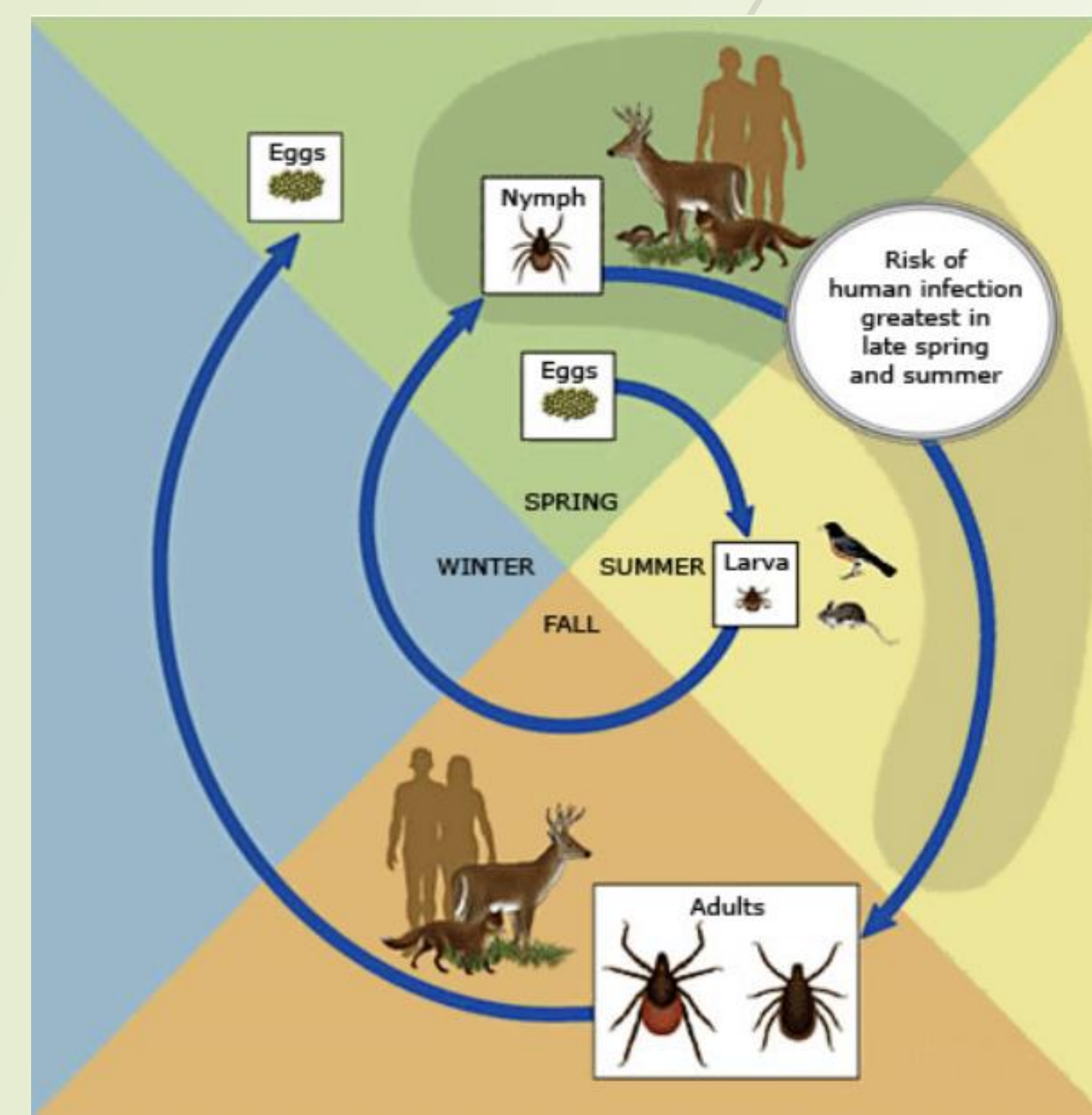


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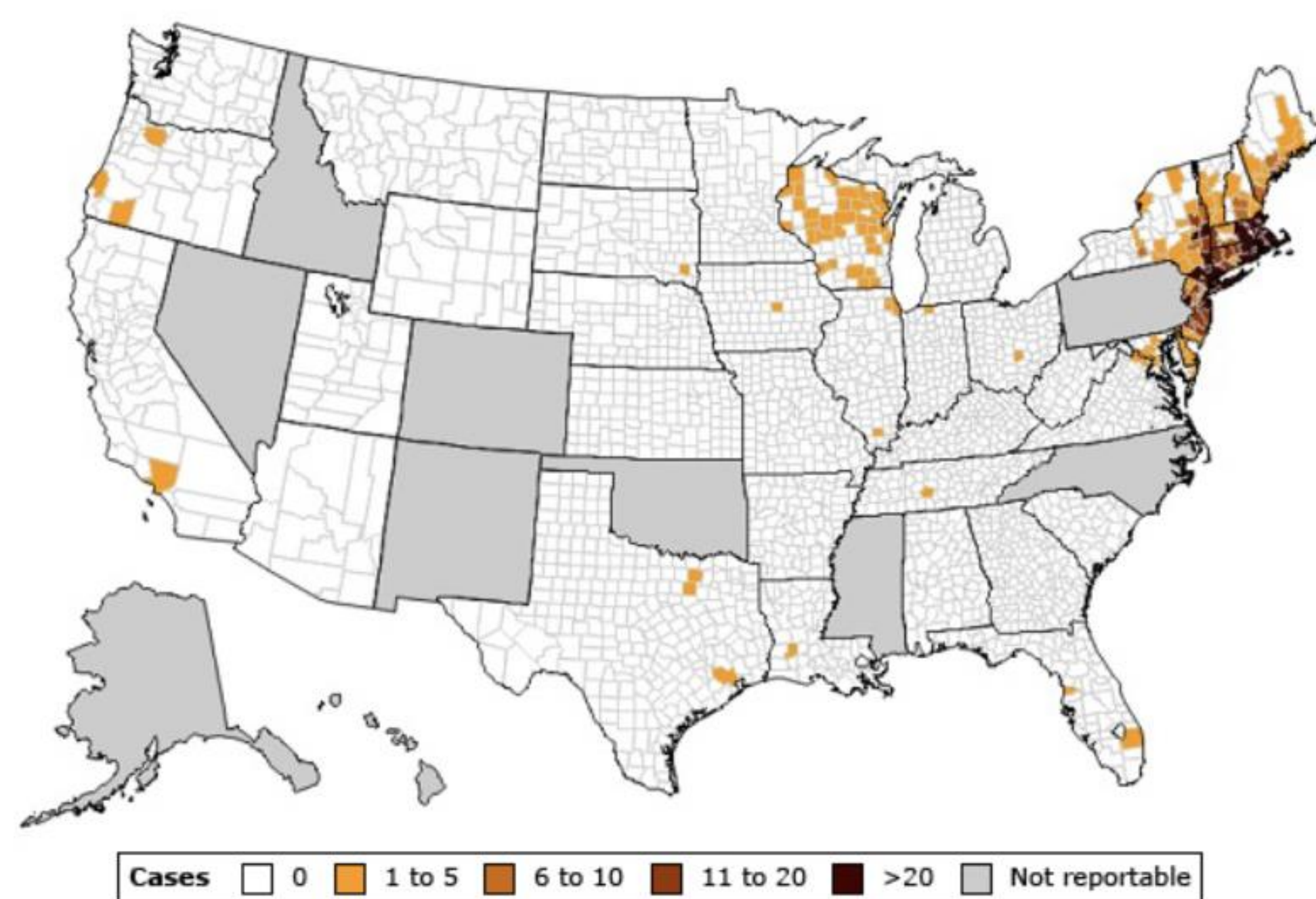
Introduction

The incidence of Babesiosis, caused primarily by *Babesia microti* and *Babesia duncani*, has risen by 25% since 2011, recently spreading further south into the Mid-Atlantic region in 2019. It is extremely important to recognize the signs and symptoms of this pathogen because, when left untreated, it has shown to have a fatality rate upwards of 20%. Through this poster and case, we hope to provide further insight into making a Babesiosis diagnosis and examine the potential exacerbation of underlying chronic infection.



Epidemiology

- *Babesia microti* infects RBCs
- Found in Northeast and Upper Midwest in spring/summer
- Spread infected tick bite – *Ixodes scapularis*
- Less commonly spread via blood transfusion or congenitally
- Cannot be transmitted person-to-person
- Nymph “blood meal” in woods brush, grass, and on animals
- Tick must be attached for 24-36 hours before transmission
- 20% of adults and 50% of children are asymptomatic
- Typical symptoms: flu-like illness with headache, myalgias, nausea, vomiting, fever, abdominal pain, and dehydration
- Immunosuppressed/elderly = more severe complications
- Presents weeks to months after exposure



Case Presentation

History of Present Illness

78 y/o male Delaware farmer with a PMHx significant for obstructive sleep apnea and hypertension. Noted generalized weakness, fever, shaking chills for one week, as well as new onset hematuria in January. No recent travel or blood transfusions within the past six months.

Physical Exam

No pertinent physical findings were noted. Unremarkable vital signs. Ticks patient brought in from prior extraction sent out for identification of pathogens.

Initial Investigations

Marked thrombocytopenia, hemolytic anemia, elevated BUN, and elevated creatinine. Chest x-ray and EKG unremarkable. UA cloudy/amber with 3+ blood (>100 RBC's), 2+ protein, >100 WBC's, bacteria/mucous, & amorphous crystals. Started fluid resuscitation, empiric treatment with IVPB Rocephin 2 gm daily. Found incidentally to be COVID-19 positive.

Hospital Course

New onset A-fib with RVR with persistent tachycardia. Worsening thrombocytopenia, hemolytic anemia, acute kidney injury, transaminitis. Parasitemia found on Peripheral blood smear suspicious for *Babesia* infection (as shown below). Empiric therapy: Azithromycin 500 mg IVPB and Atovaquone 750 mg BID PO. Lyme and Ehrlichia disease prophylaxis: Rocephin 2 gm daily and doxycycline 100 mg BID, respectively. Confirmatory PCR: positive *Babesia Microti* infection. Negative for co-infection with other blood parasites and tick-borne pathogens. Acute DVT in the LLE with marked splenomegaly, likely due to hypercoagulability from *Babesia* infection. Ticks sent out for analysis. Found to likely be *Dermacentor variabilis/andersoni*.

Discussion

It is crucial that Babesiosis be considered on the differential diagnosis in patients presenting with symptoms consistent with tick-borne illness, regardless of the time of year. Our patient, who presented in January, highlighted the potential chronicity of Babesiosis infection and the exacerbation of it from comorbid conditions. COVID-19 has been found to exacerbate chronic babesiosis in immunocompromised hosts³. Furthermore, our patient's hematuria and UA findings demonstrated the hemolytic nature of babesiosis, which has been found to promote hypercoagulability and be a potential source of disseminated intravascular coagulation with hemophagocytic lymphohistiocytosis⁴. Our patient's new-onset atrial fibrillation with rapid ventricular response can also be explained by the positive correlation of cardiac arrhythmias and complications with babesiosis infection⁶. While all of this typically occurs in elderly/immunocompromised hosts, further research is needed to elucidate this correlation. Babesiosis cases are on the rise and spreading to different geographic regions, so we must have heightened awareness of this potentially fatal condition if left untreated!

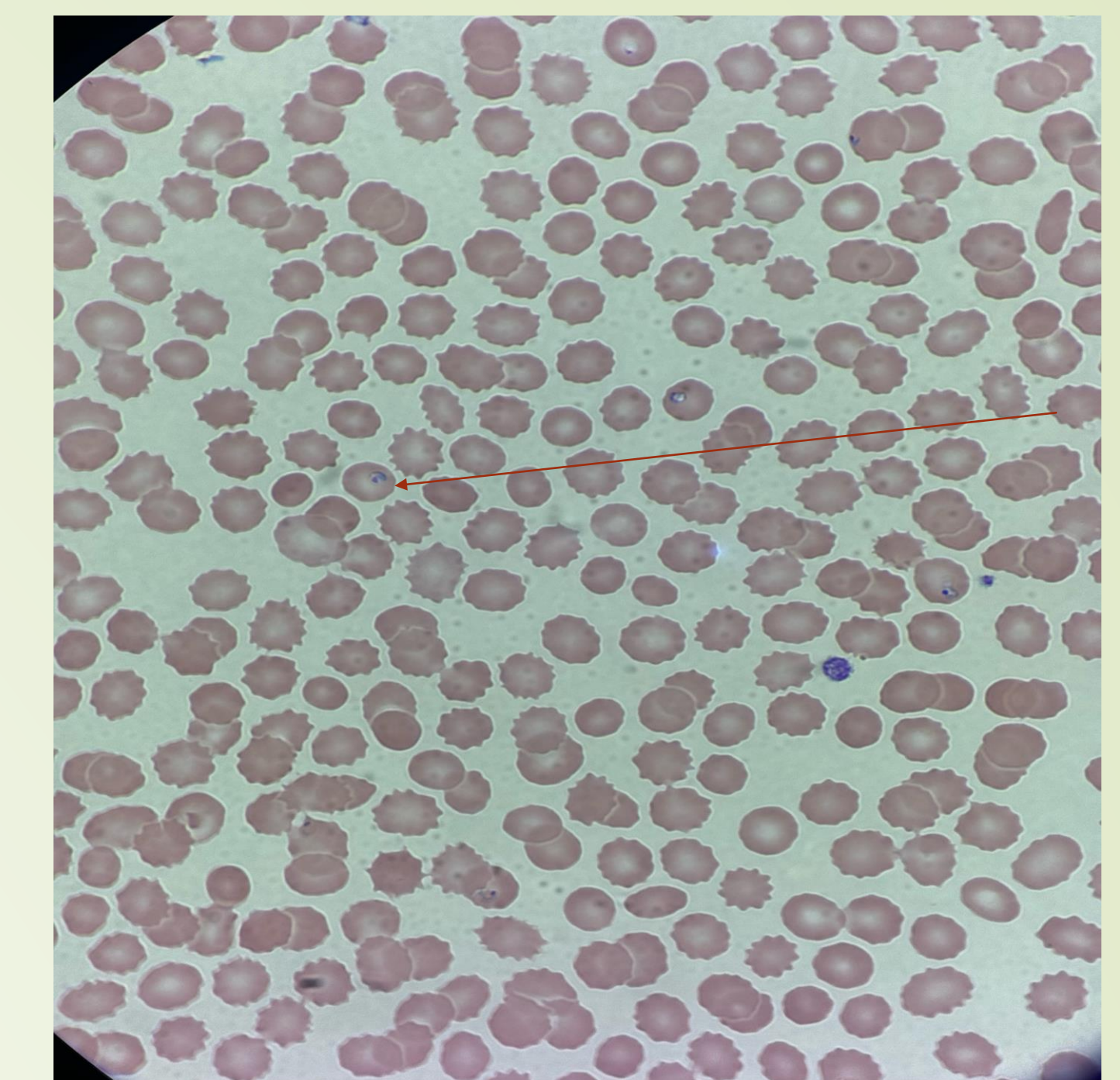


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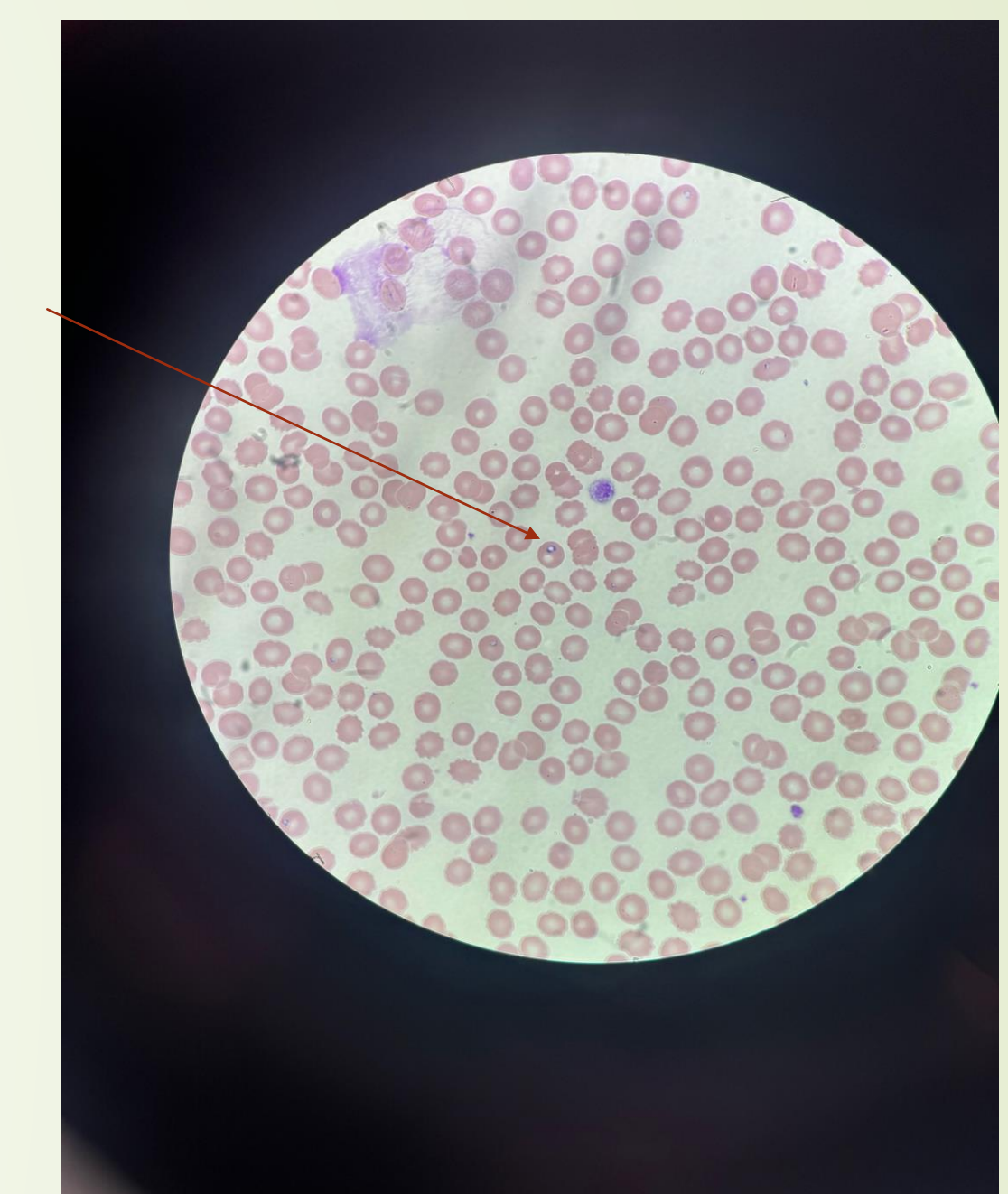
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Parasitemia can be seen within the red blood cells, with characteristic lack of brown pigmentation and absence of synchronous stages, mostly located at the periphery (red arrows). Rarely, you may find the presence of tetrads with babesiosis.



Diagnosis/Management/Prevention

Diagnosis

- Peripheral blood smear, PCR confirmation, IgG antibody

Treatment

- Mild-Moderate:
 - Azithromycin 500 mg PO, then 250 mg PO daily AND Atovaquone 750 mg PO q12 hr OR
 - Clindamycin 600 mg PO q8hr AND Quinine Sulfate 600 mg PO q8hr
- Severe:
 - Azithromycin 500 mg IV AND Atovaquone 750 mg PO q8hr
 - Clindamycin 600 mg IV q6 hr AND Quinine Sulfate 650 mg PO q8 hr

Duration of Treatment

- 7-10 days, or longer if parasitemia persists

Prevention

- Avoid woods, leaf litter, tall grass, and forest edges/tree lines
- Stay on trails, long clothing, permethrin-treated socks/shoes
- Bright colored-clothing allows easier identification of ticks
- DEET, oil of lemon eucalyptus, or picaridin to exposed skin
- Skin self-exam after exposure to tick habitats

Removal

- Utilize tweezers, pull outward to remove tick
- Cleanse and decontaminate area. Wash hands