VIDEO CASE REPORT

Motorized spiral enteroscopy–assisted ERCP after Roux-en-Y reconstructive surgery and bilioenteric anastomosis: first clinical case

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ERCP procedures in patients with surgically altered anatomy are often challenging because Roux-en-Y reconstructive surgery usually excludes the biliopancreatic system from a conventional endoscopic approach. The advent of device-assisted enteroscopy (DAE) using double- and single-balloon enteroscopy and spiral enteroscopy substantially improved the efficacy of endoscopic treatment after all types of Roux-en-Y reconstructions.[1,2] However, insertion of the enteroscope is still often cumbersome and time consuming, and therapeutic success rates of ERCP are limited by reduced maneuverability of the endoscope and unstable position in front of the papilla, the limited diameter of the working channel, and availability of instruments with an appropriate length.

METHODS

Since 2015, the novel motorized spiral enteroscope, PowerSpiral Enteroscopy (PSF-1; Olympus Medical Systems Corporation, Tokyo, Japan) has been evaluated in prospective clinical trials by our group and shown to be safe and effective for deep enteroscopy.[3-5] Currently, no published data exist on its use in patients with surgically altered anatomy, in particular for biliopancreatic interventions in patients after Roux-en-Y reconstructive surgery. Specifications of the endoscope using motorized spiral locomotion technology are described in detail in previous publications by our group.[3,4] Speed, depth and control of insertion, the short length of 168 cm, and a 3.2-mm working channel, which allow the use of standard ERCP instruments, offer potential advantages compared with standard DAE and may render future complex DAE-ERCP procedures easier, faster, and more efficient.

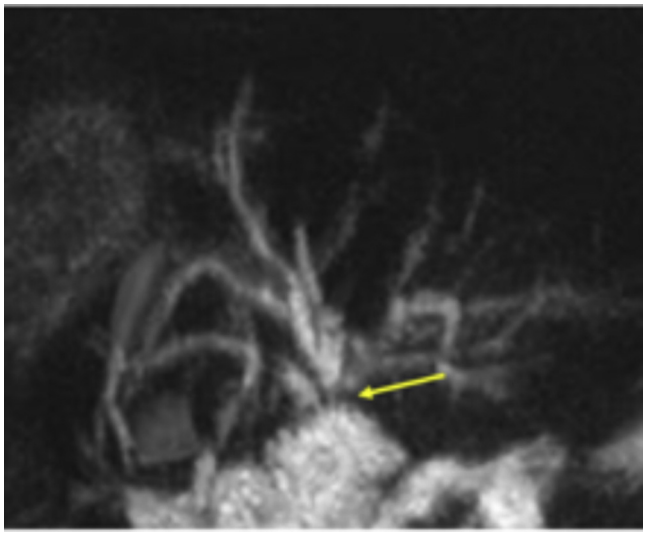

Figure 1. MRCP confirmed a stricture of the bilioenteric anastomosis *(arrow)*.

CASE PRESENTATION

A 78-year-old man presented with obstructive jaundice 18 months after duodenum-preserving pancreatic head resection because of a large branch-duct intraductal papillary mucinous tumor with Roux-en-Y reconstruction and high bilateral bilioenteric anastomosis. MRCP revealed a biliary anastomotic stricture of the right and left hepatic duct (Fig. 1). ERCP approaches using a standard duodenoscope and push enteroscopy with a pediatric colonoscope failed to reach the site of the anastomosis. DAE-ERCP with ballon dilation therapy was successfully performed using the novel motorized spiral enteroscope with the patient under deep sedation (Fig. 2A-C). Total procedure time was 51 minutes (Fig. 3A-B). No adverse events, such as mucosal tears, occurred during or after the procedure. Jaundice resolved within days, and the patient was discharged.

CONCLUSION

The current case represents the first published case of PowerSpiral Enteroscopy-ERCP in a patient with altered anatomy, showing successful and rapid enteroscopic access, cannulation, and balloon dilation therapy without need for general anesthesia.

DISCLOSURE

Drs Beyna and Neuhaus are consultants for Olympus. All other authors disclosed no financial relationships.

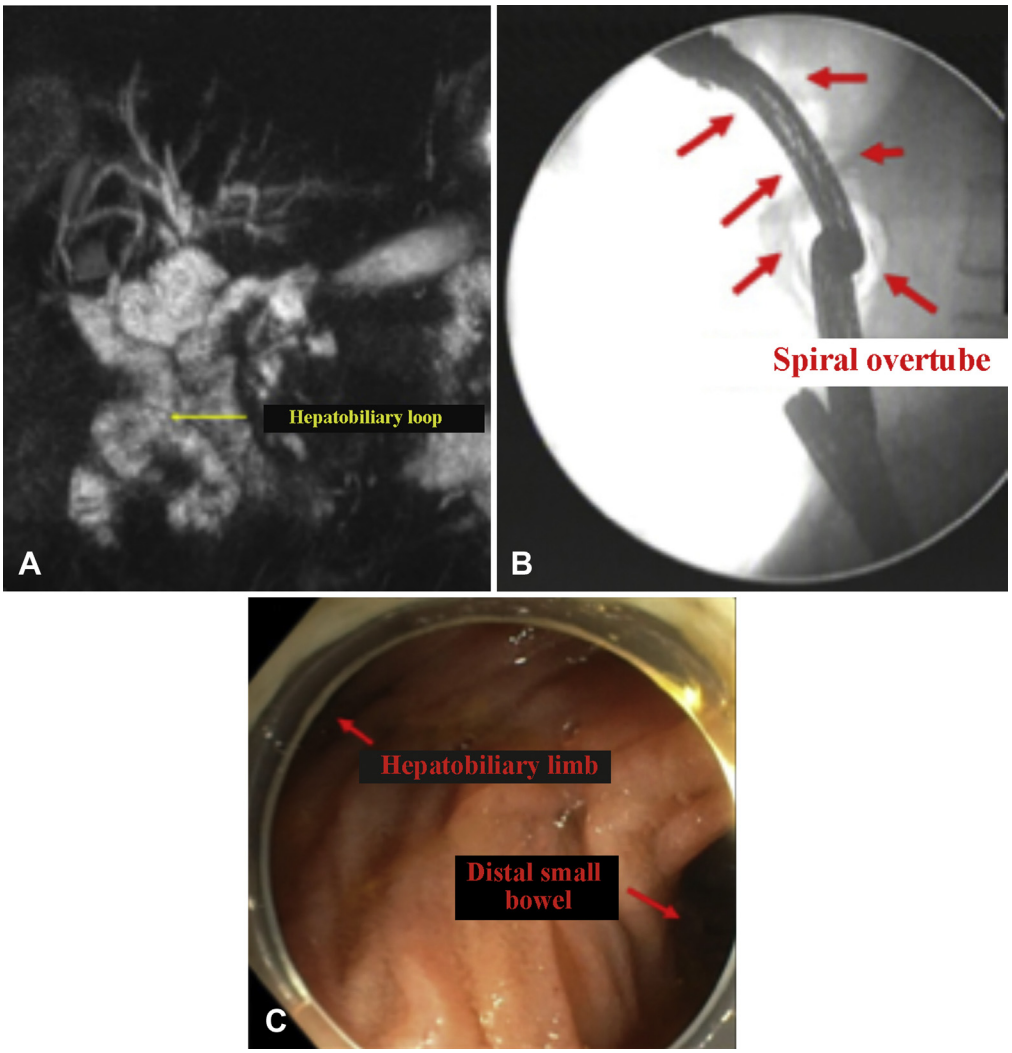

Figure 2. A, Magnetic resonance imaging. **B,** Fluoroscopy with spiral overtube *(red arrows)* and **(C)** endoscopic aspect of Roux-en-Y anastomosis with hepatobiliary limb *(red arrow)*.

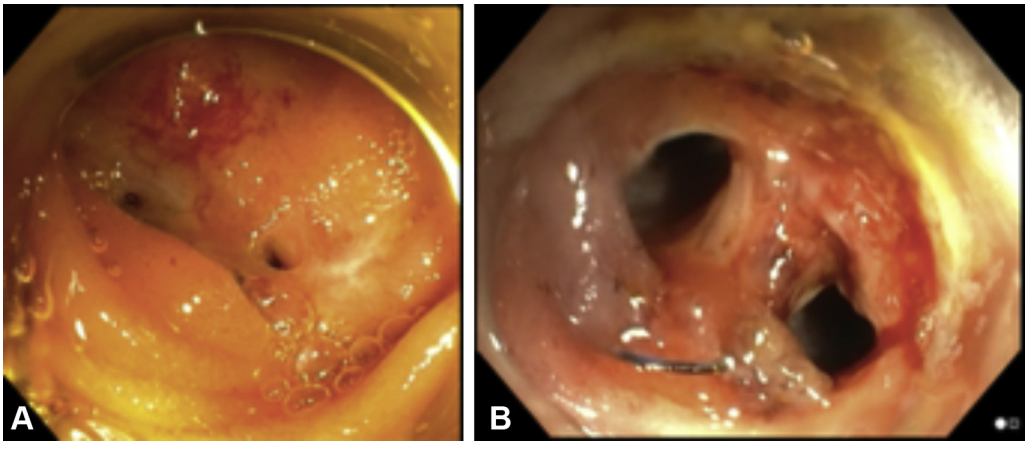

Figure 3. Scarred stricture of right and left bilioenteric anastomosis, before **(A)** and after **(B)** balloon dilatation.

Abbreviation: DAE, device-assisted enteroscopy.

REFERENCES

1. Shah RJ, Smolkin M, Yen R, et al. A multicenter, U.S. experience of single-balloon, double-balloon, and rotational overtube-assisted enteroscopy ERCP in patients with surgically altered pancreaticobiliary anatomy (with video). Gastrointest Endosc 2013;77:593-600.
2. Skinner M, Popa D, Neumann H, et al. ERCP with the overtube-assisted enteroscopy technique: a systematic review. Endoscopy 2014;46:560-72.
3. Beyna T, Schneider M, Pullmann D, et al. Motorized spiral colonoscopy: a first single-center feasibility trial. Endoscopy 2018;50:518-23.
4. Neuhaus H, Beyna T, Schneider M, et al. Novel motorized spiral enteroscopy: first clinical case. VideoGIE 2016;1:32-3.
5. Beyna T, Arvanitakis M, Schneider M, et al. PowerSpiral Enteroscopy: first prospective bi-centric clinical trial. United European Gastroenterol J 2018;6(8S):A88 OP228.

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