EUS diagnosis of asymptomatic type III choledochal cyst

Mohannad Abou Saleh, MD, Catherine Vozzo, DO, Prabhleen Chahal, MD

Choledochal cysts occur in approximately 0.007% of live births in the United States, compared with 0.1% in Asia.[1-3] There are 6 types of choledochal cysts, with type I being the most common (Fig. 1). A type III cyst, accounting for 1% to 5% of biliary cysts, involves dilation of the intraduodenal part of the distal common bile duct; these cysts are further subclassified into type IIIA, in which both the bile and pancreatic ducts terminate in the cyst,

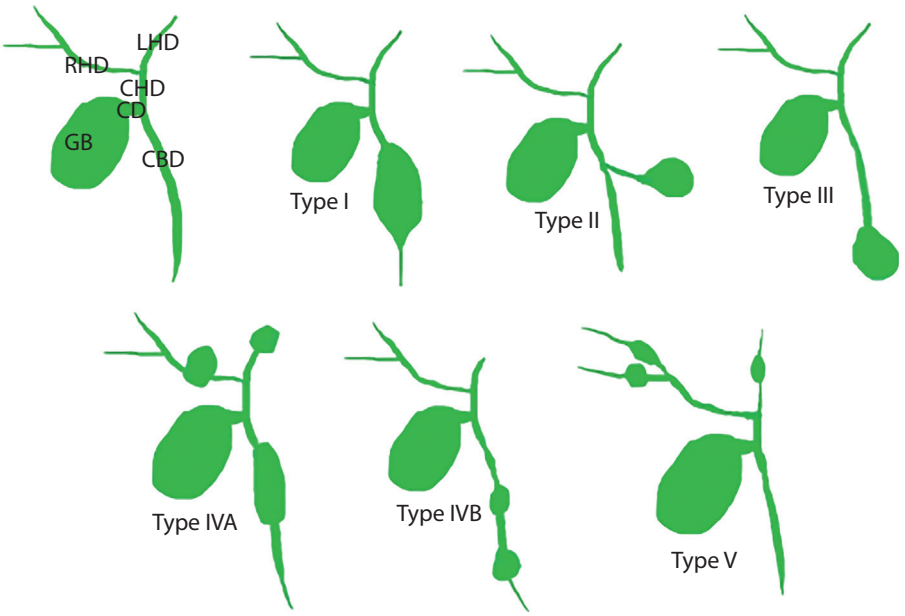

Figure 1. Classification of choledochal cysts. GB: gallbladder; RHD: right hepatic duct, LHC: left hepatic duct; CHD: common hepatic duct; CBD: common bile duct; CD: cystic duct.

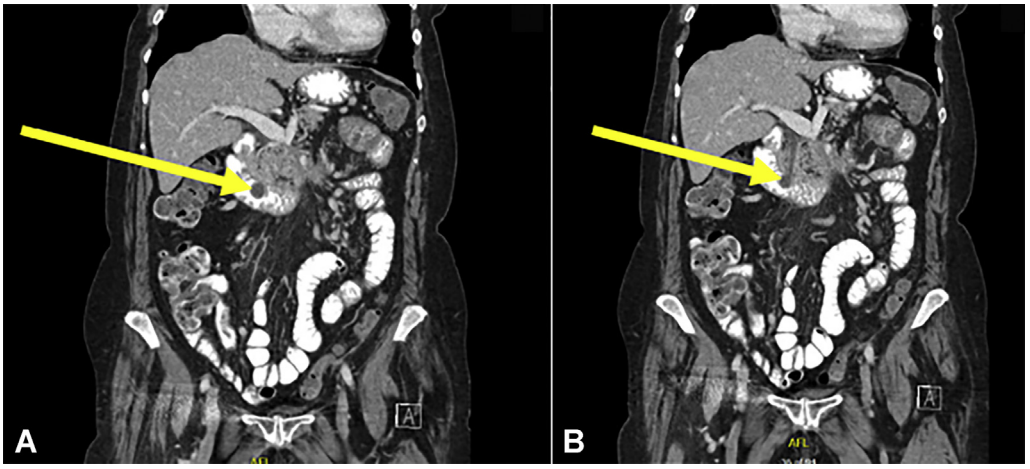

Figure 2. Coronal view of a CT scan of the abdomen and pelvis. **A,** *Arrow* showing type III choledochal cyst. **B,** *Arrow* showing type III choledochal cyst and common bile duct.

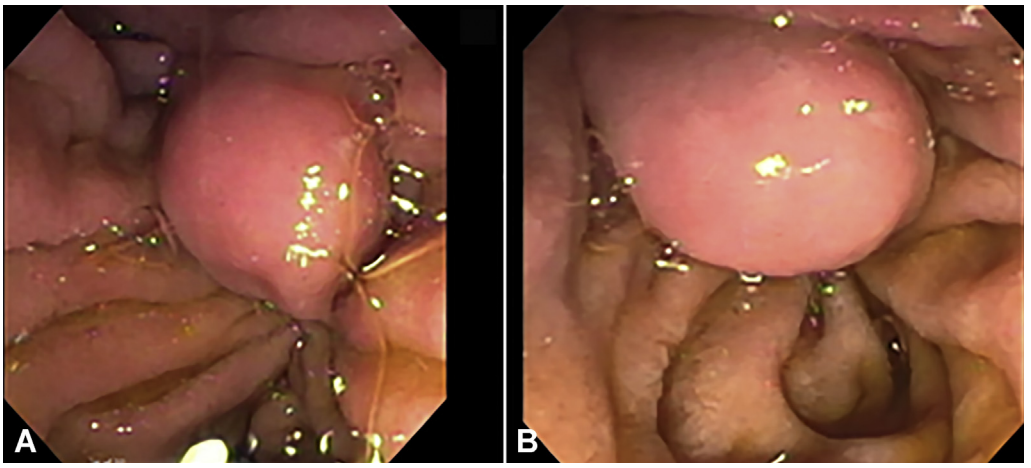

Figure 3. A, Duodenoscopy view of type III choledochal cyst. **B,** Evidence of ampullary orifice.

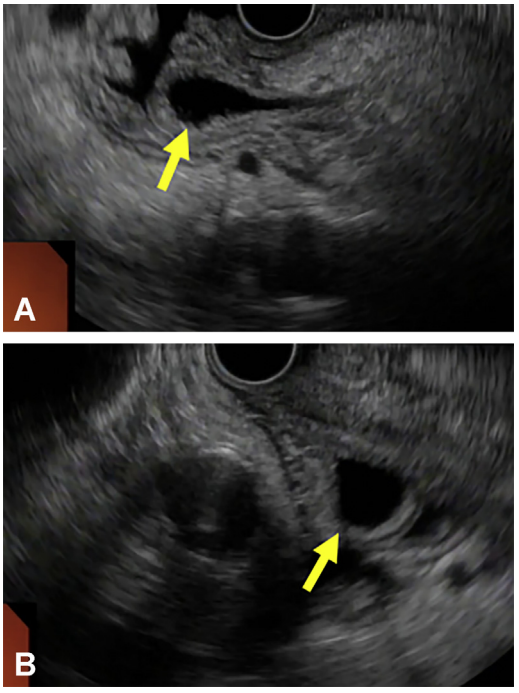

Figure 4. EUS examination demonstrating type III choledochal cyst (*yellow arrow*). **A,** Postbulbar curvilinear endosonographic view. **B,** Bulbar curvilinear endosonographic view (*yellow arrow*).

and type IIIB, in which an intra-ampullary or intraduodenal diverticulum is formed.[1-3] In a 40-year systematic review, a total of 325 patients were reported between 1975 and 2015, with more cases diagnosed in adulthood.[2] Although many can be found incidentally, symptoms include abdominal pain, nausea, vomiting, pancreatitis, jaundice, and cholangitis.[1-4] Malignancy risk is thought to be lower in type III cysts compared with type I and IV.[1-4] Treatment with sphincterotomy, endoscopic, or surgical resection is indicated in symptomatic type III cysts.[5,6] We present a case of EUS-guided diagnosis of a type IIIA choledochal cyst.

An 81-year-old woman with a medical history of diabetes mellitus type II, hypertension, hyperlipidemia, GERD, and irritable bowel syndrome presented to the outpatient gastroenterology clinic for symptoms of abdominal cramping and constipation. She had a history of mixed-type irritable bowel syndrome but reported worsening constipation with abdominal cramping localized to the lower abdomen. She underwent a colonoscopy that was remarkable for severe diverticulosis in the sigmoid.

An abdominal CT scan showed cystic dilation of the distal common bile duct measuring 1.7 cm and extending into the lumen of the descending duodenum (Fig. 2). The common bile duct was 9 mm, and the pancreatic duct was unremarkable. Liver function tests were unremarkable. The patient was referred for an EUS examination. A bulging of the ampullary region was noted, with papilla located inferiorly on this bulge (Fig. 3). On EUS examination, an anechoic cystic dilation of the intraduodenal segment of the bile duct was seen with normal caliber of bile duct (Fig. 4). There were no signs of endosonographic or endoscopic abnormalities in the ampulla. The proximal bile duct appeared normal. The pancreas and pancreatic duct also appeared normal.

Although duodenal duplication cysts can be misdiagnosed as type III choledochal cysts, duplication cysts often appear to be multilayered with epithelial lining and muscularis proporia that are continuous with the duodenum. They often have an echogenic inner layer with a hypoechoic surrounding layer on EUS.[7] This was not present in this patient, thus confirming the diagnosis of type III choledochal cyst. Given the patient's advanced age, normal liver biochemistry, and absence of clinical symptoms, no endoscopic or surgical intervention was pursued. A 6-month follow-up is planned (Video 1, available online at www.VideoGIE.org).

DISCLOSURE

All authors disclosed no financial relationships.

REFERENCES

1. Hoilat GJ, John S. Choledochal cyst. In: StatPearls [Internet]. Treasure Island, FL: StatPearls Publishing; 2020.
2. Lobeck IN, Dupree P, Falcone RA Jr, et al. The presentation and management of choledochocele (type III choledochal cyst): a 40-year systematic review of the literature. J Pediatr Surg 2017;52:644-9.
3. Antaki F, Tringali A, Deprez P, et al. A case series of symptomatic intraluminal duodenal duplication cysts: presentation, endoscopic therapy, and long-term outcome (with video). Gastrointest Endosc 2008;67:163-8.
4. Lipsett PA, Pitt HA, Colombani PM, et al. Choledochal cyst disease. A changing pattern of presentation. Ann Surg 1994;220:644-52.
5. Chatila R, Andersen DK, Topazian M. Endoscopic resection of a choledochocele. Gastrointest Endosc 1999;50:578-80.
6. Alonso-Lej F, Rever WB Jr, Pessagno DJ. Congenital choledochal cyst, with a report of 2 and analysis of 94, cases. Int Abstr Surg 1959;108:1-30.
7. Liu R, Adler DG. Duplication cysts: diagnosis, management, and the role of endoscopic ultrasound. Endosc Ultrasound 2014;3:152-60.

Department of Gastroenterology and Hepatology, Cleveland Clinic Foundation, Cleveland, Ohio.

https://doi.org/10.1016/j.vgie.2020.10.015