

## Balloon-catheter-assisted endoscopic snare resection for choledochocele using a single-channel duodenoscope

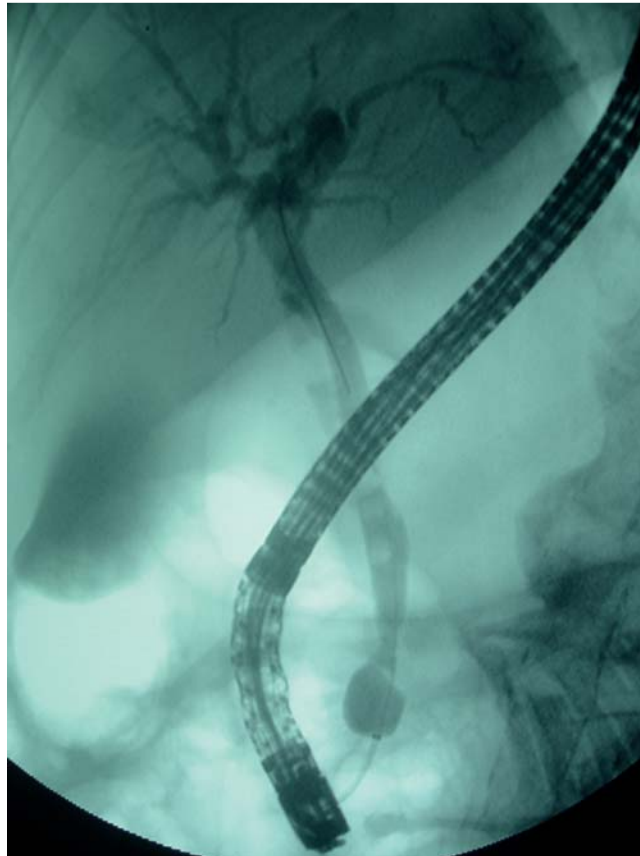
Choledochocele, or type III choledochal cyst in Todani's classification, is a rare congenital disease [1–3]. Pancreatobiliary symptoms and the risk of malignancy are the reasons for treatment, which is usually done by surgical excision or, in some cases, by endoscopic resection [2–5].

A 75-year-old man with abdominal pain, jaundice, occasional fever, elevated canalicular enzymes, conjugated bilirubin (1.3 mg/dL, normal range 0.1–0.4 mg/dL) and cholelithiasis, and choledocholithiasis with common bile duct dilatation as seen on ultrasonography and CT scan, underwent endoscopic retrograde cholangiopancreatography (ERCP), which also revealed a choledochocele (▶ Fig. 1). The patient refused surgery and a balloon-catheter-assisted endoscopic snare resection with a single-channel therapeutic duodenoscope was performed.

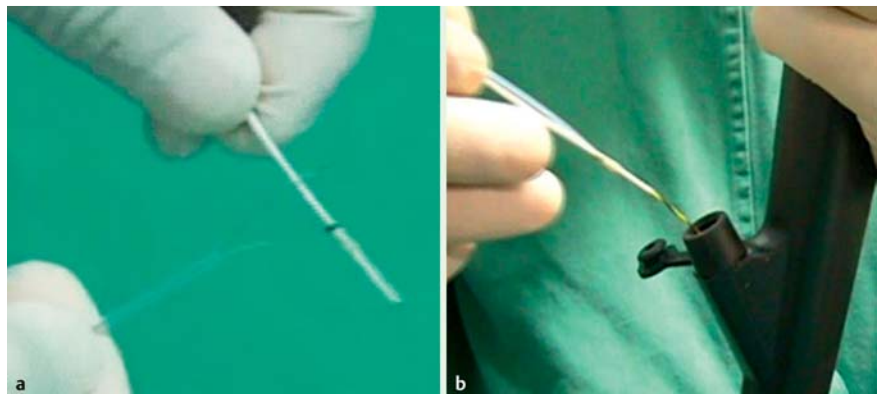
After catheterization of the common bile duct with a guide wire, a balloon catheter was passed through the loop of a 20-mm-diameter snare which wrapped around the wire and was then inserted deeply into the choledochocele (▶ Fig. 2). The insufflated balloon was pulled back toward the duodenal lumen and the snare grasped close to the base of the choledochocele, and the marsupialization was completed (▶ Fig. 3). After this, sphincterotomy was performed and stones removed.

The cyst had duodenal mucosa externally and choledochal mucosa internally with no atypical changes. A laparoscopic cholecystectomy was done and the patient remains without symptoms and with normal findings on endoscopic follow-up after 1 year (▶ Fig. 4).

The risk of biliary duct perforation during surgical resection is well known; however, because endoscopic resection is a new method, the risk it presents is as yet unknown; more studies are needed on this subject. The technique employed here has been described before using a double-channel duodenoscope, and this is easier because it is not necessary to manage the accessories outside of the duodenoscope before introducing the whole system into the channel [5]. How-



**Fig. 1** Endoscopic retrograde cholangiopancreatography showing the choledochocele.



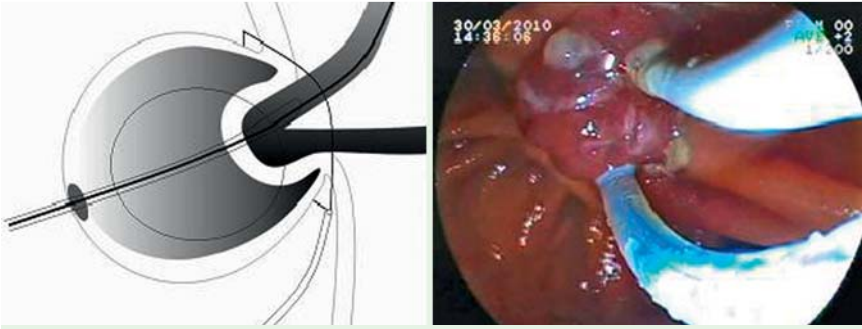
**Fig. 2** Snare wrapped around the balloon to fit in a single-channel duodenoscope.

ever, since a double-channel duodenoscope is not available in all hospitals, the present case report shows that the single-channel technique can be performed with the same results and is also an innovative and minimally invasive technique

for the treatment of symptomatic choledochocele.

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**Competing interests:** None



**Fig. 3** Balloon-catheter-assisted endoscopy snare resection technique: schematic diagram and endoscopic image.



**Fig. 4** Follow-up 1 year after endoscopic resection.

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