Babesia parasites described from patients bled for malaria

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ABSTRACT

Objective: The diagnosis of Babesia parasites in Sudanese patients suspected as Malaria. Methods: Blood samples were taken from patients suspected as Malaria for the diagnosis of babesia parasites in Sennar area, Sudan. Results: Malaria was diagnosed in 21.8% of the samples and babesia in 14.5%. Conclusion: The presence of babesia parasites draws the attention to the possibility of the presence of the parasite in conditions suspected as malaria. This is the first report in Sudan.

Keywords: Babesia, malaria.

Babesiosis is a disease primarily of animals. Man comes accidentally in the life cycle when exposed to the vector ticks.1 It is caused by a protozoan parasite that belongs to the genus Babesia, starcovici 1893. According to Levine et al.,2 a total of seventy one species are recognized, eighteen of which do infect domesticated animals. Out of these, the species affecting man are Babesia bovis, B. divergens and B. microti.

We generally speak of the old world type of hyman babesiosis (Europe) and the new world type (America). The old world cases occurred in persons who had been splenectomized and B. bovis and B. divergens are the two parasites responsible.3-5,6 In America however, human babesiosis caused by B. microti, a rodent babesia, cases occurred in people with intact spleens.7,8,9,10 With the exception of the two reported cases from France,11,12 the European patients have all died, whereas the American patients infected with B. microti have survived. The disease thereafter, was reported from all the continents including Africa, Egypt,12 Mozambique13 and Republic of South Africa reported the disease.14

Materials and methods. Sennar town some 300 kilometers south Khartoum was the primary area of this study. It is lying within the Savanna zone with an average rainfall of about 480mm per year that starts from June and ends up in October. It is at the extreme south corner of the Gezira irrigated project, where rain-fed agriculture extend to the south of it. Pastures extend to the south west and east and seminomadic tribes traverse the area with their animals looking for lushy pastures.

The period of this study, was after the famous flood and high rainfall of 1988 and for the two years after. The people examined in this study were residents of Sennar town and the villages in the vicinity. One hundred and thirty seven patients subjected to laboratory investigation for malaria from medical ceters and malaria units were bled for the diagnosis of Babesia parasites. Thick and thin blood smears were made. The thick smears were hemolyzed in sterile distilled water and both thick and thin smears were fixed in methanol and stained with giemsa stain (10%) for 30 minutes, and scanned under the microscope. Morphological and morphometric measures were made on the parasites detected using conventional microscopy.

Results. Out of the 137 samples taken the babesia parasites were seen in 20 of the examined patients (14.5%), and the malaria parasites in 30 of them (21.8%). The babesia parasites showed different shapes and sizes and dimension lengths and varied from 1.3 um - 3 um in length and 0.6 um -1.3um in width. Anaplasmoid, rods rings, amoeboid, bizarre, pyriform and double pyriform shapes were seen (Fig. 1). Very few cases of double pyriform were seen. The parasitemia is low in most of the cases.
diagnosed. The patients investigated, complained of fevers, high to moderate with nausea, inappetence, headaches, back pain and tiredness.

**Discussion.** Human babesiosis is getting on the way to being reported all over the world. The present study describe the first report of human babesiosis in the Sudan. Here the parasites were diagnosed using the parasitological techniques to overcome the difficulties with serology, that malaria share common antigens with babesia. In this connection emphasized the difficulties of interpreting the results of serology in malaria. The babesia parasites we described showed different sizes, that the possibility of different species can be anticipated. Few of the parasites showed the double pyriform shapes. This could be due to early immune response or due to immunity induced by malaria parasites, that lead to diminished multiplication. In this work the parasitemia was not high in most of the cases seen and as had suggested that latent babesiosis in man may exist on a large scale in rural populations in infected localities, we think this might explain the above results comparable to malaria.

The period of this study (1988-1990) favored suitable environment for the breeding and dissipation of ticks. People become infested with ticks by walking in pastures or grass around the houses. Nagwa described tick’s isolated from people and identified several species including *Rhipicephalus simus*, *Hyalomma anatolicum* and other species of these genera. The outbreak of *B. bigemina* and *B. bovis* in cattle in Sagadi, Sennar province, shows the endemity of the disease in the area. Rodents are the source of infection of *B. microti*, and their presence in houses or agricultural land, make possible the contact with vector-ticks.

The present study is to report the presence of the parasite in humans and to draw attention to the possible diagnosis of babesia especially in conditions resistant to malaria drugs. Once Hoare said “Few places in the world are free of animal babesiosis, it can be expected that systematic studies will reveal that human infections are a common occurrence in endemic areas”. Further work is needed in this area to encounter the medical side and to see the magnitude of the problem and the epidemiology of the disease.

**References**

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