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Contact dermatitis caused by Tinosorb[®] M: the importance of patch testing with pure methylene bis-benzotriazolyl tetramethylbutylphenol

Federica Liuti and Leopoldo Borrego

Department of Dermatology, Complejo Hospitalario Universitario Insular Materno Infantil, Universidad de Las Palmas de Gran Canaria, 35016 Las Palmas de Gran Canaria, Spain

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Tinosorb[®] M is a widely used ultraviolet (UV) filter complex provided as an emulsion that contains the UV filter methylene bis-benzotriazolyl tetramethylbutylphenol (MBBT) (45–55%, CAS no. 103597-45-1), decyl glucoside (6–10%), propylene glycol (0.2–0.6%), and xanthan gum (0.1–0.5%). Fewer than 15 cases of contact allergy to Tinosorb[®] M have been published (1–7), and, to our knowledge, in only one of them (7) has the pure UV filter MBBT been tested, as it was unavailable until 1 January 2014, when Chemotechnique Diagnostics introduced it as 'pure' hapten in the European Photopatch Extended (EPE) series.

Case Report

An 83-year-old man developed severe eczematous patches on his forehead, cheeks and upper chest 48 hrs after the application of a sunscreen (EXTREM ISDIN 50+ gel-cream[®]). Initial patch tests were performed with the Spanish Contact Dermatitis Study Group (GEIDAC) baseline series, cosmetic series (2013 Cosmetics Series; Chemotechnique Diagnostics, Vellinge, Sweden), and the patient's own product. Patch test results showed positive reactions to lauryl glucoside 3% in pet. (++) and the

sunscreen he used 'as is' (++) both on day (D) 2 and D4. Further patch and photopatch testing (UVA 5 J/cm²) was performed with the EPE series (2013; Chemotechnique Diagnostics) and the sunscreen components provided by the manufacturer (prepared by our hospital pharmacists). Decyl glucoside was tested at 10%, 5% and 3% in aq. and in pet., and xanthan gum was tested at 10% in aq. The D2 and D4 readings yielded positive reactions to the allergen labelled as 'MBBT' (++) in the EPE series, to the sunscreen component Tinosorb[®] M 10% pet (+), and to decyl glucoside 10%, 5%, 3% and 1% in aq. and in pet. Positive reactions were not augmented by UV irradiation.

We initially interpreted our results as simultaneous sensitivity to decyl glucoside and to MBBT, both of which are contained in Tinosorb[®] M. We only later realized that the hapten labelled as 'MBBT' in the 2013 EPE series also contained decyl glucoside. The patient was finally patch tested with MBBT 10% pet. (hapten no. M-037, EPE series 2014; Chemotechnique Diagnostics), and the D2 and D4 readings yielded negative results.

Discussion

The majority of the published cases of contact allergy to Tinosorb[®] M had positive patch test reactions to lauryl glucoside, decyl glucoside, coco glucoside, or some cosmetic products containing one of the glucosides, although decyl and lauryl glucoside have not been tested simultaneously in a single case. Furthermore, pure MBBT has been tested in only one case (7). In this last-mentioned case, the allergen in Tinosorb[®] M was xanthan gum.

Correspondence: Federica Liuti, Complejo Hospitalario Universitario Insular Materno Infantil de Gran Canaria, Avd. Marítima del Sur, 35016 Las Palmas, Spain. Tel: +34928441651; Fax: +34928441851. E-mail: federicajesli@gmail.com

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Our patient had concomitant positive reactions to lauryl glucoside and decyl glucoside, possibly because of cross-reactivity or contamination of one compound by the other in the production of the glucosides (8). He also had a positive reaction to Tinosorb® M, but a negative reaction to pure MBBT. Our case shows the importance of correctly identifying and labelling the material used for

patch testing, to avoid confusion and to detect the actual contact allergen in a patient who shows a positive patch test reaction to a mixture of chemicals. Contact allergy to Tinosorb® M could be more frequent than has been reported. The available data suggest that the predominant allergen is decyl glucoside, as in our case.

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