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

Santos GM (1), Kückelhaus SA (2), Roselino AM (3), Chaer WK (4), Sampaio RNR (1)

(1) Dermatology Service, University Hospital of Brasília, Laboratory of Dermatomycology, School of Medicine, University of Brasilia, Brasília, Brazil; (2) Laboratory of Histology and Embryology, Morphology Area, School of Medicine, University of Brasilia, Brasília, Brazil; (3) Multiuser Laboratory of Molecular Biology, Department of Internal Medicine, Ribeirão Preto School of Medicine, University of São Paulo (USP), Ribeirão Preto, São Paulo State, Brazil; (4) Higher School of Health Sciences, Federal District Health Department, Brasília, Brazil.

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.
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). Braslândia, 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

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<tr>
<th>Table 1. Clinical data of 40 individuals with autochthonous American cutaneous leishmaniasis in the Federal District, Central-West Region of Brazil</th>
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<tbody>
<tr>
<td><strong>Number of lesions</strong></td>
</tr>
<tr>
<td>n (%)</td>
</tr>
<tr>
<td>34 (85)</td>
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<tr>
<td><strong>Lesion sites</strong></td>
</tr>
<tr>
<td>n (%)</td>
</tr>
<tr>
<td>10 (30)</td>
</tr>
<tr>
<td><strong>Aspect of lesions</strong></td>
</tr>
<tr>
<td>n (%)</td>
</tr>
<tr>
<td>38 (95)</td>
</tr>
<tr>
<td><strong>Area of lesions (cm²)</strong></td>
</tr>
<tr>
<td>n (%)</td>
</tr>
<tr>
<td>27 (69)</td>
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<th>Table 2. Epidemiological data of 40 individuals with autochthonous American cutaneous leishmaniasis in the Federal District, Central-West Region of Brazil</th>
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<tbody>
<tr>
<td><strong>Gender</strong></td>
</tr>
<tr>
<td>n. (%)</td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
</tr>
<tr>
<td>n. (%)</td>
</tr>
<tr>
<td><strong>Place of infection</strong></td>
</tr>
</tbody>
</table>
| n. (%) | City | 30 (75) | City surroundings | 10 (25) | 341
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.

CORRESPONDENCE TO

Raimunda Nonata R. Sampaio, SHIS QI 25, conjunto 2, casa 1, Brasília, Distrito Federal, 71660-220, Brasil. Phone: + 55 61 3367 1331. Email: raimunda.sampaio@gmail.com.

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Santos GM, et al. L. braziliensis is the main cause of leishmaniasis in the Federal District of Brazil


