

Hepatic Tuberculosis with Atypical Presentation: Case Report and Review of Diagnostic Approach

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Abstract:

Introduction: Hepatic granulomatosis, defined as an anatomopathological lesion, is associated with a heterogeneous group of hepatic and extra-hepatic pathologies. Tuberculosis is one of its rare causes, often presenting diagnostic challenges.

Methods: We report the case of a 65-year-old woman with type 2 diabetes who presented with atypical right upper quadrant pain and abnormal liver function tests, ultimately diagnosed with hepatic tuberculosis through liver biopsy.

Results: Anti-tuberculous therapy resulted in symptom resolution and normalization of liver function tests.

Conclusion: This case underscores the diagnostic challenges of hepatic tuberculosis, even in immunocompetent patients, and highlights the critical role of liver biopsy for accurate diagnosis.

Keywords: Hepatic tuberculosis, Anti-tuberculous treatment, Diagnosis

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I. Introduction:

Hepatic tuberculosis remains a significant concern for hepatologists and gastroenterologists, particularly due to its prevalence among immigrants and immunocompromised patients (han, 2013). It often presents in a latent form and is associated with other tuberculous sites, especially in miliary and abdominal forms. (Jeon, 2008) . Although it is typically not severe, it can present isolated and manifest through nonspecific general symptoms. (Shah, 2015)

Typically, hepatic tuberculosis manifests as granulomatous hepatitis and, more rarely, as a tuberculoma. Tuberculous granulomas often lack specific characteristics, making their diagnosis challenging. (Castaneda, 2018). Culturing liver biopsy specimens is essential in the absence of other more accessible foci. Modern molecular biology techniques facilitate rapid diagnoses, even on liver biopsy slides. (Bock, 2017). The treatment protocol for hepatic tuberculosis mirrors that of other forms of tuberculosis. (Hussain, 2020) (majeed, 2019).

II. Clinical Observation:

We present the case of a 65-year-old woman with an 11-year history of type 2 diabetes mellitus, who underwent surgery for a uterine mass 10 years ago.

Initial Presentation:

The patient presented with mild right upper quadrant abdominal pain persisting for the past 5 months. She reported no radiation of the pain and no associated gastrointestinal symptoms, but experienced intermittent fever and chill.

Clinical Examination:

On physical examination, there was mild tenderness

Laboratory Tests:

Liver function tests revealed significant abnormalities, with aspartate aminotransferase (AST) levels reaching 360 U/L (9 times the normal value) and alkaline phosphatase (ALP) at 2027 U/L (17.6 times the normal value), indicating hepatocellular injury and cholestasis.

Imaging Studies:

An abdominal ultrasound showed echogenic vesicular lesions, along with dilation of the main bile duct and mild hepatosplenomegaly. A subsequent biliary MRI confirmed vesicular sludge, dilation of the main bile

duct, and inflammatory thickening of the lower bile duct noted in the right upper quadrant, with no evidence of hepatosplenomegaly or signs of liver failure.

Diagnostic Procedures:

To further investigate the hepatic lesions, a liver biopsy was performed, which revealed caseating tuberculoid granulomas with areas of caseous necrosis, thereby confirming the diagnosis of hepatic tuberculosis.

Treatment and Evolution:

The patient was initiated on an anti-tuberculous treatment regimen consisting of the ERIPK4 protocol. Following the treatment, she demonstrated significant clinical improvement, including resolution of right upper quadrant pain and normalization of liver function tests.

Tableau 1: Table showing the decline in liver function test abnormalities during anti-tuberculous treatment.

Date	AST	ALT	ALP	GGT	Bilirubin
March 2023 (start of treatment)	40	360 (9xN)	2027 (17.6 xN)	2338 (42xN)	Total: 3 (5.5xN), Direct: 11
April 2023	47 (1.17 xN)	28	217	449 (10.9x N)	Direct: 2 (1.24xN)
Date	AST	ALT	ALP	GGT	Bilirubin
July 2023	31	21	162	379 (8.8xN)	Total: 6, Direct: 1
September 2023 (end of treatment)	53 (1.3x N)	28	186 (1.6x N)	461 (8.3xN)	Total: 5



Figure 1: Abdominal ultrasound revealing dilatation of the common bile duct (CBD) and intrahepatic bile ducts (IHBD), with choledocholithiasis in the distal CBD and circumferential inflammatory thickening at the distal CBD along with nodular hepatic lesions suggestive of secondary origin.

III. Discussion:

Hepatic tuberculosis is a rare manifestation of extrapulmonary tuberculosis, accounting for less than 1% of all tuberculosis cases, particularly in immunocompetent individuals. It often presents with nonspecific clinical features, making the diagnosis challenging (Gabr, 2021) (Gupte, 2020). In our case, the patient, an immunocompetent 65-year-old woman with type 2 diabetes, presented with right upper quadrant pain, mild liver enzyme abnormalities, and radiological findings suggestive of multiple differential diagnoses excluded after imaging and histopathological analysis, which revealed tuberculoid granulomas.

The diagnosis of hepatic tuberculosis remains challenging due to its nonspecific clinical presentation, especially in immunocompetent patients. In this case, the use of liver biopsy was essential in establishing the diagnosis, as imaging findings alone were insufficient to differentiate hepatic tuberculosis from other granulomatous liver diseases, such as sarcoidosis or lymphoma (Vasudevan, 2019). Previous studies suggest that hepatic tuberculosis is more common in immunocompromised patients, but rare cases, such as this one, underscore the importance of considering tuberculosis even in those without overt risk factors. Moreover, our patient responded well to standard anti-tuberculous therapy, with no significant side effects reported during the treatment course (Zong, 2018).

In this case, the patient was treated with the standard anti-tuberculous regimen (ERIPK4 followed by RH 600), and the response was excellent. Over the course of treatment, the patient's symptoms, including right upper quadrant pain, improved significantly, and her liver function tests normalized.

Given the non-specific presentation, a number of differential diagnoses were considered, including primary biliary cirrhosis, sarcoidosis, viral hepatitis B and C, and hepatic lymphoma. Primary biliary cirrhosis was excluded based on the absence of autoimmune markers and clinical signs of cholestasis. Sarcoidosis was

ruled out due to the lack of typical non-caseating granulomas on histology, and viral hepatitis was excluded by negative serologies for hepatitis B and C (Khatr, 2019).

Hepatic lymphoma, although considered, was with caseous necrosis, a hallmark of tuberculosis (Rane, 2018).

This favorable clinical response highlights the efficacy of prompt diagnosis and treatment, even in challenging cases where the presentation is atypical.

Although imaging modalities such as ultrasound and CT scan were useful in identifying liver lesions, they were insufficient for a definitive diagnosis. The liver biopsy played a crucial role in identifying the caseating granulomas, confirming the diagnosis of hepatic tuberculosis. Molecular testing or mycobacterial cultures could further support this diagnosis in cases where biopsy results are inconclusive. However, in this case, the histopathological findings alone were sufficient to initiate anti-tuberculous therapy. (Yadav, 2020)

This case emphasizes the importance of maintaining a high index of suspicion for hepatic tuberculosis in patients presenting with unexplained liver granulomas, especially in regions with high TB prevalence. Early biopsy and prompt initiation of anti-tuberculous therapy are crucial for favorable outcomes (Imran, 2017).

IV. Conclusion:

Hepatic tuberculosis is a rare and significant form of extrapulmonary tuberculosis that poses diagnostic challenges, particularly in immunocompetent patients. This case underscores the importance of maintaining a high index of suspicion for hepatic tuberculosis, even in those without overt risk factors (Ahmad, 2021). Early diagnosis is crucial for initiating appropriate treatment and preventing complications. Ultrasound plays a key role in the early detection and management of hepatic lesions, being affordable, widely available, and non-irradiating. Clinicians should be vigilant in considering hepatic tuberculosis in their differential diagnosis for patients presenting with unexplained liver abnormalities, as timely intervention can lead to favorable outcomes (Okada, 2016).

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