American Cutaneous Leishmaniasis: a Pleomorphic Disease with Unusual Clinical Presentations

CASE REPORT

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Abstract

Background: Cutaneous leishmaniasis (CL) is an infectious disease caused by a protozoan of the genus Leishmania and is transmitted by the anopheline mosquito. This study focused on describe three cases of atypical clinical presentations on patients with American cutaneous leishmaniasis from Dermatology Department of the State University of the State of Pará.

Methods and Findings: A case report of three patients assisted at a referral service between 2017 and 2019, based on clinical interview, histopathological analysis and polymerase chain reaction. On the first patient, it was observed keratotic erythematous vegetative plaque measuring 10x8 cm, with satellite lesions, in the left lower limb; the second patient presented an erythematous infiltrated plaque with crusts, on left ear for 6 months, with progressive growth; the third patient showed erythematous infiltrated plaques, sometimes ulcerated, in the trunk and face, with a zosteriform aspect. All three patients had the diagnosis confirmed by polymerase chain reaction and histopathological analysis.
Introduction

Cutaneous leishmaniasis (CL) is an infectious disease caused by a protozoan of the genus Leishmania and is transmitted by the anopheline mosquito. CL is endemic in Brazil and is found in all Brazilian regions, reaching epidemic levels in some areas. It is present in at least 88 countries and is considered by the World Health Organization (WHO) as one of the most important infectious diseases, due to its high prevalence and capacity to produce deformities. [1, 2]

The most common clinical presentation of American cutaneous leishmaniasis (ACL) is the localized form, accounting for about 95% of cases, in which there is a single lesion at the mosquito bite site, most often characterized by a single ulcer, with well delimited edge, infiltrated, painless, with granular bottom, erythematous, somewhat exudative. However, there are also impetigoid, eczematoid, verrucous, infiltrative, nodular, tuberous, lupoid and sporotrichoid presentations. [3]

The clinical form is mainly determined by the host immune response, and the localized form is mainly related to an intense cellular response associated with interferon-γ, TNF-α, IL-2, IL 12 production, while the most severe forms are more related to the IL-4, IL-5, IL-10 and IL-13 production pathway. [4, 5]. The main sites where lesions are found are exposed areas such as the face, forearm, and lower limbs, and may have clinical course from months to weeks [6, 7]

The diagnosis of ACL encompasses epidemiological, clinical and laboratory aspects (parasitological and immunological diagnostic research). Often the association of some of these elements is necessary to reach the final diagnosis. The diagnosis can therefore be made by epidemiological patient data, typical presentation of the lesions, histopathological analysis of the periphery of the lesions, Montenegro's reaction or polymerase chain reaction. [7]

Histopathological analysis generally shows hematogenous lesion, lymphohistiocytic or plasmolinfohistiocytic infiltration, in addition to the so-called Montenegro clearings, which consist of accumulations of epidermoid cells. Another interesting finding is the presence of leishmanias inside macrophages, being inversely proportional to the disease evolution time, better visualized in the giemsa coloration. [7]

Polymerase chain reaction (PCR) is an examination that allows exponentially amplifying DNA sequences. With exceptional sensitivity, it is capable of detecting quantities as small as a phentogram (which corresponds to 10-15g) of a leishmania’s DNA, the equivalent of 1/10 of the parasite. [7]

Conclusions: The wide range of clinical manifestations may be related to factors such as: use of immunosuppressive drugs, concomitant infections with more than one variety of Leishmania spp. and association with other systemic diseases, with HIV co-infection and diabetes being the main associated diseases. Thus, it is always necessary to evaluate such comorbidities on patients with leishmaniasis suspicion, in order to avoid misdiagnosis.

Keywords: Dermatology; Mucocutaneous Leishmaniasis; Public Health.
cation is the pentavalent antimonial, which acts directly on the parasite metabolism, as well as on the increase of macrophage activity in the sense of degradation of the invader. Other systemic drugs that may be used include amphotericin B, pentamidine and imidazole drugs. Regarding topical therapy, the possibility of using the antimony meglumine itself, as well as cryotherapy and the use of CO2 laser, has been suggested. [8, 9].

Case Report

Case 1
ACP, 33 years old, residing in Mocajuba (186 km from the capital), a bricklayer, reporting the appearance of a lesion with progressive growth in the left leg, 1 year ago. He reported having been treated with intralesional corticosteroids in her city due to the suggestion of keloid hypothesis, without any improvement. She sought medical attention specialized in the dermatology service of the State University of Pará (UEPA) where at the clinical examination was observed keratotic erythematous vegetative plaque measuring 10x8 cm, with satellite lesions, in the left lower limb. An incisional biopsy was performed, which showed vacuolated macrophages with rounded structures in the periphery, with a suggestive morphology of leishmania, sometimes sketching granulomas. Giemsa positive for leishmanias. Also was performed the PCR that was compatible with Leshmania (Leishmania) amazonensis. General laboratory tests (including blood glucose, kidney, liver and blood function) and electrocardiogram were within normal limits. Serology for HIV and hepatitis were negative. There was performed two cycles with glucantime at a dose of 20 mg / day, with gradual improvement of the lesion appearance, reducing infiltration and erythema. Still in follow-up at the service, with improvement by each monthly return, despite showing residual keloid aspect.

Case 2
EGO, 14 years old, from Iritua (121 km from the capital), student, evolving with erythematous infiltrated plaque with crusts, on left ear for 6 months, with progressive growth. Histopathological examination revealed vacuolated macrophages filled with rounded peripheral structures with positive Giemsa staining for leishmanias, sometimes sketching granulomas. Requested PCR compatible with Leshmania (Viannia) sp. General examinations including biochemistry and electrocardiogram were requested, both within normal range and serology for HIV and hepatitis negative. The treatment with glucantime 15mg / day for 20 days was done, with resolution of the condition.

Case 3
RSR, 26 years old, residing in Barcarena (36 km from the capital), sought care by referring to the emergence of sometimes itchy lesions on the trunk 3 months before entering the service. The hypothesis made in his city, in the basic health unit, was herpes zoster, treated with oral and topical acyclovir, without improvement of the lesions. He was admitted to the UEPA Dermatology Service with erythematous infiltrated plaques, sometimes ulcerated, in the trunk and face, with a zosteriform aspect. Histological findings showed chronic ulcerated dermatitis with intense superficial and deep lymphoplasmic inflammatory infiltrate with foci of epithelioid reaction. Sparse clusters of small structures are also noted, highlighted by the Giemsa coloration. PCR compatible with Leshmania (Viannia) sp. General laboratory and electrocardiogram were within normal range and serology for HIV and hepatitis were negative. Treatment was performed with 2 cycles of glucantime of 20 days each, at a dose of 20 mg / kg / day, with resolution of the condition.

All 3 cases are being followed up with periodic returns to the referred service. (Table 1, figure 1)
Table 1. Case Overview.

<table>
<thead>
<tr>
<th>Case</th>
<th>Clinical Presentation</th>
<th>Lesion Aspect</th>
<th>Origin City</th>
<th>Evolution Time</th>
<th>Leishmania Variety</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Localized</td>
<td>Keloid form</td>
<td>Mocajuba</td>
<td>1 year</td>
<td>Leishmania (Leishmania) Amazonensis</td>
</tr>
<tr>
<td>2</td>
<td>Localized</td>
<td>Infiltrative plaque</td>
<td>Irituia</td>
<td>6 months</td>
<td>Leishmania (Viannia) sp</td>
</tr>
<tr>
<td>3</td>
<td>Spread</td>
<td>Zosteriform</td>
<td>Barcarena</td>
<td>3 months</td>
<td>Leishmania (Viannia) sp</td>
</tr>
</tbody>
</table>

Figure 1: Three Cases.

A) Patient 1; B) Patient 2; C & D) Patient 3.
Discussion

American cutaneous leishmaniasis (ACL) is a multiformal disease with a variety of presentations. It is a public health problem in Brazil and its importance lies not only in the high incidence and wide geographic distribution, but also in the possibility of taking forms that can delay the diagnosis and determine destructive, disfiguring as well as disabling injuries, with great repercussion in the psychosocial field of the individual. [10, 11]

Classically, its condition is initially characterized by the appearance of small papules or nodules, which may be single or multiple, usually located in exposed skin areas. After a few months (about 6 to 15), it usually develops into circular ulcers with raised, infiltrated, deep, coarse, reddish granulation with serous or seropurulent exudate. [10, 11]

However, ACL can present itself in unusual ways. In a systematic review by Meireles et al. (2017), atypical forms such as eczematous, lupic, verrucous, dry, zosteriform, nodular lesions, keloidiform, sporotrichoid, lymphoid, psoriatic, among others, have been described. Among these forms, the patients in the present report presented the keloidiform, zosteriform and infiltrated plaque forms. [10]

These varieties of presentations might be misdiagnosed with other unrelated diseases, such as syphilis, sporotrichosis, leprosy, etc., requiring the association of epidemiological, laboratory (parasitological and immunological diagnostic) and histopathological aspects to arrive at the correct diagnosis. In these 3 reported cases, the association of histopathology with PCR proved to be useful in identifying the parasite, allowing accurate diagnosis.

The wide range of clinical manifestations may be related to factors such as: use of immunosuppressive drugs, concomitant infections with more than one variety of Leishmania spp. and association with other systemic diseases, with HIV co-infection and diabetes being the main associated diseases. [12, 13]

Coinfection with HIV causes the emergence of unusual clinical forms and this fact is due to the synergy present in the infectious mechanisms of both diseases, since leishmanias tend to infect especially myeloid cells, favoring the proliferation of HIV. On the other hand, lymphocyte depletion promoted by HIV favors the invasion of macrophages by leishmanias, creating a positive feedback loop of both diseases. Diabetes, on the other hand, decreases host defense by compromising the T lymphocyte response, facilitating the development of leishmaniasis. Thus, anti-HIV serology and a laboratory that includes diabetes screening should always be requested, as were performed on the patients reported here. [14, 15]

Regarding therapy, the approach depends on the clinical manifestations, the location and the extent of the lesion. These include systemic or intraleisional pentavalent antimonials, sodium stibogluconate and cryotherapy. For the cases reported here, systemic N-methylglucamine (Glucantime®) antimoniate (15-20 mg / kg / day) was chosen for 20 days per cycle, with good response and regression of the lesions of the 3 cases. [16, 17, 18]

The authors considered important to report these cases of cutaneous leishmaniasis, of infrequent presentation, and to draw attention to the fact that despite the high incidence of this condition, the diagnosis is often hampered by the wide variety of presentations, which may lead to underdiagnosis and a worse prognosis of those patients.

References


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