Young girl with lower leg rash

Our patient had initially been given a diagnosis of subacute spongiotic dermatitis. But the rash didn't respond to treatment. Another lab test revealed why.

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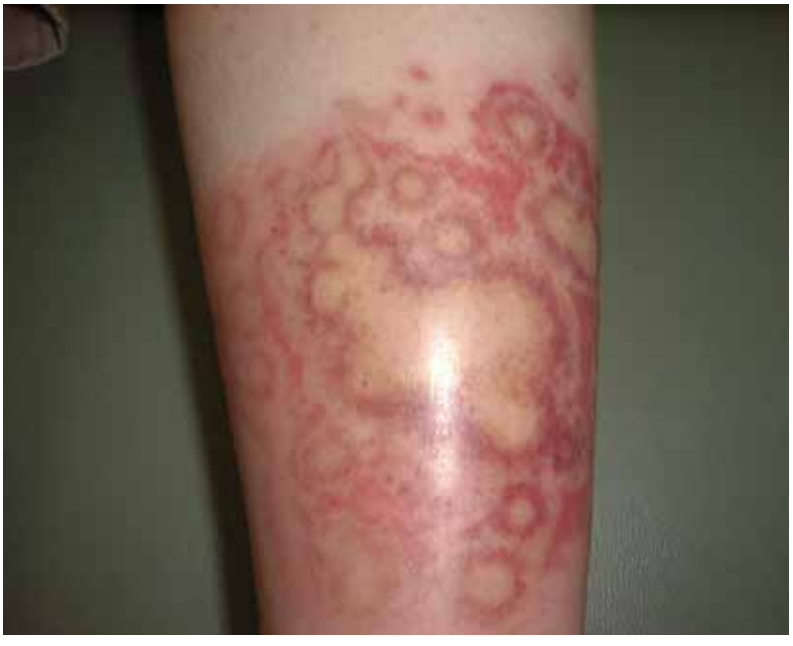
AN 8-YEAR-OLD GIRL was brought into our clinic for evaluation of a leg rash on her right lower leg that had been bothering her for 2 months. Another physician had performed a biopsy and diagnosed subacute spongiotic dermatitis, but the rash did not respond to treatment with triamcinolone cream 0.1% twice daily.

The rash was mildly tender and markedly pruritic. The girl had no history of trauma, prior skin conditions, or other areas with a similar rash. Physical examination revealed concentric annular lesions on the right lower leg (**FIGURE**). The central areas demonstrated a bruised appearance that did not resolve with diascopy.

- WHAT IS YOUR DIAGNOSIS?
- HOW WOULD YOU TREAT THIS PATIENT?

FIGURE
Tender and markedly pruritic rash on child's lower leg



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In this case, the pathologist should have been advised of the possibility of a superficial fungal infection.

Diagnosis: Tinea corporis

A potassium hydroxide (KOH) preparation was performed. It showed septate hyphae and confirmed a diagnosis of tinea corporis. We ordered a periodic acid-Schiff (PAS) stain on the previous biopsy specimen, and it revealed septate hyphae in the stratum corneum that were not apparent on the original hematoxylin and eosin (H&E) stained sections.

Dermatophyte infections of the skin are known as tinea corporis or "ringworm." Ringworm fungi belong to 3 genera, *Microsporum, Trichophyton*, and *Epidermophyton*. These infections occur at any age and are more common in warmer climates.[1] The classic lesion is an annular scaly patch, sometimes with the concentric rings, as seen in our patient (**FIGURE**). The bruising was almost certainly caused by rubbing and scratching.

We suspected tinea coporis based on the physical characteristics of the rash and the fact that it did not respond promptly to topical steroids. Our suspicions were confirmed by the KOH prep. Inked KOH using chlorazol black E stain turns fungal hyphae black, which makes them easier to distinguish from keratinocyte cell walls.[2]

Differential of a nonspecific rash should include infections

The initial misdiagnosis was based on the histopathologic diagnosis of spongiotic dermatitis. Subacute spongiotic dermatitis is associated with intracellular and intercellular edema of the keratinocytes in the epidermis. This is a nonspecific finding seen in eczematous dermatitis and can be etiologically associated with a wide variety of clinical conditions, including allergic contact dermatitis, atopic dermatitis, nummular eczema, and, in this case, dermatophytosis.[3]

If a biopsy is performed for a nonspecific rash, the pathologist should be advised of the possibility of superficial fungal infection. Providing a history and the physical characteristics of the rash or a differential diagnosis will prompt the performance of a PAS stain. Otherwise, the diagnosis can be missed because fungal elements are often not visible on routine H&E stains.

Proper treatment provides speedy relief

Tinea corporis on a non-hair-bearing area is readily cleared with a topical azole antifungal agent, such as ketoconazole cream 2% twice daily for 2 weeks or a topical allylamine, such as terbinafine cream 1%, twice daily for 2 weeks. Topical allylamines may be more effective than topical azoles for tinea corporis[4] (strength of recommendation [SOR]: **A**). Hair-bearing areas such as the scalp, fingers, and toes are unlikely to respond to topically applied medications and require an oral antifungal medication, such as griseofulvin 15 to 20 mg/kg/d.[5]

Relief for our patient

Our patient's rash was treated with griseofulvin oral suspension 20 mg/kg/d (with milk to enhance absorption) for 6 weeks. There was complete clearing and the condition did not recur. **JFP**

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Strength of recommendation (SOR)

- **A** Good-quality patient-oriented evidence
- **B** Inconsistent or limited-quality patient-oriented evidence
- **C** Consensus, usual practice, opinion, disease-oriented evidence, case series

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