

# Tick Bite: Lyme Disease? Think Again

## A Rare Case of Co-infection of Anaplasmosis and Ehrlichiosis

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### Introduction

- ❑ Anaplasmosis and Ehrlichiosis are tick-borne illnesses transmitted by the bite of the Black Legged tick (*Ixodes scapularis*) and Lone Star tick (Figure 2 & 3)
- ❑ Co-infections with these two diseases are rare

### Case Description

**Demographics:** 74 year old male with h/o Lyme disease presented with new onset atrial fibrillation. He reported a fever in the evenings with temperatures >100.3°F for two weeks.

**Vitals:** temp: 99.2°F, HR: 150, irregular, BP: 130/80

**Pertinent labs:** Pancytopenia, CT abdomen: splenomegaly

#### Hospital course:

- ❑ Non valvular atrial fibrillation resolved with Cardizem
- ❑ Fever spikes continued with T max of 102.2°F
- ❑ Additional history: Tick bite a few days prior to symptom onset. Outpatient testing: negative Lyme antibody levels; treatment deferred.
- ❑ Started empirically on doxycycline and sent for further tests for tick borne illnesses. Test results: positive PCR *Anaplasma phagocytophilum* and IgM antibody against *Ehrlichiosis chaffeensis*.
- ❑ Fever began to subside and pancytopenia improved
- ❑ Discharged on 14 day course of doxycycline

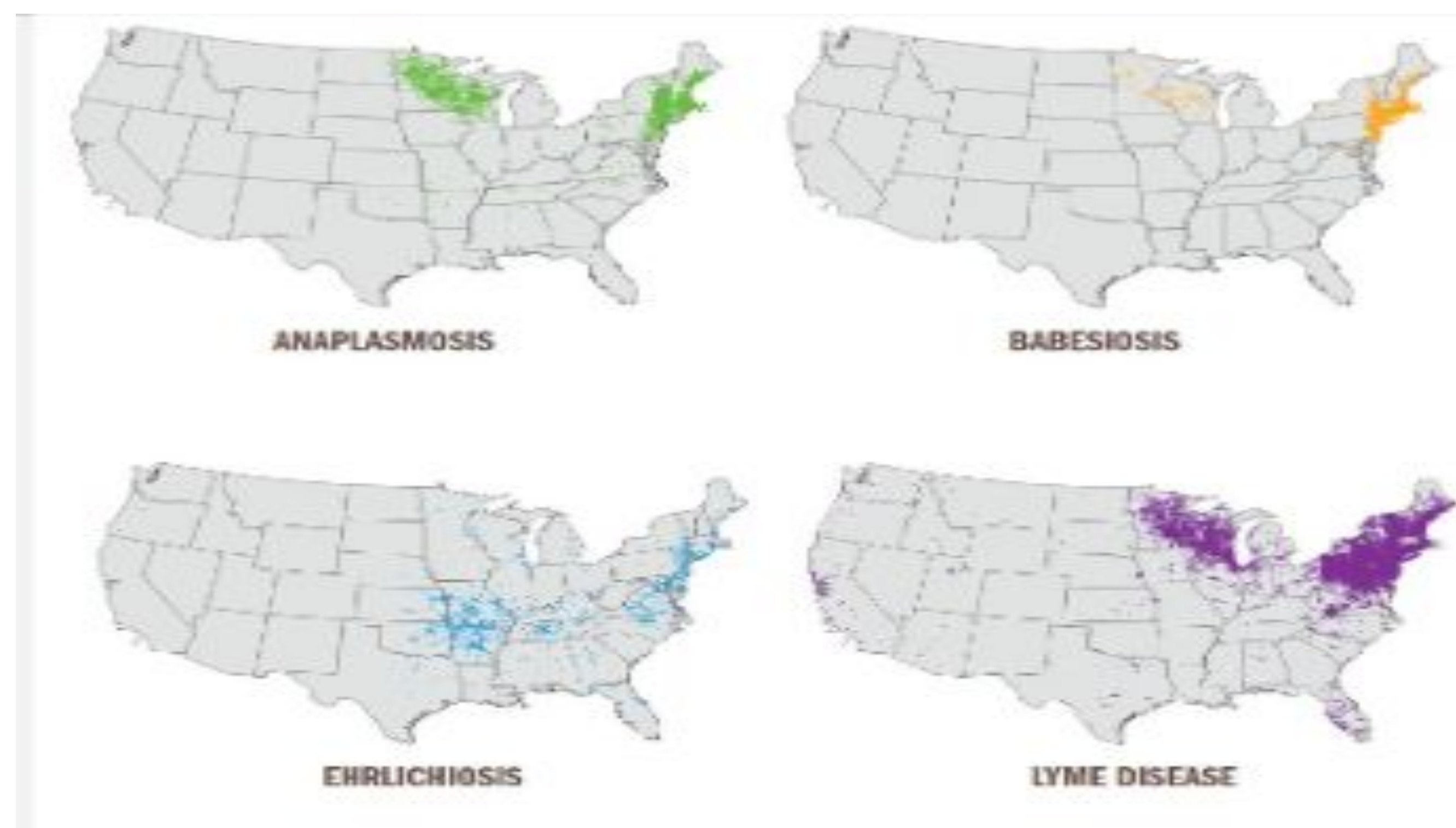


Figure 1: Endemic areas for Tick Borne Illnesses

### Discussion

- ❑ Differentiating factor between Ehrlichiosis and Anaplasmosis is the histological appearance of intra-granulocyte inclusions; neutrophils for Anaplasmosis vs monocytes for Ehrlichiosis
- ❑ Anaplasmosis more frequently reported than Ehrlichiosis in the United States, with an average annual incidence of 6.3 cases per million population from 2008 to 2012
- ❑ Patients with Anaplasmosis were 10 times more likely to have leukopenia with thrombocytopenia and elevated AST levels. There were more symptoms consisting of headaches, dizziness, myalgias, and anorexia with a direct correlation between symptoms and duration of illness compared to Lyme disease.
- ❑ Patients with Anaplasmosis reported prior history of Lyme disease infection (34 % vs 12.9%) when compared to patients with Lyme disease



Figure 2



Figure 3

### Conclusion

- ❑ This case demonstrates the importance of testing for all tick borne illnesses in endemic areas.( Figure 1)
- ❑ A negative Lyme disease workup does not rule out other diseases transmitted by ticks, thus warranting early diagnosis and timely treatment.

### References

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