



Pruritic rash

Each of these 5 patients had a pruritic rash. The locations varied: face, ears, wrist, and waist. But the cause was the same.

CASE 1 ▶ A 13-year-old Caucasian girl sought treatment for a pruritic, scaling patch on her right cheek. The patient had a 10-year history of atopic eczema, with rashes primarily in flexural areas, and a history of skin reactions to earrings and rivets in her blue jeans. She had gone 3 years without a rash on her earlobes and periumbilical areas by scrupulously avoiding contact with metal.

The 2 x 2-cm patch of pruritic, scaling, lichenified skin with focal excoriation that brought her in on this day had been on her right cheek for the past 3 months (FIGURE 1). It had not responded to hydrocortisone 2.5% cream and desonide 0.05% cream when she applied it twice daily, nor had it responded to an intralesional injection of 2 cc of 2.5 mg/cc triamcinolone acetonide.

CASE 2 ▶ A 13-year-old African American girl with a history of atopic dermatitis went to her doctor for a rash beneath the umbilicus. She'd had the rash, which she said was extremely itchy, for 6 weeks; over the previous 10 days, it had become more widespread. A 6 x 5-cm scaling, lichenified, hyperpigmented plaque was present in the infra-umbilical region. She also had a papular rash on the dorsal hands and axillae.

CASE 3 ▶ A 15-year-old Caucasian girl sought care for a pruritic, erythematous rash circumscribing her left wrist in an 8-mm diameter band. She'd had the rash for 6 weeks.

CASE 4 ▶ A 58-year-old Caucasian woman presented with a pruritic, erythematous, scaling rash on both upper cheeks just below her low-

er eyelids. She told the physician that she had a similar pruritic rash on her earlobes when she wore costume jewelry.

CASE 5 ▶ A 50-year-old woman went to her doctor for a pruritic, erythematous patch on the anterior and posterior sides of her earlobes, bilaterally. She told the physician that her ears had been pierced 2 weeks earlier.

- WHAT IS YOUR DIAGNOSIS?
- HOW WOULD YOU MANAGE THIS CONDITION?

FIGURE 1

Scaling patch on cheek



This 13-year-old girl had a solitary 2 x 2-cm erythematous, scaling patch on her right cheek for 3 months, despite the use of topical and intralesional steroids.

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Dr. Brodell reports that he receives grants/research support from Amgen Inc., Doak Dermatologics, Galderma, and OrthoNeutrogena. He serves as a consultant for, or is on the speakers bureau of, 3M/Graceway Pharmaceuticals, Allergan, CollagGenex Pharmaceuticals, Connetics Corp., Dermik/BenzaClin, Galderma, Genentech, Inc., Genentech/Raptiva, GlaxoSmithKline, Janssen, MDsConnect.net, Medicis, Novartis Pharmaceuticals Corp., Pedinol Pharmacal, Inc., Roerig-Pfizer, Sandoz/Novartis, sanofi-aventis, Sirius Laboratories, Stiefel, Westwood-Squibb, and Upjohn.

Ms. Uhlenhake and Dr. Nedorost reported no potential conflict of interest relevant to this article.

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➤ **Nickel is responsible for more cases of allergic contact dermatitis than all other metals combined.**

**Diagnosis:
Nickel dermatitis**

Each of these 5 patients had allergic contact dermatitis caused by nickel. The cheek dermatitis was produced by contact with the circular “menu” button on the patient’s cell phone (Case 1/**FIGURE 1**), the periumbilical rash by the rivet behind a blue jeans button (Case 2/**FIGURE 2**), the wrist dermatitis by a bracelet (Case 3/**FIGURE 3**), the rash on the upper cheeks by eyeglass frames (Case 4/**FIGURE 4**), and the earlobe dermatitis by earrings (Case 5/**FIGURE 5**). The presence of nickel in each object was confirmed with a positive dimethylglyoxime (DMG) test.

■ **What you’ll see.** Besides an erythematous, pruritic, scaling rash, other findings can include vesicles and bullae that break and form crusts at sites of contact. Extreme pruritus is also commonly seen and prompts chronic rubbing and scratching, resulting in the development of lichenification and hyperpigmentation.

Nickel dermatitis is increasingly common

Nickel is a leading cause of allergic contact dermatitis and is responsible for more cases than all other metals combined.^{1,2} The incidence of nickel dermatitis has been increasing in the United States for the last 15 years, annually affecting an estimated 14% to 20% of women and 2% to 4% of men.^{3,4} The higher percentage in women is related to nickel exposure associated with ear piercing and nickel-plated jewelry. In fact, the highest risk for nickel allergy is in young females with pierced ears.^{2,5,6} The number of affected males, however, is increasing, as earrings and body piercing gain popularity in this group.³

Certain occupations with high exposure to nickel, such as cashiers, hairdressers, metal workers, domestic cleaners, food handlers, bar workers, and painters, are also at risk for acquiring nickel dermatitis.⁷ Patients with atopic eczema are also at increased risk.^{8,9}

■ **Sweating may increase the severity of the dermatitis.** Sodium chloride in the sweat causes corrosion of the metal and increases nickel exposure.¹⁰ Nickel release is therefore common in areas of the body that tend to be sweaty—for example, the hands, especially around the fingers, where inexpensive rings

containing nickel are worn, or on the hands of individuals who carry metal key rings.

■ **Consider oral intake of nickel, too.** Another far less common, but important, nickel allergy presentation is systemic contact dermatitis from oral intake of nickel. Nuts, legumes, and chocolate can cause a flare-up reaction in a previously positive patch test site or previous site of nickel dermatitis.¹¹ Patients can also develop a dyshidrotic eczema on the hands. Itching and general symptoms, such as headache, nausea, and malaise, have also been reported after the oral nickel exposure of nickel-sensitive individuals.¹² Dietary intervention studies indicate that it is possible to reduce the activity of dermatitis in these patients by maintaining a diet low in nickel.¹³⁻¹⁶

Finally, severe local reactions to nickel and other contact allergens can lead to autoeczematization, in which a papular or papulosquamous eruption and pruritus appear distant from the site of exposure.

Is it atopic eczema or contact dermatitis?

It can be difficult to distinguish a flare in atopic eczema from chronic allergic contact dermatitis in individuals who may display both processes concurrently. The primary clue to the diagnosis is the peculiar localization of the rash, as evidenced by the cases we have described.

Patch testing is not required for diagnosis

Nickel contact dermatitis is often suspected when patients present with an acute or subacute eruption characterized by erythema, vesicles, and scaling in a distribution corresponding to a metal contact allergen. Nickel allergy is one of the few types of allergic contact dermatitis where the history of exposure along with the signs and symptoms are so distinctive that patch testing is often not required.

Amelioration of the rash associated with the withdrawal of the contactant serves as adequate confirmation of the diagnosis in many cases. A DMG test is a simple, inexpensive way to determine whether the object in question contains nickel. It can be used in the

FIGURE 2
Rash beneath umbilicus



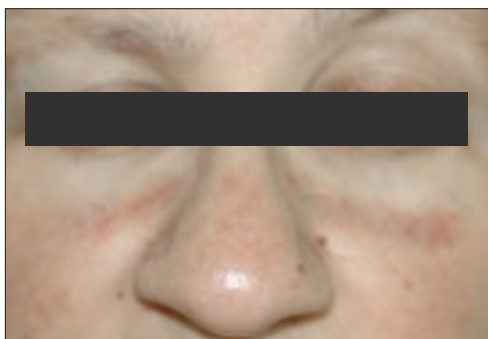
On exam: A 6 x 5-cm hyperpigmented, excoriated, lichenified, papulosquamous rash at the midline, beneath the umbilicus.
The cause: The rivet on the patient's blue jeans.

FIGURE 3
... around the wrist



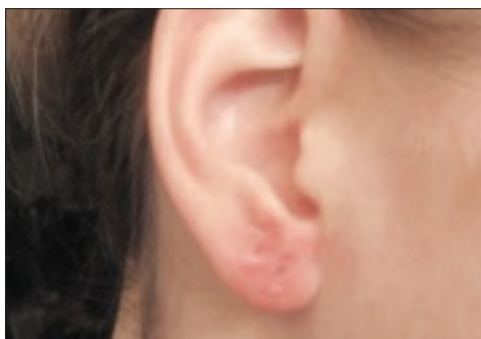
On exam: An 8-mm diameter band of erythema and scaling around the wrist.
The cause: The bracelet (shown), which would normally sit where the erythematous band is located.

FIGURE 4
... on the cheeks



On exam: A 0.8 x 3-cm arc of a papulosquamous rash on both cheeks.
The cause: Eyeglasses.

FIGURE 5
... on the earlobes



On exam: A 0.5-cm patch of erythema, scaling, and crusting on the anterior and posterior sides of both earlobes.
The cause: Nickel in pierced earrings.

➤ Sweating may increase the severity of the dermatitis, as sodium chloride in the sweat causes corrosion of the metal and increases nickel exposure.

physician's office or by the patient at home. Therefore, in some clinical situations, as in the presented cases, it is appropriate to make a presumptive diagnosis of nickel dermatitis, confirm the presence of nickel with a DMG test, remove the offending metal item, treat with topical anti-inflammatory medications, and confirm the diagnosis by monitoring the patient's response.

When patients do not respond to withdrawal of the suspected allergen and anti-inflammatory treatment, when multiple allergens are suspected, or when a definitive diagnosis is required for legal purposes, patch testing with nickel can confirm the diagnosis. In some cases, when the distribution of the

rash is not distinctive, patch test screening may elicit a positive test to nickel that prompts the physician to investigate the source of the exposure.

Tx: Remove the item, apply topical steroids

Acute episodes of nickel dermatitis are treated with topical steroid creams to break the scratch-itch cycle (which potentiates the reaction) and to reduce the inflammation. This tactic is futile, however, if the allergen remains in contact with the skin. The source of the nickel must be identified and eliminated by the patient, as was done by the 5 patients we cared for.

CONTINUED

➤ **Applying a clear coat of nail polish to buttons and rivets can prevent nickel release and will last through at least 2 wash and dry cycles.**

Clothing accessories containing nickel, such as buckles, zippers, buttons, and metal clips, must be eliminated, as well as other sources of nickel: jewelry, watches, eyeglasses, and cell phones. The situation is complicated by the fact that many patients have underlying atopic eczema/irritant dermatitis, and patients may have more than 1 form of allergic contact dermatitis. For instance, self-treatment with neomycin-containing topical antibiotics may lead to superimposed allergic contact dermatitis from this agent.

■ **Easy preventive steps.** Routine prophylactic measures should focus on eliminating exposure to nickel from all identifiable sources. You can suggest that your patient with nickel dermatitis:

- Use a clear plastic cover over the nickel-containing parts of a cell phone.
- Apply a clear coat of nail polish to the buttons and rivets on pants; this can prevent nickel release and will last through at least 2 wash and dry cycles.¹⁷ (Tucking shirts in to prevent buttons and belt buckles from touching the skin is generally ineffective; not only is the shirt unlikely to stay in place all day, but perspiration and friction can also cause problems.)
- Use other barrier coatings, such as Nickel Guard and Beauty Secrets Hardener, which may be effective in preventing contact dermatitis.¹⁸

- Replace rivets on pants with a plastic button, or cover the rivet with a sew-on denim patch. This offers a more permanent approach to eliminating nickel exposure.
- Use plastic covers for earring studs.
- Replace metal eyeglass frames with ones made out of plastic.
- Choose “hypoallergenic” or nickel-free jewelry. Of note, though: Nickel may be present in jewelry labeled hypoallergenic. The patient can perform a DMG test to verify its nickel content.

In patients who continue to react in the absence of nickel jewelry, co-sensitization to gold must be considered, as many patients do react to multiple metals. Gold is a more common allergen than previously reported and is statistically linked to allergic reactions to nickel and cobalt metals.¹⁹ Unlike nickel dermatitis, the clinical relevance of a positive gold patch test is harder to ascertain because rashing distant from areas in direct contact with gold jewelry often occurs. In fact, in some cases of eyelid dermatitis induced by contact allergy to gold, titanium dioxide particles on the skin from cosmetics and sunscreen are thought to adsorb gold particles and carry them to the eyelids. **JFP**

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