RESEARCH NOTE

Natural Infection of Lutzomyia rangeliana (Ortiz, 1952) (Diptera: Psychodidae) with Leishmania in Barquisimeto, Lara State, Venezuela

R Bonfante-Garrido+, R Urdaneta, I Urdaneta, J Alvarado, R Perdomo

Universidad Centroccidental “Lisandro Alvarado”, Decanato de Medicina, Departamento de Medicina Preventiva y Social, Unidad de Investigación en Parasitología Médica, Barquisimeto, Venezuela

Key words: cutaneous leishmaniasis - Lutzomyia rangeliana - Leishmania venezuelensis - Venezuela

Cutaneous leishmaniasis caused by Leishmania venezuelensis (Bonfante-Garrido, 1980) is endemic in dry urban areas in the central part of western Venezuela (R Bonfante-Garrido et al. 1992 Trans R Soc Trop Med Hyg 86: 141-148). This disease has been also found in cats (R Bonfante-Garrido et al. 1996 Rev Cient Fac Cienc Veter Univ Zulia Venezuela 3: 187-190). Lutzomyia olmeca bicolor (Fairchild & Theodor, 1971) formerly suspected as a vector of L. venezuelensis could not be found in dry urban areas where most of the cases of cutaneous leishmaniasis occurs. Lu. trinidadensis (Newstead, 1922) had been found infected with promastigotes, but isolates could not be maintained in culture media and into hamsters and, therefore, were not characterized (R Bonfante-Garrido et al. 1990 Mem Inst Oswaldo Cruz 85: 477). In October 1997, L. venezuelensis was isolated from two patients, father and son, with ulcerous lesions on the skin, one of them on the right shoulder and the other, on the left arm and chest. They lived at El Tostao, a peripheral sector of Barquisimeto city, in a house made of blocks, with a yard of about 800 m², with several trees and bushes. An entomological study was started in this house, on 12 November 1997. To date, 31 captures have been made, between 19 and 22 hr, using Shannon and CDC light traps, in the yard and in the bedrooms. We collected and examined for natural infection with flagellates 1,001 female sand flies. All of them were identified by examining their genitalia. Five species were found: Lu. cayennensis (Floch & Abonnenc, 1945) 337, Lu. rangeliana (Ortiz, 1952) 293, Lu. atroclavata (Knab, 1913) 278, Lu. trinidadensis 184 and Lu. dubitans (Sherlock, 1962) 9. Except for Lu. rangeliana, which is moderately anthropophilic, all are considered to feed preferentially on rodents and reptiles (I Ortíz 1968 Derm V enez 7: 530-538). Females were individually dissected following the PT Johnson et al. technique (1963 Exp Parasitol 14: 107-122); when infected with promastigotes, the intestinal tract was examined to observe their location, then it was picked up from the slide and carefully disrupted in 0.5 ml of sterile 0.9% sodium chloride solution. 0.1 ml of the suspension was inoculated into the footpad of hamsters. These animals were weekly examined for lesions. We found 23 (7.8%) Lu. rangeliana positive for flagellates. In 9 of these specimens fastly moving promastigotes were found in the midgut; in 2 they were in the foregut, midgut and pylorus; in 8, in the midgut and pylorus; in 1, only in the pylorus; in 1, in the midgut, pylorus and the rectal ampulla; and in 2, in the foregut, pylorus, rectal ampullae and Malpighian tubules. In 1 (0.3%) Lu. cayennensis flagellates were found in the pylorus, but the parasite has not yet been isolated. In hamsters, 17 isolates from Lu. rangeliana caused a tumor-like inflammation at the inoculation site, with histiocytes containing large number of amastigotes; after two months metastases were observed on limbs, nose, ears and tail. Other 12 hamsters inoculated with 6 of these isolates are still in observation. The strains isolated are morphologically and biologically very similar to L. venezuelensis. The source of these infection is probably a common rodent. Species identification of parasites isolated from Lu. rangeliana, by molecular techniques, is already in progress.

Financed by the CDCHT, Universidad Centroccidental “Lisandro Alvarado”, Venezuela.
+Corresponding author. Fax: +58-51-591894
Received 19 June 1998
Accepted 2 October 1998
Natural Infection of *Lu. rangeliana* with *Leishmania* • R Bonfante-Garrido et al.