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***Babesia* sp. in Colombian bats (Microchiroptera)**

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ABSTRACT: Two leaf-chinned bats (*Mormoops megalophylla*) collected in 1963 in central Colombia were heavily infected with *Babesia* sp., probably *Babesia vesperuginis*. Both bats had pronounced splenomegaly. This is the first report of a *Babesia* sp. infection of a bat in the Americas.

Key words: *Babesia* sp., leaf-chinned Bat, *Mormoops megalophylla*.

Babesia vesperuginis (Dionisi, 1899) has been reported from two European countries (Goedbloed et al., 1964; Gardner and Molyneux, 1987). In this paper I report for the first time a member of the genus *Babesia* from bats in the Americas.

Between 1961 and 1972 more than 20,000 Colombian bats were captured in 165 localities from all over Colombia and examined for parasites and fungi. The methods and sites of capture of the bats have been described by Grose and Marinkelle (1970) and Marinkelle (1982). Giemsa-stained thick and thin blood films were made of blood obtained by heart puncture. The preparations were examined microscopically for at least 15 min at 600× magnification. When bats were found to be positive for hematozoa impression, smears of lungs, hearts, livers, spleens, brains and kidneys were fixed with 100% methanol and stained with Giemsa and microscopically examined. After preparation of the smears, the organs were preserved in 10% formalin solution for histological sections.

The bats as well as their resting places were examined for the presence of ectoparasites. The cave where *Babesia* sp.-infected bats were found was searched extensively for ectoparasites during eight visits between June 1961 and April 1972. This cave is locally known as the Cueva de Macaregua and is located near the village of San Gil in Central Colombia (6°33'N, 73°08'W).

Only two of 168 leaf-chinned bats, (*Mormoops megalophylla*), both collected in November 1963, were found infected with *Babesia* sp. Both bats had a heavy infection with about 18% of the red blood cells infected.

The very young trophozoites were round or oval and measured 1.0 to 1.8 μm. Small rings appeared to divide by binary fission. Large rings, 2 to 4 μm in diameter, were numerous and had a central or marginal nucleus; sometimes two nuclei were present in one ring. The large rings had no evidence of division. Pear-shaped parasites of 1.4 to 2.0 μm were not uncommon (Fig. 1). Some ameboid forms with delicate pseudopodia reached 6 μm and contained a large irregular nucleus, 2.5 μm in diameter, or three to four dots of chromatin. Cross-shaped (Maltese Cross) forms were found only twice. All intra-erythrocytic forms had a well-defined white central vacuole; exoerythrocytic parasites were observed infrequently. Pigment was absent and reproduction was without synchronicity, there was no evidence of parasite multiplication stages in the tissues smears. The brain capillaries were blocked by the parasites (Fig. 2).

The formalin-fixed spleens of the two infected bats weighed 360 and 388 mg, respectively; while the mean (±SE) weight of the preserved spleens of 10 other non-infected *M. megalophylla* was 44 ± 4.4 mg.

The piroplasms found were considered to be members of the genus *Babesia* because division occurred in the erythrocytes; no pigment was found, and no exoerythrocytic schizonts were found in the impression smears of the organs.

The morphology of the parasite seemed similar or identical to *Babesia vesperuginis*, as described and pictured from British bats

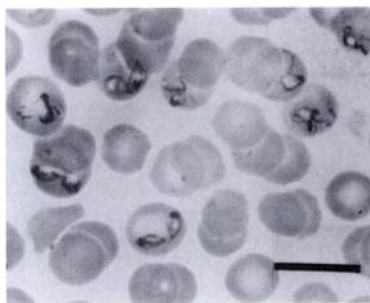


FIGURE 1. *Babesia* sp. (probably *B. vesperuginis*) in blood of *Mormoops megalophylla*. Giemsa. Bar = 5 μ m.

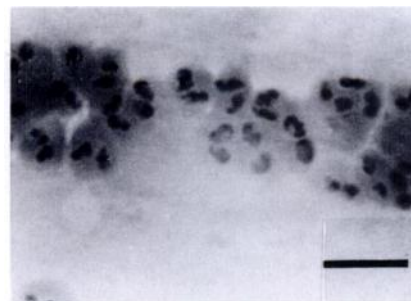


FIGURE 2. *Babesia* sp. (probably *B. vesperuginis*) in brain capillary of *Mormoops megalophylla*. H+E. Bar = 10 μ m.

(Gardner and Molyneux, 1987). Until other evidence becomes available. We speculate this parasite to be *B. vesperuginis*. The observed splenomegaly also was consistent with the observations of Gardner and Molyneux (1987). One blood smear of *Babesia* sp. probably *B. vesperuginis* is deposited in the U.S. National Parasite Collection, (Animal Parasitology Institute, Beltsville, Maryland, USA, voucher number 86005; collection date: 12 may 1966).

In Colombia, seven species of *Ornithodoros* spp. (Argasidae) have been found in association with bats, but hard ticks (Ixodidae) have not been reported from bats in Colombia (Marinkelle and Grose, 1981).

The only argasid ticks found in caves inhabited by *M. megalophylla* in Colombia were *Ornithodoros marinkellei* and *Antricola mexicanus* (Marinkelle and Grose, 1981; Marinkelle, 1982). *Antricola mexicanus* was the only tick found in Macaregua Cave, which was inhabited by thousands of *M. megalophylla*. Many *A. mexicanus* were found in association with *M. megalophylla* and its guano in the cave (Grose and Marinkelle, 1968).

The ticks were identified with the key of Cooley and Kohls (1944) and were deposited in the U.S. National Parasite Collection, voucher number: 84762. *Antricola mexicanus* has not been reported from

other parts of South America and is not known to transmit any pathogenic microorganism. Argasid ticks previously have been found in the Netherlands on *Babesia* sp.-infected bats, (Goedbloed et al., 1964).

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