Malaria Mimicker on the Rise

Razan Al-Sharkawi

Department of Medicine, Dalhousie University

LEARNING OBJECTIVES

- To recognize babesiosis as an increasing cause for hemolytic anemia
- To identify the similarities between babesiosis and malaria

EVIDENCE OF CONFLICT OF FINANCIAL INTEREST

	Co-author	Conflict disclosures
1	Razan Al-Sharkawi	none

ACKNOWLEDGEMENTS

- Patient consent granted for presentation.
- Dr Matthew Spear for support with case.

REFERENCES

1. Yang J, Smith C, Battad A. Babesia microti acquired in Canada. *CMAJ*. 2021;193(31):E1213. doi:10.1503/cmaj.201983
2. Gray JS, Ogden NH. Ticks, Human Babesiosis and Climate Change. *Pathogens*. 2021;10(11). doi:10.3390/pathogens10111430
3. Canada, P. H. A. of. (2024, March 26). *Government of Canada*. Canada.ca. https://www.canada.ca/en/public-health/services/diseases/babesiosis/health-professionals/national-case-definition.html

BACKGROUND

- Babesiosis is a parasitic infection caused by the protozoan of the genus Babesia
- The most common disease-causing species in North America is *Babesia microti*
- *Babesia microti* is an intracellular parasite infecting erythrocytes and symptoms can range from asymptomatic to life threatening sepsis
- The primary vector is *Ixodes scapularis*, also known as the black-legged or deer tick

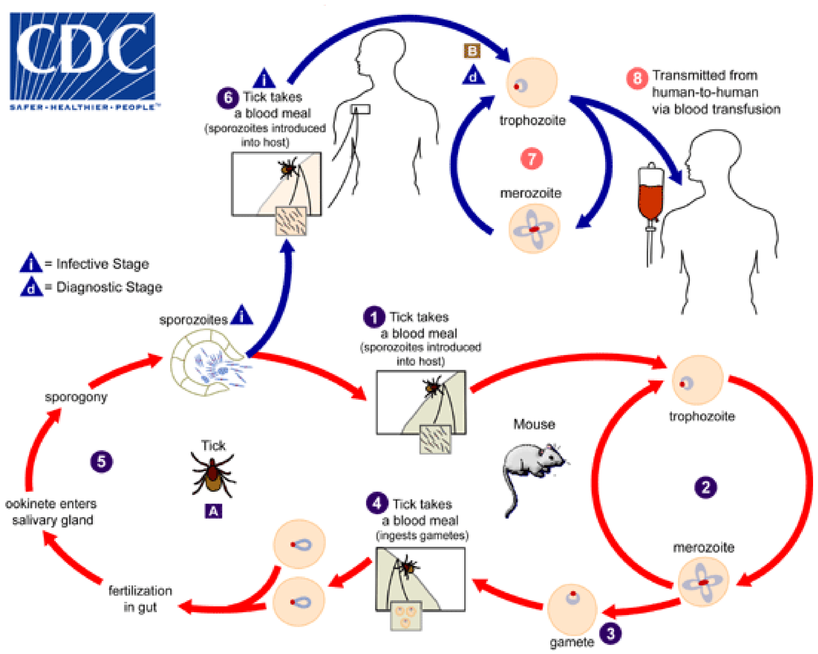

Figure 1 Babesia Lifecycle. Image from CDC

Malaria Mimicker on the Rise

Razan Al-Sharkawi

Department of Medicine, Dalhousie University

DALHOUSIE UNIVERSITY

CASE DESCRIPTION

HISTORY

- 64-year-old male presented to ER in Saint John, New Brunswick after a two-week history of feeling progressively dyspneic with activity, febrile with rigors, fatigued, and lethargic.
- He also described right upper quadrant abdominal pain.
- Travel History:
  - Lived in Northern India up until the 1970s
  - Lived in New Brunswick since Dec 2022 with no recent international travel
  - Recent travel to Nova Scotia 5 days prior to presentation
    - The patient did not recall any tick bites

INVESTIGATIONS

Hgb	Haptoglobin	D-dimer	LDH	Bilirubin
↓	↓	↑	↑	↑
PLT	**CRP**	**ALT**	**Cr**	**Lactate**
↓	↑	↑	↑	↑

- Peripheral blood smear: delicate ring forms with single infection, no extracellular forms or mature stages to assist in differentiation between malarial species or babesiosis.
- CT abdomen: splenic infarcts and mild colitis
- Chest X-Ray: atelectasis and possible basilar consolidation
- Plasmodium PCR negative
- Serum PCR positive for *Babesia microti*

ASSESSMENT & PLAN

- Empirically placed on atovaquone/proguanil and azithromycin to cover for both malaria and babesiosis given the patient's remote history of having lived in a malaria endemic region with potential *Plasmodium vivax* exposure and severity of current illness.
- Plasmodium PCR returned negative, so atovaquone/proguanil was discontinued, and the patient remained on atovaquone and azithromycin for a planned duration of 10 days.
- Eventually, confirmatory test with serum PCR was positive for *Babesia microti*.
- The patient improved clinically, was mobilizing well, and remained afebrile. Lab abnormalities and cytopenia were normalizing.
- Parasitemia levels started at 5% and dropped to <0.1% prior to discharge.

DISCUSSION

- This case illustrates the overlap in lab and smear findings of malaria and Babesia.
- In the context of patients with no travel history suggestive of malaria or with appropriate risk factors, babesiosis should be placed on the differential for otherwise unexplained hemolytic anemia especially given its rise in Canada and the Atlantic provinces.

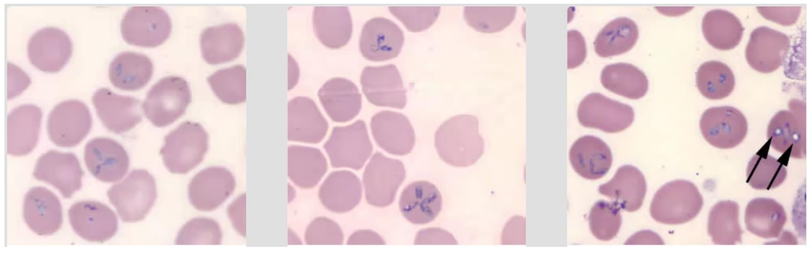

Figure 2 *Babesia microti* in blood smear. Image from CDC

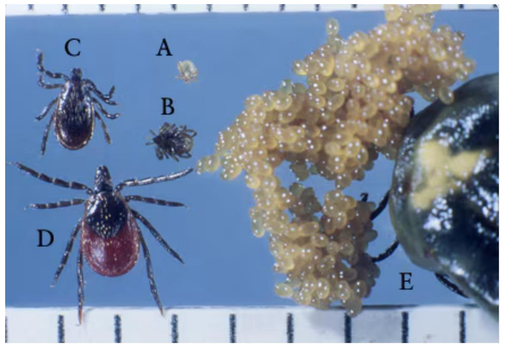

Figure 3 Life stages of *Ixodes Scapularis* A) larva B) nymph C) adult male D) adult (engorged) female E) eggs. Image from CDC