



## Case Report

# A serology conundrum – HIV infection in acute babesiosis infection could merely be a false positive result

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## ABSTRACT

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## Introduction

Babesiosis is a tick-borne disease caused by *Babesia microti*. We present a case of false positive HIV in the setting of confirmed babesiosis infection. An understanding that patients with babesiosis can have a false positive HIV test result is important in management decisions.

## Case Presentation

A 46-year-old male presented with an acute febrile illness of 7 days duration manifesting as fever, headache, fatigue, and myalgia. The patient was recently diagnosed with acute sinusitis and started on amoxicillin by his Primary care physician, though had worsening of his systemic symptoms including fever. He was found to have

transaminitis and thrombocytopenia on presentation; therefore, he was admitted for further evaluation. A petechial rash was noted on his lower extremities concerning for Rocky Mountain spotted fever (RMFS). The patient was started on doxycycline empirically pending work-up initiated by the Infectious Disease team. Relevant laboratory results included a positive parasite smear for babesia with a 3% parasitemia load, positive mononucleosis screen, EBV and CMV IgM positive serologies, and positive HIV screen. With the low-likelihood that patient would have concurrent infection with EBV, CMV, and HIV and the fact that the patient reported being in a monogamous relationship with his wife for the past 10 years and denied HIV risk factors, made 3 concurrent viral infections less likely requiring further investigation. The patient was appropriately started on atovaquone/azithromycin and continued doxycycline

awaiting anaplasmosis, RMSF and Lyme studies which ultimately came back negative. As parasitemia persisted at 3%, regimen was changed to quinine/clindamycin with good response as parasitemia trended down. Transaminitis and thrombocytopenia improved on the new regimen as well; however, patient developed tinnitus, which is a known side effect of quinine, therefore the regimen was changed to atovaquone/azithromycin to complete a total of 10 days. In the interim, confirmatory HIV multispot came back positive, however HIV RNA was negative, excluding acute retroviral syndrome. It was thought that the concurrent positive serologies were false positive test results in the setting of babesiosis. These studies were repeated after the clearance of parasitemia was proven by negative parasite smear after treatment course completion; HIV Ab was non-reactive with undetected HIV RNA viral load and negative CMV IgG/IgM which confirmed our false positive theory.

Conclusion: HIV is a risk factor for babesiosis, and coinfection is common. However, there have been 3 reported cases of false positive HIV findings in patients with acute babesiosis-to the best of our knowledge. This case is unique in that our patient had confirmed babesiosis infection with three concurrent false-positive viral serologies. Further study is needed to investigate this association. For now, we suggest that affected patients should undergo repeat confirmatory testing once parasitemia has cleared prior to determine if further treatment is required.

## References

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