Clinician Reviews®

Giving a Rash the Boot

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For many years, a 49-year-old man has had an itchy rash on his right foot. It waxes and wanes with the seasons: worse during hot weather, better in the winter. He works in a hot warehouse where the dress code requires him to wear 9-inch boots.

The patient has treated the rash with many topical products, including clotrimazole, tolnaftate creams, and various powders. He has found that topical 1% hydrocortisone works best for relieving the itch.

On examination, there is redness, maceration, and mild edema in the webspace between the 4th and 5th toes, spilling onto the plantar forefoot in that area. KOH examination of scrapings from the affected area shows abundant fungal elements (hyphae).

Based on the exam, what correctly explains this patient's rash?

a) He has a treatment-resistant fungal infection (tinea pedis).
b) His infection is bacterial, not fungal.
c) His problem is chronic and might be controllable but not curable.
d) His fungal infection is perpetuated by wearing black socks.

ANSWER

The correct answer is that his rash is a chronic problem that might be controllable but most likely not curable (choice "c")—information that no previous provider had shared with the patient.

DISCUSSION

Interdigital tinea pedis is almost always caused by *Trichophyton rubrum*, an extremely common dermatophyte. One would be hard-pressed to find a more typical case than this patient's, with involvement of the webspace between the 4th and 5th toes. So, what went wrong?

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For one thing, the patient either didn't understand, or had never been told, that wearing 9-in boots in a hot work environment reduced his chances of curing the rash to practically zero. Moreover, he may simply lack the immunity to fend off this organism, particularly since he has been continually re-exposed via his own shoes, socks, bedding, floors, and carpets he's been walking on for years.

I occasionally tell affected patients (those who can take a joke) that their only chance at a cure is to change jobs, move to Alaska, and burn their old shoes and socks; otherwise, control is the only reasonable goal. Of course, this is not true for all patients with tinea pedis—but for some, circumstances make it difficult to successfully eradicate the problem.

Possibly resistant fungi are almost unknown in otherwise immunocompetent patients, but some antifungal treatments *are* better than others. In my experience, tolnaftate is next to useless, no matter what John Madden said in his old TV commercials. Clotrimazole is a step up but still far from the best topical creams: terbinafine, miconazole, or oxiconazole. Again, it is

crucial for the patient to understand the likely chronicity of the infection and the fact that he must never treat it with steroids.

Although unusual, bacteria—such as *Corynebacterium minutissimum* or even strep—can inhabit the interdigital space, but they would cause pain rather than itch. Strep infiltrating broken skin can lead to a nasty cellulitis in the foot and leg—a good reason to keep this problem under control.

As far as the "black sock" legend, which posits that the wearing of dark-colored socks perpetuates tinea pedis, the origin is anyone's guess. It was common "knowledge" 65 years ago when I was in junior high. I have encountered no evidence to support this theory, although I'm sure proponents continue to wear white socks to their Flat Earth Society meetings.

TREATMENT

The patient's rash was treated with topical terbinafine. He was advised to avoid topical steroids and to accept decent control of the problem as the best outcome he could achieve. **CR**