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Case Report

A 30-year-old administrative assistant developed a facial dermatitis that persisted for 2 months. This was characterized by pruritic erythematous scaly plaques involving the periorbital area and upper lip, which notably had worsened with the use of the topical therapeutic 1% pimecrolimus cream (Fig. 1). No systemic illnesses were detected by history and physical examination, and an occupational and environmental history was consistent with exposure to routine chemicals via the use of personal hygiene products, medicaments, and scented soaps and lotions.

Following the initial evaluation, the patient was patch tested with the 2006 North American Contact Dermatitis 65 allergen Standard Screening Tray, in addition to selected chemicals from the University of Miami vehicles, fragrances, and bakery series. Clinically relevant positive reactions were found to balsam of Peru [1+], fragrance mix [1+], cinnamic alcohol [1+], vanillin [1+], hydroxycitronellal [1+], and benzoic acid [1+]. Positive reactions were also noted to dodecyl gallate [1+], *tert*-butylhydroquinone [1+], sorbitan sesquileate [1+], abitol [1+], disperse blue [1+], and formaldehyde [1+]. Patch testing with 1% pimecrolimus cream and benzyl alcohol showed macular erythema. Negative reactions were noted to stearyl alcohol, cetyl alcohol, and propylene glycol.

The patient was treated with an avoidance regimen and 0.1% tacrolimus ointment and her dermatitis resolved. Upon rechallenge with a benzyl alcohol-containing product, the patient's eyelid dermatitis flared.

Discussion

Allergic contact dermatitis (ACD) has been determined to be the most frequent cause of eyelid dermatitis, representing 29–77% of all cases (1). Among tested allergens found to cause eyelid dermatitis, fragrance mix and other fragrance substances such as isoeugenol, eugenol (both

Eyelid dermatitis associated with balsam of Peru constituents: benzoic acid and benzyl alcohol

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Fig. 1. Eyelid dermatitis.

are components of fragrance mix), vanillin, balsam of Peru, and jasmine absolute have been found to be the agents with the highest prevalence of relevant positive reactions (1).

Cases of ACD caused by pimecrolimus cream have been reported because of oleyl alcohol, an emulsifier in this cream, and the active compound pimecrolimus (2, 3). Notably, pimecrolimus cream contains benzyl alcohol as a preservative. Allergy to this ingredient in the cream has not yet been reported.

Benzyl alcohol is an aromatic compound and a naturally occurring constituent of balsam of Peru, jasmine and other botanicals (4, 5). It has been associated with persistent contact dermatitis (3). Because this patient tested positive to balsam of Peru, fragrance mix, and benzoic acid and flared on rechallenge with benzyl alcohol, we concluded that the worsening of her eyelid dermatitis with the 1% pimecrolimus cream was secondary to the benzyl alcohol constituent. In addition, benzoic acid is an oxidation metabolite of benzyl alcohol (5).

This case report demonstrates the importance of recognizing the potential balsam of Peru constituent reactivity of benzoic acid and benzyl alcohol and the value of using therapeutics void of these for the treatment of eyelid ACD.

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