Radiol Oncol 2005; 39(3): 181-4.

case report

Communicating saccular pyloroduodenal duplication. Case report

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Background. *Duplication anomalies of pyloroduodenal region are not common. Intestinal duplications should be considered if additional specific development malformations are present.*

Case report. *We report a case of the pyloroduodenal duplication in 22-month-old girl by whom intermittent nausea and vomiting were the first symptoms. US revealed an anechoic cystic lesion between the stomach and the left liver lobe. The upper gastrointestinal contrast study revealed stenosis in the pylorobulbar region, as a result of the extrinsic compression. The diagnosis of the alimentary tract duplication cyst compressing the atypically formed head of pancreas was highly suspected by the contrast enhanced multi slice computerized tomography (MSCT). The intraoperative contrast application detected a communication between both, duplication and pyloric region. The patohistological examination confirmed a duplication cyst containing gastric and duodenal mucosa with no ectopic pancreatic tissue.*

Conclusions. *The ultrasound examination, as the initial diagnostic procedure of intestinal duplication, usually reveals a cystic anechoic lesion. Additional barium study, contrast enhanced CT or MRI scan are useful in diagnosis of alimentary tract duplications, providing supplementary information.*

Key words: pylorus-abnormalities; duodenum-abnormalities

Introduction

Isolated duplications of the alimentary tract are rare congenital malformations with a reported incidence of 1:5000.[1,2] Duplication anomalies of the pyloroduodenal region are not common as well. Intestinal duplications should be considered if additional specific development malformations are present. The aetiology of duplication cysts may be multifactorial.[3] The usual symptoms in patients with alimentary duplication cysts are gastrointestinal obstruction, vomiting, diffuse abdominal pain and sometimes melena. [2,4]

Received 12 September 2005

Accepted 20 September2005

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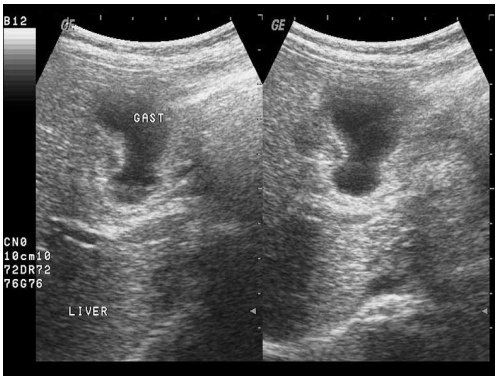


Figure 1. US if the upper abdomen. Anechoic oval structure between stomach and left liver lobe.

Case report

A 22-month-old girl with abdominal pain and recurrent vomiting was presented in the recent 15-month-period. Physical examination findings showed a small palpable mass in the left epigastrium. Early sonographic findings revealed an anechoic oval structure between the stomach and the left liver lobe suspected to be a duplication of the alimentary tract. There was no proof of any communication to intraperitoneal structures. No communication with the gastrointestinal tract could be demonstrated as well (Figure 1).

The radiological examination included the upper gastrointestinal contrast radiography which revealed stenosis in the pyloroduodenal region, 4 cm in length. Stenosis was considered as a sign of the extrinsic compression (Figure 2).

The contrast enhanced *multi* slice computerized tomography (MSCT) was compatible with US findings and contrast radiography. It revealed a well-defined cystic fluid collection, 3.3 x 3.9 cm, located between the left liver lobe and pylorus, suggesting an enteric duplication and extrinsic compression on the duodenal region. A mesenteric cyst, however, could not be excluded. The head of pancreas was severely deformed due to the cyst formation. There were no signs of acute pancreatitis (Figures 3,4).

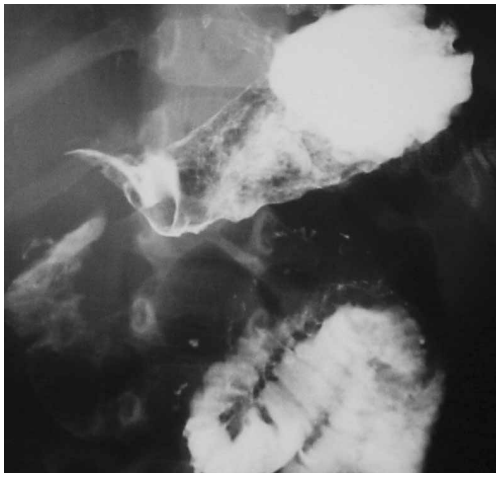


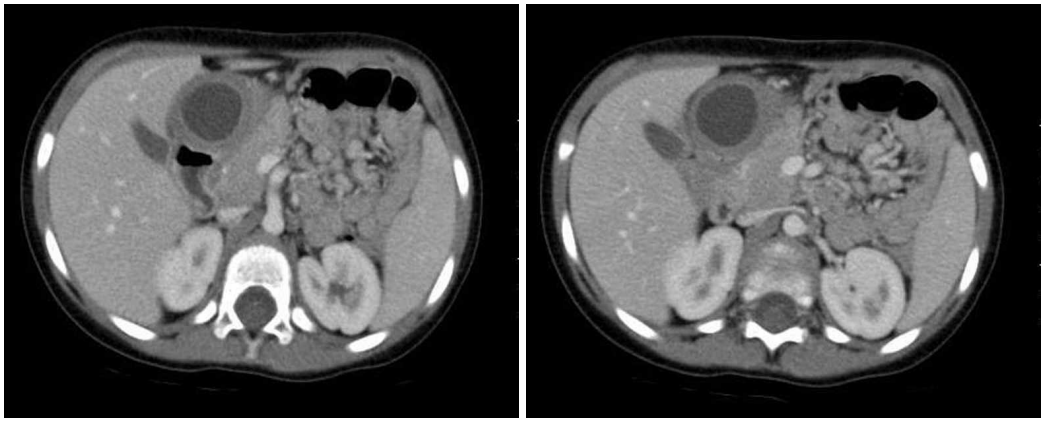
Figure 2. Upper gastrointestinal contrast radiography. Stenosis in pyloroduodenal region as sign of extrinsic compression.

The explorative surgery revealed a spherical duplication anterior to the pyloric region. The intraoperative contrast application through the cystic structure suggested a narrow communication between the duplication and alimentary tract. A partial resection was performed due to the common wall with pylorus shared in small segment. Mucosa of the remnant cyst wall was excised. The histopatological examination of specimen confirmed a pyloroduodenal duplication cyst containing gastric and duodenal mucosa.

Discussion

Duplication cysts are spherical or elongated hollow structures, lined by epithelium which is usually identical to a part of the alimentary tract they are aligned to, usually sharing common blood supply.[1]

Duplications occur due to a fault recanalization of the temporarily obliterated fetal intestine or incomplete embryogenic budding. They tend to be associated with other congenital malformations, mostly vertebral anomalies, intestinal atresia, double gallbladder or double uterus.[2,5] A gastrointestinal duplica-



Figures 3, 4. Contrast enhanced MSCT of the upper abdomen. Well-defined cystic fluid collection, 3,3x3,9 cm, between left liver lobe and pylorus, suggesting an enteric duplication.

tion may develop at any level of the gastrointestinal tract, often containing ectopic tissue. Gastric mucosa and pancreatic tissue are the only ones that have clinical significance. The usual localization of duplication development is enteromesenteric side of the alimentary tract. The majority of duplications are diagnosed in the early childhood due to symptoms developing in the first years of life.[3,6-7]

Differential diagnoses of duplications in children include cystic neoplasm, congenital and parasitic cysts and pancreatic pseudocyst.

Symptoms of intestinal duplications in children are mostly non-specific, depending on the localization. They may present as vomiting, palpable abdominal mass, problems with feeding and pancreatitis. Lesions in distal segments of intestine include flank abdominal pain, palpable tumour and melena.[3]

As a method of treatment, surgery should be attempted to remove the duplication radically, even if together with adjacent gut segment. If the cyst is closely related to vital structures, a total excision may not be possible. In such cases, the partial excision remains as a possible solution.

The diagnosis of a duplication cyst may be suspected on barium enhanced radiographs demonstrating the extrinsic pressure produced by abdominal mass.[8] US, CT and MR confirm a definitive diagnosis.

On US, duplications appear as anechoic mass with a thin echogenic rim representing mucosa, covered by a hypoechoic muscular wall. These findings are characteristic for the non-communicating type of a duplication cyst.[7,9]

CT demonstrates the location and extension of the duplication defining adjacent structures and excluding additional abnormalities. Rarely, CT demonstrates cyst wall calcifications.[7,10]

MR cholangiography is helpful in detecting biliary and ductal anomalies.[11,12] In addition, radionuclide imaging with ^{99m}Tc can show the increased uptake if a cyst contains gastric mucosa.[7]

Conclusions

Duodenal duplications constitute about 5% of all alimentary tract duplications. Patohistological findings in duplications usually show ectopic tissue such as gastric and/or pancreatic mucosa.[3] Complications as bleeding, perforation of ulceration may occur. A malignant alteration of duplication is extremely rare.[13]

In our case, the diagnosis of the alimentary tract saccular duplication compressing the atypically formed head of pancreas was highly suspected by US and contrast enhanced CT.

A contrast study of duplication during the surgical excision detected a communication between the duplication and pyloric region. The patohistological examination confirmed a duplication cyst containing gastric and duodenal mucosa.

The ultrasound examination, as an initial diagnostic procedure of the intestinal duplication, usually reveals a cystic anechoic lesion. Additional barium study, contrast enhanced CT or MRI scan can be useful in the diagnosis of alimentary tract duplications, providing the supplementary information.

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