

Allergic contact dermatitis to methyl gentisate

Contact Dermatitis 2009; 60: 225–226

E. Serra-Baldrich¹, C. Rincón¹, A. Guedes¹, M. J. Tribó², D. Barco¹ and A. Alomar¹

¹Department of Dermatology, Contact Dermatitis Unit, Hospital Sant Pau, and ²Private Office, 08025 Barcelona, Spain

Key words: methyl gentisate; skin lightening mask.

In recent years, the use of skin-lightening products has become increasingly common in Europe. Irritant and allergic contact dermatitis due to these agents is rarely reported. We report two cases of contact dermatitis caused by a skin-lightening face mask (Marti Derm[®], Barcelona, Spain) containing methyl gentisate.

Case 1

A 44-year-old female with a 9-year history of melasma first used a skin lightening preparation in 2002.

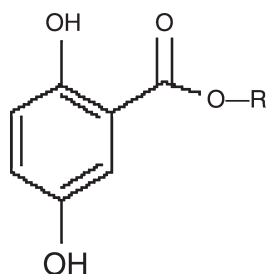


Fig. 1. Chemical structure of methyl gentisate.

During 1 year, she applied a face mask that contained methyl gentisate and also a product containing hydroquinone (Kligman's formula). She noted considerable cosmetic improvement with use of these and experienced no adverse reactions. In June 2007, she was again prescribed the same face mask. This time, however, she developed severe facial erythema followed by oedema affecting both cheeks. The patient discontinued using the product with resolution of the reaction taking 3 weeks. She then applied the face mask once again but the same reaction occurred. Patch testing was carried out in March 2008 with the Spanish baseline series, a cosmetic series, and the face mask. We used the TRUE Test[®] baseline series and cosmetic series by Trolab fixed on the intact skin of the back with Hypafix[®] (BSN Medical, Hamburg, Germany) acrylic adhesive tape. Readings were taken on D2 and again on D4, according to International Contact Dermatitis Research Group (ICDRG) criteria. Both showed reactions (++) to the face mask and remained positive until D7.

Methyl gentisate 0.05% in pet. was positive, and hydroquinone 1% in pet. (present in the Trolab[®] cosmetic series) was negative.

Case 2

A 47-year-old female was referred with severe dermatitis affecting her face. She had been using a skin-lightening face mask twice weekly over the previous 2 weeks to treat melasma. The product contained methyl gentisate and other skin-lightening components. The reaction first appeared on the cheeks then spread to the eyelids and

forehead. She had no history of previous contact or atopic dermatitis.

Patch tests with the Spanish baseline series (True Test), a Trolab cosmetic series (containing hydroquinone), and the face mask were performed. Readings were taken at D2 and D4 according to ICDRG criteria. She showed a strongly positive reaction (++) to the face mask only.

We later performed other patch tests in an attempt to determine which ingredient in the face mask was responsible for the positive reaction. On testing with the individual ingredients of the face mask, the only reactions at D2 or D4 were +++ reactions to methyl gentisate (methyl 2,5-dihydroxybenzoate) at 0.05% pet.

Comments

Methyl gentisate [(HO)₂C₆H₃CO₂CH₃; CAS: 2150-46-1] is the methyl ester of gentisic acid. It is a natural product derived from the root of genus gentiana. It is a relatively new skin-lightening agent and is structurally similar to hydroquinone (1) (Fig. 1). Methyl gentisate *in vitro* inhibits pigmentation in melanocytes, inhibits tyrosinase selectivity, and has reduced cytotoxicity relative to hydroquinone. It does not have mutagenic potential in mammalian cells (2) (Fig. 2).

To our knowledge, only one case of allergic contact dermatitis due to methyl gentisate in a skin-lightening product has been reported to date (3). However, many cases of contact allergy to hydroquinone have been described. In the two patients presented here, the reaction to methyl gentisate was positive but the reaction to hydroquinone was negative.



Fig. 2. Natural origin from gentisate.

In recent years, the cosmetic industry has introduced numerous new chemical ingredients to the market. Both allergists and dermatologists should be alert to the possible development of cutaneous reactions caused by these new products.

Acknowledgements

We thank Marti Derm[®] for kindly providing the components of the product for testing.

References

1. Gallo R, Baldary M. Allergic contact dermatitis from methyl gentisate in a bleaching cream. *Contact Dermatitis* 2006; 54: 220–221.
2. Curto E V, Kwong C. Inhibitors of mammalian melanocyte tyrosinase: in vitro comparisons of alkyl esters of gentisic acid with other putative inhibitors. *Biochem Pharmacol* 1999; 57.
3. Barrientos J, Ortiz-Frutos E. Allergic contact dermatitis from a bleaching cream. *Am J Contact Dermatitis* 2001; 12: 24–33.

Address:

E. Serra-Baldrich
Department of Dermatology
Contact Dermatitis Unit
Hospital Sant Pau
Sant Antoni M Claret 167
08025 Barcelona
Spain
e-mail: eserra@santpau.cat