Hepatobiliary cystadenoma with mesenchymal stroma mimicking hydatid cyst. Report of a case

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Abstract

We report on a case of hepatobiliary cystadenoma with mesenchymal stroma in a 44-year-old Caucasian woman who presented with upper abdominal discomfort. Ultrasound (US) and computed tomography (CT) showed a cystic mass resembling hydatid cyst. Endoscopic retrograde cholangiography (ERC) demonstrated communication with the left hepatic duct. At surgery, a cystic mass with communication to the left hepatic duct was found and resected en bloc with a margin of normal liver tissue. Histological examination showed a hepatobiliary cystadenoma with mesenchymal stroma. (Acta gastroenterol. belg., **2000**, 63, **317-320**).

Key words : hepatobiliary cystadenoma, hydatid cyst.

Introduction

Hepatobiliary cystadenomas are rare, more often multiloculated, cystic tumors arising from biliary epithelium (1,2). Cystadenomas are generally intrahepatic, but may be extrahepatic in location (3). The presenting symptoms are nonspecific and consist of abdominal pain, abdominal distension or an abdominal mass, often in middle-aged women (4). Laboratory findings are similar to those of other cysts of the liver. CT and US allows an accurate definition of the site of the lesion, but because of its rarity usually fails to make a specific preoperative diagnosis (5). According to their histology there are cystadenomas with and without mesenchymal stroma. Only cystadenomas with mesenchymal stroma have clear malignant potentials (1). Because of frequent recurrence following incomplete excision the treatment of choice remains complete excision (4).

Case Report

A 44-year-old Caucasian woman presented with upper abdominal discomfort of several months' duration. US examination for suspected gallbladder disease showed a septated cystic mass measuring 4 cm between the right and left lobes of the liver and projecting inferiorly. There was no dilatation of the biliary tree (Fig. 1). Unenhanced CT confirmed a low-density mass of the same diameter with internal septations. This well-encapsulated cystic mass was located in segment IV (Fig. 2a). On postcontrast CT septations showed subtle enhancement (Fig. 2b). The patient underwent an ERC showing opacification of the cyst and communication with the left hepatic duct (Fig. 3). Imaging findings were consistent with a hydatid cyst communicating with the biliary tree. Laboratory tests were normal except for elevated LDH (twofold) and serological markers for hydatid disease were negative. On laparotomy, the cystic mass was found at the visceral surface of the liver close to the ligamentum teres. The cystic mass had not the typical appearance of hydatid cyst and contained grey-green and viscous fluid. The gallbladder was normal. Exploration of the biliary tree showed communication

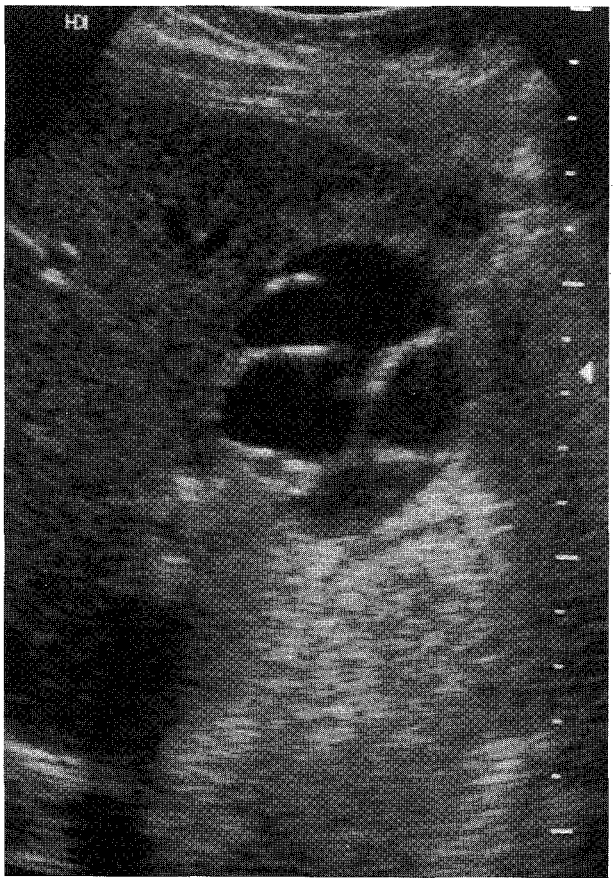

Fig. 1. — Biliary cystadenoma. US of the liver shows multilocular anechoic cystic mass with thin echogenic internal septations and a small area of echogenic internal nodularity.

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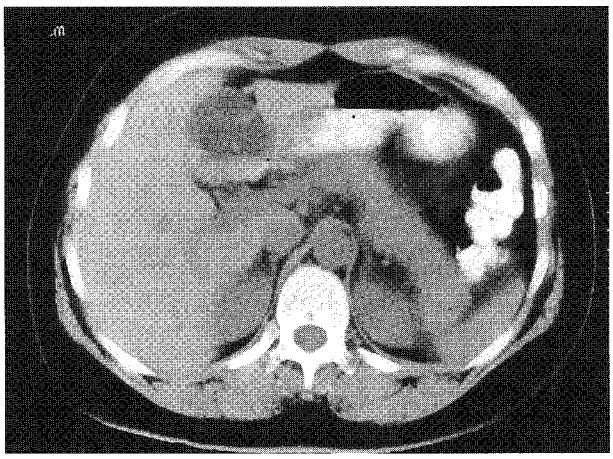

Fig. 2a. — Nonenchanced CT of the liver shows well-defined, spherical, low-density mass. Internal septations are poorly visible.

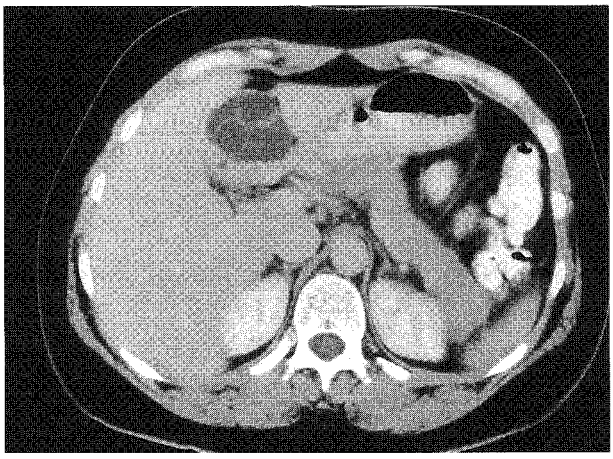

Fig. 2b. Contrast enhanced CT shows enhancement of multiple internal septations and allows better evaluation of internal morphology of the lesion.

with the left hepatic duct. The mass was resected en bloc with a margin of normal liver tissue and a defect in the left hepatic duct was closed. Histological examination demonstrated a hepatobiliary cystadenoma with mesenchymal stroma. The mucus producing cells showed a mixture of acid (alcian blue positive) and neutral (PAS positive) mucopolysaccharids. Immunohistochemical analysis showed clear reactivity for alfa-smooth muscle actin in the stromal cells, whereas the epithelial cells demonstrated positivity for pancytokeratin. There was no immunoreactivity for CEA, estrogenreceptor or progesteronreceptor. The postoperative course was uneventful. There was no evidence of recurrence during a 3-year follow-up.

Discussion

Hepatobiliary cystadenomas are rare, slow-growing cystic tumors arising in the liver or, less frequently, in the extrahepatic biliary system. Less than 5% of all intrahepatic cysts of biliary origin proved to be cystadenomas (3,4). No association with oral contraceptives has been described (6). The origin of these tumors is uncertain. The histologic similarity to embryonic gallbladder and large bile ducts, derivatives of the foregut, suggests a congenital origin from ectopic remnants of primitive foregut (3,7). There is also histological resemblance to cystadenoma of the pancreas and ovary (3). The latter hypothesis is mainly suggested due to the female predominance and the nuclear immunoreactivity for estrogenreceptor in some of these tumors. In the case presented in this paper the stromal cells showed no specific immunostaining thus not supporting the hypothesis of an ovarian origin. Our study showed similar results as the study of Devaney *et al.* (8), with the exception of epithelial CEA positivity. These authors compare the similarities of the underlying stroma with the primitive mesenchymal elements associated with the developing biliary system in the foetus suggesting a biliary origin. Hepatobiliary cystadenoma is lined by cuboidal epithelium and contains mucinous fluid of various colors. It is very often multilocular with internal papillary projections (2). Hepatobiliary cystadenomas are subdivided into two groups according to the presence or absence of mesenchymal stroma between an inner epithelial lining and an outer connective tissue capsule (1). Hepatobiliary cystadenoma with mesenchymal stroma occurs exclusively in young and middle-aged women. Cystadenomas with mesenchymal stroma are potentially malignant lesions whereas cystadenomas without mesenchymal stroma do not have a clear relation to cystadenocarcinoma (1). However, some pathologists believe that all biliary cystadenomas are premalignant (9). Cystadenocarcinomas without mesenchymal stroma have no clear relationship with cystadenomas, occur both in men and women and have a worse prognosis (2).

Biliary cystadenomas occur predominantly in females with peak incidence in the fifth decade, the great

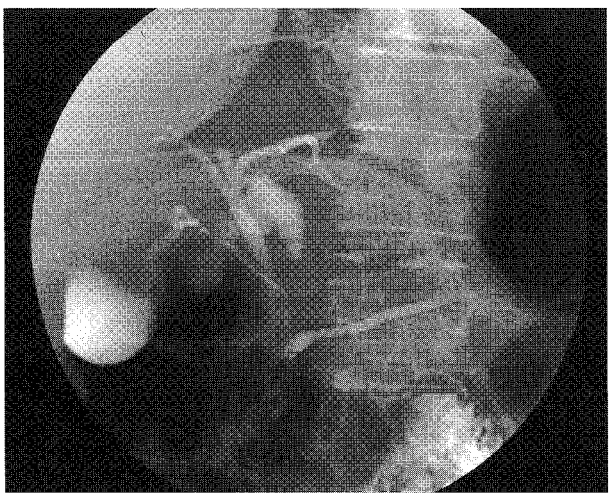

Fig. 3. — ERC demonstrates contrast filling of the cystic lesion from the left intrahepatic bile duct.

majority in Caucasians (2,3). The size of these neoplasms varies from 2-35 cm. Symptoms are usually due to the size of the tumor and consist of intermittent or constant jaundice, right upper quadrant pain, abdominal swelling and diffuse abdominal discomfort. Abdominal mass may be palpated and liver function tests may be deteriorated (1,10). Hemorrhage, rupture, secondary infection, or biliary obstruction may cause an acute presentation (2). Many lesions may be asymptomatic and discovered incidentally during radiologic or surgical procedures for unrelated conditions (10).

In these patients, liver function tests are usually normal except for elevated alkaline phosphatase and bilirubin in cases of intra- or extrahepatic biliary duct compression (11).

The radiologic appearance of biliary cystadenomas is fairly specific, allowing preoperative diagnosis in certain cases (12). However, because of its relative rarity a correct preoperative diagnosis is seldom made. US and CT demonstrates fluid-filled lesions with internal septations and mural nodules (5). US usually shows a spherical or ovoid, multilocular anechoic cystic mass with highly echogenic internal septations. Papillary infoldings within the lesion may be present. CT demonstrates a single, hypodense, well-defined mass with septations and papillary infoldings, that may show contrast enhancement (3,4). Findings on US and CT scan may mimic hydatid cyst especially if calcifications are present (11). Magnetic resonance imaging (MRI) may show a complex multiseptated cystic lesion that may have an irregular wall (13). When cystic components mainly contain mucinous fluid a homogeneous low-signal intensity is present on T1-weighted images and a homogeneous high signal intensity except for the low-signal septations on T2-weighted images (3,9). However, the cystic components may contain not only mucinous fluid but also serous, bilious, or hemorrhagic fluid, or a combination of them resulting in a variety of signal intensities (9). Hemorrhagic components will result in an increased signal intensity on T1-weighted images or variable signal intensities within the cystic components on both T1- and T2-weighted images. A complex or hemorrhagic composition of the fluid has been reported as suggestive for biliary cystadenocarcinoma but lacks specificity (9).

In countries with a high prevalence of hydatid disease, suspicion of a cystadenomatous tumor should always arise when negative serological tests are combined with a cyst that is septated and which content has a density higher than that of water on CT (4,11,14). However, accurate serologic tests for hydatid disease are difficult to obtain and false-positive and false-negative results may be in the range of 15-20 % (15).

The differential diagnosis includes non-neoplastic cysts as well as other cystic neoplasms of the liver, such as hepatobiliary cystadenocarcinomas, abscesses, hydatid cysts, tumors with cystic degeneration, metastatic cystadenocarcinomas, Caroli's disease, hematoma, posttraumatic cysts, hemangiomas, cystic hamartomas and solitary congenital cysts (3,11,12). A high index of clinical suspicion is important in the diagnosis of these lesions. However, sometimes it may be impossible to differentiate atypical hepatic cystic lesions from biliary cystadenoma or cystadenocarcinoma solely on clinical features and/or results of imaging techniques. In this regard, a simple hepatic cyst complicated by intracystic hemorrhage may show intracystic thick and irregular internal septa. In these patients determination of serum and cyst fluid CA 19-9 is reported to be helpful in differentiation. CA 19-9 serum levels are reported only to be significantly increased in patients with cystadenoma and cystadenocarcinoma (16,17). Cystic fluid CA 19-9 values are reported to be strongly positive and much more higher in cystadenoma and cystadenocarcinoma than in other benign hepatic lesions (16).

The complementary role of CT and US in the diagnosis of cystic liver neoplasms has been previously described (18,19). CT may give more information concerning the location and anatomic relation of the mass and may help in planning the operation (4). US seems to be more sensitive in the detection of septa (3). US and/or CT have been used for guidance in the percutaneous aspiration of cystic lesions and needle biopsy (20). However, fine needle aspiration and percutaneous transhepatic drainage must be avoided because of the danger of intraperitoneal spillage (20). This is particularly important in countries with a high incidence of hydatid disease. ERC may be useful when the patient has biliary obstruction or when communication between the cyst and the biliary tree is suspected (1,20). Communication with large intrahepatic bile ducts, a finding that may be seen also in case of hydatid cyst, has been reported but is rare (21). In our patient, the tumor showed connection with the left intrahepatic bile duct.

Using imaging criteria it may be impossible to distinguish between biliary cystadenoma and cystadenocarcinoma (8,22). Irregular, papillary growth and mural nodules along the internal septa and wall are seen in both cystadenoma and cystadenocarcinoma. The presence of mural or septal nodules, discrete soft-tissue masses, and thick, coarse calcifications are in favor of cystadenocarcinoma. Because both hepatobiliary cystadenoma and cystadenocarcinoma are treated with total surgical excision, the distinction between these two is of limited therapeutic importance (4). If a cystadenoma is suspected, surgery is advocated. As any inappropriate surgical procedure on the cyst will make subsequent excision technically more difficult, or even impossible, it is important to make the correct diagnosis pre- or peroperatively (12). Intraoperative US and frozen section may be used to differentiate hepatobiliary cystadenoma and cystadenocarcinoma from other cystic liver lesions (5). The treatment of choice is radical excision, either with a wide margin of normal liver or by means of a typical lobectomy, depending on the size and the location of the

lesion (4). Resection of cystadenomas is usually curative and complete surgical resection yields excellent results (22). Inadequate excision will lead to recurrence in all cases (23).

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