



Diffuse cutaneous leishmaniasis (DCL) and visceral leishmaniasis (VL) concurrent with cancer: Presentation of a case

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Abstract

Male of 52 year old with chronic alcoholism and ulcerated lesion on the face and disseminated nodular skin lesions, underwent to biopsy of ulcer edges where was observed a concomitant epidermoid malignancy with *Leishmania* (*L.*). Besides others, biopsies of nodule in the periumbilical region, lymph node and bone marrow were assayed, and all biopsies had abundant amastigotes. The amplified Polymerase Chain Reaction (PCR) products from nodule were sequenced and the alignment analysis demonstrated homology with *L. mexicana* confirming the infection by this parasite. This is considered the first case of visceral and diffuse cutaneous leishmaniasis concurrent with epidermoid cancer in the state of Campeche. (Gac Med Mex. 2017;153:112-5)

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Introduction

Localized cutaneous leishmaniasis (LCL), diffuse cutaneous leishmaniasis (DCL), mucocutaneous leishmaniasis (MCL) and visceral leishmaniasis (VL) are a group of diseases with diverse clinical manifestations caused by different protozoan species of the *L.* genus. Among these types of leishmaniasis, DCL is the rarest clinical

form and VL is potentially fatal. In both forms of presentation, the number of cases has progressively increased owing to immunosuppression states such as HIV and undernourishment, which represents a serious public health problem. On the other hand, reports on leishmaniasis association with cancer are scarce. We present an unusual case where *L. amastigotes* were found to be present on lymph nodes and bone marrow concurrently with squamous cell carcinoma (SCC).

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Clinical case

This is the case of a 52-year old male patient, native to Veracruz and resident (22 years) of the Escárcega municipality, Campeche, who worked as a peasant, and had a poor nutritional status and chronic alcoholism. He attended the Specialty Hospital with a presumptive diagnosis of SCC of a facial ulcerated lesion (Fig 1 A), referring that the lesion was treated for 3 years as herpes. The patient did not experience any improvement; on the contrary, he observed growth and ulceration of the lesion and, approximately 3 months prior, he developed disseminated nodular skin lesions (Fig. 1 B). He referred no sensitivity loss. Biopsy was taken of a periumbilical region lymph node, with abundant macrophages invaded by numerous amastigotes being found in hematoxylin-eosin-stained sections. One fragment of the biopsy was used for DNA amplification and parasite isolation in culture and murine model. Biopsy of the ulcer was also obtained, where squamous cell malignant neoplasm with dermis and subcutaneous cell tissue invasion was observed; co-existing with these cells, parasitized macrophages were observed (Fig. 1C).

The following was obtained in complementary studies: on abdomen and pelvis CT scan, lymphomegalies on inguinal regions, as well as on axillary pits, in addition to hepatosplenomegaly; blood count revealed thrombocytopenia and leucopenia; ELISA for HIV was negative, as well as the intradermal test reaction. Subsequently, biopsy was taken from a mobile, non-painful and fixed retroauricular lymph node, as well as from the bone marrow, with staining showing round or oval-shaped microorganisms with central nucleus and kinetoplast (amastigotes) (Fig. 1 D), which confirmed visceral involvement. PCR typing of isolates and tissue-extracted DNA corresponded to *L. mexicana*; the species was not identified in bone marrow and lymph node. PCR amplification products were sequenced and aligned with GenBank-reported *L.* sequences, which confirmed the infection with *L. mexicana*.

Discussion

The presented case exhibits multiple diffuse, non-ulcerated nodular lesions with abundant amastigotes, which is consistent with DCL clinical presentation¹, in addition to visceromegalies with clinical and systemic alterations, with visceral infection being histopathologically confirmed by the presence of amastigotes in the bone marrow. Both VL and DCL have been associated

with HIV²⁻⁵; however, in this reported case the patient was HIV-negative, which is unusual. An important data is patient undernourishment, probably owing to chronic alcohol consumption, which is highly associated with digestive and nutrient absorption alterations, which generate secondary undernourishment and immune response alterations that cause higher susceptibility to infections, which might favor the development of these leishmaniasis aggressive forms^{6,7}. The multifactorial causes that can produce SCC include, in addition to immunosuppression, physical, chemical and biological factors such as scars and chronic wounds⁸. In this case, misdiagnosis gave way to a chronic lesion where malignant cellular alterations concomitant with *L.* amastigotes were observed, which is consistent with other reports on cancer and leishmaniasis coexistence at the same lesion site⁹. As other authors, we cannot affirm that the presence of *L.* in the lesion is the cause for the development of malignant neoplasm, since there are not sufficient records to support this; however, the risk due to a chronic lesion does exist. On the other hand, VL in immunosuppressed patients has been shown to be able to produce cutaneous dissemination¹⁰. It cannot be assured that this happened with the patient, since his disseminated nodular lesions with abundant amastigotes indicate DCL concurrent with VL, where *L.* amastigotes are found in the bone marrow, unlike in DCL¹¹.

In Mexico, VL is caused by *L. chagasi* in the states of Chiapas and Guerrero, and by *L. mexicana* in the state of Tabasco¹²; DCL is caused by *L. mexicana* and *L. amazonensis* in the states of Tabasco and Veracruz¹³. In Campeche, LCL has been reported to be caused by *L. mexicana* and species of the *braziliensis* complex. When isolate typing was performed, *L. mexicana* was found to be the causative agent, which is consistent with observations described for DCL in Mexico^{13,14}.

The present finding of leishmaniasis has been fortuitous, when biopsies were taken to study a probable cancer case. The peculiarity of this case indicates that when establishing clinical diagnosis of skin cancer in people with chronic alcoholism in leishmaniasis-endemic zones, inapparent forms of infection should be suspected, since there is the possibility that it occurs in the same way as in *L.* and HIV co-infection, where unusual clinical forms can occur, as well as visceral involvement caused the species that produce skin lesions or vice versa^{11,15}.

Interestingly, no case of leishmaniasis with these clinical characteristics had ever occurred in Mexico, and this is therefore considered to be the first case of DCL and VL concurrent with SCC in the state of Campeche.

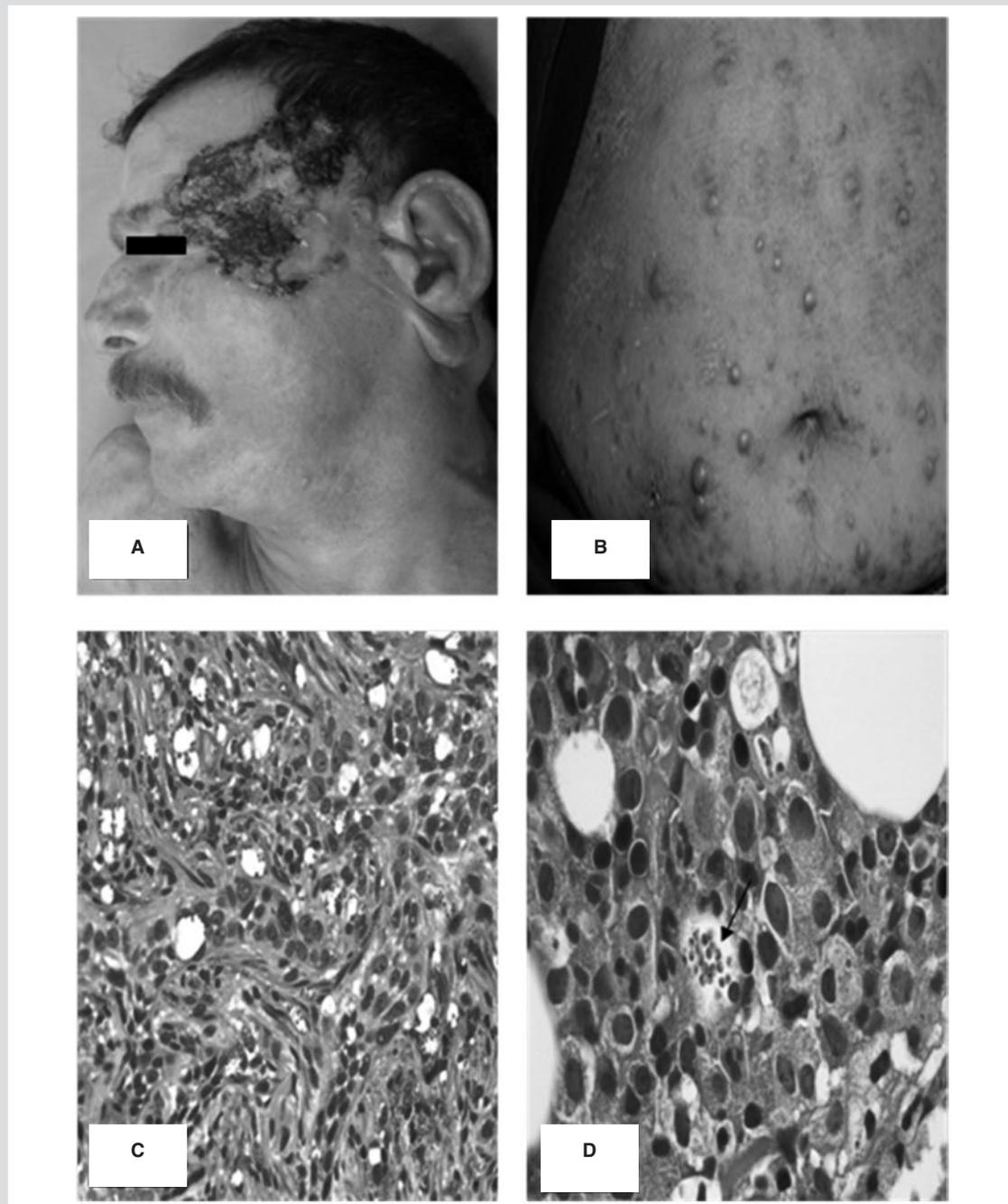


Figure 1. A: ulcer with eyelid retraction, lagophthalmos and chronic conjunctivitis. **B:** nodules disseminated on the trunk and limbs. **C:** malignant epithelial cells with abnormal mitoses characteristic of squamous cell carcinoma, alternating with *Leishmania* parasitized histiocytes and abundant extracellular microorganisms. **D:** bone marrow biopsy, where numerous *Leishmania* amastigotes are observed in the cytoplasm of histiocytes (Figs. C and D stained with hematoxylin-eosin 400x).

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