Recurrent Pyogenic Cholangitis Treated by Left Hepatectomy

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Abstract Recurrent pyogenic cholangitis is managed mostly by conservative treatment or by clearance of stones and biliary enteric by-pass procedure. Hepatectomy is rarely needed. We report a case of recurrent pyogenic cholangitis in a 34-year old man, who presented with recurrent upper abdominal pain, mild jaundice, and fever since childhood. Contrast enhanced computed tomography of abdomen and magnetic resonance cholangiopancreatography confirmed the diagnosis and showed significant atrophy of the left lobe of the liver. Patient was treated successfully with left hepatectomy and was well at 9 month follow-up.

Keywords Recurrent pyogenic cholangitis · Hepatectomy · Atrophy · MRCP · CT scan abdomen

Introduction

Recurrent pyogenic cholangitis (RPC) is common in Southeast Asia, but it is being increasingly encountered in the West as a result of growing Asian immigration [1–3]. It is characterized by recurrent episodes of cholangitis with intrahepatic stone and stricture formation. It may affect both intra and extrahepatic biliary tree. Left lobe is more commonly affected and bilateral involvement occurs in about 30% cases [1]. Most cases are managed conservatively or by stone clearance and biliary enteric by-pass procedure. Major hepatectomy is indicated when there is

significant atrophy of the affected lobe, abscess formation or development of intrahepatic cholangiocarcinoma. We present a case of recurrent pyogenic cholangitis with significant atrophy of the left lobe treated successfully by left hepatectomy.

Case Presentation

A 34-year old man presented in our outpatient department with recurrent episodes of fever, mild jaundice and right upper quadrant pain over a period of 15 years. He was evaluated outside 1 month back with ultrasound of the abdomen which showed multiple stones in the left lobe of the liver with dilatation of the left sided intrahepatic biliary radicles. On examination, except deep seated tenderness in the epigastric region, he was perfectly well. Liver and spleen were not palpable. Routine hematological examination was normal. Liver function tests revealed only raised serum alkaline phosphatase level. He was further evaluated at our institution with contrast enhanced computed tomography (CECT) (Fig. 1) and magnetic resonance cholangiopancreatography (MRCP) (Fig. 2) of the abdomen, which demonstrated dilated biliary radicles in the left lobe of the liver with multiple intrahepatic stones, strictures of the left duct close to the junction with the right duct and significant atrophy of the left lobe. Right lobe was normal.

We performed left hepatectomy. Intraoperative findings were: scarred, atrophied left lobe densely adhered to the undersurface of the left hemidiaphragm and stomach. Dilated ducts were palpable from undersurface of the left lobe. Cut section showed thick, dilated intrahepatic ducts with multiples stones and hemorrhagic thinned out hepatic parenchyma (Fig. 3). Postoperative period was uneventful and the patient was discharged on

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Fig. 1 CECT abdomen showing hugely dilated intrahepatic biliary radicles with atrophy of the left lobe of liver

9th postoperative day. The patient was well at 9 month follow-up with normal hematological and biochemical parameters.

Discussion

Recurrent pyogenic cholangitis (RPC), also known as oriental cholangitis, oriental cholangiohepatitis, and Hong Kong disease is endemic in Southeast Asian countries, but it is being increasingly encountered in the West as a result of growing Asian immigration [1–3]. During the 1960s, RPC was the most common hepatobiliary disease in Queen Mary Hospital in Hong Kong [4]. Since then, the incidence of RPC has been declining in East Asia, probably due to the

Fig. 2 MRCP showing dilatation of the left ductal system with stricture at the junction of the left and right hepatic duct

Fig. 3 Resected specimen showing markedly dilated thick walled left ductal system with intraductal calculi, and thinned out hemorrhagic liver parenchyma

improvement of socioeconomic conditions and Westernization of diet.

The pathogenesis of this condition is poorly understood. Although, hepatolithiasis and recurrent cholangitis are associated with *Clonorchis sinensis* and *Ascaris lumbricoides* infections, evidence for these infections is absent in most of the cases [4]. Bile cultures are almost always positive and usually yield *Escherichia coli*, *Enterococcus faecalis*, or other enteric bacteria, but *Clonorchis* or *Ascaris* parasites or ova are recovered from the stool in only 25% of cases. RPC involves the CBD and left hepatic lobe in 31% of cases, CBD and both lobes of the liver in 31% of cases. It is confined to the CBD in 27%, and only rarely confined to the right lobe. The gallbladder is usually disease-free [1]. The primary pathologic changes of RPC are proliferative fibrosis of bile ductal walls, with inflammatory infiltration of the portal tracts, calculi, and periductal abscesses. Bile-pigmented calculi can lead to progressive biliary obstruction and recurrent infection that result in the formation of multiple cholangitic hepatic abscesses, biliary strictures, and eventually severe hepatic destruction, cirrhosis and portal hypertension [5]. Diagnostic tests include ultrasound abdomen, CT scan abdomen, and cholangiography. Our patient also underwent same series of investigations like ultrasound, CT scan and MRCP for complete evaluation of the extent of the disease. Ultrasound is an important component of the patient's initial evaluation as it is an excellent screening tool for the presence of dilated bile ducts (intrahepatic and extrahepatic) and intraductal stones [6]. But, sonography is not a perfect imaging modality since it is operator-dependent and has some limitations in its ability to evaluate obstructed bile ducts in this clinical setting. Abdominal CT scan is an important imaging study that compliments sonography. CT scans more completely demonstrate the full extent of the disease, including the

presence of pneumatosis, hepatic parenchymal atrophy, liver abscesses, and bilomas [7, 8]. Invasive cholangiography, be it endoscopic or percutaneous, was once the most accurate way to define biliary ductal anatomy, providing visualization of strictures, stones, and ductal ectasia. But, it has some limitations especially in the face of high grade stenoses, impacted stones or complete ductal obstruction. Magnetic resonance cholangiopancreatography (MRCP) has recently been purported as an excellent tool for depicting the biliopancreatic tree [9, 10]. MRCP is a noninvasive imaging technique that does not require the administration of intravenous or intraductal contrast, yet allows direct visualization of the biliopancreatic system similar to conventional cholangiography. Some authors argue that MRCP should replace invasive procedures like ERCP in those patients needing a cholangiographic evaluation without therapeutic intervention [11].

The therapeutic goals for the management of recurrent pyogenic cholangitis should include the complete clearance of calculi and particulate debris from the biliary tract and the elimination of bile stasis to prevent recurrent stone formation [12–15]. It requires multidisciplinary approach, integrating interventional radiology, interventional endoscopy and surgery. Acutely, RPC is treated with broad spectrum antibiotics and ERCP decompression. CBD exploration and T-tube drainage are reserved for failure of medical management. Further attacks can be prevented by elective CBD exploration with choledochoscopy for stone retrieval, hepatic resection or biliary-enteric by-pass procedure with access loop fixed to the abdominal wall. Complete clearance of stones is sometimes impossible because of the presence of huge number of stones or because many more stones are discovered only on postoperative cholangiogram. Postoperatively, stone extraction or stricture dilatation can be achieved via cutaneous stoma (access loop), T-tube tract or percutaneous transhepatic biliary drain tract [16]. With numerous sessions of choledochoscopy, aided by electrohydraulic lithotripsy, complete stone clearance can be achieved in 90% of cases [17]. Hepatic resection should be reserved for patients with significant hepatic atrophy (as in our patient) and fibrosis, multiple liver abscesses or concurrent intrahepatic cholangiocarcinoma, which may occur in 3%–5% of patients treated conservatively [3] and hepatic resection carries no apparent additional morbidity or mortality compared to CBD exploration and stone clearance alone [18].

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