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Case Report

Gastric antral duplication cyst: A case report

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Alimentary tract duplications may be symptomatic or may be discovered incidentally. They are named for the organ with which they are associated.[1] Congenital gastrointestinal (GI) tract duplication cysts are commonly located in the ileum (53%), mediastinum (18%), colon (13%), stomach (7%), duodenum (6%), rectum (4%), or oesophagus (2%).[2] A single theory is insufficient to explain all types of duplications.[3] Children may present with symptoms like vomiting, abdominal pain, lumps, or weight loss.[4] The presence of ectopic gastric mucosa and the potential for malignancy remain matters of concern.[2] Surgical management is essential for these rare cysts.[5] We encountered a Bangladeshi boy with a gastric duplication cyst (GDC) that was pre-operatively diagnosed as a pancreatic cyst. A variety of imaging modalities failed to indicate GDC before the operation. Here we present the clinical course of the case and discuss the difficulties and problems in diagnosing GDC. **[Paediatr Indones. 2021;61:287-90 ; DOI: 10.14238/pi61.5.2021.287-90**].

Keywords: *antral duplication cyst; children; congenital*

The Case

A 10-year-old boy presented with a chief complaint of severe, intermittent, diffuse, dull aching, non-radiating, upper abdominal pain, with several episodes of vomiting and two episodes of hematemesis for 10 days prior to seeking help. The amount of blood on hematemesis was scanty. He had a history of repeated attacks of abdominal pain for the previous 1½ years. He had no history of fever, taking an offending drug, prolonged bleeding from cut injury, weight loss, or jaundice. On examination, the boy had mild pallor and normal vital signs. He was thriving well and the abdomen was non-tender. there was no lymphadenopathy or organomegaly, and bowel sounds were present. The rest of the physical exam was normal. The laboratory investigations are shown in **Table 1**.

The patient's amylase, blood glucose, alanine aminotransferase, and creatinine levels were normal, but his serum lipase was 698 U/L (2.3 times the upper limit of normal). Echinococcus antibody was negative. Ultrasonography of the whole abdomen suggested the presence of a cystic lesion in the right hypochondriac region. A digital barium meal of stomach, duodenum, and follow through was normal. Contrast-enhanced computed tomography (CECT) scan revealed a non-enhancing, rounded, encapsulated, cystic lesion in the right hypochondrium, which was possibly a duodenal duplication cyst or pancreatic pseudocyst (**Figure 1**). Esophago-gastro-duodenoscopy was normal. Magnetic resonance cholangiopancreatography (MRCP) revealed a fairly large cystic area at the 3rd part of the duodenum, which was possibly a duodenal duplication cyst (**Figure 1**).

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Table 1. Laboratory investigations

Investigation	Results
Complete blood count	
Hemoglobin	9.8 g/dL
Total white blood cell count	7,200/mm^3
Platelet count	448,000/mm^3
Peripheral blood film	Normocytic anemia, otherwise normal
Routine stool examination	
Red blood cells	0/high power field
Pus cells	2-3/high power field
Occult blood test	Negative

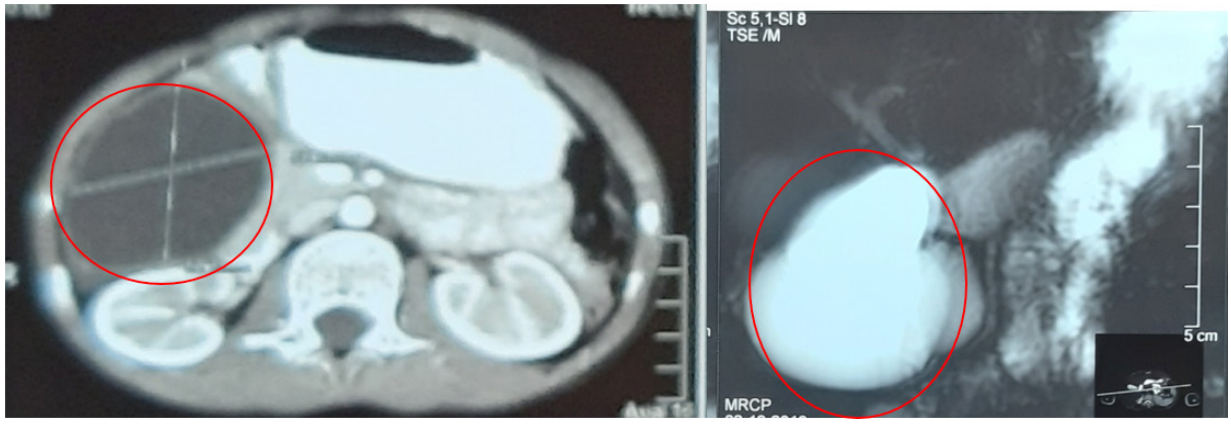

Figure 1. Cystic lesion in CT scan and MRCP (red circle)
CT=computed tomography, MRCP=magnetic resonance cholangiopancreatography

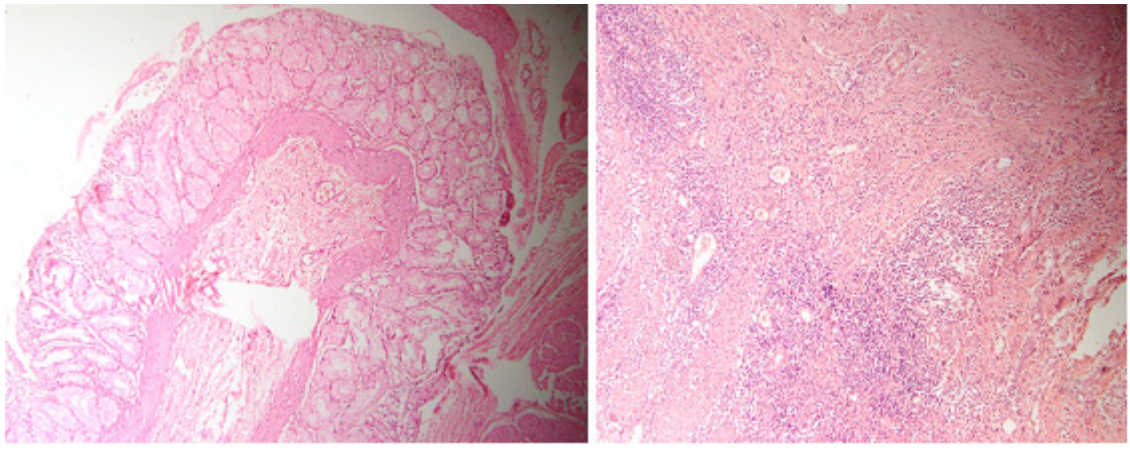

Figure 2. Histopathology of the resected cyst

After correction of the anemia, a laparotomy was done. A non-communicating cystic antral duplication was seen at the antral part of stomach. The cyst cavity was filled with a mucinous secretion, which was aspirated, followed by marsupialization and partial excision of cyst. The post-operative period was uneventful. The child was discharged on the 5th post-operative day. Histopathological examination of the resected cystic lesion revealed a cyst wall containing gastric tissue, lined by mucinous columnar cells with gastric antral glands, which is compatible with an antral duplication cyst (**Figure 2**).

Discussion

Gastric duplication cysts (GDCs) account for 4% of all gastrointestinal duplications, most of which have been reported in children,[1,3] usually along the greater curvature.[6-8] Our patient had a gastric duplication (antral duplication) cyst. Typically, gastric duplications become symptomatic during childhood and less than 25% are discovered after the age of 12 years.[7] Our patient was diagnosed at 10 years of age. Clinical presentation ranges from abdominal pain, nausea, vomiting, epigastric fullness, weight loss, anemia, dysphagia, dyspepsia, abdominal tenderness, and epigastric mass.[7,9] Our patient presented with abdominal pain and vomiting for the previous one and a half years. Cysts may present as complications like infection, gastrointestinal bleeding, perforation, ulceration, fistula formation, obstruction, compression, or malignant transformation.[6,10] Our patient had a history of hematemesis.

Around 10% of gastric duplications may contain ectopic pancreatic tissue, mimicking pancreatic pseudocysts.[9,11] Our patient presented with abdominal pain and a lipase value 2.3 times the upper limit of normal, but histopathology of resected tissue revealed no pancreatic tissue. Gastric duplications can compress adjacent organs such as the pancreas, kidney, spleen, and adrenal gland,[12] but our patient had no such features. Whilst over 80% of gastric duplications are cystic,[8] the rest are tubular where the lumen is contiguous with some communication.[3] In our case, the cyst had no communication with the lumen.

The GDCs are often incidentally discovered during abdominal ultrasonography, CT scan, MRI, or esophago-gastro-duodenoscopy.[11,13] A technetium scan can show ectopic gastric mucosa in duplication.[14] Endoscopic ultrasonography can distinguish intramural from extramural gastric lesions.[12,15] The CECT shows GDC as a thick-walled cystic lesion with enhancement of the inner lining.[16,17] Calcification is occasionally observed on CT.[9,10] In our patient, ultrasonography of the whole abdomen was suggestive of a cystic lesion in the right hypochondriac region, and CT scan was most consistent with a pancreatic pseudocyst or duplication cyst, while MRCP findings were indicative of a duplication cyst. However, confirmation of GDC was only made during surgery.

Complete excision is the therapy of choice.[9,18] Marsupialization and stripping of the mucosal lining is the next option.[12] Due to the possibility of malignant transformation, surgical excision is recommended.[19] In our patient, the antral duplication cyst was partially excised surgically.

Histopathological criteria for diagnosis of GDC include contiguity of cyst wall with the stomach wall, presence of smooth muscle surrounding the cyst and contiguous with gastric muscle, as well as lining of the cyst wall by epithelial, gastric, or gut mucosa.[1,3,10,12,18] In our case, the cyst wall containing gastric tissue was lined by mucinous columnar cells with gastric antral glands, which is compatible with features of an antral duplication cyst. Up to 10% of GDC can contain ectopic pancreatic tissue,[20] but our patient had no such tissue.

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