JAMA Dermatology Clinicopathological Challenge

A Micaceous Plaque on the Elbow of an Older Adult

Amir Bajoghli, MD; Caroline Fisher, BS; Michael A. Cardis, MD

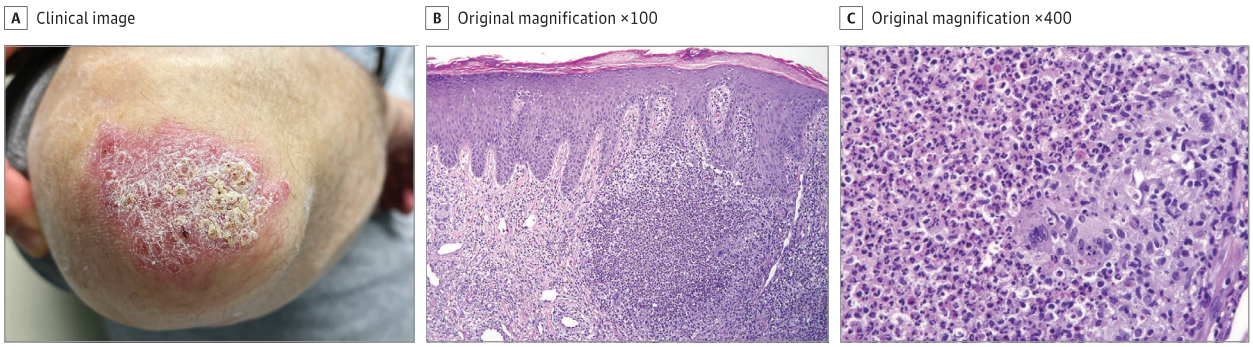

Figure. A, Well-circumscribed pink, scaly plaque on the right elbow. B and C, Hematoxylin-eosin–stained sections reveal psoriasiform epidermal hyperplasia overlying suppurative granulomatous infiltrates with multinucleate giant cells and rare eosinophilic spheroid forms.

An older adult presented with a history of a mildly pruritic plaque on the elbow at the site of a prior injury. The medical history was unremarkable, and findings of a review of systems were negative. The patient had been treated in the past with topical steroids without improvement, and the size of the lesion had continued to grow slowly. Physical examination findings revealed a solitary, well-circumscribed pink plaque with overlying yellow-white micaceous scale with interspersed punctate hemorrhagic crusts (**Figure**, A). Lymphadenopathy was not identified. Punch biopsy for histopathologic examination was performed, with representative sections shown (Figure, B and C).

WHAT IS YOUR DIAGNOSIS?

A. Sporotrichosis

B. Koebnerized psoriasis vulgaris

C. Granulomatosis with polyangiitis

D. Sarcoidosis

Diagnosis

A. Sporotrichosis

Discussion

Histopathologic evaluation revealed psoriasiform epidermal hyperplasia overlying suppurative granulomatous inflammation. Occasional round, eosinophilic yeast forms were identified. Tissue culture results confirmed infection by *Sporothrix schenckii*, and the patient was diagnosed with fixed cutaneous disease. Because of a drug interaction with itraconazole, the patient was prescribed terbinafine, 250 mg daily, but was lost to follow-up.

Sporotrichosis is a deep fungal infection caused by thermal dimorphic fungi of the *Sporothrix schenckii* species complex. Like other saprophytic fungi, it is found in high prevalence in tropical climates, especially Latin America; however, infections occur globally. At in vitro temperatures, the organism transitions to an infectious yeast phase from the mycelial form seen in nature.[1] Transmission typically occurs via direct inoculation from plants or plant-related materials, including soil, splinters, and thorns, making it an occupational hazard (such as in farmers, gardeners, and florists). The incubation period is typically 3 weeks but may last several months. A history of trauma is not always elicited because it is typically minor and oft forgotten.[2]

Clinically, sporotrichosis is classified as cutaneous or extracutaneous with the former divided into 3 subtypes: lymphocutaneous (up to 80% of cases), fixed cutaneous, and disseminated cutaneous disease.[2] The classic lymphocutaneous presentation begins with a sporotrichotic chancre, which is a papulonodule at the site of inoculation followed by subsequent painless lesions along proximal lymphatics. The clinical morphology is protean and includes nodules, plaques, ulcers, draining sinuses/fistulas, subcutaneous masses, pyoderma gangrenosum–like lesions, or verrucous plaques.[3] Lesions mimicking psoriasis have been reported but are uncommon.[4] The differential diagnosis of sporotrichoid spread includes atypical mycobacterial infection, tularemia, leishmaniasis, and nocardiosis, among others. Fixed cutaneous disease most commonly presents on the face and is thought to result from prior host immunity to the organism. Progression from fixed cutaneous disease to systemic involvement is uncommon unless the patient becomes immunocompromised, in which case hematogenous dissemination is possible.[5] Sporotrichosis can also induce an immunoreactive state manifesting as erythema nodosum, reactive arthritis, Sweet syndrome, or erythema multiforme.[1]

Unlike other deep fungal infections, identification of the organism on histologic examination is notoriously difficult, and tissue culture is the criterion standard. When present, the organism stains with periodic acid–Schiff or Grocott methenamine silver and appears as budding yeasts measuring 3 to 8 µm.[2] Asteroid bodies or Splendore-Hoeppli phenomenon may also be seen but are nonspecific findings.

Itraconazole, 200 mg daily until 2 to 4 weeks after clinical clearance, is the first-line treatment for uncomplicated disease. Terbinafine has also been shown to be effective and may be used as an alternate therapy; however, substantial data are not available to recommend it as a first-line option.[6] Saturated solution of potassium iodide, historically a common treatment, is still an option, particularly in resource-limited settings or in immunoreactive disease states.[1] Amphotericin B is used for disseminated or systemic disease or potentially in the setting of HIV infection or pregnancy.[6] Local treatments shown to have some efficacy in treating cutaneous disease include electrosurgery and cryotherapy.[7,8]

In conclusion, psoriasiform presentations of sporotrichosis are uncommon and represent a diagnostic pitfall, especially when encountered in fixed cutaneous disease, which lacks the classic sporotrichoid pattern. Biopsy is necessary to exclude potential mimickers and to establish the inflammatory reaction pattern. Psoriasis features similar epidermal changes to that seen in this patient's case but would not be accompanied by granulomatous infiltrates. Sarcoidosis, a clinically protean disease, may histologically display psoriasiform epidermal hyperplasia; however, well-formed epithelioid granulomas are the characteristic histologic finding, in contrast to the suppurative granulomas seen in this patient, the latter of which is highly suggestive of infection. Granulomatosis with polyangiitis is typified by a necrotizing vasculitis that often manifests clinically as purpura or pyoderma gangrenosum–like ulcerations.

ARTICLE INFORMATION

Author Affiliations: Skin & Laser Surgery Center, McLean, Virginia (Bajoghli, Fisher); Inova Fairfax Hospital, Falls Church, Virginia (Bajoghli); MedStar Washington Hospital Center, Georgetown University Hospital, Washington, DC (Cardis).

Corresponding Author: Michael A. Cardis, MD, MedStar Washington Hospital Center, Georgetown University Hospital, 5530 Wisconsin Ave, Ste 730, Chevy Chase, MD 20745 (michael.a.cardis@medstar.net).

Published Online: June 24, 2020. doi:10.1001/jamadermatol.2020.1960

Conflict of Interest Disclosures: None reported.

Self-assessment Credit: This article is eligible for journal-based self-assessment (1 credit) for Maintenance of Certification (MOC) from the American Board of Dermatology (ABD). After completion of an activity, please log on to the ABD website at www.abderm.org to register your credits. This may be done after each exercise or after accumulating many credits.

REFERENCES

1. Orofino-Costa R, Macedo PM, Rodrigues AM, Bernardes-Engemann AR. Sporotrichosis: an update on epidemiology, etiopathogenesis, laboratory and clinical therapeutics. *An Bras Dermatol*. 2017;92(5):606-620. doi:10.1590/abd1806-4841.2017279

2. Mahajan VK. Sporotrichosis: an overview and therapeutic options. *Dermatol Res Pract*. 2014;2014:272376. doi:10.1155/2014/272376

3. He Y, Ma C, Fung M, Fitzmaurice S. Disseminated cutaneous sporotrichosis presenting as a necrotic facial mass: case and review. *Dermatol Online J*. 2017;23(7):13030/qt5zd47238.

4. Guo H, Xu XG, Guan XH, Gao XH, Chen HD, Li JH. Psoriasiform cutaneous sporotrichosis. *Int J Dermatol*. 2015;54(9):e364-e365. doi:10.1111/ijd.12814

5. Mahlberg MJ, Patel R, Rosenman K, Cheung W, Wang N, Sanchez M. Fixed cutaneous sporotrichosis. *Dermatol Online J*. 2009;15(8):5.

6. Kauffman CA, Hajjeh R, Chapman SW; Mycoses Study Group. Practice guidelines for the management of patients with sporotrichosis. *Clin Infect Dis*. 2000;30(4):684-687. doi:10.1086/313751

7. Fichman V, do Valle ACF, Freitas DFS, et al. Cryosurgery for the treatment of cutaneous sporotrichosis: experience with 199 cases. *Br J Dermatol*. 2019;180(6):1541-1542. doi:10.1111/bjd.17532

8. Soeiro Sampaio FM, Sguissardi de Oliveira D, Saraiva Freitas DF, Francesconi do Valle AC. Electrosurgery as adjuvant therapy for cutaneous sporotrichosis. *Dermatol Surg*. 2020;46(1):140-142. doi:10.1097/DSS.0000000000001746