The Case That Taught Me: The Role of ROAT

Steroid DTH should be considered when an inflammatory skin disease continues to worsen despite use of topical corticosteroid.

BY JODIE RAFFI, BA AND SHARON JACOB, MD

>> Contact Dermatitis (CD) is an inflammatory skin condition caused by reactivity to an extrinsic chemical agent. CD is the fifth most common dermatologic disease in American patients, and worldwide prevalence ranges from 12.5 to 40.6 percent, depending on location. Besides the negative impact on quality of life, CD has a significant economic impact, accounting for more than $1.5 billion in medical costs per year.[1] Allergic contact dermatitis (ACD), a subset of CD, is a type IV, delayed hypersensitivity reaction resulting from sensitization after cutaneous exposure to occupational or personal products.

ELEMENTAL HISTORY

Chief complaint: "Itchy rash that isn't responding to topical steroids."

An 18-year-old girl with worsening atopic dermatitis referred for evaluation of potential concomitant ACD.

EVALUATION

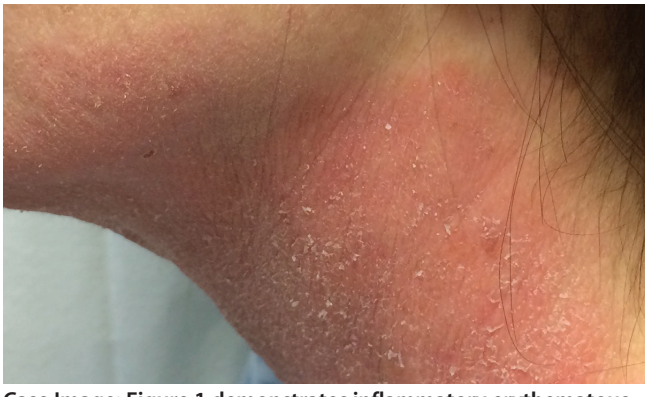
Physical examination revealed eczematous plaques in the antecubital and popliteal fossae, neck, and face. The patient had recently begun to "flare more often," requiring a higher frequency use of topical medicaments. Standard Patch Testing to the Pediatric Modified American Contact Dermatitis Society Core series as well as the patient's medicaments (standard and Repeat Open Application Test [ROAT]) was performed.

CLINICALLY RELEVANT PATCH TEST FINDING

A 1+ reaction to triamcinolone, a 2+ reaction to the patient's prescription triamcinolone ointment, and a + ROAT test were noted.

focal point

This is the case that taught me to simultaneously patch test and R.O.A.T. test the patient's own medicaments alongside the standard allergen tray to assist with clinical relevance determination.



Case Image: Figure 1 demonstrates inflammatory erythematous patches.

TEACHING PEARL

ACD to topical steroids represents a lesser but significant share of the difficult cases to diagnose and treat. The incidence of steroid delayed-type hypersensitivity (DTH) is estimated between 0.2 and six percent,[2] although the true burden of this disease is likely underestimated due to underreporting.[3] Individual risk of sensitization increases with greater length of exposure to topical steroids[2] and a history of inflammatory skin conditions (e.g., atopic dermatitis, hand dermatitis, stasis dermatitis, and leg ulcers).[3] Sensitization and contact allergy are reported to occur more often with specific drugs, particularly nonfluorinated corticosteroids—hydrocortisone, budesonide—as opposed to fluorinated corticosteroids.[2] Of note, steroid DTH refers to contact allergy to the active ingredient, rather than the vehicle excipient compounds mixed in with the active compound, such as preservatives and antibiotics.[2]

Steroid DTH should be considered when the inflammatory skin disease continues to worsen despite use of topical corticosteroid. Diagnosis involves both patch testing and Repeat Open Application Testing. Patch testing done with the standard topical steroid allergen tray, in addition to the patient's personal medicaments, has a higher sensitivity and

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specificity. Because the intrinsic anti-inflammatory properties of topical steroids may contribute to the presentation of late-delayed reactions or false negative results, many clinicians add an additional delayed reading at day 7.[3-5] Positive results can be confirmed with ROAT testing.[2] It is important to note that cross-reactions do occur among different topical corticosteroids, and differentiation between concurrent allergy and cross-reactivity can prove difficult.[3] ■

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