

Case Report

Primary Hepatic Tuberculosis: An Unexpected Diagnosis

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Abstract:

Background: Primary hepatic tuberculosis (PHT) is a rare form of extrapulmonary tuberculosis that affects the liver and is difficult to diagnose. The present case report describes a patient who was diagnosed with PHT and was successfully treated with a combination of anti-tuberculosis drugs. A 55-year-old diabetic male presented with a history of abdominal pain, fever and weight loss. An abdominal ultrasound and computed tomography (CT) scan revealed multiple hepatic lesions, and fine needle aspiration cytology confirmed

the diagnosis of PHT. The patient was treated with a standard regimen of isoniazid, rifampin, pyrazinamide, and ethambutol for two months, followed by isoniazid and rifampin for another four months. The patient showed improvement in symptoms and the disappearance of hepatic lesions, as seen on follow-up ultrasound scans. This case highlights the importance of considering PHT in the differential diagnosis of patients with hepatic lesions, particularly in regions with a high burden of tuberculosis. Early diagnosis and prompt treatment can lead to a good outcome in PHT.

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Introduction:

Mycobacterium tuberculosis usually infects the lungs but can infect almost any organ in the body. The extrapulmonary illness affects 15-20% of patients, with the liver accounting for fewer than 1% of these instances^{1, 2}. TB infection of the liver, called hepatic TB, is an extrapulmonary symptom of an ongoing infection. Hepatic TB can manifest as a primary localized lesion or as the consequence of miliary tuberculosis³. Extrapulmonary disease and hepatic TB are more common in immunosuppressed individual⁴. Due to the non-specific nature of the symptoms and signs of hepatic TB, such as abdominal pain or jaundice, and the risk of developing complications and mortality from delayed diagnosis, there should be a high degree of clinical suspicion towards this entity⁵. Finally, hepatic TB is diagnosed based on histological and microbiological results from a liver sample⁶. Here, we report a case of a diabetic male with primary hepatic TB who had no additional infection sites.

Case presentation:

A 55-year-old diabetic male patient presented with a history of moderate to severe abdominal pain, located in the epigastrium and the right upper quadrant, lasting for more than a month. In addition, he complained about low-grade fever, weight loss, and loss of appetite. At the time of admission, the patient weighed 45 kg with a height of 162 cm (BMI: 17.15 kg/m²). There were no night sweats, cough, vomiting, or dysuria. He suffered from uncontrolled type 2 diabetes mellitus. During the physical examination, the patient was presented with a blood pressure of 120/85 mmHg, a pulse rate of 78/min, a temperature of 102°F, and 17 breaths/min. He appeared pale. There was moderate

tenderness of the right upper quadrant with hepatomegaly of 5cm without splenomegaly, jaundice, or ascites. The physical examination of the chest did not reveal any abnormality and no lymphadenopathy was detected. Complete blood count revealed moderate anaemia (haemoglobin = 8.7 g/dl), an erythrocyte sedimentation rate of 46 mm/h, elevated leukocyte count (15,197/cumm) and a normal platelet count (271,109/cumm). Biochemical tests showed normal bilirubin (0.5mg/dl), alanine transaminase (14.3 U/L), prothrombin time (15sec, INR-1.31), serum albumin (4.31 g/dl), serum creatinine (1.0 mg/dl). The viral markers (HBsAg and Anti-HCV) were negative. The ultrasonography (US) of the abdomen demonstrated multiple masses in the right lobe of the liver characterized by mixed echogenicity in favour of primary hepatic malignancy or resolving liver abscess. An abdominal computed tomography (CT) followed, which demonstrated multiple well-defined almost homogeneously enhancing iso to hypodense lesions noted in both lobes of the liver (largest one 5x3cm) more in favour of resolving liver abscess. Alpha-fetoprotein was normal (1.96 ng/ml). Neither chest X-ray nor CT revealed any other abnormal findings. The initial differential diagnosis of these radiological findings included primary hepatocellular carcinoma or metastatic liver lesions. As a result, a US-guided FNA from the liver mass was conducted. It showed a collection of inflammatory cells, degenerated polymorphs, histiocytes, and epithelioid cells with giant cells suggestive of tuberculosis. Lastly, the patient was tested for human immunodeficiency virus (HIV) status, which was negative. The antituberculous scheme, administered to the patient, included isoniazid, rifampicin, pyrazinamide, and ethambutol for two months and isoniazid rifampicin for four months more. There were no serious adverse events observed, and all symptoms and laboratory findings were normal after the completion of the treatment.

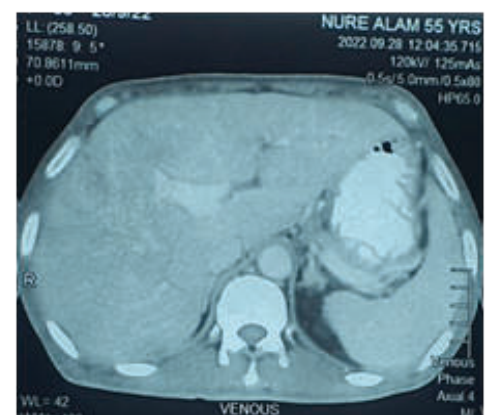
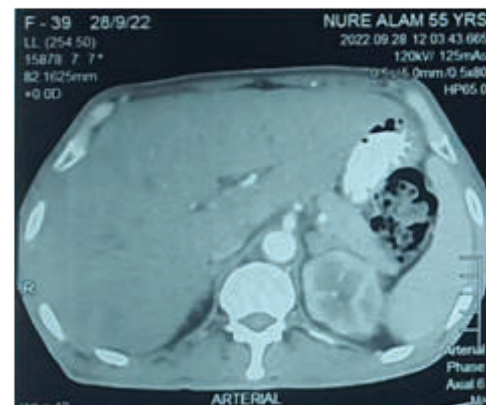


Fig. 1: CT scan showed, well defined hypodense lesions on plain film (a), homogeneously enhancing isodense lesions on contrast film (b, c).

Discussion:

Hepatic TB is a very rare entity. Its frequency is relatively common among immunocompromised individuals. Three types of hepatic TB are recognized: generalized hepatic miliary TB, primary hepatic miliary TB, and the rarest tuberculoma⁷. The portal vein is thought to be the access site for mycobacterium in the case of tuberculoma of the liver, while the hepatic artery is thought to be the entry point for miliary hepatic TB⁸. The clinical manifestation is nonspecific. The most common manifestations are low-grade fever, right upper quadrant abdominal pain, and hepatomegaly⁸. The results of the laboratory tests often show an increase in alkaline phosphatase along with leukocytosis, anaemia, and normal liver function. The majority of the time, when liver abscesses occur, mycobacterium cultures and the finding of acid-fast bacilli are negative. When it comes to imaging techniques, the US can show mostly hypoechoic lesions, but the usual CT result is the heterogeneity of the lesions, which range from hypodense to hyperdense⁹. T1-weighted MRI shows hypointense

lesions, but T2-weighted imaging shows isointense to hyperintense lesions with enhancement following contrast injection^{10,11}. In our case, there was a mixed echogenicity in the ultrasound and iso to hypodensity on CT. It is necessary to obtain a liver sample by US or CT-guided biopsy to diagnose hepatic TB. A caseating granuloma or a noncaseating granuloma with a positive culture for *Mycobacterium tuberculosis* and/or acid-fast bacilli and improvement with anti-TB medication serve as diagnostic indicators¹². The granuloma exhibits eosinophils, plasma cells, lymphohistiocytic cells, and giant cells of the Langerhans type histologically¹³. Mostly primary and metastatic liver cancers are included in the differential diagnosis. Extrapulmonary tuberculosis should be treated with a 6–9-month plan that includes the administration of pyrazinamide, ethambutol, rifampin, and isoniazid for 2 months, followed by 4–7 months of rifampin and isoniazid¹⁴. Several papers and case reports in the literature have revealed unusual examples of isolated hepatic TB or disseminated hepatic TB¹⁵⁻¹⁷.

Conclusion:

Hepatic TB is an uncommon condition that lacks any distinctive symptoms, signs, or laboratory or imaging findings. A central caseating necrotic granuloma with or without acid-fast bacilli is its defining feature. Therefore, it is crucial to suspect its presence in situations with diagnostic uncertainty and do a liver biopsy when it is feasible. If detected in time, Hepatic TB may be efficiently handled, but if untreated, it can be fatal.

Conflicts of Interest:

The authors declare that they have no conflict of interest.

Authors' Contributions:

SM Ali Hasan and Md Delwar Hossain performed a literature review. SM Ali Hasan and Md Nazmoul Hassan wrote the manuscript. Mohammad Izazul Hoque, Mohammad Shah Jamal, Mohammad Forhad Abedin and AKM Shafiqul Islam provided the clinical input to the case and performed manuscript editing and revision.

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