Ulcerated Lesions on the Right Leg

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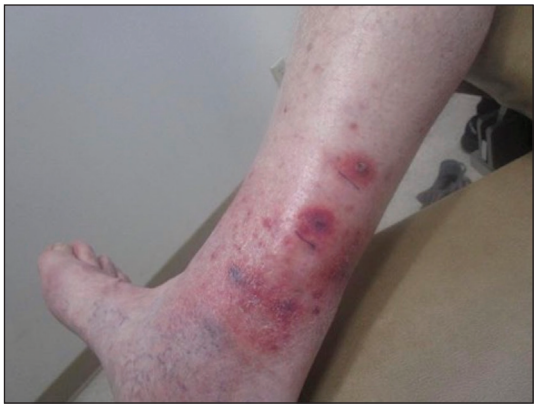

A 78-year-old man was referred to our dermatology clinic for evaluation of nontender erythematous plaques and nodules with central ulceration on the right leg of 5 months' duration. The patient's medical history was remarkable for hyperlipidemia, gastroesophageal reflux disease, prostate cancer, and colon cancer status post resection. He denied any relevant travel history but noted that he was an avid hiker and suspected he may have obtained a puncture wound from a bush or a mosquito bite prior to the appearance of the lesions. Previous therapies prescribed by outside physicians and our practice included trimethoprim/sulfamethoxazole, ceftriaxone, levofloxacin, mupirocin, and topical corticosteroids, all with minimal benefit. Clinical examination on initial presentation revealed multiple ulcerations of the lower extremities present for more than 2 months. Punch biopsy of a sample lesion at the current presentation revealed granulomatous change, focal necrosis, and a mixed inflammatory cell infiltrate. Grocott-Gomori methenamine silver and periodic acid–Schiff stains were negative for fungal organisms. The initial acid-fast bacilli stain was negative for mycobacteria, and tissue culture showed no growth.

WHAT'S YOUR **DIAGNOSIS?**

a. cutaneous leishmaniasis
b. ecthyma gangrenosum
c. leukocytoclastic vasculitis
d. *Mycobacteria* infection
e. sarcoidosis

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The authors have no relevant financial disclosures to report.
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Cutis. 2026 April;117(4):E5-E6. doi:10.12788/cutis.1396

THE **DIAGNOSIS:** *Mycobacteria* infection

Despite the initial biopsy for tissue culture showing no growth, a subsequent biopsy performed 1 month later yielded a positive result. *Mycobacterium marinum* was identified through organism genome sequencing. The patient was further treated by infectious disease with clarithromycin and ethambutol, with complete resolution of the lesions.

Although initial staining with acid-fast bacilli and tissue culture were negative, we suspected a diagnosis of mycobacterial infection with sporotrichoid spread of multiple nodular and ulcerated lesions that was unresponsive to antibiotics. Performing a tissue culture is crucial for diagnosing mycobacterial skin and soft-tissue infections, as an acid-fast bacilli stain alone cannot distinguish between different mycobacterial species. Lowenstein-Jensen agar is a selective medium specifically used for the culture and isolation of *Mycobacterium* species. The strict temperature requirement of 30 °C to 32 °C (86-89.6 °F) for the growth of this organism suggests that the infection predominantly affects the limbs, which tend to have a slightly lower temperature compared to the core of the body.[1] In our case, the histologic findings and clinical history suggested granulomatous involvement due to fungi or mycobacteria.

Cutaneous leishmaniasis is characterized by ulcers with possible accompanying nodular lymphangitis; however, the patient did not have relevant travel history. Leishmaniasis results from a parasite transmitted by a sandfly, with most cases occurring in Afghanistan, Algeria, Brazil, Iran, Pakistan, Peru, Saudi Arabia, and Syria.[2]

Ecthyma gangrenosum is characterized by tender necrotic plaques seen predominantly in immunocompromised patients and is associated with *Pseudomonas aeruginosa* bacteremia.[3] Our patient had lesions present for a duration of 5 months, which is inconsistent with the more rapidly progressing course of ecthyma gangrenosum.

Leukocytoclastic vasculitis may manifest with palpable purpura of the lower extremities. An infectious trigger, such as *Mycobacterium,* may lead to a leukocytoclastic vasculitis. The histopathologic findings classically demonstrate neutrophil deposition in vessel walls, deposition of fibrin in the vessel lumen, and nuclear debris.[4]

Despite the presence of granulomatous changes in our patient, the presentation of ulcerated nodules in a sporotrichoid pattern on one extremity suggests a diagnosis of infectious etiology rather than sarcoidosis.

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