

# Effect of Topical Morphine on Cutaneous Leishmaniasis in an Animal Model: A Preliminary Report

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## Abstract

**Background:** Pentavalent antimonials remain the choice of treatment for leishmaniasis, despite their toxicity, high cost, and difficult administration. As an alternative, morphine may induce the healing process of cutaneous leishmaniasis by its immunoregulatory characteristics.

**Objectives:** To study the effect of morphine on the wound-healing process of cutaneous leishmaniasis (CL) in a mouse model.

**Materials and Methods:** This was an experimental study in which 40 BALB/c mice (female, 6 - 8 weeks) were divided into four groups (each n = 10) who received either placebo alone (group 1), morphine ointment after parasite inoculation (group 2), morphine ointment after wound occurrence (group 3), or placebo after wound occurrence (group 4). Wound size was measured weekly for eight weeks.

**Results:** On the first day of treatment, the lesions measured ~1.5 mm in diameter. After eight weeks of treatment, the wound size was significantly smaller in the mice who received morphine ointment ( $4.81 \pm 3.22$  mm) compared to those who received placebo after parasite inoculation ( $8.95 \pm 5.71$  mm;  $P = 0.0001$ ) or placebo after wound occurrence ( $P = 0.028$ ).

**Conclusions:** The above data suggest that topical application of morphine accelerates the healing process of CL wounds. We are cautiously optimistic that the results of this study can be used clinically for potentiating CL wound-healing.