TB or not TB, that is the question: A Case of Granulomatous Hepatitis

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Learning Objectives

- Identify and diagnose granulomatous hepatitis
- Recognize the limitations of diagnostic testing
- Explore the importance of clinic reasoning in the setting of inconclusive test results

Introduction

Granulomatous hepatitis is characterized by the presence of granulomas within the liver parenchyma. This disease has multiple etiologies, however, in the US primary biliary cholangitis and sarcoidosis are most common, with tuberculosis (TB) being most prevalent worldwide. Despite TB being a leading cause of granulomatous hepatitis globally, it is exceedingly rare to have presentation of this disease isolated in the liver without the presence of pulmonary or disseminated infection. Increased awareness of this presentation, especially in HIV/AIDs patients can lead to a decrease in unnecessary testing and procedures as well as, efficient resource allocation.

Case Description

A 53-year-old female with a history of HIV, not on antiretrovirals (ARVs), presented with fever for several days, and was found to be septic secondary to community acquired pneumonia. After treatment and resolution of her acute illness, the decision was made to restart the patient on ARVs. The patient was doing well for several days; awaiting placement, and suddenly developed fever of unknown origin and transaminitis. Leading differentials at the onset of symptoms included immune reconstitution inflammatory syndrome, drug-induced liver injury, and autoimmune hepatitis. However, initial workup was largely unrevealing. Labs were revealing for an elevated ANA and anti-smooth muscle antibody, however, given the low titer and mild improvement with steroids it was determined that an autoimmune etiology was unlikely. Additional workup led to liver biopsy which was revealing for necrotizing granulomas favored to be tuberculous over necrotizing sarcoidosis by pathology (Figure 1). AFB stain and PCR were negative.

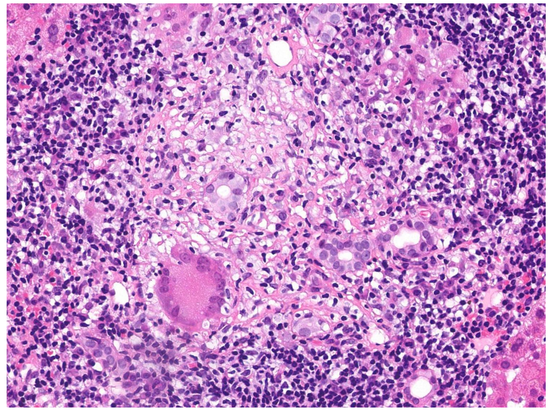

Figure 1. Histology of the liver displaying a caseating granuloma consistent with TB.

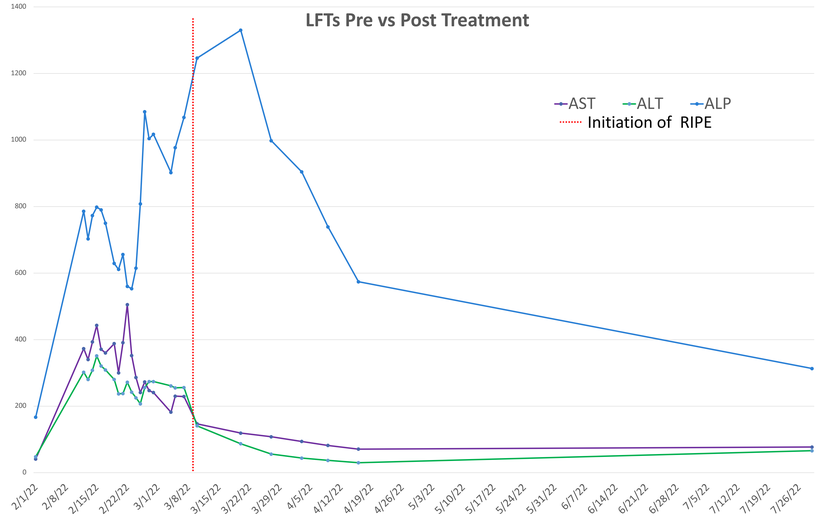

Figure 2. Elevated LFTs from onset of illness to initiation of treatment to post treatment.

Management

In the case most of the workup of the patient's condition was largely unrevealing. Elevated ANA anti-MAB did not meet the threshold to suggest an autoimmune etiology. Acid fast bacillus stain was negative. However, given the clinical context, and pathology findings it was determined that the most likely etiology of the patient's illness was granulomatous hepatitis secondary to tuberculosis. patient started empiric therapy for TB, with rifampin, isoniazid, pyrazinamide, and ethambutol for 9 months duration. After initiation of therapy and subsequently had a significant decrease in her transaminases (Figure 2).

Discussion

The diagnosis of granulomatous hepatitis presents a challenge given the multiple etiologies of the disease. This difficulty is confounded in the setting of HIV/AIDs patients, and when the underlying causes is from TB without pulmonary or disseminated TB infection. Diagnosis requires liver biopsy, with the initial analysis including direct microscopic visualization, and AFB staining. The problem that arose in this case is that tissue stains have a relatively low sensitivity of ~72.7% (Laga et al., 2014), and PCR with a sensitivity of 55% to 88% (de Mello & Ferreira Alves, 2018). It is important for providers to acknowledge that these diagnostic test are not infallible, and at times the clinic context and medical history surrounding the patient can be the most important factor in clinical decision making when these test fail to yield the expected results.

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