

Insulated-tip knife: an alternative method of marsupializing a symptomatic duodenal duplication cyst in a 3-year-old child

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Duodenal duplication cysts are rare.¹ Definitive endoscopic therapy and marsupialization of symptomatic duplication cysts have been reported with the use of a needle-knife, sphincterotome, or polypectomy snare.²⁻⁴ Here we describe a case in which marsupialization of a duodenal duplication cyst was performed on a 3-year-old child by use of a variant of the insulated-tipped (IT) knife (Video 1, available online at www.VideoGIE.org).

The child was first brought, at the age of 15 months, to another hospital because of recurrent abdominal pain with vomiting and acute pancreatitis on separate occasions. He was referred to our hospital when he was 3 years old for the management of a suspected type III choledochal cyst. Abdominal US showed a cystic lesion suggestive of an enteric duplication cyst. MRCP was done to further evaluate the cyst and showed a 5.2- × 4.0- × 1.6-cm cystic structure posterior to the second part of the duodenum (Fig. 1). The distal common bile duct and common channel were seen coursing through the anterior wall of the cyst and appeared to communicate with the lumen of the cyst. The case was discussed at the hospital multidisciplinary meeting, and it was concluded that the imaging features were consistent with duodenal duplication cyst instead of a type III choledochal cyst. Hence, the decision was made to treat the cyst endoscopically.

With the child under general anesthesia and with anti-biotic cover, a standard upper endoscope (GIF-HQ190; Olympus Medical Corp, Tokyo, Japan) fitted with a transparent hood was inserted. A large subepithelial lesion was identified at the medial wall of the markedly dilated second part of the duodenum. EUS showed a 5.5- × 3.3-cm cystic lesion enclosed by a 5-layered intestinal wall (Fig. 2). Away from the ampulla, a needle-knife (KD-V451M; Olympus Medical Corp) was used to fenestrate the dependent portion of the cyst (Fig. 3). Copious amounts of bile-stained fluid drained immediately into the duodenal lumen. The needle-knife was then exchanged for the IT knife nano (KD612L; Olympus Medical Corp). We chose this knife variant over the IT knife 2 (KD-611L) from the same manufacturer because the latter has a triradiate-tipped cutting extension of the shaft behind the ceramic hemisphere (Fig. 4). This feature would have reduced the precision of the cut in this setting. The tip of the IT knife was used to hook into the inner wall of the cyst, and by this means the mucosal incision was extended to the margin of the cyst under direct vision. A small perforation of the internal wall of the cyst occurred opposite the needle-knife entry site and was closed with hemoclips. It is worth noting that the design of this IT knife variant is likely to prevent a perforation of this nature from occurring during extension of the incision.

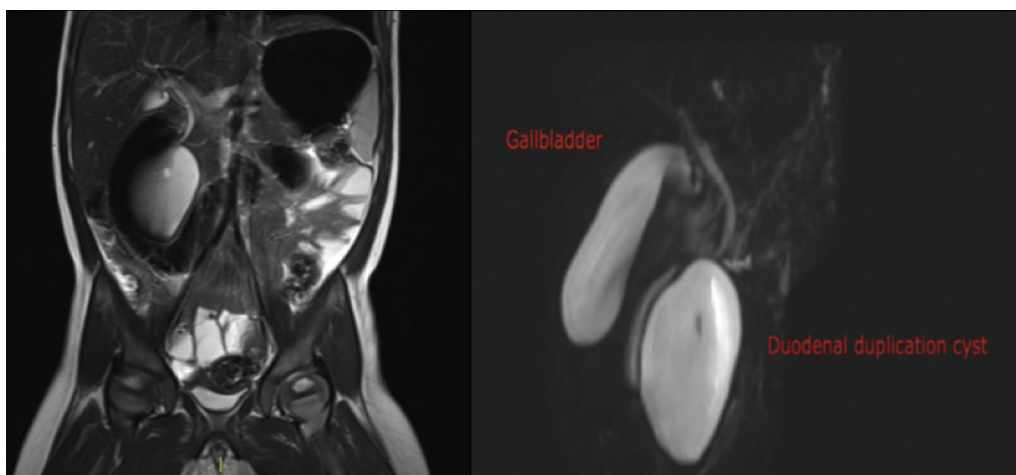


Figure 1. MRCP view showing 5.2- × 4.0- × 1.6-cm cystic structure posterior to the second part of the duodenum.

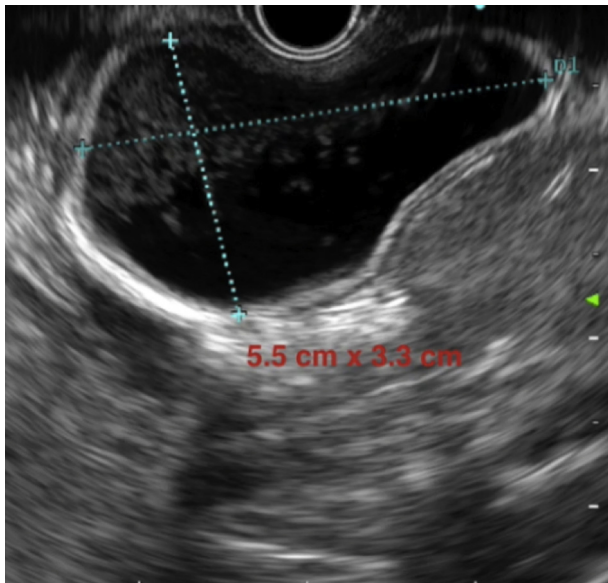


Figure 2. EUS view showing 5.5- × 3.3-cm cystic lesion enclosed by a 5-layered intestinal wall.

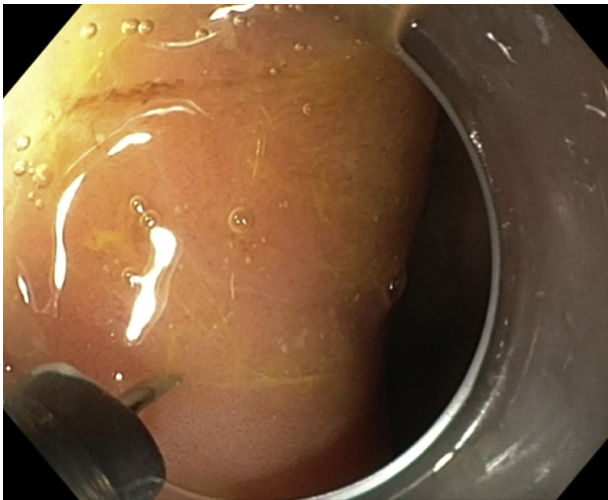


Figure 3. Needle-knife making the initial fenestration of the duodenal duplication cyst before exchange with the insulated-tipped knife.

After the procedure, the patient was well and pain free. A liquid diet was started the next day. He was discharged on the third day with a total 7-day course of antibiotic agents. Serial US scans at 3, 9, and 20 months showed that the cyst had disappeared, and he has remained asymptomatic at 22 months of follow-up.

In conclusion, the IT knife may be used to marsupialize a symptomatic duodenal duplication cyst. Its design confers

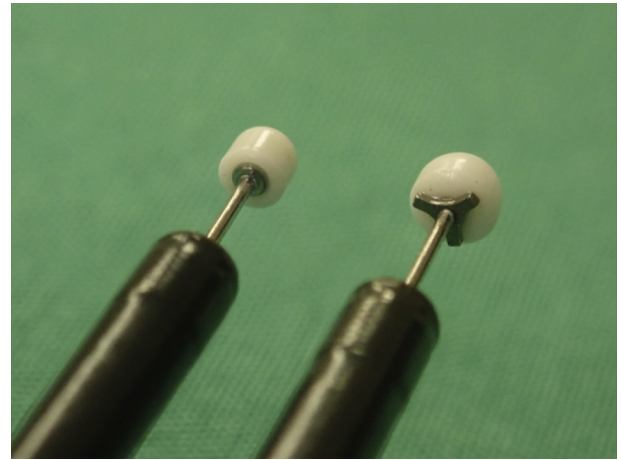


Figure 4. Insulated-tipped (IT) knife nano (*left*) with spherical-tipped as opposed to IT knife 2 (*right*) with triradiate-tipped cutting extension of the shaft behind ceramic hemisphere.

the advantage of cutting while hooked into the cyst cavity. This facilitates precise cutting of the cyst wall to its margins.

DISCLOSURE

All authors disclosed no financial relationships relevant to this publication.

Abbreviation: IT, insulated-tipped.

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