

Draining Nodule of the Hand

Ezaz A. Hasnain, BS; Jon G. Persichino, DO



A 67-year-old man presented to the emergency department with a draining nodule on the right hand of 4 days' duration. He reported that the swelling and redness started 1 hour after handling a succulent plant. The following day, the nodule increased in size and exudated yellow pus. He presented with swelling of the thumb and hand, which resulted in a decreased range of motion. He had a history of prediabetes and denied any recent travel, allergies, or animal exposures. Physical examination revealed a draining nodule on the dorsal aspect of the right hand that measured approximately 15×15 mm with surrounding erythema and tenderness. There also was progression of ascending erythema up to the axilla. The patient was admitted to the hospital.

WHAT'S YOUR DIAGNOSIS?

- brown recluse spider bite
- cutaneous nocardiosis
- methicillin-resistant *Staphylococcus aureus*
- Mycobacterium marinum*
- sporotrichosis

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Ezaz A. Hasnain is from Drexel University College of Medicine, Philadelphia, Pennsylvania. Dr. Persichino is from University of California, Riverside, School of Medicine.

The authors report no conflict of interest.

Correspondence: Jon G. Persichino, DO, University of California, Riverside, School of Medicine, 900 University Ave, Riverside, CA 92521 (jon.persichino@rmcps.com).

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THE DIAGNOSIS: Cutaneous Nocardiosis

The wound culture was positive for *Nocardia farcinica*. The patient received a 5-day course of intravenous sulfamethoxazole-trimethoprim in the hospital and was transitioned to oral sulfamethoxazole-trimethoprim (800 mg/160 mg taken as 1 tablet twice daily) for 6 months. Complete resolution of the infection was noted at 6-month follow-up (Figure).

Nocardia is a gram-positive, aerobic bacterium that typically is found in soil, water, and decaying organic matter.¹ There are more than 50 species; *N farcinica*, *Nocardia nova*, and *Nocardia asteroides* are the leading causes of infection in humans and animals. *Nocardia asteroides* is the most common cause of infection in humans.^{1,2} Nocardiosis is an uncommon opportunistic infection that usually targets the skin, lungs, and central nervous system.³ Although it mainly affects individuals who are immunocompromised, up to 30% of infections can be seen in immunocompetent hosts who can contract cutaneous nocardiosis after experiencing traumatic injury to the skin.¹

Nocardiosis is difficult to diagnose due to its diverse clinical presentations. For example, cutaneous nocardiosis can manifest similar to mycetoma, sporotrichosis, spider bites, nontuberculous mycobacteria such as *Mycobacterium marinum*, or methicillin-resistant *Staphylococcus aureus* infections, thus making cutaneous nocardiosis one of the great imitators.¹ A culture is required for definitive diagnosis, as *Nocardia* grows well on nonselective media such as blood or Löwenstein-Jensen agar. It grows as waxy, pigmented, cerebriform colonies 3 to 5 days following incubation.³ The bacterium can be difficult to culture, and it is important to notify the microbiology laboratory if there is a high index of clinical suspicion for infection.

A history of exposure to gardening or handling animals can increase the risk for an individual contracting *Nocardia*.³ Although nocardiosis can be found across the world, it is native to tropical and subtropical climates such as those found in India, Africa, Latin America, and Southeast Asia.¹ Infections mostly are observed in individuals aged 20 to 40 years and tend to affect men more than women. Lesions typically are seen on the lower extremities, but localized infections also can be found on the torso, neck, and upper extremities.¹

Cutaneous nocardiosis is a granulomatous infection encompassing both cutaneous and subcutaneous tissue,



Complete resolution of nocardiosis on the hand after 6 months of treatment with sulfamethoxazole-trimethoprim.

which ultimately can lead to injury of bone and viscera.¹ Primary cutaneous nocardiosis can manifest as tumors or nodules that have a sporotrichoid pattern, in which they ascend along the lymphatics. Histopathology of infected tissue frequently shows a subcutaneous dermal infiltrate of neutrophils accompanied with abscess formation, and everlasting lesions may show signs of chronic inflammation and nonspecific granulomas.³

Treatment of nocardiosis should be guided by in vitro susceptibility tests. Sulfamethoxazole-trimethoprim 800 mg/160 mg taken as 1 tablet twice daily is the first-line option. The treatment duration is contingent on the extent, severity, and complications of infection but typically is 3 to 6 months.¹

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