

An Ongoing Series

Cutaneous Leishmaniasis

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ABSTRACT

Leishmaniasis is a parasitic infection that can involve the skin, mucosal membranes, and internal organs. Soldiers are at high-risk of leishmaniasis when conducting operations in endemic regions. Medical providers should have a low threshold to consider Leishmaniasis as the cause of persisting skin lesions.

KEYWORDS: *leishmaniasis; parasites; infection*

Introduction

Leishmaniasis is a parasitic infection that can involve the skin, mucosal membranes, and internal organs. This disease is caused by *Leishmania* parasites, which are transmitted to humans from the bite of tiny infected female phlebotomine sand flies. Different *Leishmania* spp. cause different types of infection. Cutaneous leishmaniasis refers to the spectrum of this disease that involves the skin and is the most common type of infection. More than 1 million cases of cutaneous leishmaniasis occur worldwide annually. Risk factors for leishmaniasis include poor housing and sanitary conditions, crowded living environments, and migration of nonimmune people.¹ Additionally, any activity that increases exposure to the sand flies, especially in the evening and nighttime when they are most active, increases the risk of infection. Leishmaniasis is endemic across most of South and Central America, Southern Europe, Northern and Eastern Africa, the Middle East, and Asia.^{1,2} Leishmaniasis has plagued US military operations in endemic regions since World War II, with numerous cases associated with Central America field training and high numbers of infections reported during recent conflicts in the Middle East.³

Clinical Presentation

The lesions of cutaneous leishmaniasis usually appear weeks after the bite of an infected sand fly. Symptoms include single to multiple raised bumps in the skin that may grow in size or develop into ulcerated lesions (Figures 1 and 2). These lesions usually are painless and occur on areas of the skin not covered with clothing. Without treatment, the lesions may last for

FIGURE 1 An ulcerative lesion caused by cutaneous leishmaniasis.



Source: CDC, Public Health Figure Library, 1962. <https://phil.cdc.gov/Details.aspx?pid=15069>

years and leave scars when healed.^{1,4} The skin findings may be accompanied by nearby swollen lymph nodes. Symptoms of cutaneous leishmaniasis can recur in the setting of trauma or immunosuppression and individuals can also be reinfected.⁵ Persons with cutaneous infection may develop the mucocutaneous form of the disease at the same time as the skin lesions or sometime in the future.^{2,4} Symptoms of mucocutaneous leishmaniasis may include long-lasting nasal congestion or bloody noses and can cause nasal perforation and permanent destruction of the mucosa known as *espundia*.⁴

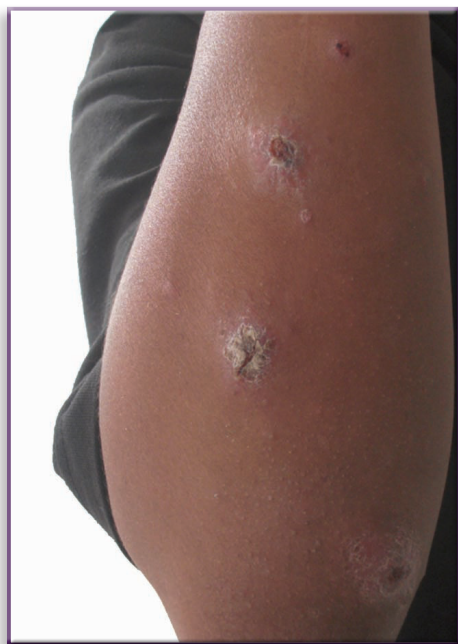
Diagnosis

Leishmaniasis should be considered in patients who have clinical findings concerning for the infection in the setting of possible or prior exposure. Microscopic identification of *Leishmania* in skin biopsy or skin scrapings is the most commonly accessible method of definitive diagnosis for cutaneous leishmaniasis.^{2,4} Other diagnostic methods include PCR testing and parasitic culture which are not widely available.⁴ The Walter Reed Army Institute of Research (WRAIR) *Leishmania*

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FIGURE 2 Multiple ulcerative lesions with overlying scab due to cutaneous leishmaniasis.



Source: Aoun K, Bouratbine A. Cutaneous leishmaniasis in North Africa: a review. *Parasite*. 2014;21, 14. doi:10.1051/parasite/2014014. License: <https://creativecommons.org/licenses/by/4.0/deed.en>

Diagnostics Laboratory* provides support for diagnosis of Leishmaniasis in military health system beneficiaries in and outside of the continental United States. All patients diagnosed with cutaneous leishmaniasis should be evaluated for mucocutaneous leishmaniasis at the time of initial diagnosis as well as at routine follow-up.⁴

Treatment

Appropriate treatment of cutaneous leishmaniasis can shorten the disease course, prevent permanent scarring and prevent development of associated mucocutaneous disease. However, not all patients with cutaneous leishmaniasis require treatment, especially those with fully functioning immune systems who have lesions that are isolated or already healing and who acquired the disease in a region with low-risk of mucocutaneous leishmaniasis.^{3,6} Regular reevaluation should occur for patients who are being monitored off treatment.³ Treatment decisions should be based on the individual patient as well as the subspecies of Leishmaniasis and its geographic origin.^{2-4,6} There are multiple topical and systemic treatments available for leishmaniasis.^{2,4-6} Medical providers who are concerned for leishmaniasis should consult infectious disease experts for treatment guidance.

Prevention

Sand flies are most active at nighttime but have difficulty biting humans through clothing. Limiting exposure to sand flies is the best method of prevention; outdoor activities from dusk to

dawn are the highest risk. Effective protective methods include use of permethrin-treated clothing and bed nets, wearing full length clothing, using insect repellent with at least 30% DEET and use of insecticide to kill the sand flies.^{2,5,7} Biting sand flies are known to cluster in “hot spots,” it is advised to move or extensively spray bedding areas if large numbers of personnel are affected. Standard precautions are recommended for isolation of patients with cutaneous leishmaniasis. There are no vaccines available to prevent infection with leishmaniasis.

Importance in a Deployed Setting

Soldiers are at high-risk of leishmaniasis when conducting operations in endemic regions. This risk is exemplified by the extremely high case rates reported during active-duty operations in the Middle East in the early 2000s.⁸ Any activities which result in exposure to sand flies increase the risk of infection. This exposure risk can be decreased by the use of personal protective equipment, modification of quarters to prevent the entry of sandflies, and vector control strategies.⁷ Medical providers should have a low threshold to consider leishmaniasis as the cause of abnormal skin lesions in soldiers working in or returning from *Leishmania*-endemic regions.

Disclaimer

The views expressed in this publication are those of the authors and do not reflect the official policy or position of the US Department of the Army, US Department of Defense, or the United States Government.

Disclosure

The authors have nothing to disclose.

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