

Severe Ascites Appears in A Case of Hepatic Tuberculosis: A Case Report

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ABSTRACT

Hepatic tuberculosis has non-specific symptoms, challenging diagnosis, and may lead to mismanagement, particularly in endemic tuberculosis. Although severe ascites can appear in hepatic tuberculosis, it can also occur in other forms of tuberculosis, especially hepatobiliary and peritoneal tuberculosis. Meanwhile, the gold standard of the diagnosis is using a biopsy. Despite the negative results for tuberculosis in the biopsy, an alternative diagnosis can help establish the diagnosis of hepatic tuberculosis using GeneXpert and culture on hepatic tissue, in which a confirmed negative result for tuberculosis in other areas. Although identifying individuals with potential tuberculosis was challenging in the endemic area, it is crucial to undergo thorough and conscientious examinations for tuberculosis, which include radiological imaging and nonspecific clinical appearance, especially gross ascites.

Keywords: Ascites, biopsy, culture, hepatic tuberculosis.

1. INTRODUCTION

Hepatic tuberculosis was an uncommon case which lacked typical clinical symptoms and radiological imaging. The prevalence was approximately 1% of all tuberculosis incidents, whereas ascites related to tuberculosis was estimated to be approximately 2% [1, 2]. Ascites in tuberculosis usually appears in the peritoneum and hepatobiliary tuberculosis. Therefore, accurate diagnosis was a challenge in practice due to nonspecific and similar clinical manifestations of both diseases, especially peritoneum and hepatobiliary tuberculosis [3, 4]. Additionally, the individuals who reside in endemic areas of tuberculosis pose a possible challenge [5]. The study aimed to report an Indonesian man with severe ascites due to hepatic tuberculosis.

Case Report

A 25-year-old man complained mainly of abdominal enlargement for 6 months. He also complained of dyspnea for the past 3 days, which did not improve with rest or sleep. In the last month, his legs began swelling, and he had difficulty moving, especially walking and sitting. Meanwhile, he also had an intermittent nocturnal fever and loss of appetite. In the last 3rd week, he had been hospitalized due to similar complaints and was treated with fluid removal of 14 L from the peritoneal cavity. In addition, he had not suffered hepatitis, hematemesis, hypertension, diabetes mellitus, tuberculosis, kidney disease, lung disease, or allergies, and had denied smoking and alcoholism habits.

On admission, he presented a significantly enlarged abdomen, pitting edema in the lower extremities, and decreased vesicular breath sounds in 2/3 of the lower lungs. Blood laboratory examination revealed that hemoglobin was 9.2 g/dL, mean corpuscular volume (MCV) was 80.6 fL, mean corpuscular hemoglobin (MCH) was 25.5 pg, potassium was 2.7 mmol/L,

and albumin was 2.4 g/dL. Furthermore, an x-ray examination, especially the chest and plain abdomen, revealed a pleural effusion in the lung cavity and gross ascites in the peritoneal cavity. Moreover, an abdominal ultrasound revealed multiple hypoechoic nodules in the liver tissue (Fig. 1). Furthermore, the abdominal computer tomography (CT) showed multiple nodules with irregular side boundaries in the surrounding liver tissue. Therefore, he was initially diagnosed with severe ascites, pleural effusion, and suspected hepatoma.



Fig. 1. Liver ultrasound showed multiple hypoechoic to isoechoic (M sign) nodules showed similar lymphoma in the liver and paraaortic-paracaval.

He was treated with gradually large-volume paracentesis, which was first conducted at 5 L per time. He also performed thoracic paracentesis, in which the pleural fluid analysis did not indicate tuberculosis by GeneXpert *Mycobacterium tuberculosis* and rifampicin (MTB/RIF) assay and culture examinations. Meanwhile, the ascites fluid was also negative for tuberculosis with the same examination. Additional examination included the adenosine deaminase (ADA) of 3.2 U/L in the pleural fluid, carcinoembryonic antigen (CEA) of 1.35 IU/L, lactate dehydrogenase (LDH) of 199 U/L, negative for hepatitis B surface antigen (HBsAg), and negative for HIV/AIDS. He also received other treatments, including a diet for liver disease of 1900 kcal daily, furosemide of 40 mg thrice daily per intravenously, amino acids 5% with carbohydrate and electrolyte of 500 mL once daily per intravenously, transfusion of albumin 25% 100 mL into four hours, spironolactone of 100 mg once daily per orally, and potassium chloride of 600 mg thrice daily per orally.

On the 3rd day, he underwent a second abdominal paracentesis with outcomes of 5L fluid ascites. His treatment switched from albumin 25% to 20% with the same dosage, and others' previous treatment was continued. On the 7th day, the core biopsy revealed autolysis and severe necrosis with negative results for Ziehl-Neelsen staining and malignant cells (Fig. 2). However, GeneXpert and culture on liver tissue revealed positive results for tuberculosis. Therefore, he was diagnosed with hepatic nodules due to hepatic tuberculosis. He was beginning to be treated with a first-category anti-tuberculosis drug (ATD). On the 10th day, he improved clinically and was discharged.

After being discharged, he received regular medical consultations at the tuberculosis polyclinic every week. Three months after discharge, the abdominal CT scan showed that the nodules' size had reduced compared to previously. In the sixth month, he was medicated entirely without ATD withdrawal, never had recurring ascites during treatment, and had no activity issues

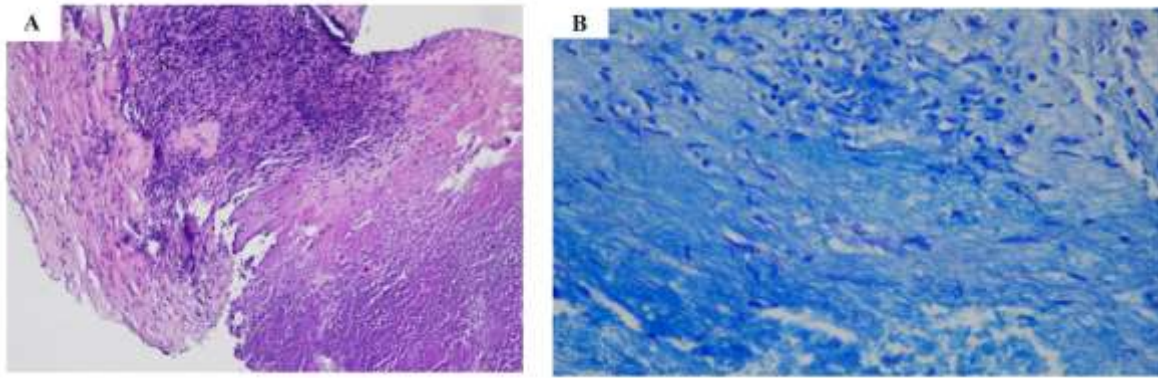


Fig. 2A. Little fibrous connective tissue at the edges, granulomas and dense infiltrates of inflammatory cells lymphocytes and histocytes and datia Langerhans cells, no liver tissue is visible, and no malignant cells; B. The Ziehl-Neelsen staining showed no acid-fast bacteria.

2. DISCUSSION

Management of ascites depends on its causation and an adequate diagnostic approach, which plays a crucial role in its success [2, 6]. Meanwhile, paracentesis is an initial medical procedure performed to evacuate ascitic fluid with the purpose of diagnosis and treatment. While the size of ascitic fluid, approximately 10-20 mL, can be taken for further examination for diagnosis, evacuation of ascitic fluid can be carried out up to 5L once for treatment to reduce intra-abdominal pressure, which can help relieve tightness and abdominal pain [7]. Furthermore, the fluid color can help determine the cause of ascites, in which a cloudy and pus-like color indicates a bacterial infection [8].

The gold standard for diagnosing hepatic tuberculosis is histopathological examination of liver biopsy, which requires accurate diagnosis and appropriate management to avoid complications. Despite the negative results for tuberculosis in the biopsy, an alternative diagnosis can help establish the diagnosis of hepatic tuberculosis using GeneXpert and culture on hepatic tissue. When this result was positive, individuals had possible hepatic tuberculosis [9]. Meanwhile, the hepatic tuberculosis case was an uncommon case in which the challenging diagnosis was nonspecific clinical symptoms, laboratory or imaging findings. This case's appearance is similar to malignant cells, which have a nodular characteristic imaging, and other symptoms were also appropriate for hepatoma [10]. Moreover, this case is also possible to have hepatobiliary and peritoneal tuberculosis due to the pus-like color of the ascitic fluid [8]. Hepatobiliary tuberculosis affects the liver and biliary tract, usually as a secondary manifestation of other forms of tuberculosis, especially pulmonary or gastrointestinal tuberculosis. Meanwhile, peritoneal tuberculosis was a tuberculosis infection in the peritoneal or abdominal cavity [11]. Therefore, the established diagnosis in this case, in which hepatic tuberculosis is suspected due to positive tuberculosis in the liver, whereas negative in other areas, especially peritoneal, pulmonary, and biliary, is not identified [9, 12].

Management of hepatic tuberculosis using ATD includes 4 types of drugs (isoniazid, rifampin, pyrazinamide, and ethambutol) for 2 months in the initial phase, followed by isoniazid and rifampicin for four to 6 months. Despite long-term isoniazid and rifampicin treatment, liver tuberculosis does not enhance the risk of ATD-induced hepatotoxicity. It is necessary to be aware of the risk of using ATD in the management of hepatic tuberculosis [13, 14].

3. CONCLUSION

Hepatic tuberculosis has a non-specific clinical manifestation, in which severe ascites can appear. GeneXpert, radiological imaging, and culture of *Mycobacterium tuberculosis* examination can confirm the diagnosis of tuberculosis, including hepatic tuberculosis. Although identifying individuals with potential tuberculosis was challenging, it is crucial to undergo thorough and conscientious examinations, particularly when the patient resides in an endemic tuberculosis area.

Conflict of interest

Krisnina Nurul Widiyastuti and Ulfa Kholili declare that they have no conflicts of interest.

Funding Source

Nothing.

Ethical approval

Ethical approval is exempt/waived at Dr. Soetomo General Academic Hospital, Surabaya, Indonesia because the report only has one patient.

Registration of Research Studies

Not applicable.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Krisnina Nurul Widiyastuti: Conceptualization, data curation, formal analysis, funding acquisition, project administration, resources, roles/writing – original draft, visualization, writing – review & editing; Ulfa Kholili: Methodology, investigation, software, supervision, validation, writing – review & editing.

Guarantor

Krisnina Nurul Widiyastuti is the person in charge of the publication of our manuscript.

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REFERENCES

- [1] Hickey AJ, Gounder L, Moosa MY, Drain PK. A systematic review of hepatic tuberculosis with considerations in human immunodeficiency virus co-infection. *BMC Infect Dis.* 2015;15:209. doi: 10.1186/s12879-015-0944-6.
- [2] Oey RC, van Buuren HR, de Man RA. The diagnostic work-up in patients with ascites: current guidelines and future prospects. *Neth J Med.* 2016;74(8):330-5.
- [3] Laamara L, Benaissa E, Achemlal A, Bounakhla A, Bssaibis F, BenLahlou Y, et al. Peritoneal tuberculosis, an underestimated diagnosis: a case report. *Access microbiology.* 2024;6(5). doi: 10.1099/acmi.0.000753.v3.
- [4] Ladumor H, Al-Mohannadi S, Ameerudeen FS, Ladumor S, Fadl S. TB or not TB: A comprehensive review of imaging manifestations of abdominal tuberculosis and its mimics. *Clin Imaging.* 2021;76:130-43. doi: 10.1016/j.clinimag.2021.02.012.
- [5] Fauzi A, Permatasari A. Disseminated tuberculosis with symptoms of decreased consciousness: A rare case in Indonesian male. *Annals of medicine and surgery (2012).* 2022;73:103209. doi: 10.1016/j.amsu.2021.103209.
- [6] Cervantes Pérez E, Cervantes Guevara G, Cervantes Pérez G, Cervantes Cardona GA, Fuentes Orozco C, Pintor Belmontes KJ, et al. Diagnostic utility of the serum-ascites albumin gradient in Mexican patients with ascites related to portal hypertension. *JGH open : an open access journal of gastroenterology and hepatology.* 2020;4(5):838-42. doi: 10.1002/jgh3.12404.
- [7] Biggins SW, Angeli P, Garcia-Tsao G, Ginès P, Ling SC, Nadim MK, et al. Diagnosis, Evaluation, and Management of Ascites, Spontaneous Bacterial Peritonitis and Hepatorenal Syndrome: 2021 Practice Guidance by the American Association for the Study of Liver Diseases. *Hepatology (Baltimore, Md).* 2021;74(2):1014-48. doi: 10.1002/hep.31884.
- [8] Huang LL, Xia HH, Zhu SL. Ascitic Fluid Analysis in the Differential Diagnosis of Ascites: Focus on Cirrhotic Ascites. *Journal of clinical and translational hepatology.* 2014;2(1):58-64. doi: 10.14218/jcth.2013.00010.
- [9] Esguerra-Paculan MJA, Soldera J. Hepatobiliary tuberculosis in the developing world. *World journal of gastrointestinal surgery.* 2023;15(10):2305-19. doi: 10.4240/wjgs. v15.i10.2305.
- [10] Garmpis N, Damaskos C, Garmpi A, Liakea A, Mantas D. The Unexpected Diagnosis of Hepatic Tuberculosis in an Immunocompetent Patient. *Case Rep Surg.* 2020; 2020:7915084. doi: 10.1155/2020/7915084.
- [11] Pham AT, Dang QH, Dang KK, Nguyen ATM, Truong CM, Nguyen KT. Extrahepatic biliary tract tuberculosis: A case report and literature review. *International journal of surgery case reports.* 2024;118:109602. doi: 10.1016/j.ijscr.2024.109602.
- [12] Siagian N, Arfijanto MV. Diagnostic Challenge Of Peritoneal Tuberculosis In Woman With Ascites. *Biomolecular and Health Science Journal.* 2020;3(1):49-52. doi: 10.20473/bhsj.v3i1.19131.
- [13] Yandi IKR, Koesoemoprodjo W. An Indonesian female with peritoneal tuberculosis mimicking ovarium carcinoma: A rare case. *International journal of surgery case reports.* 2023;109:108493. doi: 10.1016/j.ijscr.2023.108493.
- [14] Wesnawa MADP, Kusmiati T. Drug Induced Hepatitis pada Tuberkulosis Paru dengan Multisite Tuberkulosis Ekstraparu : [Drug-Induced Hepatitis in Mixed Pulmonary and Extrapulmonary Tuberculosis]. *Jurnal Respirasi.* 2019;5(2):34-40. doi: 10.20473/jr.v5-I.2.2019.34-40.