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A case of unusual cytopenias in CLL

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Case description

A 56-year-old male with past medical history of CLL presented to his primary care physician with complaints of cough, fatigue, low-grade fever, and night sweats for four weeks. Blood work revealed new bicytopenia (anemia and thrombocytopenia) with elevated markers of hemolysis. He was also found to have weakly positive direct Coombs test so the cytopenias were initially presumed to be autoimmune related to CLL. He was started on prednisone but to no effect. This prompted evaluation of Peripheral Blood Smear (PBS) which showed intra-erythrocytic inclusions (Maltese cross) as shown in the figure above (Figure 1). On detailed history taking, he had recently returned from a hiking trip to a tick-endemic area. What is the diagnosis?

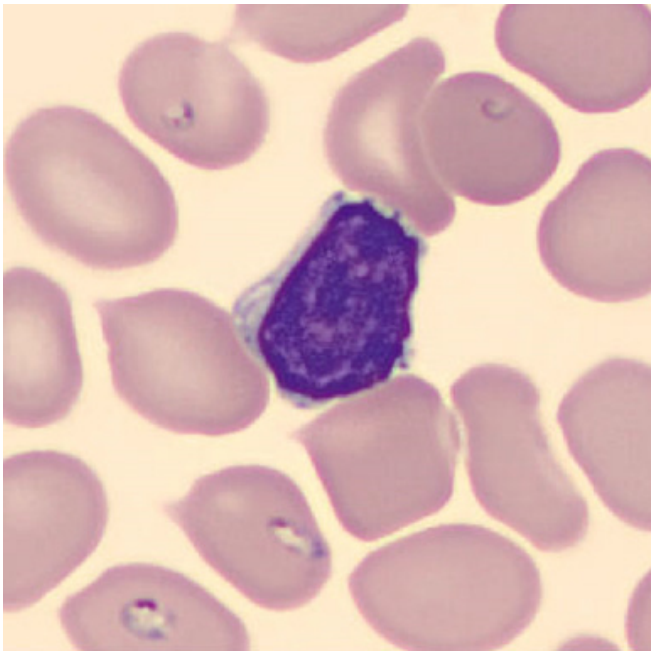

Figure 1: Intra-erythrocytic inclusions (Maltese cross) seen in peripheral blood smear.

Discussion

Given characteristic intra-erythrocytic inclusions and recent history of hiking, Polymerase Chain Reaction (PCR) for Babesia was performed, yielding a positive result. Treatment with atovaquone and azithromycin for six weeks resulted in a significant improvement in both cytopenias and hemolytic markers.

One-third of patients with CLL develop autoimmune cytopenias in their lifetime [1]. Our patient was appropriately treated with steroids, which is considered to be the first line therapy [2]. The typical response rate to steroids ranges between 75 to 80% [2]. When cytopenias and hemolytic markers continued to worsen despite treatment with steroids, the clinical case was

re-evaluated leading to the final diagnosis of babesiosis. The classic PBS finding seen in babesiosis is the maltese cross. Treatment in immunocompromised patients consists of at least six weeks of therapy with azithromycin and atovaquone combination or clindamycin and quinine combination [3]. There are case series of concomitant Autoimmune Hemolytic Anemia (AIHA) with babesiosis as well as babesiosis preceding AIHA. In our case, babesiosis was the major cause of cytopenias since treatment with antimicrobials resulted in rapid improvement of hemolytic markers and cytopenias.

Several important teaching points can be gleaned from our case. Firstly, our case highlights the importance of reviewing PBS in diagnosing the cause for cytopenias. Secondly, it reiterates the importance of taking a good travel history. Thirdly, our case serves as a segue to further research exploring the relationship between AIHA and babesiosis.

Declarations

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PP: Revised the manuscript, and finally approved the version to be published.

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