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Case report

Cutaneous leishmaniasis mimicking cutaneous lymphoma

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ABSTRACT

Cutaneous leishmaniasis (CL) is caused by protozoa of *Leishmania* genus that are transmitted to humans through the bite of sand flies (*Lutzomyia* and *Phlebotomus*). The infection is classically manifested as multiple or single ulcers affecting cutaneous and/or mucosal areas of the body. Atypical lesions are relatively uncommon, being able to simulate a large variety of benign and malign dermatological disorders. In this article, we described a case of CL mimicking a clinical presentation of cutaneous lymphoma.

Introduction

Cutaneous leishmaniasis (CL) is a non-contagious vector-borne disease caused by protozoa of the *Leishmania* (*L.*) genus that are transmitted to humans through the bites of female sand flies (*Lutzomyia* and *Phlebotomus*) [1]. The infection affects skin and/or mucous membranes and has a great capacity to cause deformities [2]. CL is endemic in more than 90 countries and approximately 0.7–1.2 million of cases occur each year worldwide [3]. In American continent, Brazil accounts for almost 35% of the CL occurrences [4].

CL is known to have a large clinical polymorphism, which are generally associated with the infecting *Leishmania* specie and the immunological relationship between host and parasite [5]. The classic presentation is the appearance of a papule or erythematous nodule, usually in exposed areas of the skin, that after weeks or months evolve into a painless ulcer with regular contours, raised infiltrated borders and grained background covered by a seropurulent exudate [2]. If untreated, the lymphatic or hematogenous dissemination of the *Leishmania* can also lead to additional destructive mucosal lesions [1]. More rarely, CL may present as uncommon clinical forms, such as eczematous, zosteriform, verrucous, lupoid, sporotrichoid, hyperkeratotic, among others. Some of these variants are able to mimic other cutaneous disorders, contributing to misdiagnosis and unnecessary treatments [6].

In this paper, we described a case of CL mimicking cutaneous lymphoma in a previously healthy patient.

Case

A 27-year-old man, resident in the municipality of Barcarena (01°30′ S and 48°37′ W), northern Brazil, presented at the Dermatology Outpatient Clinic of Pará State University (Belém, Pará, Brazil) with the complaint of solid pruritic lesions on the trunk for the past 3 months. The case was empirically diagnosed as herpes zoster by another medical service and the patient was referred to our department for a skin biopsy procedure. At admission, he denied comorbidities/allergies and assumed to using oral and topical acyclovir irregularly without clinical improvement. Cutaneous examination revealed an infiltrated erythematopapular plaque with well-defined borders and irregular contours measuring about 15 cm in its largest diameter. The eruption presented a band-like appearance and was located on the left anterior region of the trunk (Fig. 1A). Moreover, an erythematous nodule located on the right cheek was also observed (Fig. 1B).

Based on clinical presentation, the initial hypotheses were CL, cutaneous lymphoma or herpes zoster. Diagnostic investigation was started by performing a skin biopsy and serum serologies for HIV-1/2, HTLV-1 and hepatitis B/C. Two months later, the patient

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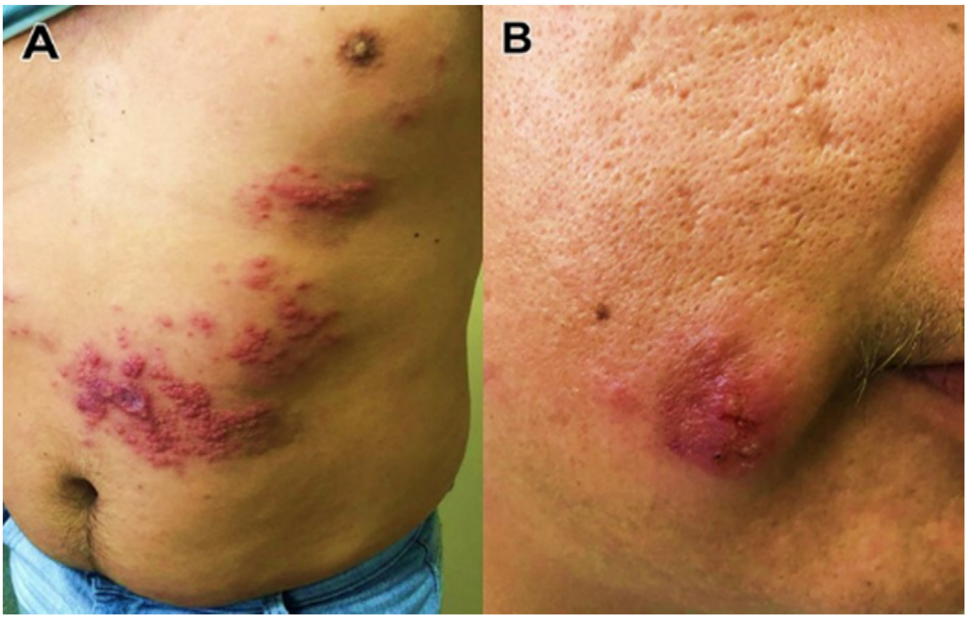

Fig. 1. Infiltrated erythematopapular plaque on the left anterior region of the trunk (A). Erythematous nodule on the right cheek (B).

returned without clinical change and negative serologies. Histopathological evaluation of the specimen demonstrated dermis with fibrous thickening and lymphoid cell proliferation characterized by diffuse and focal clusters of atypical cells infiltrating from the surface into the hypodermis. An intense vacuolar alteration in the epidermis was also noticed. In addition, microscopic direct detection of *Leishmania* had a negative result. The case was then assumed as an inconclusive tegmental lymphoid proliferation, with relevant similarities to cutaneous lymphoma. Thus, further medical exams were carried out for better elucidation. A subsequent immunohistochemistry of the sample revealed chronic dermatitis with intense superficial and deep inflammatory lymphoplasmocitary infiltrate (CD20+, CD3+, CD138+), as well as foci of epithelioid reaction, but without signs of malignancy. Giemsa staining highlighted sparse clusters of small structures suggestive of *Leishmania sp.* (Fig. 2) and the polymerase chain reaction (PCR) was positive for *Leishmania (Viannia) sp.* Consequently, the diagnosis of CL was made and a 20-day cycle of 15 mg/kg/day of meglumine antimoniate (Glucantime®) was started. The medication was well-tolerated by the patient and clinical regression of the lesions was observed after 2 therapeutical cycles.

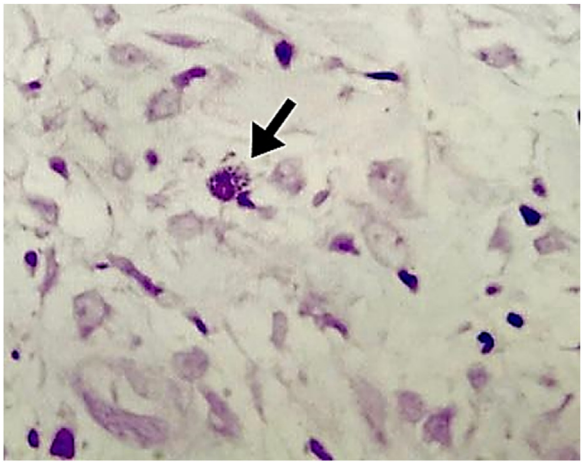

Fig. 2. Giemsa stain image showing the amastigote form of *Leishmania* (arrow).

Discussion

In Brazil, CL is mainly caused by 3 species: *L. (Viannia) braziliensis, L. (Viannia) guyanensis* and *L. (Leishmania) amazonensis* [2]. The majority of cases occur in the northern areas of the country, primarily due to the favorable conditions of temperature, rainfall and humidity that strongly affect the distribution of *Lutzomyia* phlebotomines [2]. In the present case, the patient inhabited a municipality located in Brazilian Amazon and also had the habit of entering forest areas, which supports his exposure to the zoonotic transmission cycle of CL [7].

The clinical scenario of CL is extensively variable and may present with single to multiple skin ulcers developing at the site of parasite inoculation (localized-CL), non-ulcerative nodulations covering large cutaneous extensions (diffuse-CL) or papular and acneiform lesions that affect several body segments (disseminated-CL) [1,2]. Such polymorphism is probably determined by the host immunological mechanisms against *Leishmania*, including the expansion of distinct CD4+ Th subpopulations. The activation of a Th1-response is associated with parasite control, while cytokines stimulated by a Th2-response are inefficient in attenuating the infection, leading to aggravation [8].

More rarely, CL can manifest with atypical dermatological lesions that are able to simulate other cutaneous disorders [6]. In the present study, we reported a patient with an unusual presentation of CL mimicking a clinical picture of cutaneous lymphoma. The reason of this was unknown, but was probably influenced by the host's immune response pattern [6,8]. At first sight, both the uncommon appearance of the eruption and the biopsy made it difficult to confirm CL. Cutaneous lymphomas, as well as CL, have a broad spectrum of lesions, which in many cases impedes the immediate diagnosis [9]. In addition, some skin lymphocytic infiltrates can exhibit histopathological overlap between the features of lymphomas and inflammatory dermatoses [9,10]. Therefore, in these cases, the investigation of CL has to focus on the clinicopathological correlation, prioritizing the patient's history, personal background and epidemiological data, especially in endemic areas [2,6,9,10].

Laboratory tests can also be performed in order to confirm CL. Direct detection is usually the first choice due to the satisfactory cost-benefit [2]. The microscopic examination aims to find the

amastigote forms of the parasite, but they are not always visualized [11], as was the case of our patient. The typical histopathological finding is an ulcerated diffuse granulomatous dermatitis, generally with a lymphoplasmocitary infiltrate [2,11]. On immunohistochemistry, lymphoma-like CL lesions can also reveal a mixture of B and T lymphocytes [12,13] or a natural killer/T-cell lymphoma pattern when associated with the use of anti-TNFα medication [14]. In the present case, we confirmed the diagnosis using PCR, which has a high sensitivity and specificity, even when there is low parasitic load [5].

The treatment was performed with meglumine antimoniate (Glucantime®), which is the first-line treatment drug for CL [2]. The therapeutic regimen involves 10–20 mg/kg/day during 20 consecutive days, for both localized and disseminated forms [5]. If there is no complete healing in 12 weeks, the therapeutic regimen may be repeated. If done properly, the patient's clinical cure can be obtained.

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Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

CRediT authorship contribution statement

Carla Andréa Avelar Pires: Conceptualization, Data curation, Formal analysis, Project administration, Supervision, Validation, Visualization, Writing - review & editing. **Nathalia Gabay Pereira:** Investigation, Methodology, Writing - original draft, Writing - review & editing. **Amanda Gabay Moreira:** Investigation, Methodology, Writing - original draft, Writing - review & editing. **Julie Marie Costa Sena:** Investigation, Methodology, Writing - original draft, Writing - review & editing. **Caio César Chaves Costa:** Investigation, Methodology, Writing - original draft, Writing - review & editing. **Thalita dos Santos Bastos:** Investigation, Methodology, Writing - original draft, Writing - review & editing. **Fernanda do Nascimento Rodrigues:** Investigation, Methodology, Writing - original draft, Writing - review & editing. **Evelyn de Paiva Faustino:** Investigation, Methodology, Writing - original draft, Writing - review & editing. **Jéssica Rayanne Corrêa da Silva:** Investigation, Methodology, Writing - original draft, Writing - review & editing. **Maria Amélia Lopes dos Santos:** Conceptualization, Data curation, Formal analysis, Project administration, Supervision, Validation, Visualization, Writing - review & editing.

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References

[1] Reithinger R, Dujardin JC, Louzir H, Pirmez C, Alexander B, Brooker S. Cutaneous leishmaniasis. Lancet Infect Dis 2007;7(9):581–96.
[2] Brazil, Ministry of Health. Manual for the surveillance of American cutaneous leishmaniasis. 2nd edition Brasília: Ministry of Health; 2017.
[3] Alvar J, Velez I, Bern C, Herrero M, Desjeux P, Cano J, et al. World Health Organization Leishmaniasis control team. Leishmaniasis worldwide and global estimates of its incidence. PLoS One 2012;7(5)e35671.
[4] PAHO. Pan-American Health Organization. Leishmaniases: epidemiological reports in the Americas. Washington: PAHO/Leishmaniases; 2018.
[5] Goto H, Lindoso JA. Current diagnosis and treatment of cutaneous and mucocutaneous leishmaniasis. Expert Rev Anti Infect Ther 2010;8(4):419–33.
[6] Meireles CB, Maia LC, Soares GC, Teodoro IPP, Gadelha MDSV, da Silva CGL, et al. Atypical presentations of cutaneous leishmaniasis: a systematic review. Acta Trop 2017;172:240–54.
[7] Souza AAA, Santos TV, Jennings YLL, Ishikawa EAY, Barata IR, Silva MGS, et al. Natural Leishmania (Viannia) spp. Infections in phlebotomine sand flies (Diptera: psychodidae) from the Brazilian Amazon region reveal new putative transmission cycles of American cutaneous leishmaniasis. Parasite 2016;23:22.
[8] Silveira FT, Lainson R, De Castro Gomes CM, Laurenti MD, Corbett CE. Immunopathogenic competences of Leishmania (V.) braziliensis and L. (L.) amazonensis in American cutaneous leishmaniasis. Parasite Immunol 2009;31(8):423–31.
[9] Charli-Joseph YV, Gatica-Torres M, Pincus LB. Approach to cutaneous lymphoid infiltrates: when to consider lymphoma? Indian J Dermatol 2016;61(4):351–74.
[10] Sarantopoulos GP, Palla B, Said J, Kinney MC, Swerdlow SM, Willemze R, et al. Mimics of cutaneous lymphoma: report of the 2011 Society for Hematopathology/European Association for Haematopathology workshop. Am J Clin Pathol 2013;139(4):536–51.
[11] Gomes CM, Paula NA, Morais OO, Soares KA, Roselino AM, Sampaio RNR. Complementary exams in the diagnosis of american tegumentary leishmaniasis. An Bras Dermatol 2014;89(5):701–9.
[12] Alhumidi AA. Skin pseudolymphoma caused by cutaneous leismaniasia. Saudi Med J 2013;34(5):537–8.
[13] Flaig MJ, Rupec RA. Cutaneous pseudolymphoma in association with Leishmania donovani. Br J Dermatol 2007;157(5):1042–3.
[14] Nicodemo AC, Duailibi DF, Feriani D, Duarte MIS, Amato VS. Mucosal leishmaniasis mimicking T-cell lymphoma in a patient receiving monoclonal antibody against TNFα. PLoS Negl Trop Dis 2017;11(9)e0005807.