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INTERESTING MEDICAL IMAGE

Old World Cutaneous Leishmaniasis

Successful response to topical imiquimod

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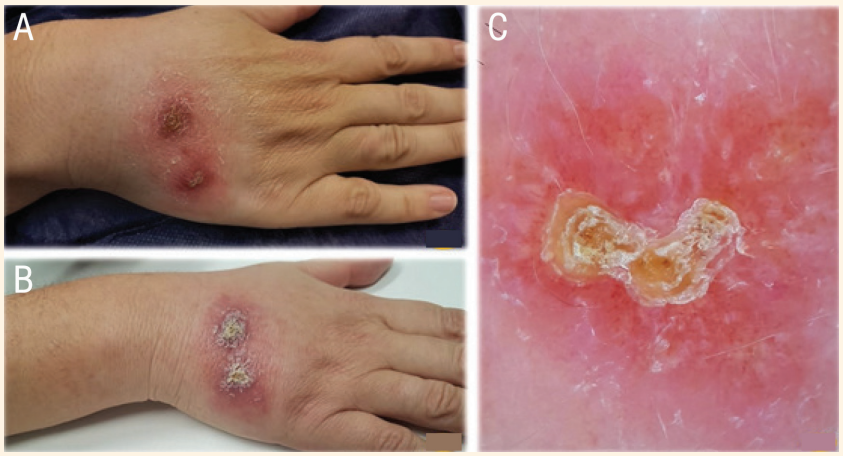

Figure 1: A: Photograph of the back of the right hand of a 43-year-old female patient showing two erythematous, squamous plaques (largest diameters: 1.2 cm and 1.5 cm) at first visit. **B:** Photograph of the same lesions after 21 days. **C:** Dermoscopy at ×10 magnification showing erythematous fundus with central hyperkeratosis, whitish burst at periphery, white-cottony structures and a polymorphic vascular pattern of irregular linear vessels, hairpin vessels and dotted vessels.

Leishmaniases are considered a disease complex; it is transmitted by sandfly vectors and caused by a heterogeneous group of protozoa belonging to the genus *Leishmania spp*. Leishmaniasis comprises two clinical forms of presentation: cutaneous and visceral. Traditionally, cutaneous leishmaniasis (CL) has been classified into old world cutaneous leishmaniasis (OWCL) and new world cutaneous leishmaniasis (NWCL) depending on the geographical distribution.

A 43-year-old female patient with no relevant medical history was referred to the current outpatient dermatologic clinic in Grenada, Spain, in 2020 on account of two lesions on the right hand for three months. The patient was referred due to lack of clinical improvement despite treatment with mometasone furoate 0.1% cream for one month. On clinical examination, two erythematous, squamous plaques (largest diameters: 1.2 cm and 1.5 cm) were observed on the back of the right hand [Figure 1A and B]. Dermoscopy (Dermlite 4©, San Juan Capistrano, California, USA) showed an inflammatory pattern composed by a central keratotic crust on an erythematous background and tear structures [Figure 1C]. Histopathological examination confirmed the clinical suspicion of OWCL revealing non-necrotising epithelioid in the middle and deep dermis, with multiple leishmania amastigotes detected by Giemsa stain [Figure 2]. Complementary tests ruled out the presence of systemic involvement. As the patient did not agree to intralesional treatment with meglumine antimoniate due to needle phobia, it was decided to start topical treatment with imiquimod 5% cream five consecutive nights a week for four weeks, followed by applying a repair cream. The inflammatory reaction during treatment was moderate to severe, with ulceration of the treated area [Figure 3A]. A complete skin recovery was seen at two months check-up [Figure 3B–D]; in addition to polymerase chain reaction test results of the control sample, a histopathological study did not show persistence of the disease. Currently the patient is being followed-up every three months, with no recurrence of leishmania infection. Written consent was obtained from the patient for publication purposes.

Comment

Imiquimod was approved by the Food and Drug Administration for the treatment of anogenital warts, actinic keratosis and superficial basal cell carcinoma. In addition, it has been used off-label in the treatment of several infectious and neoplastic diseases.

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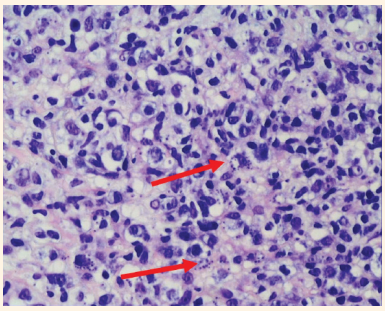

Figure 2: Giemsa stain at ×35 magnification showing non-necrotising epithelioid in the middle and deep dermis with multiple leishmania amastigotes (red arrow).

Imiquimod activates macrophages by inducing the production of nitrous oxide, which leads to the intracellular destruction of leishmania amastigotes *in vitro*.[1] The first observational study on the application of imiquimod for leishmaniasis dates back to 1999 when it was shown to be effective on an experimental model of leishmaniasis.[2] Nevertheless, the effectiveness of imiquimod in CL has not been entirely clear in later research studies. Seeberger *et al.*'s placebo-controlled prospective study concluded that topical application of imiquimod on monotherapy was not effective in OWCL after treating with imiquimod cream 5% three times a week for two months.[3] Although the majority of cutaneous lesions improved within the first two weeks, the benefit did not last for more than four weeks and was followed by an increase in both size and scaling. In a study by Firooz *et al.*, patients were randomly assigned to receive a combined 4-week course of imiquimod or placebo with meglumine antimoniate treatment in an endemic area of *L. tropica*.[4] This study did not find clinical differences between both combinations. A concentration of imiquimod 7.5% combined with meglumine antimoniate should be more effective than the meglumine antimonate alone.[5] A successful response with imiquimod on monotherapy after debulking punch biopsies have also been documented.[6] Further studies would be necessary to determine the more propitious role of imiquimod as a non-systemic useful alternative therapeutic option for OWCL.

AUTHORS' CONTRIBUTION

All authors contributed equally to data collection, drafting and revision of the manuscript. All authors approved the final version of the manuscript.

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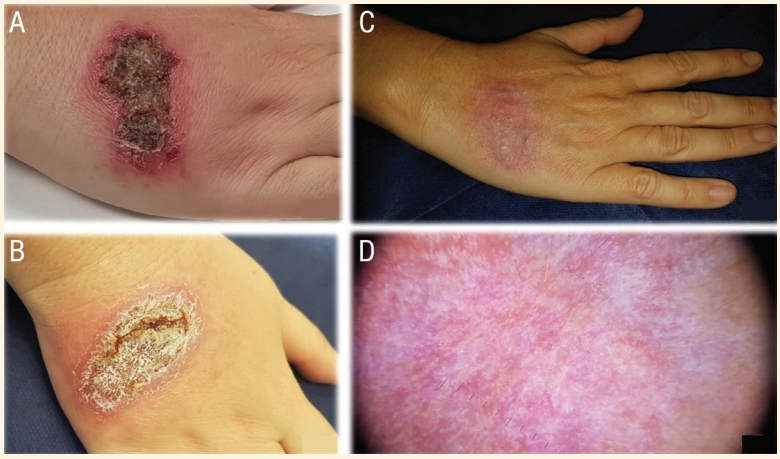

Figure 3: Photographs showing (**A**) ulceration and crust surrounded by inflammatory erythematous halo after finishing treatment with imiquimod 5% cream. Photographs taken (**B & C**) 14 days after finishing imiquimod and 30 days after finishing imiquimod cream and using daily repair cream. Dermoscopy at ×10 magnification showing (**D**) stairs vascular pattern and shiny white streaks compatible with regeneration of collagen fibres.