First Case of Babesiosis in Qatar: Case Report

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Abstract

Babesiosis, is a disease caused by infection with parasites of the genus Babesia, and is transmitted by tick bite. It was first reported in 1956. Most cases are reported from North America and Europe. Clinical manifestations are non-specific and tend to be severe and may be fatal in the immunosuppressed. A case of babesiosis is presented. The patient presented late with multisystem failure and succumbed to his disease. Diagnosis was not suspected initially and was only made after detecting the parasite in blood film. This is the first case reported from Qatar and no similar case has been reported from the Arabian Gulf states. The case is discussed and pertinent literature is reviewed.

Keywords: Babesiosis, Qatar, Arabian Gulf, Indian, Case report.

(J Med J 2016; Vol. 50 (3):161- 167)

Received	***Accepted***
Dec. 6, 2015	*June 7, 2016*

Introduction

Babesiosis, caused by infection with parasites of the genus *Babesia*, is a common disease of free-living animals worldwide[(1)]. The disease is transmitted by ixodid ticks to vertebrate hosts[(2)]. Recently, it has increasingly gained attention as an emerging zoonosis in humans[(2-4)]. The world's first well-documented case of human babesiosis was a fatal case, reported in an asplenic man from the former Yugoslavia in 1956[(5)]. Since then, several hundred cases of human babesiosis have been reported from theUnited States, Canada and other countries[(2-4)].

Since the late 1950s, two species of Babesia in particular, the cattle species Babesia divergens in Europe and the rodent species Babesiamicroti in North America, have been shown to cause a significant number of infections in humans. In Asia, babesiosis has been reported in Japan, Korea, Taiwan, and India. Human babesiosis has been also reported in Africa and South America[(8)]. Literature search did not reveal any case of human babesiosis in the Arabian Gulf countries, and to our knowledge this is the first case of human babesiosis seen in Qatar. We describe the case and review pertinent literature.

Case report

A 76-year-old male, American but originally Indian was admitted to Hamad

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General Hospital in the summer of 2013. He was a transit passenger from USA to India. While in the airport he developed drowsiness for which he was taken to emergency where he found to have atrial fibrillation which was reverted. Then he developed irritability and respiratory distress for which he was intubated and mechanically ventilated. The patient reported seven days history of fever and chills. He had no history of cough, shortness of breath, or chest pain. His past history included diabetes mellitus and hypertension for which he was maintained on metformin, losartan and aspirin. Physical examination on presentation revealed a confused and irritable patient. Blood pressure 155/111 mm Hg, heart rate 167/minutes, and respiratory rate 35/minute. His chest examination revealed bilateral basal crepitations, otherwise examination was unremarkable. Investigation revealed white blood cells 6,2 x 10^9/L, hemoglobin 12.0 gm/dL, platelets 61,0 x 10^9/L, lactic acid 3.2, AST 149 IU/L, ALT 84 IU/L, alkaline phosphatase 40 U/L, bilirubin 57µmol/dL, blood glucose 11.3mmol/dL, serum creatinine 151 µmol/dL, procalcitonin 3.0µg/dL, prothrombin time 13.1 seconds, partial thromboplastin time 26.9 seconds **and D-Dimer 15.15 mg/L**.Blood and urine cultures were negative. Chest radiograph, ultrasound of abdomen and computerized tomographic scan of head were normal. Echocardiogram revealed impairment of left ventricular function with an ejection fraction of 40%. Blood film revealed normochromic red blood cells with anisocytosis and thrombocytopenia. Many RBC were infected with babesia parasites (26%) with many extracellular parasites (Figure 1-3). He was treated with intravenous clindamycin and quinine, and exchange transfusion was planned, however he rapidly deteriorated with the development of multisystem failure and he died two days after admission.

Discussion

Babesiosis, caused by the parasites of the genus *Babesia*, and transmitted by the bite of the ixodid ticks is a disease of worldwide distribution[1]. The world's first well-documented case of human babesiosis was a fatal case, reported in an asplenic man from the former Yugoslavia in 1956[5]. Since then, several hundred cases of human babesiosis have been reported from the United States, Canada and other countries[2-4]. The parasites are named after Viktor Babes, a Hungarian pathologist who investigated the cause of febrile hemoglobinuria in cattle[6]. He described the babesial microorganism in 1888 and it was named after him in honor of his discovery. Most cases have been reported from the United States of America and Europe, however human babesiosis have been reported also from Asia, Africa and South America[2-4]. Babesia microti is the most common cause of human babesiosis. The primarytick vector of this species is Ixodesscapularis[8]. The primary reservoirfor B microtiin the northeastern United States is the white-footed mouse[8,9]. In Europe, human babesiosis is caused by B divergens, B microti, and is thought to be transmitted by Ixodesricinus. The primary reservoir is the white-tailed deer[9,10]. Babesiosisis rarely acquired through blood transfusion and few cases of transplacental or perinatal transmission have been described[11,12].

Most human cases of babesiosis occur in summer and in areas where the vector tick, rodents, and deer are in close proximity to humans[9]. Although the majority of reported casesare adults, there is evidence that the

disease is more common in children than previously thought[13].

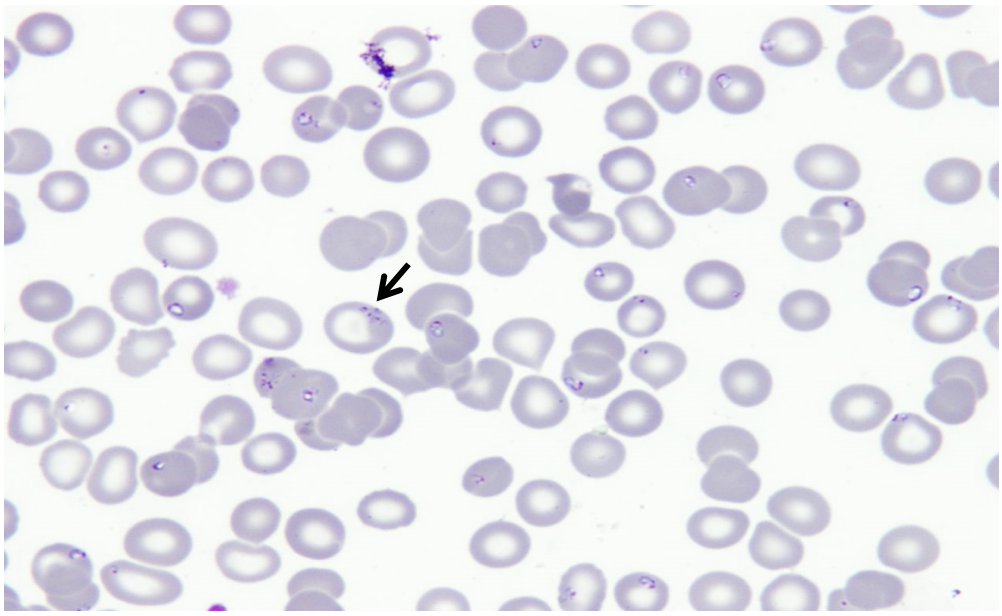

Figure 1: Peripheral smear showing many infected red cells with single and multiple ring stage and the characteristic tetrad (arrowed red cell), Wright stain x1000

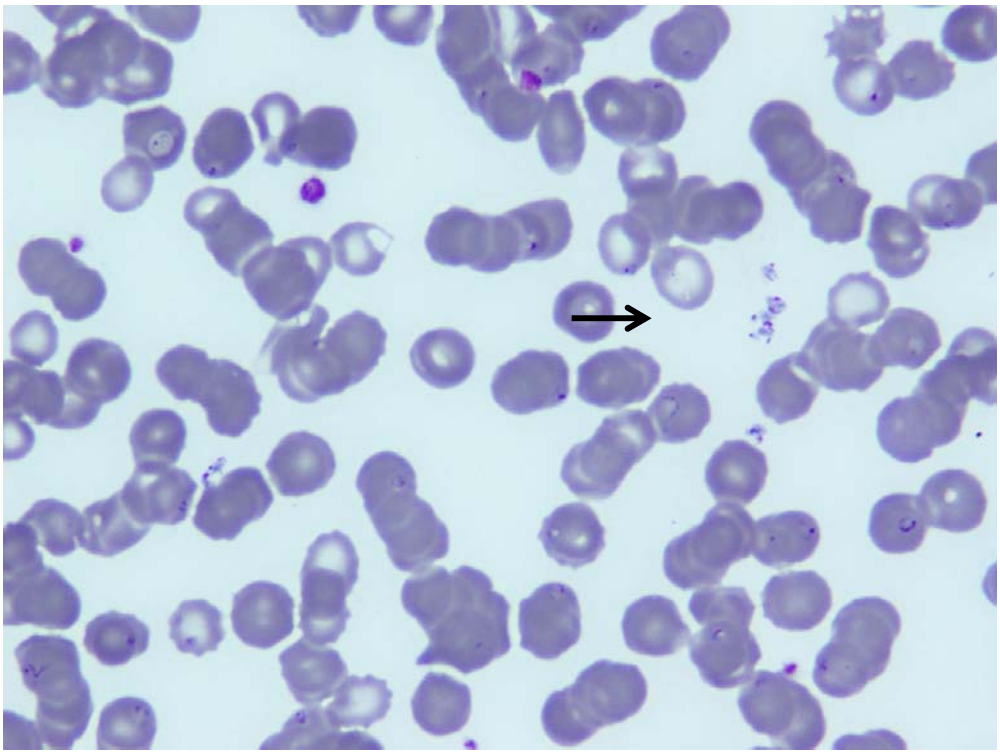

Figure 2: Peripheral smear showing many infected red cells and extracellular parasite(arrowed),Wright stain x1000

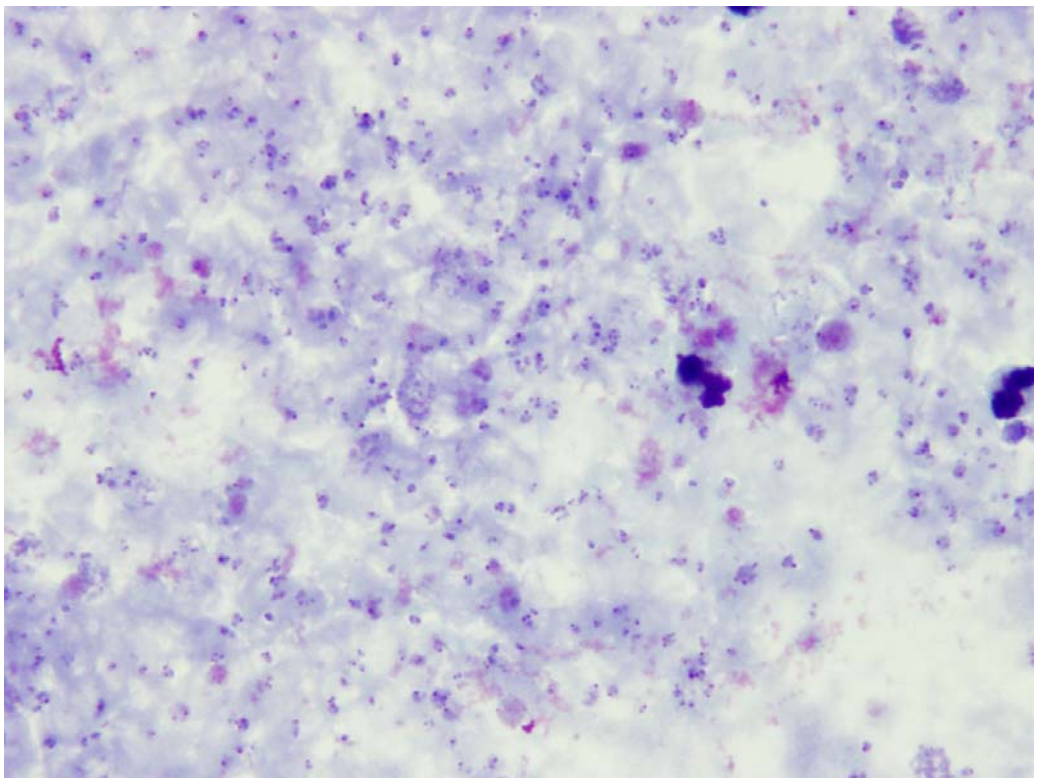

Figure 3: Thick blood film showing large number of ring stage, Giemsa stain x1000

Limited data suggest that symptoms of babesiosis begin 1 to 6 weeks after tick feeding. The clinical manifestation of babesiosis vary ranging from a symptomatic infection, a mild-to-moderate illness lasting weeks to months, to a severe disease mostly seen in immunosuppressed individuals such as patients with splenectomy, malignancy and those receiving immunosuppressive drugs with a fulminant course including respiratory, renal and liver failure, and disseminated intravascular coagulation resulting in death[14-16]. The diagnosis of babesiosis requires strong clinical suspicion because thesymptoms of babesial infection may overlap with those of several other illnesses[13]. Definitive diagnosis of babesial infection generally is made by microscopic identification of the organism on Giemsa or Wright stainsof thick and thin blood smears[17]. Babesia species may resemble Plasmodium falciparum on microscopy. Distinguishing features of babesiosis on smear include the presence of extra erythrocytic forms in severe cases and the absence of pigment deposits(hemozoin) typically seen in older ring stages of P falciparum. Tetrads of merozoites arranged in a Maltese cross pattern are pathognomonic of babesiosis but are rarely seen[17]. PCR provides a highly sensitive and specific, albeit, expensive test for detecting babesial DNA in blood[18-19]. Serology also is useful inconfirming a babesial diagnosis[20]. Two commonly used antimicrobial regimens are highly effective, the combination of atovaquone and azithromycin and the combination of clindamycin and quinine[21]. In patients with severe disease, the combination of clindamycin (administered intravenously) and quinine given for 7 to 10 days is the treatment of choice[22]. Exchange red blood cell transfusion is indicated for all babesiosis patients experiencing heavy parasitemia (10%)

or who have significant pulmonary, renal, or hepatic compromise[23].

Few cases of babesiosis have been reported from the middle east region. Literature search revealed only three cases of human babesiosis reported; two from Egypt and the other from Israel[24-26]. In a seroprevalance study from Turkey, B. microti seropositivity was found in 6.23% among 273 tested individuals[27]. Literature search revealed no reported case of human babesiosis from the Arabian Gulf countries. The reason for this absence is not obvious. Possible reasons include under reporting, missed diagnosis or true absence. Several case reports of animal babesiosis have been reported from this region. To our knowledge this is the first case of human babesiosis diagnosed in Qatar. The fact that he was a transit passenger confirms that the case was acquired outside Qatar and mostly it was acquired in USA since he was a resident there. We could not obtain from the patient a history of tick bite because when the diagnosis was made he was already intubated. Our patient was unfortunate in that he had very rapid deterioration with multiorgan failure and death within less than 48 hours after presentation. He was not immunosuppressed, and had no history of splenectomy, however, he had a fulminant course; the cause is not clear. His presentation was late and he received only one dose of anti babesial medication and exchange transfusion could not be performed because he died shortly after diagnosis. We report this case to alert physicians working in our area to this condition since we have many people working in our country coming from countries where the disease is common. Keeping a high index of suspicion when these people develop a compatible clinical condition and performing the correct tests will ensure an early diagnosis and possibly better outcome.

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أول حالة من داءالبابسيات في قطر: تقرير عن حالة طبية

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الملخص

داء البابسيات هو مرض ناتج عن العدوى بطفيليات من جنس البابيسيا وينتقل إلى الإنسان عن طريق عضة القراد. تم نشر أول تقرير عن حالة من داء البابسيات عام 1956 كما أن معظم التقارير عن حالات من هذا المرض تم الابلاغ عنها من أمريكا الشمالية وأوروبا. الأعراض السريرية لهذا المرض غير نوعية وغالبا ما تكون شديدة ومميتة في المرضى ذوي المناعة المثبطة. نستعرض هنا حالة من داء البابسيات تظاهرت سريريا بشكل متأخر حيث تمكن الداء من الجسم وأدى إلى فشل في عدة أجهزة حيوية والوفاة. لم يتم توقع هذا الداء في البداية وتم تشخيصه باكتشاف الطفيلي في فلم الدم. هذه أول حالة يتم وصفها من قطر ومن الخليج العربي عموما وسيتم استعراض الحالة والتقارير التي نُشرت عالميا عن حالات مماثلة.

الكلمات الدالة: داء البابسيات، عضة القراد، حالة طبية، قطر.