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CASE REPORT

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Case report on the localized cutaneous leishmaniasis: intralesional treatment with meglumine antimoniate

Yasmin Gomes Lourencini[1]*, Mariana Perassa de Siqueira[1], Maisa Fugita Maekawa[1], Lívia Buqui Mazzoni[1], Arthur Marcelino Vilches de Almeida[1], Pedro Custódio D'Amico[1], Lucas Henrique Sartori Pereira[1], Talitha Tonini de Oliveira[1]

[1] UNIFEV - University Center of Votuporanga-SP- Medical Course, Brazil.

*Corresponding author: Yasmin Gomes Lourencini.
UNIFEV - University Center of Votuporanga-SP- Medical Course, Brazil. E-mail: yaasminng@hotmail.com

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Abstract

Introduction: Leishmaniasis is a contagious disease endemic in Brazil, transmitted by a vector, and its installation and form of presentation depend on the immunological status, location, and type of transmitted protozoan. **Objective:** A case report of a patient with localized American tegumentary leishmaniasis. **Method:** Reviews of medical records, analysis of photographic records of diagnostic tests and the evolution of the treatment to which the patient was submitted and literature review were carried out. **Case Report:** An 85-year-old woman, with a history of a single lesion on the 4 cm right forearm, with raised borders, ulcerated and clean bottom, subcutaneous edema, local pain and heat, pruritus, bloody secretion in small amounts, and no systemic symptoms. The same did not show improvement with the use of ointments (dexamethasone, neomycin, ketoconazole) and lasted for 2 months. The diagnosis of leishmaniasis was confirmed and treatment with intralesional meglumine antimoniate was carried out, with the application of 3 injections with an interval of 15 days. **Final considerations:** The case reported and the studies surveyed reveal the importance of the new treatment route and show that, although the approach requires specific conditions, such as being a single lesion, it courses with fewer adverse effects, lower cost, and greater safety.

Keywords: Tegumentary Leishmaniasis. Bauru ulcer. *Leishmania braziliensis*. Treatment. Meglumine antimoniate.

Introduction

American Tegumentary Leishmaniasis (TL), also known as "Bauru ulcer", "angry sore" or "Oriental bud", is an infectious, non-contagious, and chronically evolving disease, in addition, it is considered a tropical disease [1 -3]. It is caused by a protozoan of the genus Leishmania, being in Brazil, *Leishmania braziliensis* the most incident [4]. Transmission is vectorial and occurs through the bite of the infected female of the intermediate host, which are the hematophagous insects of the sandfly subfamily and the genus Lutzomyia, popularly known as the straw mosquito, birigui, among others, according to geographic location. The disease has wild and domestic animals as reservoirs and man as its definitive host. The incubation period of the protozoan is, on average, 2 months, ranging from 2 weeks to 2 years [1,5].

Thus, TL has a wide distribution, with cases registered in all Brazilian regions, with greater predominance in the North region. The number of confirmed cases of tegumentary leishmaniasis in Brazil increased progressively from the 1980s onwards, reaching 35,748 cases in 1995, the highest number registered to date [6]. Over the last decade, the incidence continued to fall, rising slightly in 2012, when 24,539 cases were confirmed. In 2017, the last count recorded by the Ministry of Health, the number of registered cases was 18,185, with a predominance of males and those over 10 years of age [7].

The disease can manifest itself in three ways according to the place of involvement, namely, localized cutaneous form, disseminated cutaneous form, and the mucosa. The localized cutaneous form is due to adequate immune response and is characterized by an ulcer with a circular contour, raised edge, painless, reddish background, and coarse granulations, while the disseminated cutaneous form is due to an inadequate

response [4]. In the disseminated cutaneous form, it is possible to identify several lesions with classic characteristics, in addition to lymph node enlargement accompanied by systemic symptoms such as fever, malaise, muscle pain, weight loss, and anorexia. In these cases, the presence of associated mucosal involvement and the existence of co-infection with HIV should be investigated [2,8]. The mucosal form, on the other hand, is related to an exacerbated immune response after spontaneous healing of the localized cutaneous form and is characterized by mucosal involvement, especially in the upper airways [4].

Clinical and epidemiological diagnosis must be made, especially if the patient comes from endemic areas or has been present in places where there are cases of leishmaniasis. Diagnosis can also be complemented by a favorable therapeutic response. However, diagnostic confirmation by parasitological methods is necessary, given the number of diseases that make a differential diagnosis with TL, the occurrence of atypical lesions, and poor response to previous treatment, in which case co-infection should be investigated. by HIV [9].

Diagnostic confirmation can be performed by three classes of tests: parasitological, immunological, and molecular. Parasitological examinations are performed by demonstrating the parasite through direct examinations, such as the impression of material from scarification of the skin lesion, examination of a fragment of the skin lesion obtained by biopsy with the conventional histopathological or immunohistochemical examination; and through indirect examinations, for example in vivo or in vitro cultures of biological material collected from the patient using biopsy or aspiration puncture. Then, immunological tests are comprised of Montenegro's intradermal reaction, based on visualization of the delayed cellular hypersensitivity response to Leishmania antigens, and by serological tests, which identify anti-Leishmania antibodies circulating in the serum. Finally, molecular tests, known as PCR, are intended for research purposes [3,8].

Differential diagnosis is particularly noteworthy with syphilis, leprosy, tuberculosis, atypical mycobacteriosis, paracoccidioidomycosis, histoplasmosis, sarcoidosis, discoid lupus erythematosus, psoriasis, vasculitis, venous stasis ulcers, ulcers resulting from sickle cell anemia, insect bites, granuloma by foreign bodies keratoacanthoma, basal cell carcinoma, squamous cell carcinoma, cutaneous lymphoma and other tumors [10].

In the treatment of TL, the World Health Organization (WHO) recommended the systemic use of antimonial drugs that began to be used many years ago as first-line drugs for the treatment of tegumentary leishmaniasis [11]. However, responses to these treatments were divergent for each patient and varied between different species of Leishmania [12]. Therefore, after a risk-benefit analysis of systemic therapy carried out by a committee of specialists in leishmaniasis, it was concluded that the systemic use of antimonial drugs would be performed only for patients with complicated or multiple lesions, these being of large size or localized in such a way as to preclude local therapy [13].

For patients with few skin lesions, with the impossibility of regular parenteral treatment, or with signs of significant toxicity to the antimonial via the systemic route, the intralesional use of antimonial meglumine is recommended [14]. The intralesional route has the benefits of reducing adverse effects and obtaining a favorable therapeutic response after one application. For this, a scheme of recommendations is followed to use a long and caliber needle to facilitate infiltration; insert the needle into the skin, at a 45° angle, 0.5 cm to 1 cm from the edge of the lesion, and deepen into the subcutaneous tissue, under each quadrant, towards the center of the lesion; and injecting the necessary volume to infiltrate the base of the lesion, elevating it and leaving it swollen. Treatment by this route should include 1-5 intradermal infiltrations of 1-5 ml of meglumine antimoniate every 3-7 days [15].

In certain situations, the indicated therapeutic regimen must take into account the patient's clinical status and existing comorbidities, with the aim of reducing as much as possible the toxicity of drugs used in the treatment of TL. Patients in one of the following special situations should be referred for treatment at the referral center, namely: pregnant women; patients aged 50 years or older or with renal failure, heart failure, liver failure, and kidney transplant recipients; immunosuppressed; and patients with TL and other pathogens, eg leprosy, tuberculosis and malaria [15].

The second line of treatment is performed in cases where there is no satisfactory therapeutic response with the use of pentavalent antimonials. Available drugs are amphotericin B and pentamidines. Amphotericin B is the first choice in the second line of treatment, in the treatment of pregnant women, and in cases of contraindication to the first line. Pentamidines, on the other hand, are used for the treatment of TL in endemic areas [16].

Therefore, the present study aimed to present a case report of a patient with localized American tegumentary leishmaniasis treated with intralesional injection of meglumine antimoniate.

Methods

Case report

The present study was elaborated according to the rules of CARE case report. Available in: https://www.care-statement.org/.

Ethical Aspects

This study was analyzed and approved by the Research Ethics Committee (CEP) according to a substantiated opinion number 4.255.582, and obtaining the patient's consent through the Informed Consent Form (TCLE) according to CNS/CONEP Resolution 466/12.

Settings

Data from this study were obtained through a review of the medical record, photographic record of the diagnostic methods and the evolution of the treatment, which the patient was submitted to, and a literature review.

Patient Information and Clinical Findings, Timeline, Diagnostic Assessment, Therapeutic Intervention and Follow-up

Patient Information - Anamnesis

MZBE, female, 85 years old, widow, presented a lesion on the right forearm measuring 4 cm in its largest diameter, raised edges with scaling due to the use of ointment (neomycin sulfate + bacitracin), ulcerated and clean bottom, subcutaneous edema, pain and heat local, pruritus, bloody discharge in small amounts and no systemic symptoms. The diagnostic suspicion was raised due to the wound evolution time of 2 months, without healing, without other associated systemic symptoms, and characteristic aspects of the lesion compatible with leishmaniasis.

- ✓ Seronegative rheumatoid arthritis (CID 06.0) using HUMIRA® (adalimumab);
- ✓ Cholecystectomy;
- ✓ Using ARA-2 (25 g), Rabeprazole® 2g, Tabazol® 5g, Methylcortem® 5 mg.

Physical Exam

- ✓ Vital Signs: (3/25/2019)
- ✓ Blood Pressure: 140x60 mmHg
- ✓ Heart Rate: 69 bpm
- ✓ Respiratory Rate: 16 bpm
- ✓ Saturation: 94% pa
- ✓ Weight: 50kg

Diagnostic Assessment

Leishmaniasis, paracoccidioidomycosis, and SCC.

Subsidiary Exams

Hemogram was performed with hemoglobin 11.7, hematocrit 34, leukocytes 3500, platelets 105,000.

Therapeutic Intervention And Timeline

The anatomopathological examination revealed the absence of histological criteria for malignancy in the entire material and a histological picture compatible with cutaneous leishmaniasis. The patient was notified for leishmaniasis and intralesional treatment was started with meglumine antimoniate (GLUCANTIME®), according to the 2017 Tegumentary Leishmaniasis Surveillance Manual of the Ministry of Health, with 3 applications of 5ml/session every 15 days.

Follow-up

Figures 1 to 6. Treatment evolution and follow-up.

On June 13, 2019, after 3 applications with glucantime, the lesion closed with a crusty area, without systemic repercussions. Discharge with the return, if necessary.

Discussion

Leishmaniasis is a contagious disease endemic in Brazil, transmitted by a vector, and its installation and form of presentation depend on the immunological status, location, and type of transmitted protozoan [1-3].

This patient has the description on physical examination of a typical lesion, characterized by a single crusted papule, ulcerated, and without satellite lesions. In addition, it had a chronic course, a deficient immune system, and no systemic symptoms, which lead the diagnostic hypothesis to tegumentary leishmaniasis in its localized form. Confirmation of the diagnosis was made based on local epidemiology, clinical presentation, and anatomopathological examination [1].

To choose the appropriate therapeutic approach, the risks of toxicity and contraindications of medications, patient age (over 50 years), medications in use, and some lesions were considered. Therefore, an intralesional application was chosen, a therapeutic option with greater feasibility and lower risk of adverse effects to the patient. This form of treatment has been introduced by the Pan American Health Organization

Figure 1. Lesion without any application (25/03/2019).

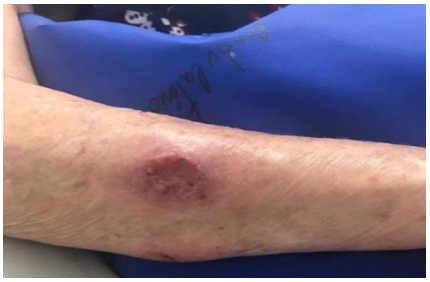


Figure 2. Injury 1 week (05/16/2019) after 1 application of meglumine antimoniate.

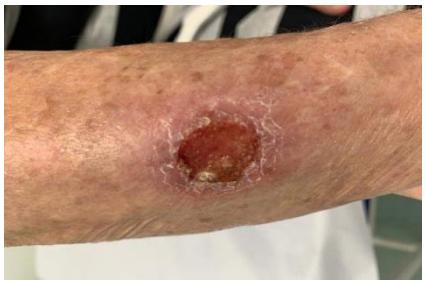


Figure 3. Injury 2 weeks (05/23/2019) after 1 application of meglumine antimoniate.

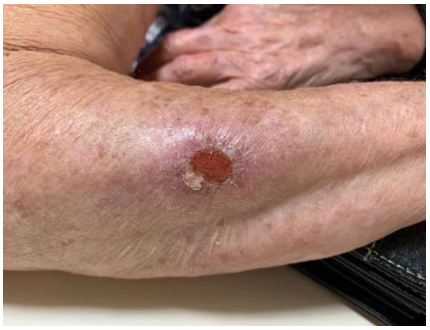


Figure 4. Lesion 1 week (05/30/2019) after 2 applications of meglumine antimoniate.

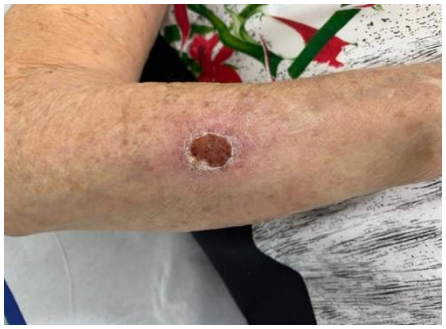


Figure 5. Injury 2 weeks (06/06/2019) after the 2nd application of meglumine antimoniate.

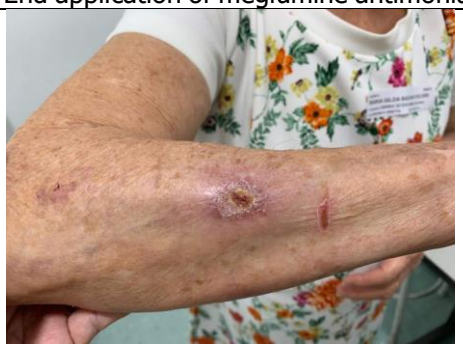
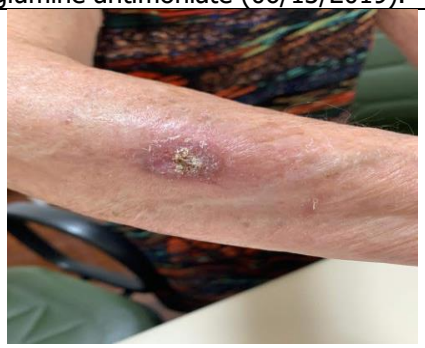


Figure 6. Injury after the 3rd application of meglumine antimoniate (06/13/2019).



since 2013 and, in Brazil, it became an option in 2017, according to the Ministry of Health, showing a notable success in the therapeutic approach of patients with typical and unique lesions of Cutaneous leishmaniasis: courses with greater adherence by patients, lower value, adverse effects that are mostly more severe and less frequent [15].

The injections were performed according to the 2017 Ministry of Health Tegumentary Leishmaniasis Surveillance Manual, with 3 applications of 5ml every 15 days with meglumine antimoniate (GLUCANTIME®) [15].

Final considerations

The reported case highlights the efficacy of intralesional treatment with meglumine antimoniate for localized cutaneous leishmaniasis, which was introduced in the 2017 Ministry of Health Leishmaniasis Surveillance Manual. This form of treatment was chosen due to the condition of immunosuppression and the patient's age, which contraindicate the use of systemic meglumine antimoniate, a first-choice medication for the pathology. Therefore, an intralesional administration of medication was used as an alternative, obtaining a favorable therapeutic response after the first application. Therefore, it is expected that this article can help in other cases of localized cutaneous leishmaniasis for intralesional treatment, which offers fewer side effects, has fewer contraindications, and a favorable result.

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Not applicable.

Ethics approval

This study was analyzed and approved by the Research Ethics Committee (CEP) according to a substantiated opinion number 4.255.582, and obtaining the patient's consent through the Informed Consent Form (TCLE) according to CNS/CONEP Resolution 466/12.

Informed consent

The patient signed the consent form.

Data sharing statement

No additional data are available.

Conflict of interest

The authors declare no conflict of interest.

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References

1. Ursine RL, Rocha MF, Sousa JF, Santos RCD, Soares MD, Gusmão MSF, Leite ME, Vieira TM. American Tegumentary Leishmaniasis in an endemic municipality in the North of Minas Gerais State: spatial analysis and socio-environmental factors. Rev Inst Med Trop Sao Paulo. 2021 Jan 20;63:e2. doi: 10.1590/S1678-9946202163002. PMID: 33503150; PMCID: PMC7816867.
2. Carvalho SH, Frézard F, Pereira NP, Moura AS, Ramos LMQC, Carvalho GB, Rocha MOC. American tegumentary leishmaniasis in Brazil: a critical review of the current therapeutic approach with systemic meglumine antimoniate and short-term possibilities for an alternative treatment. Trop Med Int Health. 2019 Apr;24(4):380-391. doi: 10.1111/tmi.13210. Epub 2019 Feb 19. PMID: 30681239.
3. Galvão EL, Rabello A, Cota GF. Efficacy of azole therapy for tegumentary leishmaniasis: A systematic review and meta-analysis. PLoS One. 2017 Oct 9;12(10):e0186117. doi: 10.1371/journal.pone.0186117. PMID: 29016694; PMCID: PMC5633178.
4. Veronesi R, Focaccia R. Tratado de Infectologia: 5. ed. São Paulo: Atheneu, 2015.
5. BRASIL. Ministério da Saúde. Secretaria de Vigilância em Saúde. Departamento de Vigilância das Doenças Transmissíveis. Manual de vigilância da leishmaniose tegumentar / Ministério da Saúde, Secretaria de Vigilância em Saúde, Departamento de Vigilância das Doenças Transmissíveis. – Brasília : Ministério da Saúde, 2017.
6. World Health Organization (WHO). Control of the leishmaniasis: report of a meeting of the WHO Expert Committee on the Control of Leishmaniases. Geneva: World Health Organ Tech Rep Ser 949; 2010. p. 1-186.
7. Sinan SN. Leishmaniose tegumentar americana - Casos confirmados Notificados no Sistema de Informação de Agravos de Notificação - Brasil. Available in: <http://tabnet.datasus.gov.br/cgi/tabcgi.exe?sinannet/cnv/ltabr.def>. Accessed in: Juny,29,2018.
8. Veronesi R, Focaccia R. Tratado de Infectologia: 4. ed. São Paulo: Atheneu, 1997.
9. OPS-Organización Panamericana de la Salud. Leishmaniasis en las Américas: Recomendaciones para el tratamiento. Washington: OPS; 2013. p. 1-60.
10. MINISTÉRIO DA SAÚDE; FUNDAÇÃO NACIONAL DE SAÚDE. Manual de Controle da Leishmaniose Tegumentar Americana, Brasília, 2010.
11. Arboleda M et al. Successful treatment of cutaneous leishmaniasis with intralesional meglumine antimoniate: A case series. Rev. Soc. Bras. Med. Trop., Uberaba , v. 52, e20180211, 2019. Available from <http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0037-86822019000100713&lng=en&nrm=iso>.access on 08 July 2019. Epub May 16, 2019. http://dx.doi.org/10.1590/0037-8682-0211-2018.
12. Duque MCO et al. Standardization of intralesional meglumine antimoniate treatment for cutaneous leishmaniasis. Rev. Soc. Bras. Med. Trop., Uberaba, v. 49, n. 6, p. 774-776, Dec. 2016. Available from <http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0037-86822016000600774&lng=en&nrm=iso>.access on 26 Aug. 2019. http://dx.doi.org/10.1590/0037-8682-0213-2016.
13. WORLD HEALTH ORGANIZATION (WHO). Control of the Leishmaniases. WHO Technical Report Series No.: 949. Geneva: World Health Organization; 2010. 186p.

14. Vasconcellos ECF. Tratamento intralesional da leishmaniose cutânea com antimoniato de meglumina no Instituto de Pesquisa Clínica Evandro Chagas, Fiocruz, Rio de Janeiro (2002 a julho 2011). 2013. 92f. Tese (Doutorado em Pesquisa Clínica em Doenças Infecciosas) - Fundação Oswaldo Cruz, Instituto Nacional de Infectologia Evandro Chagas, RJ, 2013.
15. BRASIL. Ministério da Saúde. Secretaria de Vigilância em Saúde. Departamento de Vigilância das Doenças Transmissíveis. Manual de vigilância da leishmaniose tegumentar / Ministério da Saúde, Secretaria de Vigilância em Saúde, Departamento de Vigilância das Doenças Transmissíveis. – Brasília : Ministério da Saúde, 2017.
16. MINISTÉRIO DA SAÚDE; FUNDAÇÃO NACIONAL DE SAÚDE. Manual de Controle da Leishmaniose Tegumentar Americana, Brasília, 2010.