

Allergic Contact Dermatitis from Cetyl Alcohol

Angela E. Aakhus and Erin M. Warshaw

Précis

Contact allergy to cetyl alcohol is rare; the presence of cetyl alcohol in many hypoallergenic products makes diagnosis and management challenging.¹

Case Reports

Case 1

A 62-year-old woman presented with a long history of hand dermatitis that had significantly worsened during the previous 2 years. Initial patch testing revealed multiple sensitivities. Despite avoidance of the allergens, her hand dermatitis persisted.

Physical examination revealed several excoriated papulovesicles and ill-defined scaly pink plaques on the dorsal hands extending to the volar surface of the wrists. Scattered excoriated papules were also present on the forearms.

More comprehensive patch testing was performed with the 2010 North American Contact Dermatitis Group standard, cosmetic, preservative, vehicle, and rubber series, in addition to seven personal items. Numerous reactions were noted, including +++ reactions to Vanicream moisturizer (Pharmaceutical Specialties, Inc., Rochester, MN) “as is” and ++ reactions to cetyl stearyl alcohol 20% in petrolatum (Fig 1). Cetyl alcohol was listed as an ingredient in several of her current products, including Vanicream moisturizer, Cetaphil cleanser (Galderma Laboratories, L.P., Fort Worth, TX), and Vaseline Creamy Deep Moisturizer (Unilever, Trumbull, CT).

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Reprints not available.

DOI 10.2310/6620.2011.10086

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PEARLS provide insight into understanding disease pathogenesis or improving treatment. ZEBRAS inform about previously unrecognized conditions or atypical variants of known disorders.

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Case 2

A 61-year-old woman presented with a flare of dermatitis surrounding a chronic ulcer on her right ankle. The rash had developed 3 days after she had applied mupirocin ointment and doxepin cream to the wound. She had also tried several other topical products, including Benadryl Extra-Strength Itch Stopping Cream (McNeil Consumer Healthcare, Fort Washington, PA) and Vanicream moisturizer.

Physical examination revealed a circumferential and bright pink erythematous plaque with sharp demarcation at midcalf, with a central 5 mm ulceration. Bright red excoriated papules were also present on the arms, trunk, left side of the face, and dorsal hands.

Patch testing was performed with the 2010 North American Contact Dermatitis Group standard, corticosteroid, preservative, vehicle, nail acrylate, antibiotic, and medicament series, in addition to 28 personal items. Results included a ++ reaction to doxepin cream “as is” and + reactions to cetyl stearyl alcohol 20% in petrolatum and Benadryl Extra-Strength Itch Stopping Cream. The result for purified diphenhydramine 1% in petrolatum was



Figure 1. Positive patch-test reactions to Vanicream moisturizer “as is” (+++) and cetostearyl alcohol 20% in petrolatum (++) .

negative. Cetyl alcohol was present in the doxepin cream, Benadryl Extra-Strength Itch Stopping Cream, Vanicream moisturizer, and virtually all other moisturizers used by the patient.

Discussion

Cetyl alcohol, often combined with stearyl alcohol under the name cetostearyl alcohol (CSA), is a widely used emulsifier in many consumer products and topical medications; it is a rare cause of allergic contact dermatitis. Two retrospective studies found a prevalence of allergy to CSA of only 0.8% ($N = 737$)² and 0.7% ($N = 1,206$).³ Allergy to CSA is often associated with predisposing factors leading to an increased susceptibility to contact

allergy, such as chronic wounds due to the frequent application of potentially sensitizing ingredients to denuded skin under occlusive dressings.⁴ Allergy to stearyl alcohol in topical 5-fluorouracil cream has also been reported and was hypothesized to be secondary to a reduced skin barrier function of inflamed skin and increased absorption of potential allergens.⁵ In our patients, preexisting hand dermatitis and stasis ulceration likely contributed to the development of this rare allergy.

Zebra

Although rare, allergy to CSA must be considered with patients who suffer continued dermatitis despite the use of hypoallergenic products and topical medications.

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Bunga Pad–Induced Ankle Dermatitis in a Figure Skater

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Précis

We present the first reported case of allergic contact foot dermatitis induced by Bunga Pads (Absolute Athletics, Concord, CA), lanolin-containing gel cushions frequently used by athletes for protective support.

Discussion

A 13-year-old female figure skater was referred to our clinic for “recalcitrant foot and ankle dermatitis.” The patient reported that she had begun using new Bunga Pads (gel pads that are used by a variety of athletes and that provide cushioning to protect body areas from shear forces and friction) inside her skates. She reported no other unusual occupational or environmental exposures. Well-demarcated circumferential erythematous plaques with lichenification were noted on the distal ankles on physical examination. The patient was patch-tested with the North American Contact Dermatitis Group standard allergen series and the New York University shoe allergen series. Positive reactions were noted to lanolin, Amerchol L-101 (a lanolin derivative), and cocamidopropyl betaine (CAPB). Lanolin and Amerchol-L101 are emulsifiers used in topical medicaments, cosmetics, hygiene products, emollients, and commercial microemulsion gels; CAPB is an amphoteric surfactant found in liquid soaps and shampoos. These reactions were clinically relevant, particularly those to the lanolin and Amerchol L-101, because Bunga Pads contain lanolin. Discontinuation of the use of Bunga Pads resulted in the complete resolution of the chronic eruption.

Allergic contact dermatitis (ACD) in children is underdiagnosed and underreported.^{1,2} In a 2009 study of children suspected of having ACD, 61% patch-tested positively to at least one allergen, and lanolin and CAPB

were cited as increasingly important allergens in this population.¹ Moreover, the lower extremities are a common site for contact dermatitis in children, although lanolin-induced foot ACD is rare.^{3,4}

Bunga Pads are gel-lined cushions specifically designed for athletes to protect various parts of the body from friction injuries and chafing (Fig 1). These items, which provide extensive support and cushioning, are designed exclusively by an athletic-equipment maker and have been increasingly used since 1995. Information on the exact composition of Bunga Pads is not disclosed to the public, but commercial microemulsion gels generally are emulsified with non-ionic emulsifiers such as lanolin alcohols.

Lanolin (a fatty substance derived from the sebaceous glands of wool-bearing animals) is used commercially to soften and protect the skin.⁵ In a recent study, Warshaw and colleagues found the prevalence of lanolin sensitivity



Figure 1. Bunga Pads are gel-lined cushions used by athletes to minimize friction-induced cutaneous injuries.

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DOI 10.2310/6620.2011.10051

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to be 2.5% in a patch-test population of 25,811 patients, but only a small percentage of results were occupation relevant.⁵ Of interest, our patient's exposure was occupational. Lanolin is also a well-established cosensitizer.⁵ Lanolin-positive patients are twice as likely to react to CAPB, and our patient tested positively to both allergens.

The emulsifying and hydrating properties of lanolin account for its frequent use in cosmetic and hygiene products as well as in certain materials such as leather products and gel-lined cushions.^{4,5} Nonetheless, only two cases of lanolin dermatitis from an industrial product are reported in the literature.⁵ Although Bunga Pads are considered hypoallergenic products, our case should raise awareness of their allergic potential as they are a common form of protective padding used in competitive sports. Furthermore, this clinical case supports the usefulness of patch-testing athletes whose clinical presentation and history suggest ACD.

Pearl

Lanolin allergies may be relevant for patients with foot and ankle dermatitis, especially athletes who report using protective equipment such as Bunga Pads.

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