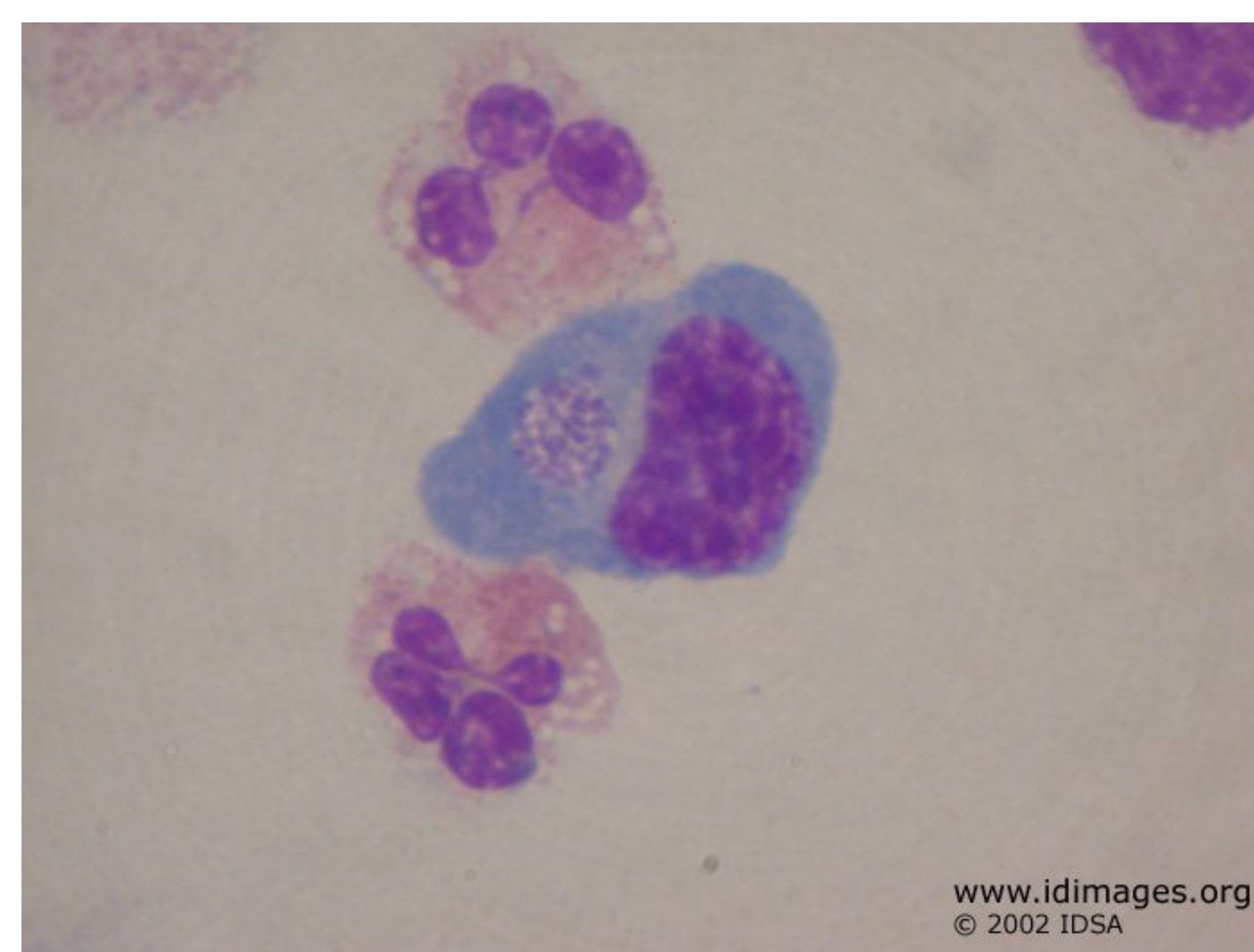


Introduction

Human Monocytic Ehrlichiosis (HME) is a rare tick-borne illness associated with the gram-negative coccobacilli Ehrlichia Chaffeensis. Route of transmission is by the Lone Star Tick (Amblyomma Americanum) which is endemic to the southern, midwestern, and mid-Atlantic regions of the United States. Clinical presentation can vary from a mild acute illness that commonly presents in immunocompetent individuals while immunocompromised or elderly patients are more susceptible to severe illness that can result in Septic Shock, ARDS, or Meningoencephalitis [1].

Ehrlichia Chaffeensis DNA PCR remains the most sensitive test for confirming the diagnosis within 1 to 2 week of symptom onset, with serology being more useful in later stages of the disease. The incidence of HME continues to increase from 1.4 cases per million people in 2000 - 2007, to 3.2 cases per year from 2008 - 2012 with a 3% mortality rate annually [2]. Current guidelines do not advise delaying treatment when suspecting HME therefore gathering a detailed history is especially important to determine whether or not a tick-borne illness should be suspected.

This case report highlights an atypical presentation of HME in which an immunocompetent patient presented SIRS(+) on admission, and the source of infection was identified when a thorough history was performed regarding the patient's symptoms.



<https://www.mdedge.com/dermatology/article/130759/infectious-diseases/whats-eating-you-lone-star-tick-amblyomma-americanum>

<https://www.idimages.org/images/organismdetail/?imageid=1707&altimageid=855>

Case

A 48 year old Female with no pertinent past medical history presented to the Emergency Department with a chief complaint of intermittent fevers (highest recorded at home was 102.8), worsening fatigue, and dark urine over the last week. Urinalysis and Chest X-Ray on admission did not suggest any evidence of a urinary tract infection or pneumonia. When asked about recreational activity the patient reported that she walked along woodland trails for exercise as often as she could. She denied noticing any rashes or skin lesions in recent weeks but did recall seeing a tick on her left shin after getting home from a walk approximately 2 weeks prior to presentation. The patient removed the tick in its entirety with a tweezer, and the only pertinent physical examination finding on admission was hepatosplenomegaly confirmed on abdominal CT.

Vitals on Admission				
BP 112/78	HR 103	RR 20	T 100.3	O2 99% on Room Air
Pertinent Labs				
Lactic Acid 2.1	Absolute Bands 1.3	WBC Count 2.1	Platelets 87	

Due to the suspicion of a tick-borne illness, Doxycycline was initiated as soon as possible. Infection workup returned negative for Babesia Duncani, Babesia Microti, Lyme Disease, Hepatitis, and EBV. Ehrlichia Chaffeensis DNA PCR returned positive.

The patient clinically improved within 48 hours of admission, and her blood counts completely resolved within 1 month of discharge. This rapid improvement was most likely due to the early initiation of Doxycycline on admission when the patient revealed her most likely source of infection when discussing one of her hobbies.

Discussion & Conclusion

This case highlights the importance of a thorough history and physical exam when trying to identify a source of infection especially when suspecting a tick-borne illness as early initiation of tetracycline therapy is critical for improving outcomes.

Patients with more than a 24 hour delay in initiation of tetracycline therapy after hospital admission are more likely to require ICU level of care, have longer hospital stays, and suffer from increased duration of illness irrespective of age. The most severe symptoms associated with HME are respiratory failure, altered mental status, and seizures [3].

With respect to HME, early initiation of tetracycline therapy is beneficial due to its downregulation of autophagy and inflammasome activation, both of which are key steps in HME pathogenesis [4]. Future research into this inflammatory cascade would be beneficial in providing a framework for the development of new novel therapies against HME infections in the future[5].

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Contact

Mohammed Omar Choudary DO, mohammed_choudary@bayhealth.org
Tyler Faimon DO, tyler_faimon@bayhealth.org
Shereen Salfity MD, shereen_salfity@bayhealth.org
PI: Francis Lim, MD francis_lim@bayhealth.org