Dermacase

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CAN YOU IDENTIFY THIS CONDITION?

A 43-year-old woman presents with a pruritic, erythematous, edematous eruption on her wrists and the sides of her face.

A. The most likely diagnosis is:

1. Allergic contact dermatitis
2. Scabies
3. Atopic dermatitis
4. Seborrheic dermatitis
5. Psoriasis

B. The test to confirm the diagnosis is:

1. Skin biopsy
2. Patch testing
3. Serology testing
4. Potassium hydroxide preparation

Answer on page 557

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Answer to Dermacase *continued from page 553*

A. 1. Allergic contact dermatitis

B. 2. Patch testing

This patient's allergic contact dermatitis (ACD) was caused by exposure to nickel. Erythema, edema, and often pruritus are signs of ACD. Physicians should look for patterns determined by an external cause. Patterns are asymmetrical or unilateral, and their location corresponds to a specific contactant. For instance, in nickel contact dermatitis, patterns appear near rings, bracelets, watchbands, earrings, buckles, and snaps on clothing. Three key features ensure a diagnosis of ACD[1]: a suspected allergen is identified, removal of the allergen resolves the eruption, and patch testing has positive results. Patch testing is optional if the allergen can be ascertained from history.

Two phases of disease

Allergic contact dermatitis, a type IV delayed cell-mediated reaction, has two phases.[2] The first is induction or sensitization to the antigen. The antigen is processed by Langerhans cells in the skin and then presented to CD4 T lymphocytes in the lymph nodes. After about 3 weeks, affector and memory cells return to the skin. The second step is elicitation, or production of a skin eruption after initial sensitization. The eruption is produced by effector and memory T cells.

Nickel hypersensitivity is the second most common ACD. About 10% of schoolgirls and adult women are affected because of ear piercing.[3] Most alloys in jewelry contain nickel, especially if the objects are bright, shiny, or chrome-plated. A dimethylglyoxime spot test is useful for detecting nickel in objects suspected of containing it.

Management

The best way to manage ACD is to prevent it, but this is sometimes difficult for patients. It might involve replacing glasses, bracelets, and rings that contain nickel with those made from other metals.[4] Removing the allergen results in spontaneous resolution within 7 to 14 days.

Barrier creams have proven not to be of much benefit. A medium-to-high potency topically applied corticosteroid is usually sufficient if the ACD is localized.[5] It can be applied daily for 2 weeks maximum, but must then be discontinued to avoid corticosteroid-induced side effects.

In areas where the skin is thin, such as the face and folds, topical calcineurin inhibitors, such as pimecrolimus and tacrolimus, can be used to prevent corticosteroid side effects, such as atrophy. These drugs have proven useful in treatment of atopic dermatitis in adults and children. Systemic corticosteroids, such as prednisone, are used for more extensive skin involvement. Two weeks' treatment is generally sufficient.

References

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2. Budinger L, Hertl M. Immunologic mechanisms in hypersensitivity reactions to metal ions: an overview. *Allergy* 2000;55(2):108-15.
3. Larsson-Stymmne B, Widstrom L. Ear piercing—a cause of nickel allergy in schoolgirls? *Contact Dermatitis* 1985;13:289-93.
4. Basketter DA, Briatico-Vangosa G, Kaestner W, Lally C, Bontinck WJ. Nickel, cobalt and chromium in consumer products: a role in allergic contact dermatitis? *Contact Dermatitis* 1993;28(1):15-25.
5. Levin C, Maibach HI. An overview of the efficacy of topical corticosteroids in experimental human nickel contact dermatitis. *Contact Dermatitis* 2000;43(6):317-21.