Photo Quiz

Chronic Ulceration on the Lower Extremity

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This series is coordinated by John E. Delzell, Jr., MD, MSPH, Assistant Medical Editor.

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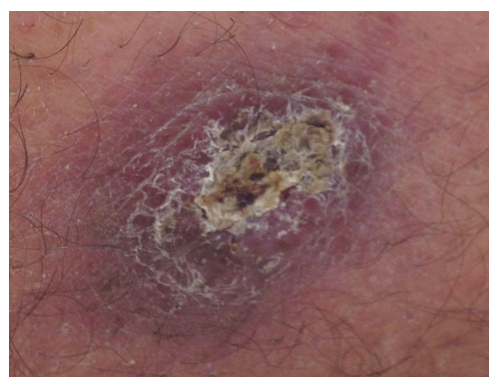

Figure 1.

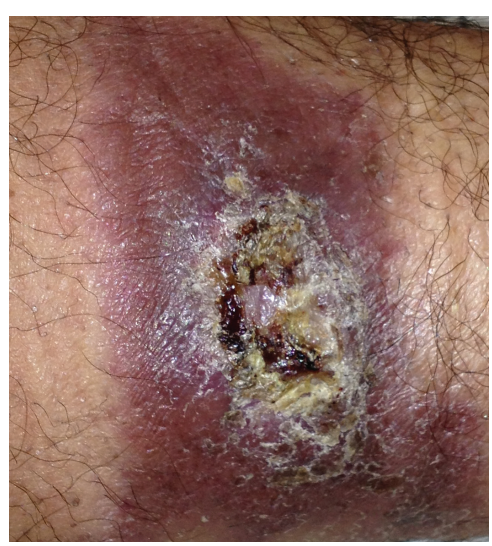

Figure 2.

A 50-year-old man presented with an annular plaque located on the medial aspect of the left lower extremity. The lesion was painless, ulcerated, and indurated, and had been present for approximately one year. There was no history of trauma to the site. The patient lived most of his life in Southwest Asia, but had no other significant travel history. He was otherwise healthy.

On physical examination, the patient had a large (3 × 6 cm) ulcer on his left lower extremity with a larger area of surrounding erythema *(Figures 1 and 2)*. The ulcer was growing despite topical steroid treatment. More recently, a similar smaller ulceration appeared on the lateral aspect of his right lower extremity.

Question

Based on the patient's history and physical examination findings, which one of the following is the most likely diagnosis?

- ❑ A. Atypical mycobacteria infection.
- ❑ B. Basal cell carcinoma.
- ❑ C. Cutaneous anthrax.
- ❑ D. Erythema induratum.
- ❑ E. Localized cutaneous leishmaniasis.

See the following page for discussion.

Summary Table

Condition	*Causes*	*Characteristics*
Atypical mycobacteria infection	*Mycobacterium fortuitum, M. chelonae, M. abscessus*	Large fluctuant abscess progressing to a solitary ulcerated, indurated lesion; often occurs at the site of a penetrating injury or surgery
Basal cell carcinoma	Associated with exposure to ultraviolet B light	Pearly white, dome-shaped papule with telangiectatic surface vessels or ulcer with indurated borders; located on the head and neck
Cutaneous anthrax	*Bacillus anthracis*	Painless, often pruritic papule that enlarges into a vesicle or bulla; black eschar and surrounding edema and erythema
Erythema induratum	Reaction associated with multiple infections, usually *M. tuberculosis, Nocardia, Pseudomonas,* and *Fusarium*; also associated with thrombophlebitis, hypothyroidism, rheumatoid arthritis, Crohn disease, and chronic lymphocytic leukemia	Crops of tender, violaceous nodules and plaques on the posterior lower extremities
Localized cutaneous leishmaniasis	*Leishmania* parasite, transmitted by sandfly vector	Pink papule enlarges into a nodule or plaque, eventually becoming a painless, indurated, annular ulcer; usually occurs on exposed skin

Discussion

The answer is E: localized cutaneous leishmaniasis. Lesions occur on exposed skin as a result of *Leishmania* infection after inoculation from a sandfly bite. *Leishmania* infections often occur in troops returning to the United States after serving in the Middle East or Southwest Asia. The initial manifestation of a pink papule enlarges into a nodule or plaque, eventually becoming a painless, indurated, annular ulcer. The lesion heals over months to years and leaves an atrophic, depressed scar. Localized cutaneous leishmaniasis is oriented along skin creases, and causes inflammatory satellite papules and induration beneath the lesion.[1]

Histopathology, culture, or polymerase chain reaction can be used to diagnose localized cutaneous leishmaniasis. Determining the species can guide treatment, but success is variable.[2]

Mycobacterium fortuitum, M. chelonae, and *M. abscessus* are considered rapid-growing, atypical mycobacteria. They can cause a large fluctuant abscess, which progresses to a solitary ulcerated, indurated lesion. These infections often occur after a penetrating injury or a surgical procedure in immunosuppressed patients. Diagnosis is made with mycobacterial cultures from skin lesions.[3]

Basal cell carcinoma is typically a pearly white, dome-shaped papule with telangiectatic surface vessels. It can also present as a pigmented, superficial, scaly plaque; an ulcer with indurated borders; or a yellow, firm, ill-defined mass (morpheaform). Most basal cell carcinomas occur on the head and neck. It is associated with exposure to ultraviolet B light. Diagnosis is by biopsy.[4]

Cutaneous anthrax is caused by *Bacillus anthracis.* It begins as a painless, often pruritic papule that enlarges into a vesicle or bulla within 24 hours. The vesicle becomes hemorrhagic, followed by ulcer formation with a painless black eschar. Marked edema and erythema develop, often with associated satellite vesicles. The eschar usually falls off within two weeks. Cutaneous anthrax spontaneously resolves in 90% of patients. Diagnosis is made by Gram stain or culture; a full-thickness punch biopsy should be obtained for histology, polymerase chain reaction testing, and immunochemistry studies.[5]

Erythema induratum, a form of nodular vasculitis, presents as crops of tender, violaceous nodules and plaques on the posterior lower extremities that evolve over several weeks. The lesions often ulcerate and drain. The disorder is overwhelmingly more common in women, usually in middle age. Erythema induratum is a reaction usually associated with *M. tuberculosis, Nocardia, Pseudomonas,* and *Fusarium* infections; however, it can also be associated with thrombophlebitis, hypothyroidism, rheumatoid arthritis, Crohn disease, and chronic lymphocytic leukemia.[6]

The opinions and assertions contained herein are the private views of the authors and not to be construed as official or as reflecting the views of the U.S. Air Force, U.S. Army, and the Department of Defense.

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Author disclosure: No relevant financial affiliations.

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