

# Is It Ringworm, Herpes— Or Something Else Entirely?

**A** 16-year-old girl is referred to dermatology by her pediatrician for evaluation of a rash on her face. She is currently taking acyclovir (dose unknown) as prescribed by her pediatrician for presumed herpetic infection. Previous treatment attempts with OTC tolnaftate cream and various OTC moisturizers have failed.

The rash manifested several weeks ago with two scaly bumps on her left cheek and temple area, which the patient admits to “picking” at. Initially, the lesions itched a bit, but they became larger and more symptomatic after she applied hydrogen peroxide to them several times. She then began to scrub the lesions vigorously with antibacterial soap while continuing to apply the peroxide. Subsequently, she presented to an urgent care clinic, where she was diagnosed with “ringworm” (and advised to use tolnaftate cream), and then to her pediatrician, with the aforementioned result.

Aside from seasonal allergies and periodic episodes of eczema, the patient’s health is excellent. She has no pets.

Examination reveals large, annular, honey-colored crusts focally located on the left side of



the patient’s face. Faint pinkness is noted peripherally around the lesions. Modest but palpable adenopathy is detected in the pretragal and submental nodal areas. Though symptomatic, the patient is in no distress. A KOH prep taken from the scaly periphery is negative for fungal elements.

**Given the facts as presented, the most likely diagnosis is**

- Psoriasis
- Eczema
- Impetigo
- Fungal infection

## ANSWER

The correct answer is impetigo (choice “c”), a superficial infection usually caused by a combination of staph and strep organisms.

Psoriasis (choice “a”) would have presented with white, tenacious scaling and would not have

been acute in onset.

Eczema (choice “b”) is definitely possible, but the patient’s rash has features not seen with this condition; see Discussion for details.

Fungal infection (choice “d”) is also definitely in the differential, but it is unlikely given the negative KOH, the lack of any source for such infection, and the complete lack of response to tolnaftate cream.

## DISCUSSION

Impetigo has also been called *impetiginized dermatitis* because it almost always starts with minor breaks in the skin as a result of conditions such as eczema, acne, contact dermatitis, or insect bite. Thus provided with access to deeper portions of the epithelial surface, bacterial organisms



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that normally cause no problems on intact skin are able to create a minor but annoying condition we have come to call *impetigo*.

Mistakenly called *infantigo* in large parts of the United States, impetigo is quite common but nonetheless alarming. Rarely associated with morbidity, it tends to resolve in two to three weeks at most, even without treatment.

Impetigo has the reputation of being highly contagious; given enough heat and humidity, close living conditions, and lack of regular bathing and/or adequate treatment, it can spread rapidly. Those conditions existed commonly 100 years ago, when bathing was sporadic and often cursory, and multiple family members lived and slept in close quarters. In those days before the introduction of antibiotics, there were no good topical antimicrobial agents, either.

Another factor played a major role in impetigo, bolstering its fearsome reputation. The strains of strep (group A  $\alpha$ -hemolytic

strep) that caused most impetigo in those days included several so-called *nephritogenic* strains that could lead to a dreaded complication: acute poststreptococcal glomerulonephritis (APSGN). Also called *Bright disease*, it could and did lead to fatal renal failure—about which little could be done at the time.

Fortunately, such nephritogenic strains of strep are unusual now, with APSGN occurring at a rate of about 1:1,000,000 in developed countries. In those locations, most people live far different lives today, bathing and changing clothes daily and living in much less cramped quarters.

The patient's atopy likely had an impact, for several reasons: Since staph colonization of atopic persons is quite common, it's more likely that an infection will develop. Also, thinner skin that is easily broken, a plethora of complicating problems (eg, dry skin, eczema, contact dermatitis, and exaggerated reactions to insect bites), and a lower threshold for

itching all make atopic persons more susceptible to infection.

Most likely, our patient had a touch of eczema or dry skin and scratched it. Then, as the condition progressed, she scratched it more. The peroxide she used would have been highly irritating, serving only to worsen matters.

From a diagnostic point of view, the honey-colored crust covering the lesion and the context in which it developed led to a provisional diagnosis of impetiginized dermatitis. She was treated with oral cephalexin (500 mg tid for 7 d), topical mupirocin (applied bid), and topical hydrocortisone cream 2.5% (daily application). At one week's follow-up, the patient's skin was almost totally clear. It's very unlikely she'll have any residual scarring or blemish.

Had the diagnosis been unclear, or had the patient not responded to treatment, other diagnoses would have been considered. Among them: discoid lupus, psoriasis, contact dermatitis, and Darier disease. **CR**

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