

Cinnamon Sugar Scrub Dermatitis: “Natural” Is Not Always Best

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Abstract: Children are at risk of developing allergic contact dermatitis to fragrances. Personal hygiene products, even those labeled hypoallergenic or considered all natural, may be a significant source of fragrance exposure in this population.

Fragrances have been shown to be important sensitizers in U.S. children. The North American Contact Dermatitis Group has reported balsam of Peru and fragrance mix (the major screening chemical of fragrances) as being in the top 10 clinically relevant allergens for children in the latest study period (1). Children’s personal hygiene products are a potential and important source of fragrance exposure to consider but may be difficult to temporally associate with the dermatitis if they are in all-natural products or are vehicle excipients (2) (Table 1).

We evaluated a 16-year-old girl for worsening of atopic dermatitis that had been present since infancy. Historically, her most persistent areas of involvement were the antecubital and popliteal fossae, yet for 3 months before her presentation (during the summer months) she had experienced a flare of her dermatitis mainly involving the face, neck, and upper back. This distribution led to the suspicion of contact allergy to a fragrance or preservative, and the patient was referred for patch testing. Prior treatments included topical steroids

TABLE 1. “Covert” fragrances

α -Bisabolol (from German chamomile)
Balsam of Peru (<i>Myroxylon pereirae</i>)
Benzaldehyde
Benzyl alcohol
Cinnamon
Citrus oil
Cyclopentadecanolide
Essential oils (botanical)
Ethylene brassylate
Farnesol
Linalool
Maltol
Menthol
Phenylethyl alcohol
Sweet almond oil
Vanilla

Covert fragrances when used for other properties may be in “fragrance-free” products.

Adapted from “Exposing Covert Fragrance Chemicals,” P. Scheinman (2).

(e.g., hydrocortisone, triamcinolone), oral cephalexin (completed 27 days before the start of patch testing), and an oral prednisone taper (completed 20 days before the start of patch testing).

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At the final patch test read at 96 hours, she had a 2+ patch test reaction to fragrance mix and a 1+ reaction to tixocortol pivalate. A review of personal care products was performed. The positive patch test to tixocortol was deemed to be of past clinical relevance because she had previously treated her atopic dermatitis with over-the-counter hydrocortisone. The patient and mother noted that cinnamon spice was a household favorite and was added to many of the family's meals, desserts, and drinks. In addition, she was found to be applying an "all natural" homemade cinnamon sugar scrub that her grandmother recommended containing cinnamon powder and granulated sugar to sooth and exfoliate her inflamed skin. Retrospectively, she realized her symptoms began within several weeks of the scrub product use. Furthermore, dramatic improvement was noted after avoidance, which included cessation of the scrub and removal of the home cinnamon-based scents. Caution was advised regarding future use of exfoliating scrubs since this practice could trigger an irritant dermatitis, particularly in patients with atopic dermatitis. For this reason, in this fragrance-sensitized patient, a concomitant chronic irritant reaction due to the cumulative abrasive effect on the epidermal barrier could not be excluded.

Fragrance mix is composed of 1% each of eight different chemicals, including cinnamic aldehyde—also known as cinnamol, the main constituent of cinnamon. Cinnamic alcohol, eugenol, and isoeugenol are also common to fragrance mix (the standard allergen used in patch testing) and all-natural cinnamon spice (3,4). To further delineate which component of fragrance mix a patient is allergic to, more specific testing can be performed for the individual allergens. In cases in which these allergens are not available, repeat open-application testing (ROAT) can be performed at home with the patient's own products. Our patient was patch tested using the Thin-Layer Rapid Use Epicutaneous Patch Test (Smart Practice, Phoenix, AZ), which contains a limited number of allergens. Because she was significantly improved, she did not return for follow-up. Furthermore, cinnamon became a restricted household item and the patient and her mother did not want to risk a flare of her dermatitis with at-home ROAT.

Although lack of confirmatory testing is a limitation in this case, the evidence is highly suggestive of a relationship between the cinnamon sources in the home, the scrub, and the 2+ fragrance mix reaction.

"All natural," whether homemade or store-bought products, and "hypo-allergenic," are terms that may be used to label cosmetic and hygiene products, and these tend to be popular with consumers, who presume an assurance of safety (5). With the recent increase in society's focus on natural products and herbal remedies, it is important for physicians to inquire about the use of these types of personal products with their patients, particularly those undergoing patch testing for symptoms of allergic contact dermatitis. Furthermore, a number of fragrance agents can be included even in "fragrance-free" products according to the current Food and Drug Administration regulations if they are used for a nonfragrance function, such as serving as a preservative (2). These "covert fragrances" (Table 1), as well as those in all-natural products, are potential unexpected sources of sensitization, underscoring the need for awareness that all-natural and fragrance-free do not necessarily equate with "safe," and product labeling may warrant clarification. This also highlights the pivotal role we serve as patient advocates for those with contact dermatitis by helping them navigate the overwhelming array of chemical constituents in these products.

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