

DETECTION OF *LEISHMANIA BRAZILIENSIS* BY XENODIAGNOSIS

SIR,—*Leishmania braziliensis* infection in the majority of Panamanian sylvatic hosts is manifested by gross skin alterations such as ulcers, discrete nodules, areas of induration or depigmentation. However, the infection in the two-toed sloth *Choloepus hoffmanni* is completely cryptic, and its prevalence in this edentate exceeds that of all other hosts in Panama (HERRER and TELFORD, 1969).

The thick pelt of most sylvatic reservoir hosts is an effective barrier to the feeding probes of phlebotomine sandfly vectors. Feeding activity is therefore confined to bare or sparsely haired areas such as the face, ears, feet or tail. This circumscription of accessible feeding surfaces serves to localize areas of acquisition and transmission of *Leishmania* and provides the parasite with an obvious selective advantage. In addition, the mouth parts of phlebotomines must rupture a sufficient number of host capillaries to form a haemorrhagic pool from which the insect feeds. This activity results in considerable local trauma and subsequent ingestion of dermal tissue elements. The majority of sandflies observed in laboratory feedings on different hosts are unsuccessful in their initial attempts and probe several areas before finding a site sufficiently rich in capillaries to feed to repletion. Since mammalian immunological defences are usually successful in limiting the infection to loci of a few mm<sup>2</sup>, this feeding behaviour further enhances the opportunity for acquisition and transmission of cutaneous leishmaniasis.

Recognition of these considerations, which is basic to an understanding of New World cutaneous leishmaniasis epidemiology, has influenced the techniques we use in the detection of the parasites among sylvatic mammalian hosts. In all mammals examined for leishmaniasis small sections of skin are cultured routinely from the chin, nose, ears and feet, in addition to any site showing conspicuous dermal abnormalities (HERRER et al., 1966). Because of the asymptomatic nature of the infection in *C. hoffmanni* there is a danger of missing a cryptic infection. Sampling larger areas of skin would endanger the lives of these animals which are kept alive as long as possible to follow the course of natural infection.

*C. hoffmanni* is the principal reservoir host of *Leishmania braziliensis* in Panama. Accurate determinations of prevalence rates are essential to evaluations of sylvatic leishmanial endemicity in various areas of the country. To accomplish this we have initiated xenodiagnostic studies using laboratory-reared sandflies for the detection of cryptic infections in sloths. Newly captured sloths are tied to a restraining board. Lots of 10 or more laboratory-reared sandflies are released into a Barraud cage which is fastened over the head of the animal. Blood-engorged flies are held at 21–28°C. in plaster of paris lined shell vials and dissected after oviposition. Alimentary tracts of sandflies showing promastigote infections are triturated individually and cultured in Senekji's modified medium (HERRER et al., *loc. cit.*). Positive cultures are then inoculated into the nose of golden hamsters, *Mesocricetus auratus*, for confirmation of leishmanial infections.

We take this opportunity to report the first positive xenodiagnosis of cutaneous leishmaniasis from a naturally infected sylvatic reservoir host using laboratory-reared sandflies. Isolation was accomplished from 1 of 10 *Lutzomyia gomezi* which had fed on a two-toed sloth captured in a forested area near Cerro Trinidad, Panama. The parasite was identified as *Leishmania braziliensis* on the basis of morphology and cultural and pathological behaviour. Skin cultures from the chin, nose and both ears of the same edentate were negative for *Leishmania* but positive for *Endotrypanum schaudinni*.

