Allergic Contact Dermatitis Due to Benzoyl Peroxide from an Unlikely Source

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Introduction

• A 67-year-old man presented with an eight month history of a pruritic dermatitis involving the hands.

• The patient had a past medical history of atopic dermatitis, which had previously been well controlled.

• Previous treatments: triamcinolone 0.1% ointment and fluocinonide 0.05% ointment without any relief.

• The patient is a baker and has frequent contact with flour.

• The onset of pruritus was associated with switching from unbleached flour to bleached flour.

• Given the clinical presentation and lack of improvement, the patient underwent patch testing with the North American 80 Comprehensive Series (NAC-80).

Physical Exam

• A hyperpigmented eczematous patch was present on the right dorsal hand.

Patch Testing Results

• Figure 1: 48 hour patch test results. A) 1+ reaction to benzoyl peroxide B) 1+ reaction to balsam of peru.

Course and Treatment

• The patient switched from bleached to unbleached flour to avoid benzoyl peroxide, which was the most likely causative agent. Avoidance of his other allergen, balsam of peru, was also recommended.

• At his post-patch test visit, the majority of lesions had resolved with avoidance of allergens and fluocinonide 0.05% ointment.

Allergens in Baking

• Untreated wheat flour contains carotenoids, which give it a yellow tint. Benzoyl peroxide oxidizes the conjugated double bonds in carotenoids, making the flour colorless.

• During the baking process, most of the benzoyl peroxide is converted into benzoic acid.

• The Joint FAO/WHO Committee on Food Additives (JECFA) has concluded that 40 mg of benzoyl peroxide per kg of flour is acceptable.

• Balsam of Peru can be found in many types of food flavoring as well as in tomatoes, citrus fruits, vanilla, cinnamon, and other spices.

Discussion

• Although commonly thought of as an acne treatment, benzoyl peroxide is found in many other products, such as hair bleaching treatments, teeth whitening agents, and food, including edible oils and flour.

• Balsam of Peru is extracted from trees grown in Central America. It is used as a fragrance in perfumes and toiletries, in medicine for its healing properties, and as a flavoring in foods. It is also found in several other items used in food preparation.

• A thorough history is needed when evaluating patients for possible allergic contact dermatitis to account for less well known sources of allergens.

• It is important to consider all possible occupational causes of dermatitis, including benzoyl peroxide and balsam of peru in food handlers and bakers.

References


