Abnormal Liver Function Tests in an Immunocompetent Patient with Severe Babesiosis

Julianna Tantum, DO[1], Andrew Bensinger, DO[2], Patricia Wong, MD, MSCE, FACP[2]

1. Department of Internal Medicine, Lankenau Medical Center, Wynnewood, PA
2. Department of Gastroenterology, Lankenau Medical Center, Wynnewood, PA

Introduction

Babesiosis is a tick-borne illness that is caused by the *Babesia* parasite. Babesiosis can result in liver injury and abnormal liver enzymes. This case outlines the importance of considering tick-borne infections as a potential cause of abnormal liver enzymes, particularly in regions with a higher incidence of ticks, such as the Northeastern US.

Case Presentation

A 61-year-old male with a history of hyperlipidemia presented with fevers, right upper quadrant abdominal pain, nausea, anorexia, and 10-pound weight loss. He was febrile to 103.1°F and systolic blood pressure ranged from 80 to 90's. His exam was notable for a soft, non-tender abdomen with no obvious organomegaly. His skin was non-jaundiced and no rash was present. Labs were notable for AST 163 IU/L, ALT 203 IU/L, alkaline phosphatase 184 IU/L, total bilirubin 3.7 mg/dL, direct bilirubin 1.7mg/dL, WBC 3.5 K/uL, hemoglobin 11.8 g/dL, platelets 35 x 10^9/L. CT abdomen and pelvis and MRI abdomen showed an enlarged fatty, mildly lobulated liver, cholelithiasis with distended gallbladder, no biliary ductal dilation and mild splenomegaly (Image 1A &1B). Peripheral blood smear showed *Babesia* with 4% parasitemia. Atovaquone and azithromycin were initiated. Lyme IgM antibodies were positive and doxycycline was added. LDH levels were high and haptoglobin was low, consistent with hemolysis. His liver enzymes peaked at an AST 436 IU/L, ALT 316 IU/L, alkaline phosphatase 235 IU/L, total bilirubin 5.8 mg/dL, direct bilirubin 3.8 mg/dL. Viral hepatitis serologies, iron studies, ceruloplasmin, alpha 1 antitrypsin were all normal. His symptoms resolved and liver enzymes normalized within 6 weeks.

Figures

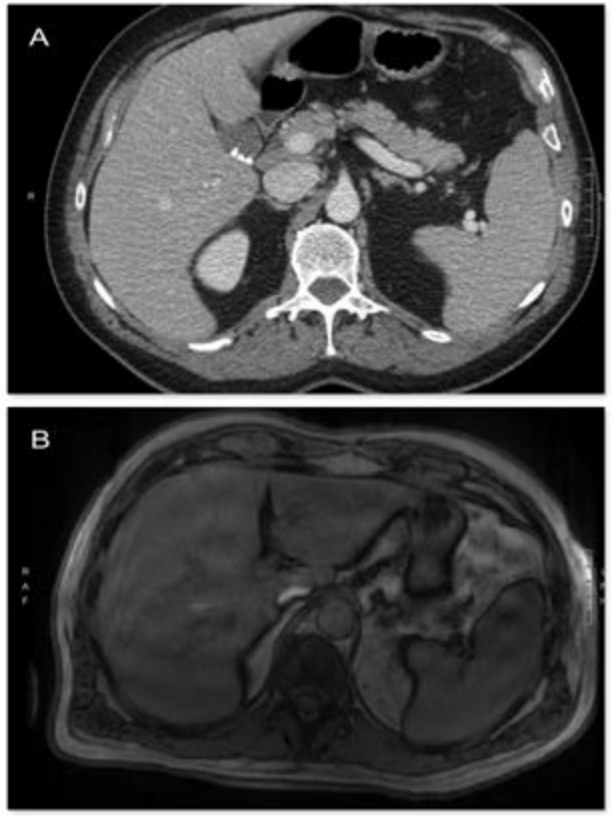

Image 1A. Computed Tomography (CT) of the abdomen and pelvis with hepatosplenomegaly and cholelithiasis.
Image 1B. Magnetic Resonance Imaging (MRI) of the abdomen and pelvis showing cholelithiasis, no evidence of ductal dilation, and splenomegaly.

Discussion

Babesiosis is a zoonotic infection that is transmitted by the *Ixodes* tick. Symptoms are variable, depending on the infected patient's age and immunocompetence. Patients with babesiosis often do not recall a preceding tick bite or rash. Patient may be completely asymptomatic or develop severe hemolytic anemia, DIC, renal failure, sepsis, and pulmonary edema. Gastrointestinal symptoms are common, and may include nausea, vomiting, abdominal pain, and anorexia. Mild liver enzyme abnormalities may be seen, but severe elevations are uncommon. There are a few case reports of acute liver failure associated with Babesiosis.

This case highlights the importance of considering tick borne infections as a cause of elevated liver enzymes in patients who are at risk for exposure. Obtaining a careful history for tick-borne exposures during summer months in the Northeast and Midwest is important, as outlined in this case.

References

1. Ord RL, Lobo CA. Human Babesiosis: Pathogens, Prevalence, Diagnosis and Treatment. *Curr Clin Microbiol Rep*. 2015; 2(4): 173-181.
2. Zaidi SA, Singer C. Gastrointestinal and Hepatic Manifestations of Tickborne Diseases in the United States. *Clin Infect Dis.* 2002; 34(9): 1206-1212.