

RESEARCH NOTE

Urban Visceral Leishmaniasis in Venezuela

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American visceral leishmaniasis is a protozoonosis caused by *Leishmania (L.) chagasi*, Cunha and Chagas 1937 (R Lainson & JJ Shaw 1987, p.1-104, In W Peters & R Killick Kendrick (eds), *The Leishmaniasis in Biology and Medicine, Biology and Epidemiology*, Vol I, Academic Press, London). The infection is transmitted to the mammalian host by the bite of female phlebotomine sandflies *Lutzomyia longipalpis* (G Grimaldi et al. 1989 *Am J Trop Med Hyg* 4: 687-725, OMS 1990 SIT No 793, Geneva). The disease is mainly prevalent in Brazil, Venezuela, Argentina (Chaco), with discrete endemic foci in Paraguay, Bolivia, Perú, Colombia, El Salvador, Honduras, Guatemala and México (L Rey 1992, *Parasitologia*, 2nd ed., Rio de Janeiro, 222 pp.). Although rural areas are the most affected, infection has been reported from urban and suburban regions of Brazil, such as the cities of Sobral and Russas (State of Ceará), Teresina (State of Piauí), Jacobina (State of Bahia), Rio de Janeiro (State of Rio de Janeiro) and Natal (State of Rio Grande do Norte), representing to the country the appearance and spreading of the disease in suburban areas of big cities one of

the emerging public health problems of the last few years (L Deane & G Grimaldi 1985, p. 247-281. In KP Chang & RS Bray (eds), *Leishmaniasis*, Vol I, Elsevier Amsterdam, S Jeronimo et al. 1994 *Trans R Soc Trop Med Hyg* 88: 385-388, RB Tesh 1995 *Am J Trop Med Hyg* 52: 287-292). Since the report of the first human case in Venezuela (NA Martínez Niochet & RS Pons 1941 *Gac Med Caracas* 48: 329-332), several more foci of the disease have been reported, the most important endemic areas being in the central-western, eastern and southern rural regions of the country (F Pifano 1954 *Arch Venez Pat Trop Parasit Med* 2: 213-219, JW Torrealba 1970 *Observaciones sobre Diagnóstico Terapéutica y Evolución de la Leishmaniasis Visceral Humana y Canina*, Thesis, Universidad de Carabobo, Valencia, Venezuela 367 pp., L García-Rivas 1993 *Dermatol Venez* 31: 39-46). Up to 200 cases had been reported by 1985, in foci where human cases were sporadic and the endemicity was low (JV Scorza et al. 1985, p. 289. In Chang & Bray *loc. cit.*). So far, no suburban leishmaniasis visceral focus have been referred in Venezuela.

In the central focus where Carabobo is located, cases of visceral leishmaniasis have been reported from rural areas and cases in hospitals originated in these areas (ADF Amaral et al. 1961 *Rev Inst Med Trop São Paulo* 3: 91-98, O Guinand & LA Rodriguez 1967 *Acta Med Venez* 17: 244-249). In 1989 we detected a 2.5 years old child with kalaazar, born and resident of a locality called Los Magallanes (CM Aguilar et al. 1992 *Acta Cientif Venez* 43: 191), where transmission of the disease had not been reported before. In order to determine the autoctonous suburban character of the disease in the metropolitan area of Valencia (State of Carabobo, central focus) we initiated a clinical, parasitological and seroepidemiological surveillance study in a suburban shanty town (Fig.) between 1989 and 1996. To date, we have clinically and parasitologically diagnosed three additional cases, and established a seroprevalence of 17.8% (128 seropositives of 718 individuals tested) using the ELISA test, from a population of 842 inhabitants. So far, most of the seropositive persons have remained asymptomatic or oligosymptomatic, as described by R Badaró et al. (1986 *J Inf Dis* 154: 639-649). For the evaluation of the zoonotic character of the disease already confirmed by JW Torrealba et al. (1961 *Rev Venez Sanid Asist Social* 26: 342-349) in the central focus of Venezuela, we carried out a census of 81 dogs (*Canis familiaris*), house by house, and blood sampling for serology by indirect fluorescent antibody test, according to S Coutinho et al. (1985 *Mem Inst Oswaldo Cruz* 80: 17-22), resulting in 27.3% posi-

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Location of "Barrio Los Magallanes" in a suburban area of the city of Valencia, Venezuela.

tives (21/77). We searched for parasites in 13 dogs with positive serology, after autopsy, finding amastigotes in Giemsa stained samples of ear pinna, bone marrow and/or liver in eight dogs. An indoor and outdoor capture strategy using a Shannon trap, during one year of capture (August 1992 - July 1993) was captured a total of 1757 species: 1280 (72.9%) *Lu. evansi*, 23 (1.3%) *Lu. longipalpis* and 454 (25.8%) the other species. So

much *Lu. longipalpis* and *Lu. evansi* are considered species vectors in Venezuela (ADF Amaral et al. 1961 *Gac Med Caracas* 70: 389-408, MD Feliciangeli et al. 1993 *Acta Cientif Venez* 44: 262). Dissection of the digestive tract of collected sandflies resulted in the detection of abundant promastigotes in the midgut in one *Lu. evansi* specimen. Parasites were isolated from bone marrow of two patients by inoculation of hamsters (*Mesocricetus auratus*) and subculturing spleen and liver tissue from these infected animals in NNN medium. Species identification of parasites isolated from humans, dogs and *Lu. evansi* by immunological and molecular biology techniques, are already in progress.

The data obtained indicate the presence of a real autochthonous suburban hypoendemic focus of american visceral leishmaniasis in the studied area. The local inhabitants have been resident of the locality for the last 20 years. The group at highest risk lived in the lowland area with climate features of tropical dry forest, where the sandflies live and frequently invade the human dwellings. In this way, a new ecological niche has been activated for visceral leishmaniasis in the metropolitan area of the city of Valencia, as it has been pointed out in Brazil by S Cunha et al. (1995 *Trans R Soc Trop Med Hyg* 89: 155-158). The present data should encourage health authorities to carry out control measures to avoid further spread of the disease.

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