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Leishmania (Viannia) lindenbergi: an intriguing apparently restrictively-distributed parasite causing American cutaneous leishmaniasis in an Amazon metropolitan area of Brazil

Fernando Tobias Silveira and Thiago Vasconcelos dos Santos Instituto Evandro Chagas, Brazil

Statement of the Problem: American cutaneous leishmaniasis (ACL) is endemic in Amazonian Brazil and etiologically-related to several cohabiting *Leishmania* species causing a wide immuno pathological spectrum of human disease. In this regard, an emerging situation in recent years regarding an outbreak of ACL due to *Leishmania* (Viannia) lindenbergi in the metropolitan area of Belém, the capital of Pará State, northern Brazil, was the aim of the present study.

Methodology & Theoretical Orientation: Data were surveyed at the Instituto Evandro Chagas (IEC), from 1996 to 2016, based on clinical, epidemiological and environmental aspects of ACL outbreaks occurred in Belém metropolitan area (BMA), Pará State, Brazil. Patients were clinically examined and epidemiologically investigated. Parasites from cutaneous lesions were isolated into culture media prior inoculation in hamsters, and furthermore characterized with immunofluorescence reaction with monoclonal antibodies. Entomological data were acquired in surveys spatiotemporally congruent with the patient's investigations using CDC and Shannon light-baited traps. Dissected phlebotomine females were searched for flagellates.

Findings: A total of 64 patients belonging to the BMA were investigated in the IEC. ACL etiology accounted *L.* (*V.*) *lindenbergi* (40/62.5%), followed by *L.* (*V.*) *lainsoni* (19/28.1%) and *L.* (*L.*) *amazonensis* (5/7.8%). Cutaneous lesions ranged from 1 to 6. No diffuse or mucosal commitments were observed. Infections found in Bichromomyia flaviscutellata proved to be *L.* (*L.*) *amazonensis*, as our past knowledge conduct Trichophorum ubiquitous to be associated to *L.* (*V.*) *lainsoni*. Despite vector survey didn't found fundamental evidences (i.e. natural infection) about the transmission of *L.* (*V.*) *lindenbergi*, Nyssomyia antunesi was the most suggestive vector species (i.e. anthropophilic behavior, dominant population, and vector-disease spatiotemporal congruence).

Conclusion & Significance: Despite benign nature of L. (V.) lindenbergi-ACL, emerging cases in a not well-understood scenario is worrisome. Underreporting should be also considered. To avoid such bias, it is absolutely important that other researchers should consider this parasite species on their surveys. It remains intriguing that differently from *L. (V.) lainsoni and L. (L.) amazonensis, L. (V.) lindenbergi* has never been recorded in other ecological scenarios.

fernandotobias@iec.pa.gov.br