



Allergic contact dermatitis caused by phenylbenzimidazole sulfonic acid included in a sunscreen

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Adverse reactions to sunscreens include allergic, irritant, phototoxic and photoallergic contact dermatitis.¹ Allergic and photoallergic contact dermatitis to sunscreen may be caused by chemical ultraviolet (UV) absorbers, preservatives, perfumes, and other constituents. Photoallergic contact dermatitis reactions to UV absorbers are not common, but still more frequent than allergic contact dermatitis to these agents.² Among chemical UV absorbers, benzophenone-3 (oxybenzone) is the agent that is most frequently associated with photoallergy, and methylene-bis-benzotriazolyl tetramethylbutylphenol (Tinosorb M) is the agent that is most frequently associated with allergic contact dermatitis.³ Phenylbenzimidazole-5-sulfonic acid or Eusolex 232 (CAS no. 27503-81-7) is a UVB absorber that is present in many sunscreens. Reports of allergy or photoallergy to phenylbenzimidazole-5-sulfonic acid are very rare. Most of these reactions represent photoallergic contact dermatitis.¹

CASE REPORT

A 79-year-old man presented with a generalized, extremely pruritic eruption that developed during his vacations. He had been exposed to the sun and had used two different sunscreens, Delial Garnier Sensitive FPS 50 and Mercadona Spray Solar 50+ Kids.

Photopatch testing was performed with TRUE Test, the Spanish Photobiology Group sunscreen series (Martí Tor, Barcelona, Spain), and the patient's own products. The allergens were applied to the skin of the upper back with Finn Chambers. One panel was removed 48 hours later and irradiated with UVA (5 J/cm²) with a Medisun 2800 device (Schulze und Böhm, Brühl, Germany). The photopatch test was evaluated 2 days after irradiation.

A positive reaction (++) was observed to Eusolex 232 (phenylbenzimidazole-5-sulfonic acid 10% pet.) 4 days after allergens were applied (2 days after irradiation) on both the irradiated and non-irradiated sides. No reaction was seen with the patient's own products, although phenylbenzimidazole-5-sulfonic acid was present in the Mercadona Spray Solar according to the label.

DISCUSSION

Phenylbenzimidazole-5-sulfonic acid (Eusolex 232; CAS no. 27503-81-7) is a UVB filter and is used in a variety of

moisturizers and sunscreens. Photoallergic contact dermatitis reactions to phenylbenzimidazole-5-sulfonic acid have been previously reported in some cases,⁴⁻⁷ but rarely allergic contact dermatitis. Gilaberte et al reviewed 7 published cases of allergic contact dermatitis, and 19 published cases of photoallergy.¹ Phenylbenzimidazole-5-sulfonic acid is apparently not a strong sensitizer. In some of the most recent multicentre photopatch studies, no case was reported.^{3,8,9}

UV filters are not contained in the baseline series or the cosmetic series. However, the use of creams for daily use that have UV absorbers in their composition is increasing. Moreover, the use of sunscreens is becoming more widespread. Therefore, in cases of suspected allergic contact dermatitis of the face, photopatch testing is important. It is of note that phenylbenzimidazole-5 sulfonic acid is only included in extended series of photoallergens or in sunscreen series. Hence, in cases of negative reactions with the baseline photopatch series and even with the patient's own sunscreens, which may have too low concentrations of the UV absorbers for test elicitation, an extended series should be applied.

In conclusion, we want to emphasize the importance of using extended series in (photo)patch testing so that patients with allergy to UV filters do not remain undiagnosed.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to report.

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