

Tetrahydracurcumin-related allergic contact dermatitis

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Case Report

A 53-year-old woman presented with a 12-month history of intermittent episodes of facial and eyelid swelling associated with a red, scaly, itchy rash that lasted for 2 weeks on each occasion. She had no previous dermatological problems, and her facial skin care regimen was limited to washing with water and application of Avon age block cream® (Avon Cosmetics Limited, Northampton, UK).

Patch testing to the European Standard Series and her own products was performed and showed a positive reaction to the Avon age block cream® (as is) at 48 and 96 hrs. 26 individual ingredients of the product were subsequently supplied by Avon Cosmetics Limited for further patch testing with a resulting positive

reaction to the compound tetrahydracurcumin (1% pet.). All other ingredients were negative on patch test. 10 controls were subsequently tested with the tetrahydracurcumin compound and found to be negative.

The patient was advised to discontinue use of the cream and has since had no further reactions. Information regarding avoidance of other products containing the tetrahydracurcumin compound and its three sub-ingredients has been provided.

Discussion

Tetrahydracurcumin is a colourless hydrogenated derivative of the natural yellow curcuminoids, which are extracts of the root of the *Curcuma longa* plant also known as turmeric (1). It appears in cosmetic products as its three sub-ingredients: tetrahydrodiferuloylmethane, tetrahydrodemethoxycurcumin, and tetrahydrobisdemethoxycurcumin, which are used for their antioxidant protection from free radicals, anti-inflammatory properties, antimicrobial and immune system supporting effects, and improved absorption and transdermal bioavailability of active constituents (1). Tetrahydracurcumin has been found in cosmetics used for skin lightening and protection against ultraviolet B and in antiaging preparations. They may also be found in medicaments such as topical gels used for treatment of muscle injury.

Allergic contact dermatitis to *C. longa* as a result of contact with milled spices in a miller employed to a spice shop has been described (2). Allergy to curcumin in food colouring (3), yellow-coloured chlorhexidine (4), and medicaments (5) has also been reported, as has allergy to turmeric powder (as kum-kum) applied to the forehead of some South Indian women (6). One previous case of contact allergy to tetrahydracurcumin has been described (7) with our case adding to what may be an increasing number of patients developing contact allergic dermatitis to this allergen.

With the current climate favouring the use of naturally occurring ingredients and their derivatives in medicaments and cosmetics and with an ever-expanding botanics and biocosmetics field, it is likely that more cases of allergic contact dermatitis to compounds such as tetrahydracurcumin will occur. As such, it is important to patch test patients to their own prod-

ucts and the constituents of these products to be able to identify new and emerging allergens.

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