Focal Liver Tuberculosis: a Case Report

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Abstract Abdominal tuberculosis is protean in its manifestations. Studies have shown that miliary tuberculosis of the liver is quite common but isolated or focal liver tuberculosis is still a rare condition. Though hepatic tuberculomas are a known entity in endemic regions of Southeast Asia, it is less likely seen in immunocompetent hosts. We present a case of focal liver tuberculosis, the difficulty in preoperative diagnosis, and its subsequent management.

Keywords Focal liver tuberculosis · Granulomatous inflammation

Case Report

A 37-year-old lady presented in May 2006 with complaint of low-grade fever with frequent off and on exacerbations for the past 6 years. She was diagnosed outside as a case of pyrexia of unknown origin and was prescribed antipyretics. She did not have history of pain, lump in the abdomen, jaundice, vomiting, anorexia or weight loss, altered bowel habits, or menstrual irregularities. In June 2004, she had an open cholecystectomy for symptomatic cholelithiasis with gallbladder histopathology being unavailable. Her physical

examination and organ system evaluation were normal. Per abdomen had healthy RUQ scar and was nontender with no lump, organomegaly, or free fluid. The bowel sounds were well heard.

Her hemoglobin was 10.6 g% and TLC 12,300 mm³, ALT 81, and AST 14. The rest of LFTs, RFT, and coagulation profile were within normal limits. Her CXR was normal. USG (November 5, 2006) showed that the liver was of normal size and echoes with multiple confluent heterogeneous mostly hypoechoic areas confined to the left lobe of the liver with ill-defined margins. There was no IHBRD. The contrast-enhanced computed tomography (CECT) (Fig. 1) revealed a heterogeneously enhancing lesion in segments 2, 3, and 4 of the liver. There were lymph nodes along the hepatoduodenal ligament and along hepatic artery. The LHV, MHV, and the left branch of PV were not seen. There was no evidence of portal hypertension or ascites. UGIE was normal. Serum AFP was 37 IU/mL, serum CEA was 1.3 ng/mL, and serum CA19-9 was 23.7 IU/mL. The preoperative impression was space-occupying lesion of the left lobe of the liver of an unknown cause (Fig. 2).

Ultrasound-guided FNAC of the liver lesion as well as hepatoduodenal node revealed hepatocytes admixed with few benign ductal epithelial cells from the liver and the node showed occasional aggregate of mature lymphocytes with no atypical cells.

She underwent diagnostic laparoscopy followed by laparotomy. Laparoscopy did not reveal any evidence of malignant lesion. On laparotomy, there was a hard mass lesion just to the right of falciform ligament with extension towards right hepatic vein (RHV) on superior aspect (Fig. 3). The plane between lesion and inferior vena cava (IVC) was obliterated and the extra hepatic left portal vein and CBD were patent with normal LHD.

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Fig. 1 Cross-sectional image showing the tumor

There was the presence of fleshy lymph node near common hepatic artery area and its *frozen section* was positive for granulomatous pathology. Perioperatively, there was dilemma about the nature of the lesion and it was debated that if the tumor is benign there is no need for radical surgery, and if it is malignant, curative (R0) resection is not possible due to close relation of tumor to RHV/IVC. The patient underwent non-anatomical left hepatic resection with the cut section revealing a 5×6-cm lesion in the left lobe of the liver with no necrosis, abscess, caseation, or pus (Figs. 4 and 5). The postoperative course was uneventful. The histopathology grossly had 6.5×2.5 cm, white multinodular mass involving one of the margins, and on microscopy, there were multiple large epithelioid cell granulomas with large central areas of necrosis with multinucleate giant cells and adjoining liver parenchyma had focal degenerative changes. The acid fast bacilli (AFB) stain and fungal elements were not contributory. The final impression was necrotizing granulomatous inflammation (Fig. 6). Based on above, she was started on four-drug antitubercular treatment (ATT). She had no recurrence of fever in follow-up with improved appetite and gain in weight and is doing well on last follow-up.

Discussion

Space-occupying lesions (SOLs) of the liver may be cystic or solid or benign or malignant. Modern imaging combined with recent technical advances in liver surgery can now offer many patients with safe and potentially curative resections for malignant, as well as benign, conditions affecting the liver. Hemangioma is the most common benign liver tumor [1]. They are usually small

and found incidentally on imaging for another reason but may rarely lead to symptoms which include abdominal pain and also have potential to rupture, causing shock. They may enlarge under the influence of oral contraceptives but usually regress when they are stopped and may also increase in size during pregnancy. If they require removal, they are not usually amenable to simple excision of the tumor and a whole lobe of the liver must be removed. Hepatic adenomas are usually asymptomatic and found incidentally and may occur in adolescent girls. Most cases have occurred in women who have been taking the contraceptive pill for 5 years or more [1]. There is about a 5 % chance of malignant change to hepatocellular carcinoma and a risk of intraperitoneal bleeding so they are best removed. Focal nodular hyperplasia is more common in women [1]. They may occur in adolescent girls and not prone to malignant change. Rupture and hemorrhage have occasionally been reported and hence excision is advocated [1]. They can be distinguished from hepatic adenoma by careful imaging and liver biopsy. Other rare benign lesions include fibroma, lipoma, leiomyoma, and cystadenoma.

Hepatocellular carcinoma is the primary carcinoma of the liver. The majority of cases worldwide are related to hepatitis B and C virus infection. There are also associations with alcohol, hemochromatosis, and primary biliary cirrhosis. Presentation is with abdominal pain, abdominal mass, weight loss, and anemia. Lung and lymph node metastases are common. Resection and chemotherapy are the mainstay of treatment, but many tumors are unresectable at presentation. Cholangiocarcinoma arises in the biliary tree anywhere from the small intrahepatic ducts to the distal common bile duct. It is most commonly found near the junction of the left and right hepatic ducts. It presents by causing obstruction to the flow of bile with

Fig. 2 Reconstructed CECT images showing the tumor in relation to portal vein and IVC

subsequent obstructive jaundice, pale stools, and dark urine. Other rare primary malignant liver tumors include fibrosarcoma, angiosarcoma, leiomyosarcoma, and lymphoma. Secondaries in the liver are very common and related to the fact that it is the largest organ in the body and it filters blood from both the systemic and portal systems. Most liver metastases are multiple and affect both lobes. Single metastases occur in only 10 %. The commonest primary sites for hepatic metastases are colorectal, stomach, pancreas, breast, lung, and eye. Most tumors that have spread to the liver have metastasized to other sites as well. Ultrasound, CT, MRI, and

positron emission tomography may all be used as imaging techniques. Biopsy is needed for a histological diagnosis. However, there is concern that biopsy can lead to needle tract metastases. Clinical features of hepatomegaly and ascites are common. Ascites indicates wide dissemination and a poor prognosis. Large metastases may block bile ducts and cause jaundice, malaise, anorexia, and loss of weight. Deposits from colorectal cancer seem to have a better prognosis [1].

Focal liver tuberculosis or hepatic tuberculoma is a very rare solid benign lesion of the liver. Hepatic tuberculosis are classified as: (a) primary acute pulmonary

Fig. 3 Perioperative photograph of the tumor

Fig. 5 Cut section of the specimen

tuberculosis with liver involvement, (b) miliary tuberculosis, (c) primary tuberculosis of the liver, (d) tuberculoma (abscess), (e) chronic pulmonary tuberculosis with liver involvement, and (f) tubercular cholangitis [2]. The tubercular bacilli reach the liver by hematogenous dissemination. Miliary tuberculosis is through the hepatic artery whereas in case of focal liver tuberculosis is via the portal vein. The liver responds by granuloma formation and the granulomata being found frequently in periportal areas. Both caseating and non-caseating granulomas are seen. In focal tuberculosis, various granulomas may coalesce to form a large tumor. Broadly, hepatic tuberculosis presents in three forms. The commonest is diffuse hepatic involvement with pulmonary or miliary tuberculosis seen in 50–80 % of cases. The second form is diffuse hepatic infiltration without pulmonary involvement, termed as granulomatous hepatitis. The third or the rarest is focal/local tuberculoma or abscess. The presentation in granulomatous disease of liver is generally with fever (63–99 %)

and followed by weight loss and abdominal pain with hepatomegaly being present in 50 % of cases and splenomegaly in one third [3]. The laboratory investigations may reveal anemia with raised ESR. There may be mild elevation of liver enzymes with raised bilirubin which may be due to the direct destruction of hepatic parenchyma [4]. The ultrasound imaging reveals hypoechoic lesions or hypoechoic lesions with hyperechoic rim and CECT has granulomatous involvement of the liver appearing as large hypodense lesions that tend to be discrete with no pathognomonic features to enable them to be differentiated from other granulomas or neoplastic lesion [5]. MRI offers no added benefit to the CECT findings [6].

The final diagnosis rests on the histopathological evidence of caseating granulomas or demonstration of AFB on smear or culture of the biopsy specimen. On needle biopsy, epithelioid granulomas may be found in 80–100 % of cases and caseating necrosis in 30–83 %. Culture positivity for tuberculosis is

Fig. 4 The resected specimen

Fig. 6 Microscopic picture revealing granulomatous inflammation

found only in 10 % granulomas [6]. The cornerstone of management is standard ATT with no reports for short-course chemotherapy for hepatic tuberculosis.

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