomy, the sphincterotome bends in a direction that follows the bend of the endoscope, so that the direction of the blade incision naturally matches the direction of the oral protrusion of the papilla. (b) During EST using a balloon enteroscopy (BE) and conventional sphincterotome for cases with surgically altered anatomy, the blade often deviates from the desired incision direction along with the bending of the endoscope required for direct viewing of the papilla, usually towards the opposite side of the oral protrusion. (c,d) The novel sphincterotome (ENGETSU; KANEKA Medix Co., Osaka, Japan) has highly rotational performance and also has dual-action functions: pull-mode to stretch the blade and push-mode to loosen it, which can be combined to orient the blade in any direction.

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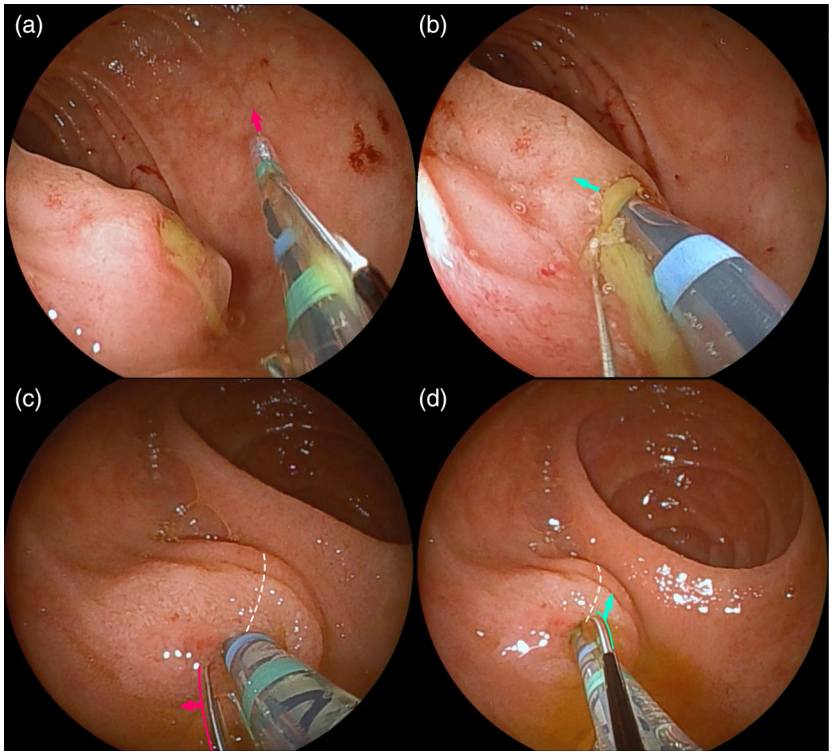

Figure 2 (a) In balloon enteroscopy-assisted endoscopic retrograde cholangiopancreatography (BE-ERCP) for patients with surgically altered anatomy, when a retroflex position cannot be achieved due to adhesions, it becomes challenging to align the catheter tip with the bile duct axis. (b) By rotating the tip of the novel sphincterotome and stretching the blade, we aligned it with the bile duct axis, allowing for successful biliary cannulation. (c) BE-ERCP for stacked common bile duct stones after total gastrectomy Roux-en-Y reconstruction: insertion of the novel sphincterotome into the bile duct caused the blade to point in the opposite direction to the oral protrusion of the papilla, along the flexion of the endoscope tip. (d) By using the rotation function in combination with dual-action, the blade was quickly directed in the desired direction (white dashed line) of the oral protrusion.

papillary interventions are essential for both diagnostic evaluations or treatments. However, performing precise cannulation and endoscopic sphincterotomy (EST) during BE-ERCP can be challenging.[3] One reason for this difficulty is that the endoscope's angulation required for directly facing the papilla often causes the sphincterotome's tip and blade to orient away from the desired direction, typically opposite of the oral protrusion (Fig. 1a,b). While various sphincterotomes have been reported to be useful,[4,5] the optimal device and technique remain unclear. Recently, a novel highly rotatable and dual-action sphincterotome (ENGETSU; KANEKA Medix Co., Osaka, Japan) has become available, offering the potential to change the incision direction freely to switch between push and pull modes with rotation, thereby enabling precise cannulation and EST (Fig. 1c,d; Video S1).

A 68-year-old man with a history of total gastrectomy followed by Roux-en-Y reconstruction presented with choledocholithiasis. BE-ERCP with short-type double balloon enteroscope (EI-580BT; Fujifilm Co., Tokyo, Japan) was performed to access the papilla. Upon inserting the sphincterotome, the curvature of the endoscope tip caused the blade to be directed opposite the side of the oral protrusion. By utilizing the rotational capability and alternating between push and pull modes, the catheter tip was successfully cannulated and the blade was directed towards the oral protrusion, allowing for precise incision (Fig. 2). Endoscopic papillary large-balloon dilatation was added after EST and the stones were successfully removed without adverse events. The novel sphincterotome enabled efficient cannulation and EST, demonstrating the device's utility not only in cases with normal anatomy using side-viewing duodenoscopes, but also in surgically altered anatomy with balloon-assisted endoscopy.

Authors declare no conflict of interest for this article.

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SUPPORTING INFORMATION

ADDITIONAL SUPPORTING INFORMATION may be found in the online version of this article at the publisher's web site.

Video S1 The novel highly rotatable and dual-action sphincterotome facilitates for rapid and precise orientation of the tip and blade, enabling efficient cannulation and incision during endoscopic sphincterotomy in pancreatobiliary endoscopic procedures for patients with Roux-en-Y or Billroth II reconstruction.