Intralesional administration of meglumine antimoniate (MA) as an alternative treatment for cutaneous leishmaniasis: a case report

Administração intralesional de antimoniato de meglumina como via alternativa para o tratamento da leishmaniose cutânea: relato de caso

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ABSTRACT
Cutaneous leishmaniasis (CL) is not a life-threatening condition, the treatment of which can cause serious adverse effects and sometimes lead to death. In this study, we report a case of success in the treatment of LC of a 2.5 cm lesion located in the neck region of a 22-year-old man treated with intralesional meglumine antiomoniate (IL-MA) without adverse effects and without recurrence or complications after 18 months of follow-up. The results suggest that the treatment of CL lesions with IL-MA is simple, efficient and safe.

Keywords: *Leishmania,* glucantime, neglected disease.

RESUMO
A leishmaniose cutânea (LC) não é uma condição com risco de vida, mas o tratamento pode causar efeitos adversos graves e, às vezes, levar à morte. Neste estudo, relatamos um caso de sucesso no tratamento de CL de uma lesão de 2,5 cm localizada na região do pescoço de um homem de 22 anos tratado com antiomoniato de meglumina intralesional (IL-MA) sem efeitos adversos e sem recorrência ou complicações após 18 meses de seguimento. Os resultados sugerem que o tratamento das lesões de CL com IL-MA é simples, eficiente e seguro.

Palavras-chaves: *Leishmania,* glucantime, doenças negligenciadas.

Cutaneous leishmaniasis (CL) is an endemic zoonosis considered as a neglected disease transmitted through the bite of infected sand flies. Approximately two-thirds of the global incidence is concentrated in six countries, including Brazil. CL is characterized by ulcers, nodules, or plaques mainly on exposed regions of the body. There may be one or multiple

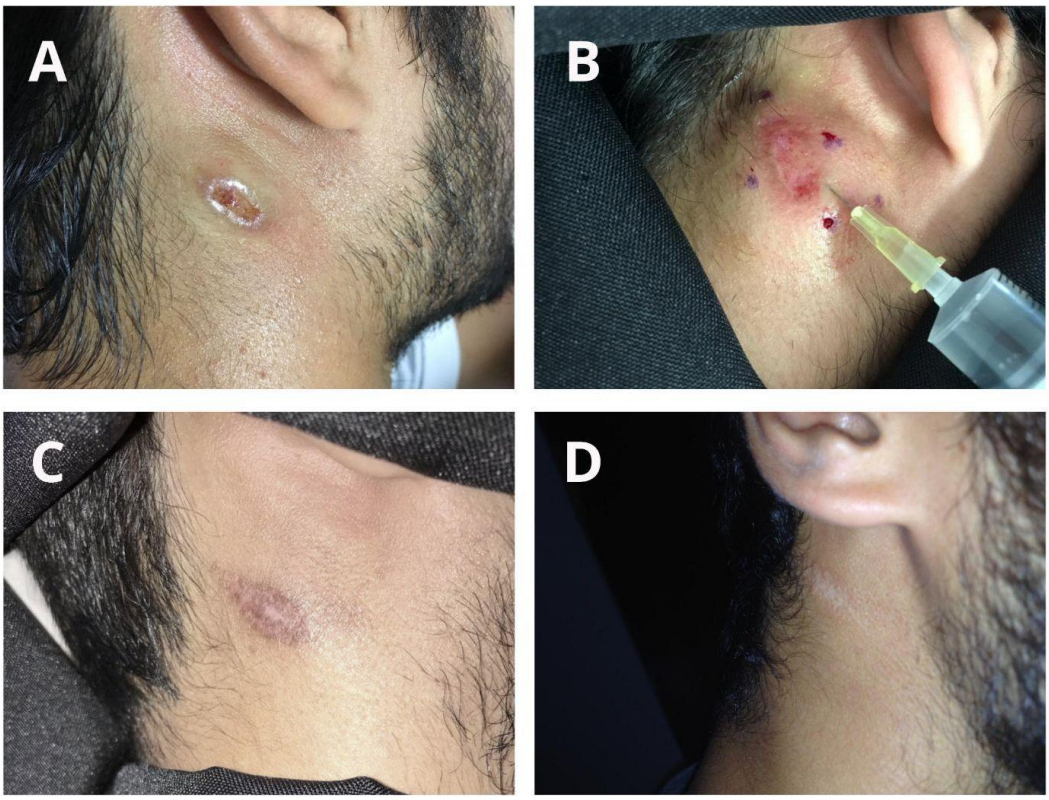
injuries that leave permanent scars and may cause disfigurement, disability, and subsequent social rejection and psychological suffering.

Despite its recognised toxicity, meglumine antimoniate (MA) therapy has been employed for several decades and continues to be the first-line drug for leishmaniasis treatment in many countries, including Brazil. Unlike conventional systemic antileishmanial therapy, intralesional meglumine antimoniate (IL-MA) administration has fewer adverse effects and can be as effective and safe, representing an alternative that could reduce the systemic absorption of the drug and its side effects (Silva et al, 2018). In the present report we described the Barçante protocol as the use of anesthetic with vasoconstrictor in all quadrants, with the objective of minimizing bleeding as much as possible, maintaining a high concentration of the local drug, thus avoiding absorption and systemic toxicity.

In 2010, the World Health Organization (WHO) acknowledged that CL is not a life-threatening condition and that serious complications are rare, proposing that the use of safer and less toxic local treatments should be evaluated (WHO, 2010). In this way, the Brazilian Ministry of Health (Brasil, 2017) added IL-MA as recommendation for CL, being necessary to include the major number of evidences available in each region (de Oliveira Duque et al., 2018).

In this way, here we describe a case of a 22-years-old man with a 5-month history of a lesion at the right posterior cervical region whom met all cure criteria after three sessions of IL-MA. The patient reported the a small lesion appeared after multiple exposure to sand flies bites, when visiting a cave in the South of Bahia State. Clinical examination revealed an ulcer with pruritus measuring 2.5cm in diameter with a granular base and raised, indurated, erythematous and irregular edges with central granulation tissue and serous exudate (Figure 1A). The lesion was not accompanied by enlarged regional lymphadenopathy.

Figure 1 - Cutaneous leishmaniasis lesion in the neck of a 22-years-old man. A - ulcer with pruritus measuring 2.5cm in diameter. B - first session was performed using 5mL of meglumine antimoniate administered intralesionally, covering the entire surface of the lesion . C - lesion completed epithelialized without any local infiltration fifth days after third IL-MA . D - lesion 18 months after complete treatment IL-MA.



Due to the unavailability of Montenegro antigen for intradermal reaction, we performed a biopsy to collect lesional specimens. The biopsy was performed after the lesion was cleaned with soap and water and disinfected with ethyl alcohol 70%. We used 2% lidocaine for local anesthesia. Two punch biopsies were taken from the ulcer edge for histopathological analysis, which showed no amastigote forms. The second sample was used for imprint with staining, which also revealed no amastigote forms of the parasite. Subsequently, the same material was preserved in sterile saline solution, macerated with 300µg of extraction buffer, and frozen in a properly identified flask for PCR as described by Barçante et al., 2019. After analyzing the electrophoretic pattern of the sample with the positive control, the presence of *Leishmania* spp. DNA was confirmed.

After the detection of *Leishmania* DNA and diagnostic confirmation of CL the treatment chosen was IL-MA. The first session was performed using 5mL of meglumine antimoniate (Sanofi aventis) administered intralesionally, covering the entire surface of the lesion (Figure 1B) after anesthesia in quadrants with 2% lidocaine and 1:100,000 epinephrine (Alphacaine 100).

After 17 days, the second session was performed at the posology of first application. On day 15 after the second IL-MA the lesion completely healed, but with slight infiltration and local erythema. The last IL-MA was performed on day 30 after second administration using 2,5mL of MA (Figure 1C). Fifth days after third IL-MA the lesion was completed epithelialized withou any local infiltration (Figure 1D).

IL-MA has been used as a therapeutic alternative in patients who have uncomplicated CL (Santiago et al., 2019). As observed in this report, adverse effects comprised mainly of local pain and edema, so IL-MA could be an excellent alternative for systemic treatment that can lead the risk of cardiac, hepatic, pancreatic, and renal toxicity.

The cure of the lesion was determined by healing with complete re-epithelization and flattening of the edge of the injuries; disappearance of the induration of the base and absence of new injuries after o follow-up of 18 months. The patient reported here had an excellent clinical response and have achieved complete cure after just three IL-MA.

This also facilitated adherence in patients with difficult access to the treatment centers. These results suggest that intralesional meglumine antimoniate administration is an excellent option for older patients or those with comorbidities that contraindicate systemic treatment.

Evidence of validity and reliability are essential characteristics of evidence-based medicine, and the main consideration of a well-designed evaluation system is to ensure that the evaluation methods adopted are valid and reliable (Silva et al, 2018).This study shows promising results using IL-MA as a first line therapy for first-time CL patient with fewer adverse effects as well as lower costs for the health system, supporting the recently proposed by the Ministry of Health in Brazil.

REFERENCES

BARÇANTE, T.A., et al., 2019. Use of the polymerase chain reaction for the diagnosis of American Tegumentary Leishmaniasis. An. Bras. Dermatol. v. 94, n. 1, p. 113-114. Avaiable from <fhttps://doi.org/10.1590/abd1806-4841.20197929>

BRASIL, MINISTÉRIO DA SAÚDE, SECRETARIA DE VIGILÂNCIA EM SAÚDE. Manual de vigilância a leishmaniose tegumentar. Brasília: Ministério da Saúde, 2017. 189 p.:il. Avaiable from <https://bvsms.saude.gov.br/bvs/publicacoes/manual_vigilancia_leishmaniose_tegumentar.pdf>.

DE OLIVEIRA DUQUE, M.C., et al. 2019. Comparison between systemic and intralesional meglumine antimoniate therapy in a primary health care unit. Acta Trop. v. 193, p. 176-182. Avaiable from: <https://doi.org/10.1016/j.actatropica.2019.03.007>

SANTIAGO, M.A., et al. 2019. Successful treatment of cutaneous leishmaniasis with intralesional meglumine antimoniate: A case series. Rev. Soc. Bras. Med. Trop. v. 52. Avaiable from <https://doi.org/10.1590/0037-8682-0211-2018>.

SILVA, R.E., et al. 2018. Towards a standard protocol for antimony intralesional infiltration technique for cutaneous leishmaniasis treatment. Mem. Inst. Oswaldo Cruz, Rio de Janeiro , v. 113, n. 2, p. 71-79. Available from <http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0074-02762018000200071&lng=en&nrm=iso>. access on 13 Sept. 2019. http://dx.doi.org/10.1590/0074-027601700125.

WHO - World Health Organization. Control of the leishmaniases. Report of a meeting of the WHO Expert Committee on the Control of Leishmaniases. Geneva: WHO; 22-26 March 2010. Available from: http://apps.who.int/iris/bitstream/10665/44412/1/WHO_TRS_949_eng.pdf. [Links]