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RARE PSEUDOTUMORAL HEPATIC TUBERCULOSIS MIMICKING MALIGNANCY: A DIAGNOSTIC AND THERAPEUTIC CHALLENGE

Mohamed Labied, Rahma Khabab, Chorouk Mountassir, Ghizlane Lembarki, Mouna Sabiri, Samira Lezar

Ibn Rochd University Hospital, Faculty of Medicine and Pharmacy of Casablanca, Casablanca, Morocco

Corresponding author's e-mail: labied.mohamed@gmail.com

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ABSTRACT

Pseudotumoral hepatic tuberculosis (TB) is an exceptionally rare manifestation of TB, often mimicking hepatic malignancy on imaging studies. We report the case of a 51-year-old female diagnosed with a low-grade tubulovillous adenoma of the ampulla of Vater, who presented with hepatic lesions initially suspected to be metastatic. Magnetic resonance imaging (MRI) revealed multiple hypointense lesions with heterogeneous enhancement and restricted diffusion. Histopathological examination of a liver biopsy confirmed the diagnosis of pseudotumoral TB. The patient underwent a 6-month course of antitubercular therapy, after which follow-up MRI demonstrated complete resolution of the hepatic lesions. This case highlights the importance of considering pseudotumoral hepatic TB in the differential diagnosis of hepatic masses, particularly in regions with a high prevalence of TB. Histological confirmation remains essential, and timely initiation of antitubercular treatment can result in excellent clinical outcomes.

KEYWORDS

Liver, MRI, tuberculosis, pseudotumor

LEARNING POINTS

- This case underscores the importance of including hepatic tuberculosis (TB), particularly its rare pseudotumoral form, in the differential diagnosis of hepatic masses, even in immunocompetent patients without pulmonary involvement or in non-endemic regions.
- Imaging findings alone may mimic malignancy, emphasizing the critical role of liver biopsy and histopathological analysis in achieving a definitive diagnosis and avoiding unnecessary surgical interventions.
- Recognizing atypical forms of TB is crucial for timely initiation of antitubercular therapy, which can lead to complete resolution and prevent potentially fatal complications.

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INTRODUCTION

Hepatic tuberculosis (TB) with isolated localization is an exceptionally rare condition, accounting for less than 1% of all TB cases[1]. Among its uncommon presentations, the pseudotumoral or macro-nodular form is particularly notable due to its radiological resemblance to primary or secondary hepatic tumours. This clinical and imaging mimicry of malignancy often complicates the diagnostic process, necessitating histological confirmation via liver biopsy or surgical intervention. In immunocompetent individuals without pulmonary involvement, the diagnosis is especially challenging[2]. Despite its rarity, recognizing these atypical forms is crucial because of the high mortality risk if they are left untreated. Antitubercular therapy remains the cornerstone of treatment and typically yields favourable outcomes, although surgical intervention may occasionally be required for a definitive diagnosis[3].

This article presents a rare case of pseudotumoral hepatic TB that was initially misinterpreted as a malignant hepatic tumour based on radiological findings. Histopathological analysis ultimately confirmed the diagnosis, and the patient responded successfully to antitubercular therapy. This case underscores the importance of considering TB in the differential diagnosis of hepatic masses, even in patients without pulmonary involvement or in non-endemic regions.

CASE DESCRIPTION

A 51-year-old female with a history of chronic renal failure was diagnosed with a low-grade tubulovillous adenoma of the ampulla of Vater. Initial abdominal computed tomography (CT) scan revealed multiple hepatic lesions, which were initially interpreted as metastatic. To further characterize these lesions, hepatic magnetic resonance imaging (MRI) was performed. MRI demonstrated multiple hypointense lesions on T1- and T2-weighted images, surrounded by a hyperintense peripheral rim. The lesions exhibited heterogeneous enhancement following contrast administration and showed restricted diffusion, features that strongly suggested malignancy *(Fig.1)*. A biopsy of the hepatic lesions was subsequently performed, confirming the diagnosis of hepatic TB. Biological investigations demonstrated moderate hepatic cytolysis in the absence of cholestasis, accompanied by leukocytosis, elevated C-reactive protein (CRP) levels, and hyponatremia. Human immunodeficiency virus (HIV) serology was negative.

The patient was initiated on a 6-month course of antitubercular therapy, consisting of isoniazid (5 mg/kg), rifampicin (10 mg/kg), ethambutol (25 mg/kg), and pyrazinamide (30 mg/kg) during the initial 2 months, followed by isoniazid and rifampicin for the remaining 4 months.

A follow-up MRI at the end of treatment *(Fig. 2)* showed complete resolution of the hepatic lesions, confirming the diagnosis of pseudotumoral hepatic TB.

DISCUSSION

Hepatic tuberculosis (TB) is extremely rare, accounting for less than 1% of all TB cases, with the pseudotumoral form being even more uncommon, even in highly endemic countries[1], as observed in our case. The low oxygen tension of the liver makes it an inhospitable site for *Mycobacterium tuberculosis*. Although TB can affect individuals of all ages, it is predominantly seen in young adults. The pseudotumoral form, characterized by larger nodules, poses a diagnostic challenge due to its close resemblance to malignant hepatic tumours[2]. TB can spread via the pulmonary or gastrointestinal tract, with the infection reaching the liver through the portal system, leading to granuloma formation, both caseating and non-caseating[3]. The clinical presentation of hepatic TB varies, ranging from asymptomatic cases to severe hepatitis with jaundice and hepatocellular insufficiency. Common symptoms include right upper quadrant pain, fever, night sweats, and weight loss, with physical findings such as hepatomegaly and jaundice.

Since the pseudotumoral form often presents with non-

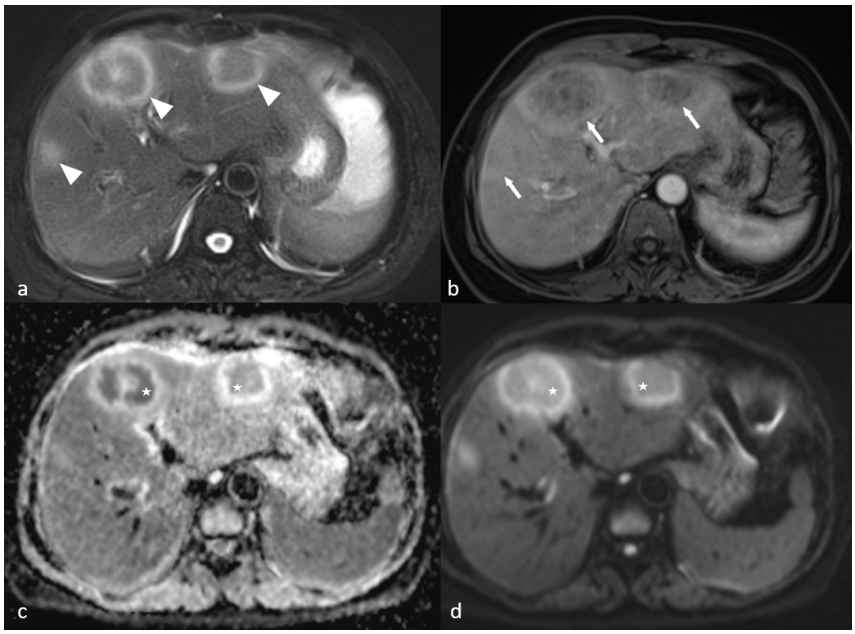

Figure 1. The initial magnetic resonance imaging demonstrates A) multiple hepatic lesions characterized by central hypointensity and a peripheral halo of hyperintensity (arrowheads) on T2-weighted sequences. B) On contrast-enhanced T1-weighted sequences with fat saturation, the lesions exhibit predominant peripheral enhancement (arrows). C, D) Diffusion-weighted imaging shows a low apparent diffusion coefficient within the lesions, without clear diffusion restriction (asterisk).

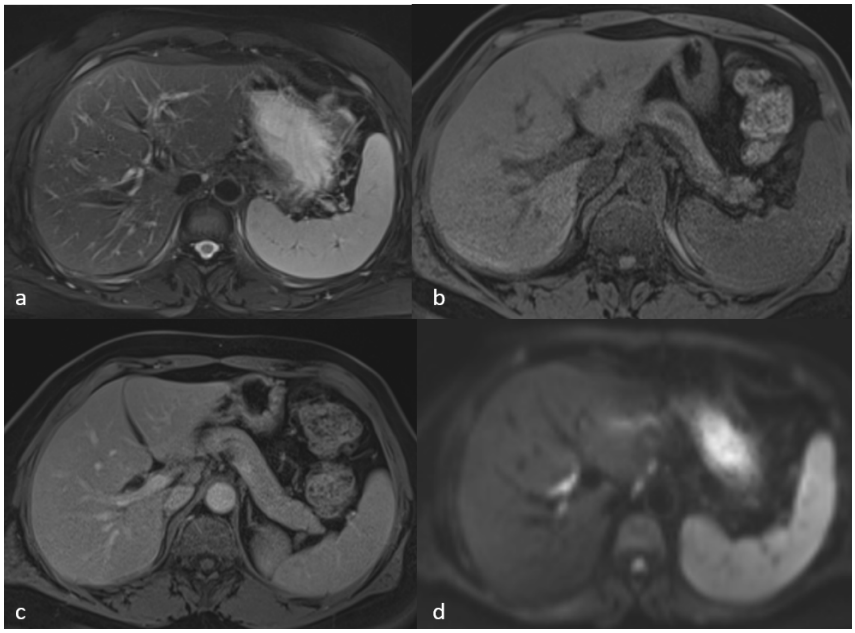

Figure 2. The follow-up magnetic resonance imaging after antitubercular treatment shows complete resolution of the lesions across all sequences, including A) T2-weighted, B) fat-saturated T1-weighted sequences before and C) after gadolinium injection, as well as on D) diffusion-weighted imaging.

specific symptoms, such as abdominal pain and nausea it can easily be mistaken for malignancy. It typically affects young adults but can also occur in individuals aged 40–60. It is often asymptomatic and may be incidentally discovered during evaluations for other conditions, with jaundice frequently caused by periportal lymphadenopathy[4].

Laboratory data typically show elevated alkaline phosphatase levels, which may be present in both jaundiced and non-jaundiced patients, sometimes as the only abnormality. Other findings may include elevated liver enzymes, cholestasis, or signs of an inflammatory syndrome[5]. Non-specific abnormalities, such as anaemia, hypoalbuminemia, and hyponatremia, are also common and reflect the polymorphic nature of the disease, contributing to the diagnostic challenge.

Radiologically, hepatic TB can mimic features of both primary and secondary hepatic tumours, and the imaging findings are often non-specific. On abdominal ultrasound, hepatic involvement is characterized by hypoechoic nodules, which may lack posterior enhancement and occasionally exhibit calcifications. Hyper-echoic nodules have also been reported in some cases[2]. Ultrasound can be useful for guiding percutaneous liver biopsy.

On CT scan, hepatic tuberculomas typically appear as hypodense, round lesions, with weak or absent peripheral enhancement following contrast injection. Calcifications may also be present. MRI findings typically show lesions with hypointensity on T1-weighted images, while on T2-weighted images, the lesions may appear hypointense, isointense, or hyperintense, with a peripheral rim, depending on the disease stage. Mild peripheral enhancement may be observed after gadolinium injection, particularly during the portal and later phases.

The polymorphic nature of hepatic TB manifests not only clinically and biologically but also radiologically, complicating the diagnostic process. In our case, the tubercular origin was not suspected prior to surgery[5].

A guided biopsy can help avoid unnecessary laparotomy in cases where percutaneous aspiration may fail. Histological findings, such as caseating granulomas with Langhans-type giant cells, confirm the diagnosis. However, acid-fast staining (0-45%) and culture (10-60%) have low sensitivity. Polymerase chain reaction (PCR) testing offers improved detection of *Mycobacterium tuberculosis*, and even in the absence of acid-fast bacilli, the diagnosis should not be excluded, particularly in high TB-prevalence areas. Diagnosis can also be confirmed by the presence of hepatic granulomas in conjunction with known TB in other organs or by clinical and radiological improvement following anti-tuberculosis treatment[4].

The treatment of hepatic TB primarily involves antitubercular therapy, typically over 6 to 9 months. The initial phase consists of 2 months of isoniazid, rifampicin, pyrazinamide, and ethambutol, followed by 4 to 7 months of isoniazid and rifampicin. In severe cases, a longer treatment duration of 12 to 18 months may be required. Clinical improvement is usually observed within 2 to 3 months, with lesion resolution typically occurring within 6 to 18 months. In cases of abscess formation, percutaneous drainage combined with transcatheter administration of antitubercular drugs has been suggested as an adjunct to medical therapy[5].

CONCLUSION

Isolated hepatic TB is a rare condition that frequently mimics liver tumours, presenting diagnostic challenges, particularly in immunocompetent individuals. Given the increasing global incidence of TB, it is important for clinicians to consider this diagnosis in patients from endemic regions who are at high risk. Although imaging and biopsy can assist in diagnosis, histological or surgical confirmation is often necessary. Awareness of isolated hepatic TB is essential for ensuring timely and appropriate management.

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