Tegumentary leishmaniasis by Leishmania braziliensis complex in Bolivia: the presence of L. braziliensis outlier

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Abstract

Leishmaniasis is caused by protozoans of the Leishmania genus, which includes more than 20 species capable of infecting humans worldwide. In the Americas, the most widespread specie is L. braziliensis, present in 18 countries, including Bolivia. The taxonomic position of the L. braziliensis complex has been a subject of controversy, complicated further by the recent identification of a particular subpopulation named L. braziliensis atypical or outlier. The aim of this study was to carry out a systematic analysis of the L. braziliensis complex in Bolivia and to describe the associated clinical characteristics. Forty-one strains were analyzed by sequencing an amplified 1245 bp fragment of the hsp70 gene, which allowed its identification as: 24 (59%) L. braziliensis, 16 (39%) L. braziliensis outlier and one (2%) L. peruviana. In a dendrogram constructed, L. braziliensis and L. peruviana are grouped in the same cluster, whilst L. braziliensis outlier appears in a separate branch. Sequence alignment allowed the identification of five non-polymorphic nucleotide positions (288, 297, 642, 993 and 1213) that discriminate L. braziliensis and L. peruviana from L. braziliensis outlier. Moreover, nucleotide positions 51 and 561 enable L. peruviana to be discriminated from the other two taxa. A greater diversity, was observed in L. braziliensis outlier than in L. braziliensis- L. peruviana. The 41 strains came from 32 patients with tegumentary leishmaniasis, among which 22 patients (69%) presented cutaneous lesions (11 caused by L. braziliensis and 11 by L. braziliensis outlier) and ten patients (31%) mucocutaneous lesions (eight caused by L. braziliensis outlier and one by L. peruviana). Nine patients (28%) simultaneously provided two isolates, each from a separate lesion, and in each case the same genotype was identified in both. Treatment failure was observed in six patients infected with L. braziliensis and one patient with L. peruviana.

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