

# Liver tuberculosis: report of a case

## Karaciğer tuberkülozu: bir olgu sunumu

Hasan Cece<sup>1</sup>, Mahmut Abuhandan<sup>2</sup>, Ekrem Karakas<sup>1</sup>, Sema Yıldız<sup>1</sup>, Mustafa Calik<sup>2</sup>

<sup>1</sup>Harran University Faculty of Medicine, Department of Radiology, Sanliurfa

<sup>2</sup>Harran University Faculty of Medicine, Department of Pediatrics, Sanliurfa

**Corresponding author:** Hasan CECE, Harran University Faculty of Medicine, Department of Radiology, 63200, Sanliurfa, Tel: +90 (414) 318 30 00, Facsimile: +90 (414) 313 96 15, E-mail: hasan\_cece@yahoo.com

### Abstract

Tuberculosis is a very important public health problem in Turkey. However, tubercular involvement of the liver is uncommon. Occasionally, the illness might present as fever of unknown origin. An 8-month-old male infant presented with irritability and high fever, restlessness, no weight gain, and refusal of breast milk. The establishment of a diagnosis of liver tuberculosis is difficult, particularly because of the obscure extrapulmonary features of tuberculosis. Clinical and radiological findings of liver tuberculoma are of low specificity, and histopathological plus bacteriological confirmation is necessary. In our case, the diagnosis of hepatic tuberculosis was established via histopathological examination of a hepatic nodule. In this manuscript, we presented a case with hepatic tuberculosis since this is a rare extrapulmonary manifestation of tuberculosis.

**Key words:** Liver, tuberculosis, child

### Özet

Tuberküloz Türkiye'de önemli bir halk sağlığı sorunudur. Bununla birlikte karaciğer tutulumu nadirdir. Hastalık sıklıkla sebebi bilinmeyen ateş bulgusu ile ortaya çıkabilir. Sekiz aylık bir erkek çocuk huzursuzluk, yüksek ateş, kilo kaybı ve emmeyi reddetme şikâyeti ile başvurdu. Özellikle akciğer dışı tuberkülozlu hastaların kliniğinin belirsiz olmasından dolayı karaciğer tuberkülozunun tanısını koymak zordur. Karaciğer tuberkülomunun klinik ve radyolojik bulguları düşük özgüllükte olup histopatolojik ve bakteriyolojik kültür tanısı gereklidir. Bizim olgumuzda hepatic tuberkülozun tanısı karaciğer nodülünün histopatolojik muayenesi ile konuldu. Bu makalede akciğer dışı tuberkülozun nadir görülen formlarından karaciğer tuberkülozunu sunduk.

**Anahtar kelimeler:** Karaciğer, tuberküloz, çocuk

### Introduction

Tuberculosis (TB) is a very important public health problem in Turkey. The disease might have various clinical presentations including pulmonary and extrapulmonary forms. However, tubercular involvement of the liver is uncommon. Hepatic tuberculosis is often associated with disseminated disease (1). Local form of hepatic TB is much less common (2). Clinical picture might vary, and it is usually non-specific. Signs and symptoms include fever, hepatomegaly, night sweats, weight loss, malaise, anorexia, and abdominal pain. Occasionally, the illness might present as fever of unknown origin (3).

In this report, we describe an infant case of nodular TB of the liver without pulmonary or gastrointestinal involvement.

### Case report

An 8-month-old male infant presented with restlessness and high fever. Patient had symptoms of cough, sweating, lack of weight gain, restlessness, reduced breast-feeding and fever since 2 months. Medical and family history were non-specific and fever was 39°C (axillary), weight was 6.1 kg (P<3%), height was 64 cm (P=10%), vital signs were stable, general condition was moderate, appearance was pale and cachectic, there was hepatomegaly of 2-3 cm, and no

BCG scar in physical examination. Laboratory examinations demonstrated that hemoglobin was 12 g/dL, white blood cell count 15.000 cells/mm<sup>3</sup> with a shift to the left, platelet cell count 357000 cells/mm<sup>3</sup>, erythrocyte sedimentation rate 62 mm/h, prothrombin time 22 seconds, aPTT 40 seconds, total bilirubin 1.5 mg/dL (direct fraction, 1.2 mg/dL), albumin 3.5 g/dL, globulin 4.5 g/dL, alanine aminotransferase 115 U/L (normal range 7-30 U/L), aspartate aminotransferase 135 U/L (normal range 11-37 U/L), alkaline phosphatase 412 U/L, calcium 8,8 mg/dl, and phosphate was :4.8mg/dl. Blood serology was negative for toxoplasmosis, brucellosis, infectious mononucleosis, hepatitis A and B viruses. Blood cultures were negative for bacterial growth. Chest X-ray was normal. Result of the PPD skin test was 0 mm and no index cases were determined for tuberculosis in family screening. A single hypoechogenic nodule of 10 mm size in right lobe of the liver and hepatomegaly of 3 cm were determined in abdominal ultrasonography. The lesion was hypointense on axial T1-weighted and hyperintense on T2-weighted abdominal MRI. Significant enhancement was not determined in the early or delayed phases in dynamic MRI studies. The case was consulted with the department of pediatric surgery and surgery was performed to remove the mass lesion. Histopathological examination demonstrated coagulation necrosis,

Langerhans giant cells and epithelial spindle cells, but no tumor cells. Based on the clinical appearance, imaging and pathological findings hepatic TB without pulmonary involvement was considered. Antituberculous chemotherapy (isoniazid 10mg/kg, rifampicin 20mg/kg pyrazinamide 30mg/kg) of 12 months was planned and initiated. Patient currently continues to receive antituberculous chemotherapy.

**Discussion**

Hepatic tuberculosis has been regarded as a rare form of extrapulmonary tuberculosis constituting less than 1% of all extrapulmonary forms (4, 5). Liver involvement might occur in the primary and secondary forms of tuberculosis, and is particularly frequent in patients with disseminated miliary tuberculosis. In autopsy series of disseminated tuberculosis, liver involvement has been determined in 80–100% of the cases. On the other hand, localized form of hepatic tuberculosis, with minimal or no extrahepatic manifestations, is much less common (6). Kok et al. have reported isolated hepatic tuberculosis in 0.3% of 1.678 new cases of tuberculosis (7).

Reed et al. (4) have described three morphologic types of hepatic tuberculosis: (a) military tuberculosis of the liver associated with generalized miliary tuberculosis, (b) primary miliary tuberculosis of the liver without involvement of other organs, and (c) primary tuberculous granuloma or abscess of the liver. It has been believed that pathogenesis of these forms of hepatic tuberculosis are different. Hematogenous dissemination of the bacteria seems to be the route by which the bacilli reach the liver in miliary hepatic tuberculosis; however, in localized hepatic tuberculosis the tuberculosis bacilli probably reach the liver from the intestine via the portal vein. These postulated mechanisms are supported by histopathological findings; for instance, granulomas are nearly always located inside the lobules in miliary tuberculosis, whereas they are found mainly in the portal areas in localized forms (2).

The age of the patient ranges from 6 months to 72 years, with an average of 39.2 years in hepatic tuberculosis; however, the disease is quite rare in childhood (8). Hepatic involvement usually produces no symptoms. Nonspecific abdominal pain or pain in the right upper abdominal quadrant may be present, whereas fever and weight loss are more common in the presence of a tuberculous abscess. The most frequent

physical finding is hepatomegaly and our case also had a hepatomegaly of 3cm palpated from the last costa. A disproportionately increased serum alkaline phosphatase level is a common biochemical finding in this disease, and serum ALP level was 412 U/L in our case (9). The predominant presenting symptoms were abdominal discomfort and high fever in our patient. Systemic examination was normal.

The diagnosis of liver tuberculosis is difficult, particularly because the extrahepatic features of tuberculosis may not be obvious. Ultrasonographic findings of hepatic tuberculosis usually include a hypoechoic lesion; however, a hepatic tuberculoma presenting as a hyperechoic mass has recently been reported (10). CT finding of hepatic involvement is hypodense nodular lesions. Contrast enhancement occurs in the peripheral granulomatous lesions and fewer enhancements are observed at the central low density of caseation necrosis (11). The classically accepted feature of hepatic tuberculosis is a lesion exhibiting hypointensity on the T1-weighted sequence and hyperintensity on the T2-weighted sequence on MRI. A slight rim of enhancement is observed following the injection of contrast material (12). However, the radiological findings of tuberculous liver abscess are of low specificity. The differential diagnosis of hepatic tuberculomas from Hodgkin's disease, secondary carcinoma or actinomycosis is quite difficult. Liver biopsy is essential. Blind percutaneous liver biopsy might be useful in the diagnosis of the miliary form; however, direct guided biopsy during laparoscopy has higher diagnostic yield. Microbiological or pathological examinations of specimens are necessary to establish a diagnosis and to distinguish from the abscesses or the neoplasm of the liver. It might not always be possible to obtain a microbiological diagnosis, and the diagnosis of hepatic tuberculosis might be established only from the histological examination of the abscess wall (13). In our case, ultrasonographic and abdominal MRI findings were in compatible with the literature. The diagnosis of hepatic tuberculosis was established via histopathological examination of the excised hepatic nodule.

In summary, we have presented a rare case of liver tuberculoma without pulmonary and gastrointestinal involvement in infant. Clinical and radiological findings of liver tuberculoma are of low specificity, and histopathological and bacteriological confirmation should be performed to diagnose hepatic tuberculosis.

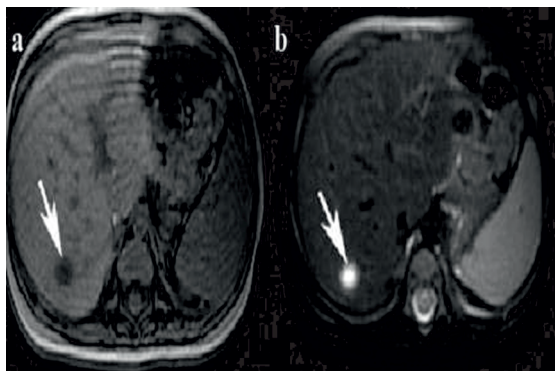


Figure 1: Hypointense lesion in axial T1-weighted MRI (a) and hyperintense lesion in axial T2-weighted MRI (b)

Yazarlarla ilgili bildirilmesi gereken konular (Conflict of interest statement) : Yok (None)

### References

1. Leader SA. Tuberculosis of the liver and gall-bladder with abscess formation: a review and case report. *Ann Intern Med* 1952; 37: 594–606.
2. Chien RN, Lin PY, Liaw YF. Hepatic tuberculosis: comparison of miliary and local form. *Infection* 1995; 23: 5–12.
3. Hersch C. Tuberculosis of the liver: a study of 200 cases. *S Afr Med* 1964; 38: 857-63.
4. Reed DH, Nash AF, Valabhji P. Radiological diagnosis and management of a solitary tuberculous hepatic abscess. *Br J Radiol* 1990; 63: 902–4.
5. Mert A, Ozaras R, Tabak F, et al. Localized hepatic tuberculosis. *Eur J Intern Med* 2003; 14: 511-2.
6. Tritou I, Prassopoulos P, Daskalogiannaki M, et al. Miliary hepatic tuberculosis not associated with splenic or lung involvement. *Acta Radiol* 2000; 41: 478-81
7. Kok KYY, Yapp SKS. Isolated hepatic tuberculosis: report of five cases and review of the literature. *J Hepatobiliary Pancreat Surg* 1999; 6: 195-8
8. Kubota H, Ageta M, Kubo H, Wada S, Nagamachi S, Yamanaka T. Tuberculous liver abscess treated by percutaneous infusion of antituberculous agents. *Intern Med* 1994; 33: 351–356.
9. Bernhard JS, Bhatia G, Knauer CM. Gastrointestinal tuberculosis: an eighteen-patient experience and review. *J Clin Gastroenterol* 2000; 30: 397-402.
10. Tan TC, Cheung AY, Wan WY, Chen TC. Tuberculoma of the liver presenting as a hyperechoic mass on ultrasound. *Br J Radiol* 1997; 70: 1293–5.
11. Patanakar T, Prasad S, Armao D, Mukherji SK. Tuberculous abscesses of the liver. *Am J Roentgenol* 2000; 174: 1166–7.
12. Caramella T, Fuerxer F, Chevallier P, et al. MR features of hepatic macronodular Mycobacteriosis. *J Radiol* 2007; 88: 47-51.
- Hayashi M, Yamawaki I, Okajima K, Tomimatsu M, Ohkawa S. Tuberculous liver abscess not associated with lung involvement. *Intern Med*. 2004; 43: 521-3.