Case of the Month

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FIGURE 1
Lesions on the soles of the feet

CASE

A 22-year-old white male presented to his primary care provider with a rash on the bottom of both feet. The patient said he had had the rash for 6 months and it was now getting worse. The rash began on the heels and was spreading to the soles of the feet. He said the rash changed appearance during the day. In the morning, the skin was white and dry, but by the evening the skin had a wet and "crumpled" appearance. The patient denied pruritus or drainage from the site, recent trauma, new exposures, or injury. He also denied feeling pain but stated that he could "feel the rash" and sometimes could feel a pulse in his heels. Moisture and water tended to exacerbate the rash. The patient had been applying OTC antifungals and a topical corticosteroid cream intermittently for the past 2 months. Neither treatment had improved the condition.

History The patient was athletic and an avid swimmer and hiker. He was healthy except for the rash and denied any other medical complaints. The patient occasionally took omeprazole (Prilosec) for indigestion.

Physical examination Symmetric plantar lesions were seen on both feet. Many small craterform crypts on the heels coalesced to form larger erosions on both feet. The lesions had a white-yellowish appearance and an unpleasant odor. Some involvement of the posterior aspect of the heel as well as the ball of the foot was noted (see Figure 1). The arches, toes, and sides of the feet were spared. No scales, erythema, or tenderness was noted. A KOH (potassium hydroxide) test of the lesion was negative for hyphae. A Wood's lamp examination also was negative.

WHAT IS YOUR DIAGNOSIS?

- *Pitted keratolysis*
- *Tinea pedis*
- *Dishydrotic eczema*
- *Contact dermatitis*

DISCUSSION

This patient had pitted keratolysis, an acquired, chronic, mostly asymptomatic infection of the skin. The infection is normally associated with tropical countries, although it is found all over the world.[1] The infection was first described in 1910 on a barefooted Ceylonese patient during the rainy season and described as *keratoma plantare sulcatum*; it is also seen in patients who continuously wear moist socks or have frequent contact with water.[2] An impressive malodor of the feet is often apparent, presumably from the production of sulfur-compound byproducts; a "sliminess" to the skin has also been reported.

Comment In a 1999 study of 142 homeless men in the Boston area, 20% had pitted keratolysis.[3] Several bacteria have been implicated and include *Dermatophilus congolensis*, *Micrococcus sedentarius*, and *Corynebacterium diphtheriae*.[4] The organisms produce and excrete exoenzymes that can degrade keratin and produce crevices in the stratum corneum.[5] The condition is characterized by many discrete, superficial craterform "pits" and superficial erosions in the thickly keratinized skin of the plantar foot. Pitted keratolysis is often misdiagnosed as tinea pedis. Although most cases are asymptomatic, some patients complain of itching, tenderness, and a sliminess of the skin on the feet that can cause socks to stick to the skin. Some cases involve painful plaquelike lesions. The cause of the pain in these cases in unknown.

Prevention consists of reducing sweat and moisture with agents such as aluminum chloride and miconazole powders such as Zeasorb. Patients should be advised to avoid wearing occlusive footwear, to wear 100% cotton socks, and to wear open-toed sandals whenever possible. Patients should wash their feet with soap or an antibacterial cleanser twice a day. Occasionally, hyperhidrosis can be treated with roll-on antiperspirant or a 20% aluminum chloride solution.[2] Effective topical antibiotic treatments include erythromycin, clindamycin (Cleocin T, Clinda-Derm, Clindagel), and mupirocin (Bactroban). Applications of benzoyl peroxide twice a day are also effective.

Outcome The patient was treated with erythromycin topical gel, 2%, and had complete resolution at 6 weeks. Prevention and patient self-management consisted of daily application of an antiperspirant on his feet, the wearing of only 100% cotton socks, and drying the feet more thoroughly after swimming and showering. At 3 months follow-up, the patient was still free of symptoms. JAAPA

Wilton Kennedy is director and associate professor at the Jefferson College of Health Sciences PA program, Roanoke, Virginia. He has indicated no relationships to disclose relating to the content of this article.

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