Hepatobiliary Cystadenoma: a Report of Two Cases

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Abstract

We report two cases of hepatobiliary cystadenoma. Case 1. A 58-year-old male presented with dull abdominal pain and recurrent jaundice. Abdominal echo revealed biliary tracts dilatation; ERCP revealed amorphous filling defect inside the dilated CBD, a cystic tumor in the left lobe communicated with bile duct was disclosed by MRI/MRCP. He received left lobectomy and microscopic findings proved hepatobiliary cystadenoma. Case 2. Abdominal ultrasound detected a huge cystic tumor over the left hepatic lobe in a 69-year-old male. Abdominal CT revealed a large cystic mass lesion over the left hepatic lobe with septations and multiple papillary projections. A liver biopsy was performed and microscopic findings proved biliary cystadenoma. An abdominal ultrasound 6 months later revealed intrahepatic spread of cystadenocarcinoma over both lobes.

Hepatobiliary cystadenoma is a rare benign cystic tumor of the liver. It usually occurs in middle-aged women and can undergo malignant change and become lethal. It is frequently misdiagnosed and should be suspected when a uni- or multilocular cystic lesion with papillary infoldings is detected in the liver by CT or ultrasound. ERCP/MRCP have a role in pre-operative evaluation. Elevated serum and cystic fluid tumor markers CA19-9 are only seen in some patients; cystic fluid cytology does not provide adequate diagnostic aid. Its morphologic features maybe confused with biliary papillomatosis or IPMN of bile duct. Its prognosis is excellent after complete resection.

Introduction

Hepatobiliary cystadenoma is a rare benign cystic tumor of the liver. The benign cystadenoma is considered premalignant, and cystadenocarcinoma is believed to arise from the premalignant form. It is often misdiagnosed as a hepatic abscess, hydatid cyst, metastatic tumor with cystic degeneration, or even simple cyst. It may produce symptoms such as abdominal pain, infection, jaundice or palpable mass. We report two cases with pathologically proved hepatobiliary cystadenoma and describe the details about this rare disease.

Case presentation

Patient 1

A 58-year-old male with history of hypertension and stroke suffered from right upper quadrant dull pain for about 3 years. Fever with tea color urine was experienced intermittently. Abdominal echography revealed dilatation of bilateral intrahepatic bile ducts (IHDs) and common bile duct (CBD), and gallstones (Fig. 1). He was admitted via the emergency department with the suspicion of cholangiocarcinoma with biliary tract infection. Laboratory data revealed leukocytosis WBC 19180/ml, jaundice (total/conjugated bilirubin: 7.8/4.3 mg/dl), AST and ALT levels 170 and 139 U/L respectively, alkaline phosphatase 485 U/L, lipase 69 U/L. Tumor markers revealed elevated CA 19-9 (107 U/ml) and normal CEA (2.15 ng/ml). ERCP (Fig. 2) revealed an amorphous filling defect inside the dilated CBD (2.0 cm). Jelly-like material was pulled out from the CBD by a balloon catheter. Contrast enhanced MRI and MRCP showed dilatation of the biliary tree diffusely with different signal bile in the left IHD and CBD, a cystic tumor in the left lobe with contracted left hepatic lobe (Figs. 3, 4).

A mucin-producing biliary tumor was suggested and a left lobectomy plus cholecystectomy were performed. Microscopic findings revealed mucin-producing columnar cells with moderate dysplasia (Fig. 5).

Patient 2

A 69-year-old man with prostate cancer suffered from abdominal fullness. Abdominal ultrasound detected a huge...
heterogeneous mixed-echoic tumor in the left hepatic lobe (Fig. 6). Laboratory data revealed negative HBsAg and positive anti-HCV. AFP, CEA and CA 19-9 were within normal limits.

Abdominal CT revealed a large cystic mass lesion in the left hepatic lobe with septations and multiple papillary projections (Fig. 7). Bilateral lung nodules and multiple hepatic tumors were also disclosed.

Liver biopsy showed biliary cystadenoma. Resection was not carried out due to the metastatic disease. Abdominal ultrasound 6 months later revealed multiple huge cystic tumors over both hepatic lobes; intrahepatic spread of cystadenocarcinoma was considered.

Discussion

Intrahepatic biliary cystadenoma is a rare benign cystic tumor of the liver. The malignant counterpart is biliary cystadenocarcinoma. The benign cystadenomas are considered premalignant, they may be lethal if left untreated. Their clinical features, diagnosis, pathological characteristics
A rare hepatic cystic tumor easily misdiagnosed

and optimal surgical management have not been defined clearly.

Cystadenomas maybe unilocular or multilocular, and both are slow growing. Cystadenoma is often misdiagnosed as a liver abscess, hydatid cyst or a simple cyst if unilocular. Cystadenoma usually occurs in middle-aged women and cannot be differentiated from cystadenocarcinoma before operation. In fact, they are both difficult to diagnose preoperatively.

Biliary cystadenocarcinoma is most often solitary and large when discovered; multiple lesions or intrahepatic metastases are rare. In 2006, Salerno et al [1] reported a 63-year-old man with two hepatic multiloculated cysts and worsening bulky symptoms in the right upper quadrant; multilocular cystadenocarcinoma of the liver was confirmed by surgical laparoscopy and biopsy.

Thomas et al [2] reviewed 19 cases of biliary cystadenoma retrospectively over 15 years. Male to female ratio was 1:18, with the presenting symptoms of abdominal pain (74%). Earlier case series [3, 4] reported similar results, with the leading symptom of abdominal pain in 80% and 60%, respectively. Erdogan et al reported 5 cases of hepatic cystic tumors presenting with recurrent jaundice [5]; all patients underwent partial liver resection and the pathology proved hepatobiliary cystadenoma/cystadenocarcinoma. Baudin et al also reported a case with a voluminous cystic lesion of the left hepatic lobe presenting with jaundice [6].

Ultrasound and computed tomography are the most helpful diagnostic tools. CT usually reveals a well-defined cystic lesion, with internal septations and papillary projections; the walls are rarely calcified and can be seen enhanced on enhanced CT; the presence of mural nodules or wall thickening should trigger the suspicion of cystadenocarcinoma [7]. Ultrasound usually reveals an anechoic mass with sharp demarcations and often with fine internal septations [8,9]. Analysis of the MRI and MRCP features in 7 cases of surgically resected hepatobiliary cystic tumors showed that Gadolinium-enhanced MRI in combination with MRCP is a valuable tool for the diagnosis of biliary cystadenoma and cystadenocarcinoma [10], but this still needs further investigation.

Tumor markers were not helpful in most series though some patients had elevated serum CA 19-9. Fine needle aspiration cytology does not provide adequate information [1, 11]. Koffron et al performed cystic fluid analysis in 32 patients with hepatic cysts [12]. All patients with cystadenoma (n = 22) had elevated cystic fluid levels of CA 19-9 (range 2247 - 1,757 510 U/mL). Control patients who had simple cysts (n = 8) had no elevated levels. Other studies only reported sporadic cases with elevated CA 19-9 in cystic fluid analysis or serum [13, 14].

In histopathological examination, biliary cystadenomas are multiloculated cysts with an epithelial lining composed of biliary-type cuboidal or nonciliated columnar cells and, in 85%–90% of cases, are surrounded by an ovarian-like stroma [15]. In contrast, biliary cystadenocarcinoma reveals a loss of epithelial nuclear stratification, a tubulopapillary architecture, and mild nuclear pleomorphism. The presence of invasion warrants the diagnosis of a cystadenocarcinoma. In tumors in males, the supporting stroma is composed of dense fibrous tissue; in women, the stroma may be densely cellular and resembles ovarian stroma. The lesions are similar to mucinous cystic tumors in the pancreas and ovaries.

In the pancreas, mucinous cystic tumor (MCT) and intraductal papillary mucinous neoplasm (IPMN) both produce mucin but they are disparate diseases. Mucinous cystic tumor of the pancreas is a multiloculated cystic tumor and does not communicate with pancreatic ductal system. Microscopically, the background stroma of mucinous cystic tumor is ovarian-like stroma. In contrast, IPMN of pancreas represents a disease with mucin-producing tumor arising from the epithelium of pancreatic duct, with pancreatic duct dilatation and accumulation of mucin, which was first published in 1982 by Ohhashi et al [16]. The background stroma of IPMN is a loose fibrous tissue. IPMNs of the pancreas were misinterpreted as MCTs before 1982. It is difficult to distinguish MCT from IPMN of the pancreas without ERCP or MRCP.

Zen et al analyzed the clinicopathological features of nine
cases of biliary cystic tumors [17]. Direct communication with the bile ducts was identified in five cases; ovarian-like stroma was not observed in their walls in any case. They observed the clinicopathological features of these patients resembled those of IPMN of the bile duct—a counterpart of pancreatic IPMN, so he concluded that biliary cystic tumors with bile duct communication could be regarded as IPMN with a prominent cystic dilatation of the bile duct and mucin retention, rather than a true biliary cystic tumor.

Morphologically, hepatobiliary cystadenoma could also be confused with biliary papillomatosis. Biliary papillomatosis is a rare benign neoplastic disease involving the intra- and extrahepatic biliary tree [18, 19]. It is a tumor of middle-aged to aged adult. Male to female ratio is about 2:1. The usual clinical manifestations of biliary papillomatosis are recurrent jaundice and cholangitis, caused by mucin plugging or tumor sloughing. Intrahepatic cystic dilatation of the bile ducts with filling defects are common radiological findings. Morphologically, biliary papillomatosis maybe similar to biliary cystadenoma [20]. Zen et al also concluded that biliary cystic tumor with bile duct communication is possibly a variant of IPMN [17], but we might have misinterpreted them as biliary cystadenoma, such as we misinterpreted IPMN of pancreas as MCT decades ago.

Because of its malignant potential, surgical resection remains the treatment of choice for hepatobiliary cystadenoma. Prognosis of hepatobiliary cystadenomas is excellent if patients undergo a complete surgical resection in most series. Local recurrence of a cystadenoma with progression to carcinoma has been described. Follow-up with abdominal ultrasound or CT scan was suggested.

In conclusion, hepatobiliary cystadenoma is a rare benign cystic tumor of the liver. It usually occurs in middle-aged women and can undergo malignant change and become lethal. It is frequently misdiagnosed and should be suspected when a uni- or a multicellular cystic lesion with papillary infoldings is detected in the liver by CT or ultrasound. Cystadenocarcinoma should be suspected when there are nodules in the wall or foldings, or thickened cystic wall. ERCP and MRCP may have a role in preoperative evaluation. Cystic fluid cytology does not provide adequate diagnostic aid. Biliary cystadenoma, IPMN of the bile duct and biliary papillomatosis are disparate diseases, but they can be confused morphologically and clinically. Their prognosis is excellent after complete resection.

References