

# Chronic cutaneous leishmaniasis induced after trauma, mimicking keloidal scar

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Leishmaniasis is a common parasitic disease classified to acute and chronic types based on the duration of the disease. The acute lesion is presented as ulcerated papule and nodule that heal after a few months with an atrophic scar. The chronic form of cutaneous leishmaniasis is a nonhealing lesion that is persistent for more than one year. Here, we describe a chronic case of leishmaniasis developed after a head injury, similar to a keloidal scar.

**Keywords:** chronic leishmaniasis, trauma, keloid

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## INTRODUCTION

The acute form of leishmaniasis is presented as indurated papules that after a few months evolve to ulcerated nodules and plaques. Eventually, 5 to 12 months after the beginning of the lesion, it resolves with residual scar <sup>1</sup>. In the chronic form, there is an anergic response to the parasite that cannot be eliminated by the host immune system, so the lesion persists for more than one year. This form especially occurs with *Leishmania tropica* and has a relatively poor response to medication <sup>2,3</sup>.

In this article, we describe a child with chronic leishmaniasis following head trauma resembling a keloid scar that was referred to pediatric dermatology clinic of Afzalipour Hospital in Kerman University of Medical Sciences. It has to be noted that Kerman is an endemic area for Leishmaniasis in the southeast of Iran.

## CASE PRESENTATION

A 7-year-old boy with a nonhealing lesion above the left eyebrow since 2 years ago was referred to our clinic. The lesion had started as an indurated papule after a head trauma in the site of a healing ulcer. At first, it was diagnosed and treated as keloid with intralesional injection of triamcinolone. Since there was no change in the size of the lesion, the patient was referred to dermatologist and skin biopsy was performed. In the second attempt, the diagnosis of Granuloma annulare was considered and treated with intralesional injection of triamcinolone. One year later, the patient was referred to our clinic with an indurated plaque and scaling without pain or itch (Figure 1). The patient had no positive medical or drug history. On examination, there was no tenderness and inflammation in the site of the lesion and no fever



**Figure 1.** An indurated plaque with central crust on the forehead

and lymphadenopathy was detected.

Direct smear of the lesion was negative for leishmaniasis. Considering the chronicity of the lesion and no response to the previous treatments as well as living in an endemic area for leishmaniasis, polymerase chain reaction (PCR) analysis was performed and *Leishmania tropica* was detected. The patient was treated as a case of chronic leishmaniasis by weekly intralesional meglumine antimoniate (glucantime) and liquid nitrogen bi-weekly for a total of 8 sessions. The lesion was resolved completely with a minimal residual scar.

## DISCUSSION

In this case, CL has been developed in the site of previous head trauma after a few months. Appearance of the new lesions after trauma in inflammatory skin diseases such as lichen planus, psoriasis, and vitiligo was reported as Koebner phenomenon<sup>4</sup>. Previous studies have shown that change in the local immune system and production of cytokines such as IL-1 has a role in Koebner phenomenon. Thus, this mechanism can induce infectious diseases such as leishmaniasis at sites of trauma via attraction of parasite engulfing macrophages<sup>5-7</sup>.

To date, there are several reports of inducing leishmaniasis after different types of injury such as burning, contusion, wound puncture, abrasion, tattoo implantation, and blunt trauma or after surgery and electrocautery of the skin<sup>8-12</sup>. Most of these cases developed on the face and with less prevalence in extremities with a mean duration of

3 months. Both old world cutaneous leishmaniasis (*Leishmania panamensis* and *Leishmania brasiliensis*) and new world cutaneous leishmaniasis (*Leishmania tropica*, *Leishmania infantum*, and *Leishmania major*) species have been isolated from these lesions<sup>13</sup>.

Leishmania DNA has been detected in the peripheral blood samples of the patients after 30 years of complete cure in 80% of leishmaniasis scars. So, patients with leishmaniasis were never clear of parasite infection, suggesting the persistent existence of occult infection<sup>8,14</sup>. It has been proposed that local injury and wound healing can change microenvironment and may increase anti-inflammatory cytokines such as IL-10 and TGF $\beta$  that eventually leads to occult parasitic proliferation<sup>15-17</sup>.

Reactivation of the infection has been reported following the treatment with topical and systemic corticosteroid and immunosuppression due to organ transplantation, drugs and immunodeficiency virus infection (HIV)<sup>18-21</sup>. So, it is possible that the intralesional injection of the triamcinolone, in this case, has led to local immunosuppression and chronicity of the lesion.

Physicians should always consider leishmaniasis in the differential diagnosis of atypical and treatment-resistant lesions, particularly in patients who have lived or traveled to endemic regions for leishmaniasis.

**Conflict of Interest:** None declared.

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