



# Endoscopic Decompression and Marsupialization of A Duodenal Duplication Cyst



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## ABSTRACT

**Introduction:** Duodenal duplication cysts are rare congenital foregut anomalies, accounting for 2%–12% of all gastrointestinal tract duplications. Surgical excision entails risk of injury to the pancreaticobiliary structures due to proximity or communication with the cyst. We present a case of duodenal duplication cyst in a 3 year-old boy who successfully underwent endoscopic decompression.

**Case report:** AT is a young boy who first presented at 15 months of age with abdominal pain. There was one subsequent episode of pancreatitis. Ultrasonography showed the typical double wall sign of a duplication cyst and magnetic resonance cholangio-pancreatography showed a large 5 cm cyst postero-medial to the second part of the duodenum, communicating with the pancreaticobiliary system and causing dilatation of the proximal duodenum. He subsequently underwent successful endoscopic ultrasound guided decompression at 3 years of age under general anesthesia, and had an uneventful postoperative recovery.

**Conclusion:** Endoscopic ultrasound guided assessment and treatment of gastrointestinal duplication cysts is increasingly reported in adults. To the best of our knowledge, only one case of endoscopic treatment of duodenal duplication cyst, in an older child, has been reported thus far in the paediatric literature. In this paper, we review the current literature and discuss the therapeutic options of this rare condition.

## 1. Introduction

Duplication cysts of the gastrointestinal tract are rare congenital malformations that can be found in the foregut, small or large bowel. Duodenal duplication cysts are rare, accounting for 2–12% of duplication cysts of the alimentary tract [1]. Approximately 60% present within the first two decades of life while the rest remain asymptomatic till adulthood [2].

Because the lesion is rarely encountered even in major pediatric centers, it often presents a diagnostic and therapeutic challenge. Total excision is the treatment of choice for duplication cysts in general. However, for duplication cysts in the duodenum, proximity to the ampulla of Vater puts the bilio-pancreatic ducts at risk during surgery. In adults, endoscopic drainage has been shown to be a viable alternative. Little, however, has been reported in the pediatric population, with only one case reported in literature thus far.

We present a case of a large duodenal duplication cyst in a 3-year old boy successfully treated with ultrasound-guided endoscopic drainage.

## 2. Case report

AT is a boy who first presented at 15 months of age when he was referred for a suspected Todani type II or III choledochal cyst. He presented with central abdominal pain and a computer tomography (CT) scan showed a  $4.8 \times 4.8 \times 2.4$  cm cyst posteromedial to 2nd/3rd parts of duodenum with communication to a non-dilated biliopancreatic duct. Magnetic resonance cholangio-pancreatography (MRCP) showed a cyst posteromedial to the second part of the duodenum measuring  $5.2 \times 4.0 \times 1.6$  cm. The distal common bile duct/common channel coursed in the anterior wall of the cyst and appeared to communicate with the lumen of the cyst (Fig. 1). Ultrasonography showed a double-layered wall characteristic of enteric duplication cysts (Fig. 2). The treatment options of open excision with its attendant risk to biliopancreatic structures versus endoscopic decompression were offered. Hematemesis with a significant drop of hemoglobin and hyper-amyloaemia was documented in subsequent symptomatic episodes. AT's parents then opted for endoscopic decompression, which was done when he was 3 years old.

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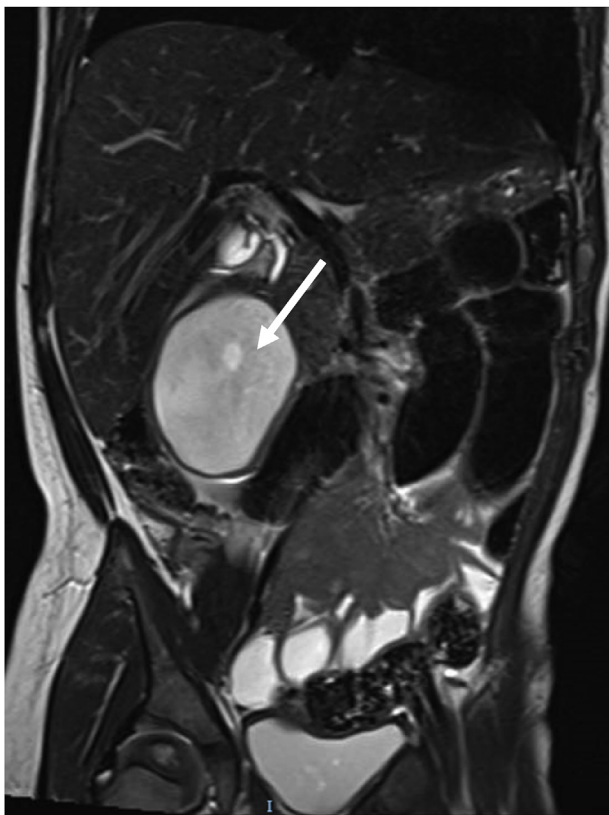


Fig. 1. Magnetic resonance cholangio-pancreatography (MRCP) of the duodenal duplication cyst (arrow).

2.1. Procedure

Under general anesthesia and prophylactic antibiotic cover, a side-viewing duodenoscope was inserted which noted external compression of the second part of the duodenum by a large extra-luminal lesion (Fig. 3). An endoscopic ultrasound (EUS) probe was then inserted and a 5.5 × 3.3 cm extra-luminal cystic lesion was noted abutting the posterior duodenal wall (Fig. 4). A subsequent 3 cm-long fenestration was created with an Olympus ITKnife nano™ Electrosurgical Knife. Copious amounts of bile stained fluid and mucous debris was drained intra-luminally (Fig. 5). An inadvertent small perforation of the external wall of

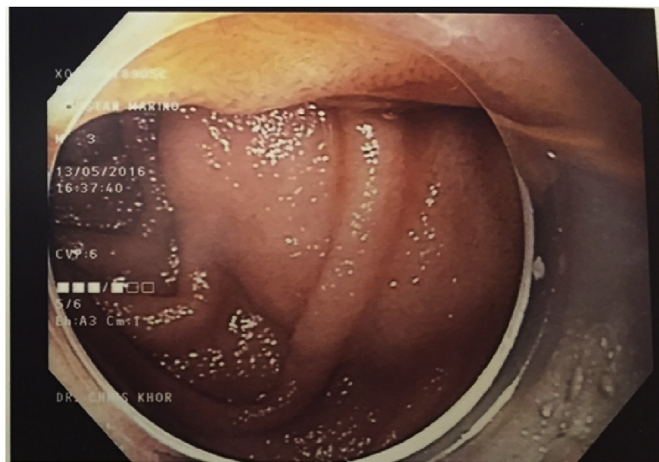


Fig. 3. Duodenoscope view showing external compression of the cyst.

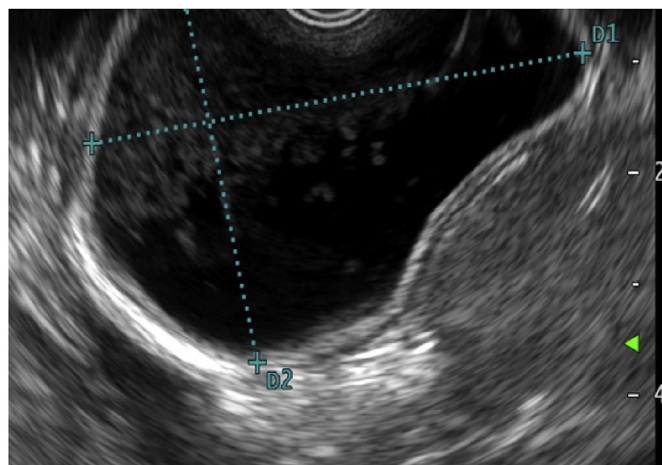


Fig. 4. Endoscopic ultrasound image of the cyst.

the cyst was made at the first cut, and this was closed by endoscopic placement of Olympus EZClip clips (Fig. 6).

Post-operatively, the patient was stable and pain-free and was discharged well on the third post-operative day after establishment of full feeds. Ultrasonography at 3 months and 11 months (latest US was April

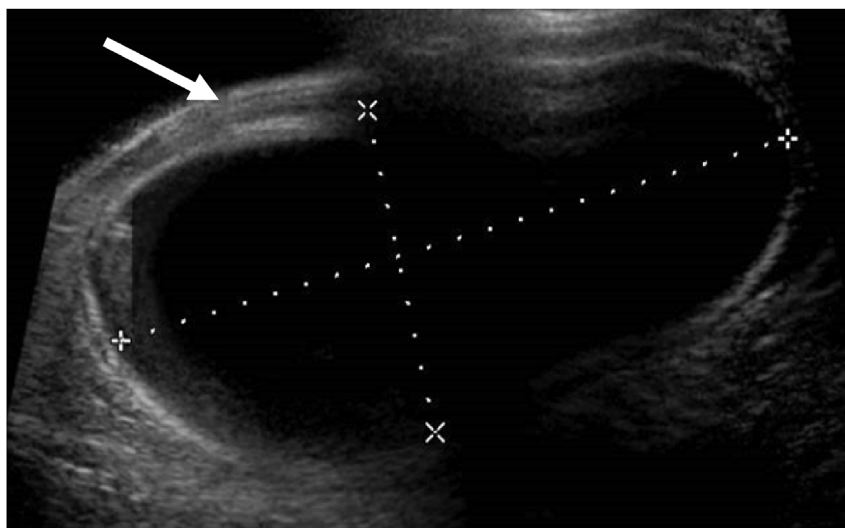


Fig. 2. Ultrasonography showing a double-layered wall (arrow) characteristic of duplication cysts.

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