A Case of Babesiosis seen outside of its endemic area and outside of its incubation period

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Introduction

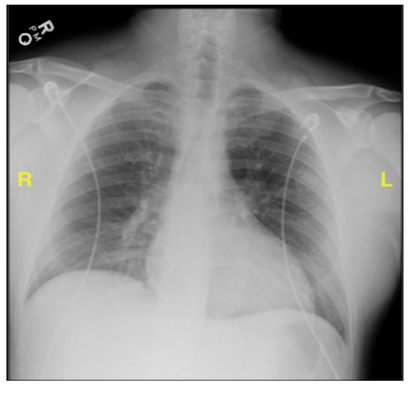
Babesiosis Microti is a parasitic alveolate that is usually transmitted by Ixodes scapularis ticks. In the United States, the endemic areas of Babesiosis include the Northeast and Upper Midwestern regions [1]. Symptoms include fever, malaise, fatigue, vomiting, and jaundice [1]. Current therapy primarily consists of a combination of azithromycin and atovaquone. Clindamycin and quinine may be administered in severe cases. For its emerging health risk worldwide, clinicians must be aware of the several presenting manifestations of babesiosis. Since 2017, the Centers Disease Control and Prevention (CDC) has deemed Babesiosis is a reportable disease. This case focuses on the importance of recognizing Babesiosis outside of its endemic area, and that was past the average incubation period associated of 1-9+ weeks.

Case Report

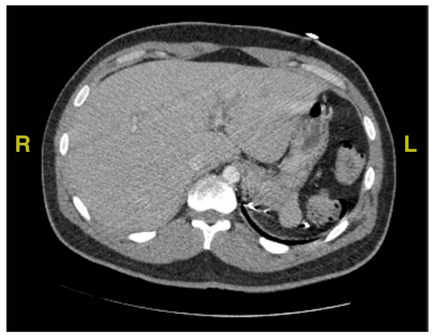
The patient is a 29-year-old Hispanic male who presented at the emergency department (ED) with fever of four days duration. Patient initially presented to the hospital with fever of 102-103 degrees. He reported he was weak and felt like he had the flu. Patient provided a past medical history of hereditary spherocytosis following splenectomy at age 3. Laboratory investigation revealed initial hemoglobin concentration of 9.3 g/dl that dropped to 6.7 g/dl within 5 hours at ED. He was admitted to the intensive care unit (ICU) and monitored for hemolysis and fever. Upon further history taking, he reported he had travelled to Cape Cod, Massachusetts about 9-10 weeks prior to presentation. At the ICU he was transfused one unit of blood. Hemolysis workup revealed low haptoglobin, high serum lactate dehydrogenase, and high ESR. While in the ICU he was started on quinine, which resulted in adverse side effects such as headache, tinnitus, and blurred vision. The patient was then to atovoqone, clindamycin, and azithromycin. After the initial blood transfusion, his hemoglobin increased from 6.7 g/dl to 7.9 g/dl. The patient complained of occasional malaise and weakness at times, but tolerated his meals and slept well. His chest X-ray was normal and a computerized tomography (CT) scan of the abdomen revealed some mild peri-portal edema suggestive of inflammation of the liver along with hepatomegaly (Figure 1 and Figure 2, respectively). Status post initial blood transfusion the patient's hemoglobin level reduced again from 7.9 to 6.8 g/dl. Another unit of blood was prepped and transfused. This brought the hemoglobin level to 7.8 g/dl and the level remained stable, and continued to rise. The patient's symptoms improved and he was downgraded to the floor where he was discharged to complete a 7- day course of oral clindamycin and azithromycin.

Imaging & Pathology

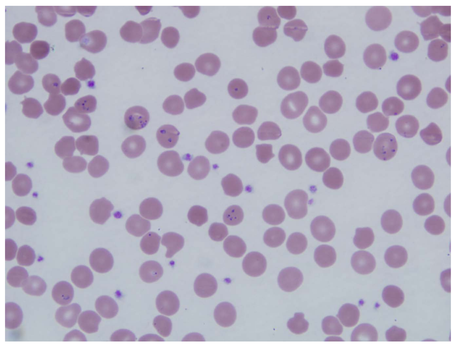
A



B



C



List Image Captions
A. Chest X-Ray
B. CT Scan of the Abdomen
C. Peripheral Blood Smear

Discussion

Babesia Microti infection has been on the rise in the last couple of years [2]. National notifiable parameters added Babesiosis to the National Notifiable Conditions in 2011 which made the documentation of the disease further recognizable [3]. Although babesiosis is not considered a significant health concern in Florida, it was designated a reportable disease in 2017 [3]. Our case of babesiosis was documented and the CDC was notified.

Our patient had a history of travelling to an area that has high concentration of ixodes tick carrying Babesia Microti. It was initially thought that the patient suffered from a malaria-borne illness. Diagnostic workup for each these cases similar to ours, included complete blood workup, basic metabolic panel, hemolytic profile including haptoglobin, reticulocyte count along with peripheral smear. Our case represented maltese cross on presentation of the peripheral smear which was not seen in the case by Stahl et al. in the beginning, as they had to use DNA amplification to localize the Babesia sequencing on the DNA particle. One very crucial point is the travel history which helped narrow down the differential between the numerous tick-borne illnesses. Both cases mentioned above on literature review mention that the pathologist came to the conclusion early upon initial peripheral smear review to show Plasmodium Falciparum infection. Both parasites, falciparum and babesia, are often seen in ring forms with blue cytoplasm with red chromatin within the red blood cells and the chances of finding a maltese cross that is specific to Babesia infection is rare [6]. Patients with babeosis are usually discharged with no residual symptoms.

Clinicians need to be aware of babesiosis in endemic and non-endemic parts of the country. A detailed travel history is crucial for diagnosis and treatment (Kunimoto et al, Stahl et al.). While most cases of babieosis may appear to be subclinical; however, symptomatic cases are more likely in asplenic patients (Kunimoto et al.). Our patient presented with symptoms and gave a past medical history of splenectomy. When symptomatic, patients may present with nonspecific symptoms such as headache, muscle aches, fever, and fatigue (Kunimoto et al.,). In asplenic patients such as our reported case current treatment consists of atovaquone and azithromycin or clindamycin and quinine as an alternative treatment for severe disease along with blood transfusion (Kunimoto et al.).

Conclusion

Clinicians should have a heightened awareness of babesiosis as it can present in nonendemic areas. Thorough travel history should be elicited during initial interviewing of the patient. As such the differential diagnosis of Babesiosis should still be considered even if seen outside its incubation period. Coinfection with other Ixodes-borne pathogens in any patient with babesiosis must be thoroughly investigated while working up for the Babesia primary infection as the clinical course can rapidly deteriorate. Severe disease may occur in immunocompromised hosts as seen in our patient with a past surgical history of splenectomy.

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