A case of isolated hepatic tuberculosis in an immunocompromised patient

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Introduction

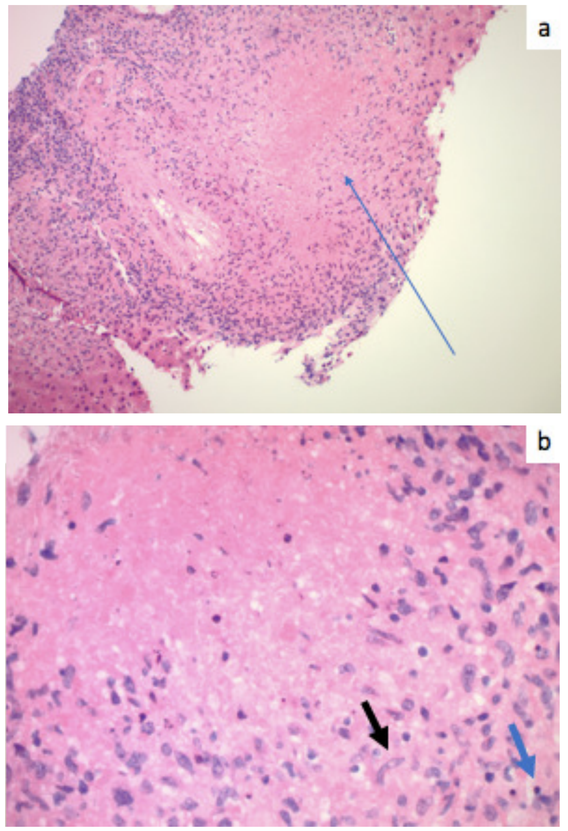
Primary hepatic tuberculosis (TB) is a rare clinical entity with non-specific clinical and imaging features that can mimic other liver diseases, representing a diagnostic challenge. Here, we present the case of a patient with human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) who developed fevers of unknown origin and elevated liver enzymes. Liver biopsy was key to diagnosis as it revealed necrotizing granulomas consistent with tuberculous hepatitis.

Case Presentation

The patient is a 54-year-old female with uncontrolled HIV/AIDS (CD4 count 6/1%) who presented with fever, encephalopathy, and abdominal pain. She was febrile to 38, tachycardic to 103, blood pressure 144/115, 96% on room air. She was ill-appearing, altered, nonverbal, with epigastric and lower abdominal tenderness on exam. Complete metabolic panel, complete blood count, lipase, and lactic acid were all within normal limits on presentation. CT of the abdomen and pelvis was unrevealing.

On admission, she was found to have community acquired pneumonia, a urinary tract infection, a pulmonary embolism, and HIV-associated neurocognitive disorder. She was started on antiretrovirals and improved until she developed fevers of unknown origin and newly elevated liver enzymes (aspartate transaminase 400s, alanine aminotransferase 300s, alkaline phosphatase 1200s, total bilirubin 12.4, direct bilirubin 7.1) over the course of her prolonged hospitalization. A hepatic workup was largely unrevealing for etiology. Hepatitis panel, drug panel, cytomegalovirus, and Epstein-Barr virus were all negative. Autoimmune workup was weakly positive for anti-nuclear antibody and anti-smooth muscle antibody, but these were felt to be clinically insignificant due to low titers. The patient was also trialed on intravenous steroids with little improvement, further arguing against the diagnosis of autoimmune hepatitis. Liver biopsy revealed necrotizing caseating granulomas favored to be tuberculous over necrotizing sarcoid by pathology. She started tuberculosis therapy (with levofloxacin instead of pyrazinamide to minimize hepatotoxicity) and tolerated it well.

Pathology



a) Lobular necrotizing granuloma; b) Center of necrotizing granuloma with histiocytes (black arrow) and lymphocytes (blue arrow)

Case Discussion

Primary hepatic tuberculosis with no clinical extrahepatic manifestations is a rare presentation and sporadically reported in the literature.

The incidence of hepatic TB remains unknown, likely due to unfamiliarity of the disease, since historically most hepatic TB was diagnosed upon surgery or autopsy [1]. The proportion of extra-pulmonary TB, which includes hepatic TB, has increased in the last 30 years, due largely to increases in the global prevalence of HIV/AIDS [2]. In a study of 164 patients with disseminated TB, hepatic TB was observed in 17.4% (4/23) of HIV-infected people and 4.3% (6/141) of HIV-uninfected people [3].

Case Discussion (cont.)

In a systematic review of 618 hepatic TB patients, the most common reported signs and symptoms of hepatic TB were hepatomegaly, fever, respiratory symptoms, abdominal pain, and weight loss [4]. Common laboratory abnormalities were elevated alkaline phosphatase and gamma-glutamyl transferase. Imaging studies showed variable non-specific findings, ranging from hepatosplenomegaly, multiple hepatic nodules, abscess formation, to normal findings. [5] On liver biopsy, smear microscopy for acid-fast bacilli had a median sensitivity of 25% (range: 0-59%), histology of caseating granulomas had a median sensitivity of 68% (range: 14-100%), and polymerase chain reaction for TB had a median sensitivity of 86% (range: 30-100%). [4]

Conclusions

This clinical case highlights the diagnostic difficulty of hepatic tuberculosis, which should be considered in immunocompromised patients with elevated liver enzymes and unrevealing initial workup. Liver biopsy is essential for diagnosis.

References

[1] Oliva A, Duarte B, Jonasson O, Nadimpalli V. The nodular form of local hepatic tuberculosis: a review. *J Clin Gastroenterol.* 1990;**12**:166–173. doi: 10.1097/00004836-199004000-00011.

[2] Leeds IL, Magee MJ, Kurbatova EV, del Rio C, Blumberg HM, Leonard MK, et al. Site of extrapulmonary tuberculosis is associated with HIV infection. *Clin Infect Dis.* 2012;**55**:75–81. doi: 10.1093/cid/cis303.

[3] Wang JY, Hsueh PR, Wang SK, Jan IS, Lee LN, Liaw YS, et al. Disseminated tuberculosis: a 10-year experience in a medical center. *Medicine.* 2007;**86**:39–46. doi: 10.1097/MD.0b013e318030b605.

[4] 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 May 6;15:209. doi: 10.1186/s12879-015-0944-6. PMID: 25943103; PMCID: PMC4425874.

[5] Hwang SW, Kim YJ, Cho EJ, Choi JK, Kim SH, Yoon JH, Kim CY, Lee HS. [Clinical features of hepatic tuberculosis in biopsy-proven cases]. Korean J Hepatol. 2009 Jun;15(2):159-67. Korean. doi: 10.3350/kjhep.2009.15.2.159. PMID: 19581768.