

Novel motorized spiral enteroscopy-assisted ERCP in a case of surgically altered anatomy

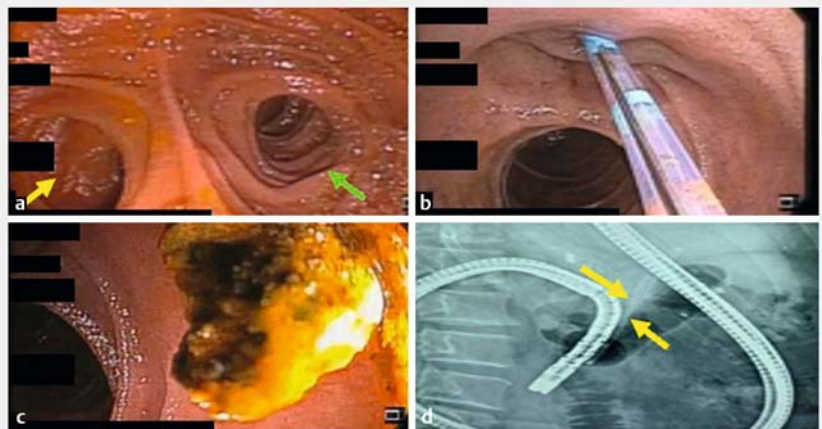
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► **Fig. 1** Magnetic resonance cholangiopancreatography showing choledocholithiasis, elongated and large calculus, 1.6×0.8 cm, in the distal common bile duct (CBD; arrow) with dilated CBD (9.2 mm) and intrahepatic biliary radicals.

Endoscopic retrograde cholangiopancreatography (ERCP) in patients with surgically altered anatomy is intrinsically challenging [1]. Pooled rates of technical success, clinical success, and adverse events with balloon-assisted ERCP are reported to be 71.4%, 58.7%, and 8.4%, respectively [2]. We report a case where we successfully performed novel motorized spiral enteroscopy (NMSE)-assisted ERCP in a patient with surgically altered anatomy.

A 70-year-old man with gastric diffuse large B-cell lymphoma underwent partial gastrectomy with Roux-en-Y gastrojejunostomy followed by chemotherapy 10 years prior to the current admission. He presented this time with a 6-week



► **Fig. 2** Common bile duct (CBD) clearance using motorized spiral enteroscopy-assisted endoscopic retrograde cholangiopancreatography. **a** Jejunojejunostomy site – afferent limb (green arrow) and efferent limb (yellow arrow). **b** Small periampullary diverticulum was noted, and selective CBD cannulation was performed using a triple-lumen sphincterotome. **c** Extracted CBD calculus. **d** Cholangiogram showing motorized spiral enteroscope with CBD stent (yellow arrows) after CBD clearance.

history of severe upper abdominal pain, jaundice, and pruritus. Evaluation showed acute mild biliary pancreatitis, cholelithiasis with choledocholithiasis, and a polypoidal growth at the right

vesico-ureteric junction. Magnetic resonance cholangiopancreatography showed chronic cholecystitis with choledocholithiasis (► **Fig. 1**). We proceeded with NMSE (PSF-1; Olympus Medical

Systems Corporation, Tokyo, Japan)-assisted ERCP via an antegrade route (► **Video 1**).

After identifying the anastomotic and jejunojejunostomy sites (► **Fig. 2a**), the afferent (biliopancreatic) limb was entered. The biliary opening was noted at approximately 80 cm from the anastomosis. A triple-lumen sphincterotome was used to selectively cannulate the common bile duct (CBD) (► **Fig. 2b**). Cholangiogram revealed an oblong CBD calculus. Sphincteroplasty was performed, followed by balloon sweeps. A CBD calculus with concretions was removed (► **Fig. 2c**) and a biliary stent was deployed (► **Fig. 2d**). Total procedure duration was 40 minutes. No adverse events were noted. Jaundice resolved within a few days.

The patient underwent cystoscopy 2 days later, with transurethral resection of the bladder tumor and cystodiathermy. Biopsy revealed noninvasive papillary urothelial carcinoma. He then underwent laparoscopic cholecystectomy (histology revealed chronic cholecystitis). After 6 weeks, NMSE-assisted ERCP was repeated and the CBD stent removed. The patient recovered well and was discharged.

In surgically altered anatomy, the normal ERCP procedure has limited success. NMSE-assisted ERCP can make the procedure more accessible.

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Competing interests

The authors declare that they have no conflict of interest.

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