Primary hepatic tuberculosis in an immuno-competent lady masquerading as hepatic neoplasm

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ABSTRACT

We report a 38 year old non-diabetic, immune-competent lady who presented with fever, anorexia, weight loss and right upper quadrant abdominal pain and was found to have multiple hepatic space-occupying lesions on Contrast enhanced Computed Tomography scan of abdomen in absence of any intra-abdominal lymphadenopathy or ascites. Demonstration of epithelioid cell granulomas and culture of the aspirate confirmed its tuberculous etiology thus ruling out any neoplastic pathology. There was no evidence of pulmonary tuberculosis. Patient responded excellently to antitubercular drugs with radiological resolution of the lesions. Despite the rarity of this condition, primary hepatic tuberculosis should be considered among the differential diagnoses of space-occupying lesions of the liver.

Keywords: Primary Hepatic tuberculosis, Epithelioid cell Granuloma, Immuno-competent.

Key Messages: Primary hepatic tuberculosis is a rare entity mostly affecting immunocompromised individuals. However, it can occur in immunocompetent individuals as well, like in our patient who presented with fever, weight loss, right upper quadrant abdominal pain and multiple hepatic space occupying lesions on imaging. Demonstration of epithelioid cell granulomas and culture of the aspirate confirmed its tuberculous etiology thus ruling out neoplastic pathology.

INTRODUCTION

TB is a growing menace worldwide, which holds even greater relevance in the Indian subcontinent. As such, it is important to recognize the more unusual presentations of this disease. Intra-abdominal TB has a high mortality, but it is a difficult diagnosis to make, often requiring a high index of suspicion. Laparotomy at times becomes essential. Primary hepatic tuberculosis is in particular rare, with fewer than 100 cases reported in the literature, most of which are secondary and associated with military TB.[1] We present a case of primary hepatic tuberculosis in an immunocompetent host and illustrate how these cases can be managed non surgically in a resource constraint setting.

CASE HISTORY

A 38-year old non diabetic female homemaker presented with low grade fever with evening rise for 8 weeks, anorexia, weight loss and right upper quadrant abdominal pain. Clinical examination revealed mild pallor and right upper quadrant tenderness. Initial blood reports revealed microcytic anaemia (Hb 9.1 g/dL, MCV 80.6 fl), raised ESR (130 mm), Fasting blood glucose 101 mg/dL, 2 hrs Post prandial blood glucose 138 mg/dL & raised Alkaline phosphatase (399 mg/dL).

She went on to have a trans abdominal ultrasound which revealed a few heterogeneous masses, the largest one measuring 5 cm × 4 cm located in the right lobe of liver with cystic spaces & foci of calcification within.
Subsequently a contrast enhanced abdominal CT scan showed multiple low density lesions in both lobes of liver consistent with abscess in absence of intra abdominal lymphadenopathy or ascites (Figure 1).

Serum tumor markers (alpha-fetoprotein, carcinoembryonic antigen, CA-125 and CA 19-9), amoebic serology and viral markers (HBs Ag, anti HCV, HIV 1&2) were all negative. Serum ACE was normal. CT guided fine needle aspiration from hepatic lesion showed lymphocytes, histiocytes, ill defined collection of epithelioid cells, multinucleated giant cells & necrosis consistent with granulomatous inflammation (Figures 2, 3a, 3b). Although Ziehl-Nielsen stain failed to demonstrate acid-fast bacilli, culture of the aspirate subsequently demonstrated the presence of *Mycobacterium tuberculosis*, sensitive to quadruple therapy. Sputum analysis, Plain chest x-ray and thoracic CT revealed no evidence of pulmonary TB.

The patient was commenced on ethambutol, isoniazid, pyrazinamide, and rifampicin. Within 3 months of therapy, the patient was asymptomatic with normal serum inflammatory markers. Repeat CT scan following 6 months of anti-tubercular therapy revealed a complete resolution of the lesion. However anti-tubercular therapy was continued for one year and the patient is currently on regular follow-up and doing well.

**DISCUSSION**

Hepatic TB has been classified by Levine into: (a) miliary TB; (b) pulmonary TB with hepatic involvement; (c) primary liver TB; (d) focal tuberculoma or abscess; or (e) tuberculous cholangitis.[2] The most
common form of hepatic involvement is the miliary form of TB, in which hematogenous spread is through the hepatic artery.\(^1\) Hepatic involvement can be seen in up to 80% of disseminated cases of TB. Isolated tuberculosis of the liver is considered rare because of the low oxygen tension within the liver which renders it unfavourable for mycobacterial growth. Primary hepatic TB in the absence of immune compromise is extremely rare. In local hepatic tuberculosis the bacillus is thought to gain direct access to liver from the portal vein via the gastrointestinal tract. In the local form granulomatous lesion are found peripor tally, but in military tuberculosis lesions are concentrated near hepatic veins.

Tuberculous cholangitis may present with jaundice and fever.\[^3\] However, the presentation of a focal liver abscess is often much less specific, with right upper quadrant abdominal pain, fever, night sweats, anorexia, and weight loss. The most frequent examination findings include abdominal tenderness with or without a palpable mass and occasional jaundice.

Laboratory investigations often reveal an elevated alkaline phosphatase in the presence of normal alanine transaminase and aspartate transaminase.\[^1\] Less specific findings include anemia, hypoalbuminemia, and hyponatremia.\[^1\] Imaging studies can pose a diagnostic challenge, with a number of potential differential diagnoses, including primary hepatocellular carcinoma. Hypoechoic nodules are usually seen at ultrasonography,\[^9\] though rarely they may appear hyperechoic. CT findings usually reveal a round hypodense lesion with slight peripheral enhancement and, occasionally, areas of focal calcification.\[^9\] Noninvasive diagnosis is therefore difficult, and up to 90% of cases require a laparotomy to make the diagnosis.\[^3\] Despite the rarity of this condition, primary hepatic tuberculosis should be considered among the differential diagnoses of space-occupying lesions of the liver.

The pathologic hallmark of hepatic tuberculosis is hepatic granuloma. Korn RJ \textit{et al.}, found hepatic granuloma in 80% of patients who underwent liver biopsy in the background of hepatic tuberculosis. Plain abdominal radiographs showing diffuse hepatic calcifications seen in approximately 50% of cases are almost diagnostic for hepatobiliary tuberculosis. Liver biopsies obtained either by ultrasound, computed tomography or laparoscopy, showing caseating granuloma usually establish the diagnosis. Epithelioid cell is an invariable component and make up the bulk of granuloma. Multinucleate giant cells and caseation necrosis may be seen. (Only 30% of tubercular granuloma show caseation necrosis.) Hepatic granulomas are most frequently found peripherally. Periportal granulomas may also occur in sarcoidosis. In India, tuberculosis is the commonest cause of hepatic granuloma and such granulomas are generally confluent. In sarcoidosis the granulomas are discrete and show central hyalinization and fibrosis. In the absence of caseation necrosis, a positive acid-fast bacillus (AFB) or culture for Mycobacterium tuberculosis is needed to establish the diagnosis.\[^9\]

It is clear from the literature that a histological diagnosis is imperative in these cases, but avoiding laparotomy is ideal. In the reported case, a guided aspiration of the lesion was performed, and the resulting cytomorphology and cultures confirmed the diagnosis of hepatic tuberculosis without the need for a laparotomy.

Low sensitivity of both acid-fast staining (from 0% to 45%) and culture (from 10% to 60%) mean diagnosis can still be difficult.\[^9\] However, the use of polymerase chain reaction to directly detect the presence of \textit{Mycobacterium tuberculosis} is increasing and may improve sensitivity rates. Sensitivity of PCR is about 58% in the diagnosis of hepatic granulomas, and specificity is about 96%.\[^7\]

Treatment of hepatic TB is by quadruple therapy for 1 year, though there are often signs of clinical improvement within 2–3 months.\[^9\] The use of percutaneous drainage has also been advocated. Mustard and colleagues suggested features associated with successful drainage included: (1) unilocular abscess; (2) safe access route for instillation of drainage catheter; and (3) a sterile uncontaminated compartment.\[^9\]

Hepatic tuberculosis is rare, but with the increasing worldwide incidence of TB, it is a diagnosis that must be considered, especially in patients considered at high risk. This case illustrates the minimally invasive investigation, diagnosis, and treatment of primary hepatic tuberculosis in a resource constraint setting.

REFERENCES