



Case Report of Rare cause of Acute Hemolytic Anemia in Saudi Patient (Babesiosis)

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Case Report

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Abstract

Babesiosis is one of the protozoan zoonotic diseases its presentation rang from asymptomatic to severe clinical conditions, with severe hemolysis. Immune status of the host and the species of the parasite has impact on the clinical presentations of the infected patient our patient is presented here; the patient was admitted from a countryside with severe anemia and a deterioration in his general condition, he was admitted to intense care unit and received blood transfusion, in addition to antimicrobial treatment in form of azithromycin and Ceftriaxon, his condition improve and released from ICU on the second day and discharge from hospital after improvement on the seventh day.

Keywords: Babesiosis; Immune; Autoimmune Hemolytic Anemia; Medical History

Case Report

27 year-old Saudi solidier male patient, presented in the Emergency Room referred from other hospital as case of acute hemolytic anemia. Patient started with one day history of nausea and vomiting, loin pain, yellowish sclera, dark urine no history of mosquito bite and he had a history of travelling to his hometown Adham, two weeks before. There was no history of medical problems. He has no history of drug allergy. The past history is irrelevant. He has same scenario with his 8years old brother.

On Examination

Male patient, 27 years old, and single. He was ill, irritable and in acute distress. He was conscious, alert and oriented. He was feverish, his temperature was 39°C, his blood pressure was 115/74mmHg with a heart rate of 90 beats/minute, respiratory rate of 17 breaths/minute, and oxygen

saturation of 97% in room temperature air, admitted to ICU for one day then discharge.

Laboratory Investigations

As regard his complete blood count (on admission). The clinically significant results are as follows:

- Red blood cell count (RBC) of 2.51M/ μ L (Low) (n 3.8-4.8M/ μ L) with hemoglobin of 7.2gm/dL (n 13-17gm/dL).
- White blood cell count (WBC) of 10.25k/ μ L (High) (n4-10k/ μ L)
- Platelet count of 224K/ μ L (n 150-410K/ μ L)
- Reticulocytic count 2.7%
- Blood Film examination: +3 coarse inclusion bodies (Babesia is diagnosed by the pathognomonic appearance of maltese cross as in Figure 1 & 2.
- As regard his chemistry His random glucose of 124mg/dL (n 70-140mg/dL)), calcium of 9.52mg/dL (n 8.6-

10.20mg/dL)

- SGOT (AST) of 154 μ /L (n 15-37 μ /L), SGPT (ALT) of 66 μ /L (n 1-63 μ /L), bilirubin (total) of 8.6mg/dL (0-1.1mg/dL) direct bilirubin 1.52mg/dL (n 0-0.2).
- LDH: 337 u/l(81-234u/l)
- Coombs test: Negative
- Malaria rapid test: Negative.
- Blood culture: Negative
- Stool culture: Negative for shigellas & Salmonellas isolation
- As regard urine analysis
- Pus cells: Dark, Granular Cast (+), 51-90 WBCs/hpf, RBC: 20-30 RBCs/hpf, occult blood +3
- After one week (patient treated against babesiosis)
- Blood film negative for inclusion bodies
- AST: Normal
- LDH: 347u/l
- Total bilirubin: Normal

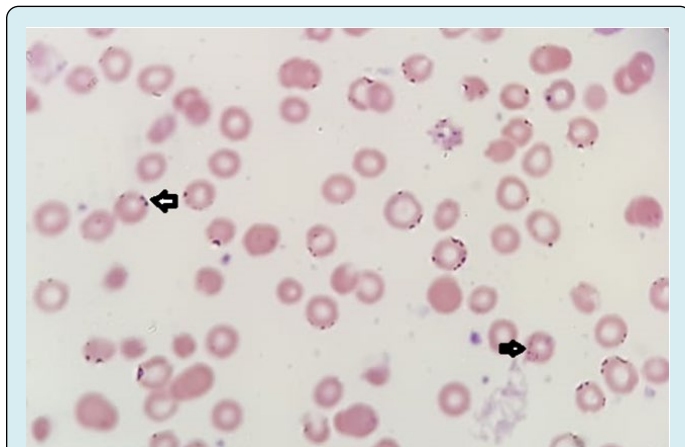


Figure 1: Basophilic stippling +3 arrowed, polychromasia.

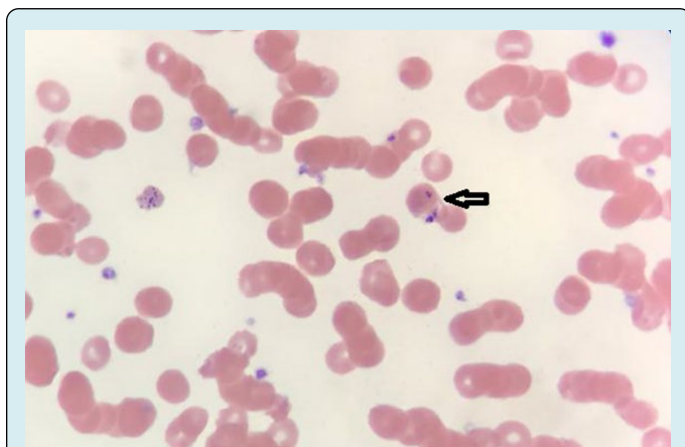


Figure 2: Maltase crosses of Babesia trophozoite inside red blood cells arrowed.

Discussion

Hemolytic anemia has a variety of causes that include extrinsic causes as infections, tumors, autoimmune disorders, medication side effects, leukemia, and lymphomas or intrinsic as sickle cell anemia and thalassemia patients [1]. Symptoms of hemolytic can be fatigue, fever, confusion, lightheadedness, dizziness, weakness, pale skin, or even in some cases up to heart failure. Differential diagnosis of hemolytic anemia includes many diseases such as all immune, autoimmune hemolytic anemia, drug induced, and infections [2]. An important clue in defining that hemolytic anemia is the cause if the anemia is an increased reticulocyte count that is not preceded by any bleeding or recent correction of iron or other nutrient deficiency. Signs of RBCs destruction can occur such as elevated lactate dehydrogenase enzyme and bilirubin levels, low haptoglobin level, and changed shape of RBCs [3], which in our case contain the *Babesia* organism.

Human babesiosis is a zoonotic disease caused by organisms of the genus *Babesia* that can be transmitted through infected ticks' bites, blood transfusions, or transplacentally. Genus *Babesia* has more than 100 species and most of them only infect animals, so sparing humans except for some *Babesia* species that can be infectious to humans such as *Babesia duncani*, *Babesia divergens*, *Babesia venatorum*, *Babesia sp. KO1*, and *Babesia microti*. Babesiosis cases have been reported throughout the globe with *Babesia divergens* reported as the most common cause of babesiosis in Europe. Infected individuals may be asymptomatic or experience symptoms in which headache, nausea, vomiting, and fever are commonly experienced. Asymptomatic or persistent infections with *Babesia microti* can occur up to 2 years. Persistent parasitemia can cause *Babesia* infections through blood transfusion and even organ transplantations whose cases are immunosuppressed who are at risk of severe persistent relapsing babesiosis. Other risk factors of developing severe Babesiosis include ages more than 50, splenectomy, malignancies, and HIV infection (immunocompromised patients) [4,5].

The diagnosis of babesiosis is based on epidemiological and medical history, physical examination, and confirmatory laboratory tests. Travelling to a *Babesia* endemic area or blood transfusion in the last six months with symptoms of Babesiosis is helpful in diagnosing the disease. The main confirmatory test of Babesiosis is a Giemsa or Wright-stained blood films favorably examined at the beginning of symptoms as the parasitemia decreases thereafter. PCR is also used as it provides a better sensitivity and the ability to differentiate different species of the *Babesia* organism. Serological tests can be of use in supporting or confirming Babesiosis diagnosis. A recent infection can be detected by a rise of four folds in the *Babesia* IgG titer in the sera of patients in acute

and convalescent stages of the disease. Serologic assays for Babesia diagnosis include ELISA, western blot, and the most used assay, indirect immunofluorescence assay [5].

Treatment for asymptomatic cases includes a course of one-week of atovaquone with azithromycin if the person is infected for more than three months [5]. *Babesia microti* resolves within 1-2 weeks with one course of atovaquone with azithromycin or clindamycin with quinine [4]. The treatment recommended for mild to moderate babesiosis cases is consisted of atovaquone with azithromycin for 7-10days. For patients with risk factors for developing severe Babesiosis, clindamycin plus quinine is the recommended choice. Prevention of babesiosis is required especially in immunocompromised individuals and others with risk factors of severe Babesiosis. Prevention of babesiosis can be achieved by avoidance of tick-infested areas such as forests, bushes, and areas with tall grass, in addition to spraying acaricides on these areas. No vaccine of *Babesia* is available for humans, but *Babesia bovis* and *Babesia bigemina* vaccines are available for cattle [5].

From this case of Babesiosis must be consider as one of the infectious agent causing acute hemolytic, as most of the patients come only by one attack almost all cases not full investigated , as most cases are sub clinical, and as postulated, babesiosis is self-limiting disease in some cases, but may be fatal in immucompromise host and splenectomy patients lack of practical experience to differentiate between (babesia) and basophilic stippling which caused by thalassemia anemia-chronic lead poisoning, megaloblastic anaemia. So the recommendation is to increase awareness

for presence of babesiosis among Saudi community, and that will be by communication between health sectors like public health and detect its prevalence that of *babesia* in animals in the veterinary, to found infected animals, which will affect the regimen for blood transfusion screening and donor selection.

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