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Short Communication

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Leishmania (*Viannia*) *braziliensis* is the main species causing cutaneous leishmaniasis in the Federal District of Brazil

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Abstract: The first autochthonous case of American cutaneous leishmaniasis was reported in the Federal District in 1980, and the species involved in this type of leishmaniasis was unknown. This study aimed to identify the species that causes the disease in the Federal District and to investigate its clinical and epidemiological aspects. Between 2000 and 2007, 71 autochthonous cases of leishmaniasis were reported in the Federal District. *Leishmania* species were identified by means of direct immunofluorescence reactions using monoclonal antibodies and restriction fragment length polymorphism. The species of 40 (56.33%) out of 71 samples were identified. Thirty-six (90%) were identified as *Leishmania (Viannia) braziliensis* and four (10%) were identified as *Leishmania (Leishmania) amazonensis*. In this area, the disease had clinical and epidemiological characteristics similar to those found in other Brazilian regions.

Key words: American cutaneous leishmaniasis, *Leishmania Viannia braziliensis,* Federal District, autochthonous cases.

According to data from the World Health Organization, one person becomes infected with cutaneous leishmaniasis every 20 seconds (1). Brazil has the highest global incidence of American cutaneous leishmaniasis (ACL), and the disease has been spreading throughout its regions since 1980 (1, 2).

The first autochthonous case of ACL in the Federal District (FD) was published in 1980. It was identified in a two-year-old child who lived in the Administrative Region (AR) of Guara and who had never left the Federal District (FD) (3). In the early 1990s, the urban presence of *Lutzomyia (Nyssomyia) whitmani* (phlebotomine sand flies) was reported in the FD (4, 5). Four years later, four cases of ACL were published, and the hypothesis of peridomestic infection was raised. This hypothesis has now been strongly reinforced by several findings (6-8).

The objective of this study was to identify the *Leishmania* species that cause ACL in the FD and to investigate the clinical and epidemiological aspects of the disease. It is a descriptive study conducted from 2000 to 2007 in the FD, Central-West Region (CWR) of Brazil. In this period 329 cases were reported to the National Notifiable Diseases Information System (SINAN). Of them, 71 patients met the criterion of having lived in and had never left the FD for more than six months before the diagnosis and 40 of these patients were treated at the University Hospital of Brasilia (HUB) (reference center for the diagnosis and treatment of ACL according to the Brazilian Ministry of Health) and were selected for study.

The criteria used for diagnosis were clinical and epidemiological history and at least two positive or compatible tests (demonstration

of amastigotes, indirect immunofluorescence, Montenegro skin test).

We used samples of cultures that had been cryopreserved in the Laboratory of Dermatomycology and biopsy imprints on filter paper collected from the lesions to identify the *Leishmania* species. The techniques used for species identification were PCR-RFLP (restriction fragment length polymorphism), according to a protocol by Medeiros *et al.* (9), and direct immunofluorescence with monoclonal antibodies, according to Shaw *et al.* (10).

This study is in compliance with the resolution n. 196/96 of the National Health Council, Brazilian Ministry of Health, on research involving human participants. The Research Ethics Committee of the University of Brasilia also approved the research (005/2005).

The patients came from nine different administrative regions of the FD. The administrative region of São Sebastião presented the greatest number of Individuals (n = 21), followed by Planaltina (n = 8), Sobradinho (n = 3), Gama and Paranoá (each of these AR presented 2 individuals). Brazlândia, Taguatinga, Ceilândia, and Riacho Fundo had one case each.

Thirty-six patients were infected with *L. (V.) braziliensis* and four with *L. (L.) amazonensis.* This result was consistent with the two techniques. Thirty four patients presented a single lesion, while six had multiple lesions. The lesions presented as ulcers in 38 patients, while two patients had papules. The size of the ulcers varied from small in 27 individuals to medium and large in eight and four people, respectively (Table 1).

Thirty-three patients were male and 32 were over 21 years old. Thirty of them lived and worked in cities (Table 2).

The study showed that most patients were from the AR of São Sebastião, which had an outbreak in 2003 and a high incidence of cases in 2006 and 2007 (11). However, these data are not enough to determine that they were infected in that region.

The urban and rural populations of the FD, located in the Central-West Region of Brazil, have increased significantly since the 1960s, when Brasilia, the federal capital, started to be built. This increase was especially due to migratory movements of people from other states of the country to the region and led to deforestation and

Table 1. Clinical data of 40 individuals with autochthonous American cutaneous leishmaniasis in the Federal District, Central-West Region of Brazil

Number of lesions n (%)	Isolated 34 (85)	Multiple 6 (15)	––	––
Lesion sites n (%)	Arms 10 (30)	Legs 24 (70)	Arms and legs 5 (83)	Head and thorax 1 (17)
Aspect of lesions n (%)	Ulcer 38 (95)	Papule 2 (5)	––	––
Area of lesions (cm^2) n (%)	1 to 10 27 (69)	10.1 to 20 8 (21)	More than 20 5 (10)	––

Table 2. Epidemiological data of 40 individuals with autochthonous American cutaneous leishmaniasis in the Federal District, Central-West Region of Brazil

Gender n. (%)	**Age (years) n. (%)**	**Place of infection n. (%)**
Male 33 (83)	10 to 20 8 (20)	City 30 (75)
Female 7 (18)	21 or more 32 (80)	City surroundings 10 (25)

environmental changes, which may have caused the vector to change habitat.

This study was the first to identify the *Leishmania* species in the chain of transmission of the FD. It was found that *L. (V.) braziliensis* is responsible for most cases of the disease. The high frequency of these species corroborates the findings of other endemic regions of Brazil (2). The high frequency of *L. (V.) braziliensis* coincides with the frequent finding of *L. whitmani,* a sand fly that can transmit this parasite to humans and domestic mammals (12, 13). In contrast, the low frequency of *L. (L). amazonensis* could be attributed to the low anthropophilia of its most frequent vector, *L. flaviscutelata,* which has also been found in the FD.

The individuals with autochthonous ACL predominantly presented small isolated ulcerative lesions on the legs. These findings are similar to those commonly described for this infection (14-17). The predominance of isolated lesions on the legs reflects the area of exposure to the bite of the vector, while bigger ulcerative lesions could be related to a delay in seeking medical assistance.

In conclusion, these findings could improve knowledge about how ACL behaves in the FD of Brazil and help to establish control and prevention measures.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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ETHICS COMMITTEE APPROVAL

The present study was approved by the Research Ethics Committee of the University of Brasília, Brasília, DF, under registration number 005/2005. Furthermore, it is in compliance with the resolution n. 196/96 of the National Health Council, Brazilian Ministry of Health, on research involving human participants.

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