Babesiosis: An Under-Recognized Tick Bourne Illness

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Babesiosis: An Under-Recognized Tick Borne Illness

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ABSTRACT:
Introduction—Tick borne illnesses, namely Lyme disease, are common in Eastern Pennsylvania. In the summer months, Lyme is frequently isolated in the differential for any febrile illness. Babesiosis, while rare, is a clinically significant infection present in the Northeastern United States and Upper Midwest. While most tick borne illnesses are treated with doxycycline, appropriate treatment for babesiosis is atovaquone and azithromycin in mild disease and clindamycin and quinine in severe disease (or in immunocompromised states (HIV, cancer, transplant patients, patients on biologics) increase risk for severe illness, multi-organ failure may occur. Definitive diagnosis is made by examining at the thin blood smear in which intracellular protozoa are present. The “Mattice cross” pattern may be present. Serology is non-diagnostic but can be used to determine chronic disease. Treatment should not be given for asymptomatic patients but may be considered if paraesthesia is chronic. Mild disease is typically treated with atovaquone and azithromycin. In severe disease, typical treatment consists of cinnamycin and quinine. Treatment is typically for 7-10 days. In severe disease, exchange transfusion may be considered. It is important to note that babesiosis is not covered by doxycycline, which is commonly prescribed for other tick borne illnesses. This is important as ticks may serve as vectors for multiple organisms and doxycycline may not be appropriate as sole empiric therapy.

INTRODUCTION:
The following case demonstrates the importance of including babesiosis, an under-recognized tick borne illness, in the differential diagnosis for summer fever in areas with a high prevalence of ixodid ticks (such as Eastern Pennsylvania).

CASE REPORT:
A 43 year old male presented to the ER in July with eight days of fevers, chills, and congestion with a “sinus headache”. He noted that he spends much of his time outdoors in the Northeastern United States and Upper Midwest.

PHYSICAL EXAM:
Vital signs: T: 102.9, BP 151/83, HR:19, RR: 19, 99% RA
General: II appearing
HEENT: PERLA, no sceral icterus, no sinus tenderness, no pharyngeal erythema or exudates. No enlarged tonsils
Neck: Supple without thyromegaly
Chest: No rales or wheezes
Lungs: Clear to auscultation
CV: Mildly tachycardic, +S1/S2, no murmurs, rubs, gallops
Resp: No chest indrawing
Gastrointestinal: No bowel sounds, no hepatosplenomegaly
Extremities: No clubbing, cyanosis, or edema
Lymph: No lymphadenopathy
Neurologic: No focal deficits
Skin: No rash present
Musculoskeletal: No active synovitis
Psychiatric: Mood appropriate

CLINICAL COURSE:
The patient was admitted to the hospital. He was given IVF and started on empiric doxycycline for questionable Lyme disease vs. ehrlichiosis/anaplasmosis (given leukopenia) and selected serologies were sent. He continued to have fevers and myalgias despite being on doxycycline. He was seen by infectious disease who requested a blood smear for parasites and added babesia serologies. The blood smear was positive for babesia and the patient was started on azithromycin and atovaquone. Doxycycline was initially continued as there was a concern for concomitant Lyme disease vs. ehrlichiosis/anaplasmosis (given leukopenia) and started on empiric doxycycline for questionable Lyme disease.

DISCUSSION:
Babesiosis is caused by protozoa of the genus Babesia. These protozoa are mostly transmitted by ticks while most tick borne illnesses are treated with doxycycline, appropriate treatment for babesiosis is atovaquone and azithromycin in mild disease and clindamycin and quinine in severe disease (or in immunocompromised states (HIV, cancer, transplant patients, patients on biologics) increase risk for severe illness, multi-organ failure may occur. Definitive diagnosis is made by examining at the thin blood smear in which intracellular protozoa are present. The “Mattice cross” pattern may be present. Serology is non-diagnostic but can be used to determine chronic disease. Treatment should not be given for asymptomatic patients but may be considered if paraesthesia is chronic. Mild disease is typically treated with atovaquone and azithromycin. In severe disease, typical treatment consists of cinnamycin and quinine. Treatment is typically for 7-10 days. In severe disease, exchange transfusion may be considered. It is important to note that babesiosis is not covered by doxycycline, which is commonly prescribed for other tick borne illnesses. This is important as ticks may serve as vectors for multiple organisms and doxycycline may not be appropriate as sole empiric therapy.

CONCLUSION (KEY POINTS):
In conclusion, it is important to consider babesiosis in a patient who presents with flu like symptoms in the summer months especially if the patient has known tick exposure. This is especially true in the Northeastern United States and Upper Midwest. It is also important to realize that while most tick borne illnesses are treated with doxycycline, appropriate treatment for babesiosis is atovaquone and azithromycin in mild disease and clindamycin and quinine in severe disease (or in immunocompromised states (HIV, cancer, transplant patients, patients on biologics) increase risk for severe illness, multi-organ failure may occur. Definitive diagnosis is made by examining at the thin blood smear in which intracellular protozoa are present. The “Mattice cross” pattern may be present. Serology is non-diagnostic but can be used to determine chronic disease. Treatment should not be given for asymptomatic patients but may be considered if paraesthesia is chronic. Mild disease is typically treated with atovaquone and azithromycin. In severe disease, typical treatment consists of cinnamycin and quinine. Treatment is typically for 7-10 days. In severe disease, exchange transfusion may be considered. It is important to note that babesiosis is not covered by doxycycline, which is commonly prescribed for other tick borne illnesses. This is important as ticks may serve as vectors for multiple organisms and doxycycline may not be appropriate as sole empiric therapy.