Duodenal duplication cyst: A case report

Published on 20.04.2015

DOI: 10.1594/EURORAD/CASE.12542
ISSN: 1563-4086
Section: Abdominal imaging
Area of Interest: Gastrointestinal tract Genital /
Reproductive system female
Procedure: Diagnostic procedure
Technique: Ultrasound
Technique: Ultrasound-Colour Doppler
Technique: Fluoroscopy
Technique: CT
Special Focus: Cysts Case Type: Clinical Cases
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Patient: 48 years, female

Clinical History:

A 48-year-old woman with a history of renal transplant due to end-stage renal disease of unknown cause came to our department for a routine abdominal ultrasound. She had no complaints.

Imaging Findings:

The abdominal ultrasound demonstrated the presence of a cystic mass at the level of the porta hepatis, with no identifiable connection with the gallbladder or the extra-hepatic bile duct. It had no vascularity on the colour Doppler examination.

The upper gastrointestinal barium meal study revealed lateral and posterior compression on the second portion of the duodenum with no other abnormalities.

The abdominal CT revealed an elongated hypodense lesion with a gut-like wall lateral to the second portion of the duodenum that caused its compression. This lesion showed a peripheral enhancement after IV-contrast. The examination confirmed the absence of connection with the extra-hepatic bile duct or the small bowel.

Discussion:

Enteric duplication cysts are rare congenital lesions that occur most commonly in the mesenteric border of any segment of the gastrointestinal tract and share the vascularity and the muscular wall with the adjacent tract [1]. They are named according to the location in which they appear. Duodenal duplication cysts (DDC) comprise 2-12% of these cysts and most commonly occur in the second or third portion [2]. They can be lined with duodenal, gastric, pancreatic or other mucosa and in about 25% of cases communicate with the native duodenal lumen. There are several theories describing its formation, although aberrant luminal recanalization is the most cited one. DDCs can be associated with numerous malformations, such as intestinal, anal or biliary atresia, malrotation, situs inversus, partial gastric diverticula, duplicated gallbladder or uterus.

Clinically, they can be asymptomatic or present with abdominal pain, vomiting, weight loss, pancreatitis, jaundice or
Palpable abdominal mass [3].

Ultrasound allows the identification of a unilocular cystic mass. The demonstration of an inner echogenic layer that corresponds to the mucosa and an outer hypoechogenic muscular layer ("gut signature" or "double wall sign") [1, 4] has a good specificity for this diagnosis. Visualization of peristalsis of this lesion also favours the diagnosis of DDC.

Barium studies can either be normal or reveal extrinsic duodenal compression. They can also show an addition to the duodenal contour in cases of communicating DDC.

Abdominal CT is important to show the absence of connection with the extra-hepatic bile duct and the relationship with the duodenum. Peripheral enhancement after IV-contrast and mass effect may also be visible.

Additionally, magnetic resonance cholangiopancreatography (MRCP) is a useful technique for accurate imaging of the biliary ducts, showing lack of connection of DDC with extra-hepatic biliary ducts. It can also be relevant for suggesting alternative diagnosis, allowing the identification of bile duct cysts, most importantly choledochocoele.

Despite the low rate of malignancy, cases of adenocarcinoma and carcinoid tumour have been reported in DDC.

Surgical or endoscopic excision is the usual treatment [1].

**Differential Diagnosis List:** Duodenal duplication cyst, Bile duct cyst (particularly choledochocoele), Cystic dystrophy of the duodenal wall, Gallbladder diverticulum, Hepatic cyst, Right renal cyst

**Final Diagnosis:** Duodenal duplication cyst

**References:**


Figure 1

a

Description: Abdominal US allowed the identification of an anechogenic lesion (arrow) posterior to the gallbladder, with no connection to this structure. **Origin:** D Roriz, Department of Radiology, Coimbra, Portugal

b

Description: Colour Doppler ultrasound reveals the absence of communication with vascular structures. **Origin:** D Roriz, Department of Radiology, Coimbra, Portugal
Description: In the barium study posterior and lateral external compression can be identified on the second duodenal portion (open arrow). Origin: D Roriz, Department of Radiology, Coimbra, Portugal
Description: Axial CT with intravenous contrast demonstrating a cystic lesion (arrow) at the hepatic hilum, without connection with the gallbladder or the extra-hepatic bile duct. Origin: D Roriz, Department of Radiology, Coimbra, Portugal
Description: Coronal CT with intravenous contrast showing the cystic mass (arrow). Origin: D Roriz, Department of Radiology, Coimbra, Portugal
Description: Sagittal CT with intravenous contrast evidences posterior compression of the second portion (open arrow) of the duodenum by the cyst (arrow). Origin: D Roriz, Department of Radiology, Coimbra, Portugal