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AMONG DOGS IN PANAMA

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NATURAL CUTANEOUS LEISHMANIASIS AMONG DOGS IN PANAMA

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Abstract. A search for cutaneous leishmaniasis among dogs was conducted in several forest settlements of central Panama from 1968 to 1973. A total of 11 (3.3%) of 333 animals examined was found infected and, in 9 of these, parasites were isolated in culture and characterized as *Leishmania braziliensis*. Infected dogs occurred in three settlements, one of which was free of human leishmaniasis. In the latter case, infections were acquired in the nearby forest during hunting excursions. Ulcerated skin lesions primarily on the lower aspect of ears, or depigmentation and inflammation of the nostrils were manifested, with persistence as long as 45 months. The parasites did not disseminate from the lesion to viscera or other areas of the skin. The dog may serve as an incidental reservoir host of human leishmaniasis and/or a liaison of the infection between the jungle and forest settlements in the Republic of Panama.

Dogs have received attention as potential reservoir hosts of cutaneous leishmaniasis in the New World for many years. The first occurrence of the disease was reported from Brazil in 1912.¹ This finding was confirmed the following year, during one of the first epidemiological investigations on cutaneous leishmaniasis in the Neotropical region.² Thereafter, several additional cases were recorded from Brazil,³ Argentina,⁴⁻⁶ Peru,⁷ and Venezuela;⁸⁻⁹ a single case was seen in Panama, in 1943.¹⁰

In America, the dog has been experimentally infected with cultures of several strains of dermatotropic species or subspecies of *Leishmania*,¹¹⁻¹⁵ as well as with infective material from man and animals.¹⁴⁻¹⁶ An infection was also produced with triturates of phlebotomine sandflies (*Lutzomyia intermedius*), the flies having fed 3 days previously on a patient.¹⁷

The dog is a high risk animal because of its susceptibility to infection and jungle foraging activities. Nevertheless, the extent of its importance as an incidental reservoir host and/or liaison of leishmanial infection in the Neotropical forests has not been determined.

We began an intensive search for natural leishmaniasis in the dog in 1968, as part of a long-term ecological and epidemiological investigation conducted in Panama by the Gorgas Memorial Laboratory. This paper reports our findings to June 1973.

MATERIALS AND METHODS

Our studies were carried out in several villages and forest settlements of central Panama. Dogs were examined for the presence of gross skin alterations (ulcerations, depigmentation, scaly areas) especially on the nose, ears and feet. The owners were questioned about the age of each dog, as well as previous evidence of skin lesions and other information indicative of possible leishmanial infection. Skin smears were taken in the field from every dog showing gross skin alterations. A limited series of skin smears and cultures were made from normal skin of animals in Majecito Arriba. All preparations were examined after fixing in methanol and staining with Giemsa.

Dogs found positive by skin smear were transferred to the laboratory for further study. There, they were maintained under close observation and subjected to periodic skin smears as well as blood and skin cultures. Necropsy was performed on those animals killed or dead from other causes. Viscera (mainly spleen, liver and bone marrow) and skin were cultured; the cultures were made from the leishmanial lesions and several normal areas. Modified Senekjic's culture medium¹⁸ for hemoflagellates and in certain instances Noguchi's semisolid culture medium for leptospira, were used to isolate the parasite.

Parasite strains were characterized during the initial three transfers in vitro by inoculation of a 0.05 ml suspension, containing 5 to 10 × 10⁶ of 7- to 9-day old promastigotes, intradermally in the nose of hamsters. Subsequently, the animals

