

A Natural Infection of *Leishmania* in the Kinkajou, *Potos flavus*, in Panama

For several years members of the leishmaniasis transmission-reservoir group at Gorgas Memorial Laboratory have been examining live-trapped forest mammals for evidence of *Leishmania* infection. During 1956 and 1957, 21 common spiny rats, *Proechimys semispinosus* (Tomes), and one highland spiny rat, *Hoplomys gymnurus* Goldman, were found infected in Panama by cultures of heart blood. The infected spiny rats represented about 10% of those examined (Gorgas Mem. Lab. Ann. Rep. 1957, 1958). No parasites (L-D bodies) were found in smears or sections, nor were cutaneous lesions seen. Since that time many spiny rats have been examined by the same methods, but no additional infections have been demonstrated.

In Brazil, Forattini (1960, Rev. Inst. Med. trop. São Paulo 2: 195-203) reported natural cutaneous lesions containing L-D bodies in a cane rat, *Kannabateomys amblyonyx* (Wagner), and an agouti, *Dasyprocta azarae* Lichtenstein. He also found an infection in a paca, *Agouti paca* (L.), by means of blood culture. Alencar et al. (1960, Rev. Inst. Med. trop. São Paulo 2: 347-348) made heart-blood cultures of various wild-caught rodents, and of 153 domestic rats, *Rattus rattus alexandrinus*. They found one of the latter infected with what they felt was probably *L. braziliensis*. Natural cutaneous infections have been reported in British Honduras by Lainson and Strangways-Dixon (1964, Tr. Roy. Soc. Trop. Med. Hyg. 58: 136-153) in the rodents, *Oryzomys phyllotis* Merriam, *Nyctomys sumichrasti* Saussure, and *Heteromys demarestianus* Gray.

From October 1963 through February 1965 more than 300 wild mammals from Achioté, Colon Province, Panama, were examined by both smear and culture techniques. Human cutaneous leishmaniasis (*L. braziliensis sensu lato*) has been known to be endemic in the Achioté area for many years. Among the animals examined were 12 kinkajous [Procyonidae; *Potos flavus* (Schreber)]. Although kinkajous are common near Achioté, they were poorly represented in the sample because these arbo-

real animals proved to be difficult to livetrapped. On 20 January 1965 the eighth kinkajou from Achioté, a female, had a small light-colored papule about 5 mm in diameter near the edge of the right ear (Figs. 1-2). There was a minute scab on the papule and smears from the area revealed moderate numbers of L-D bodies. The papule of the naturally infected kinkajou contained L-D bodies for at least 44 days, but smears made on the 91st and 105th days were negative. Although pale spots of similar appearance were seen on the ears of



FIGURES 1-2. Kinkajou, *Potos flavus*, from Panama, naturally infected with *Leishmania*. 1. Papule near edge of right ear (arrow) $\times 0.5$. 2. Enlarged view of ear with papule. $\times 1.9$.

two subsequent kinkajous, no parasites could be found in them.

Material from the papule was removed with a hypodermic needle and inoculated intradermally in the noses of two hamsters. After 20 days the hamsters showed the swollen noses typical of infection with local strains of *Leishmania*, and L-D bodies were found in smears from both animals. Cultures from these animals subsequently infected two additional hamsters. Attempts to infect other kinkajous with this strain of *Leishmania* have not met with success so far, but the experiments are continuing in order to assess the possible role

of this animal in the epidemiology of human cutaneous leishmaniasis.

This is the first time that a cutaneous leishmanial infection contracted in nature has been found in a nonhuman host in Panama. It is also the first report of a *Leishmania* infection in a kinkajou or in this family of carnivores.

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