

First report of allergic contact dermatitis caused by sorbitan caprylate

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doi:10.1111/cod.12876

Key words: allergic contact dermatitis; CAS no. 60177-36-8; case report; cosmetics; sorbitan caprylate.

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Conflicts of interest: The authors declare no conflict of interests.

Contact dermatitis caused by sorbitan caprylate (CAS no. 60177-36-8), a sorbitan fatty acid ester present in cosmetics (1), has not been reported previously.

Case Reports

Between December 2015 and February 2017, 4 female patients were referred to our patch test clinic with a

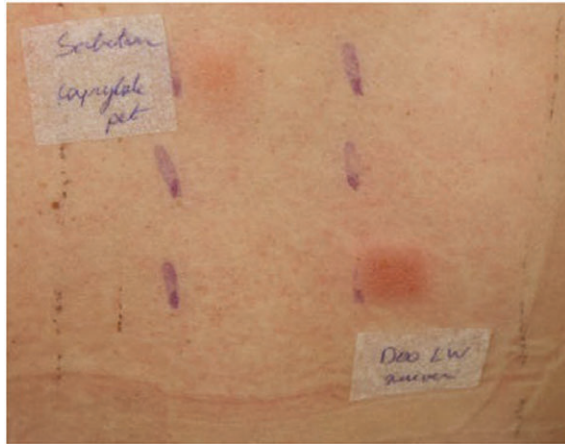


Fig. 1. Patient 1: positive patch test reaction (++) to sorbitan caprylate and Louis Widmer® deodorant without aluminium salts tested 'as is'.

history of eczema in the axillae after applying Louis Widmer® deodorant (containing no aluminium salts).

Patch tests were performed with the European baseline series with Belgian extension, a cosmetic and pharmaceutical series, and the patients' own products, the latter patch tested 'as is'. Patch tests were placed on the upper back, occluded for 2 days with Van der Bend chambers® (Van der Bend, Brielle, The Netherlands), and fixed with Hypafix® (BSN Medical, Hamburg, Germany). Patch test readings were performed on day (D) 2 and D4 (2). In none of the patients could the culprit allergen be identified with the above patch tests, but 3 of 4 patients showed positive reactions to Louis Widmer® deodorant (Fig. 1, bottom right). Patient 2 also reacted positively to Louis Widmer® shampoo. On request, a specific patch test kit containing all ingredients of Louis Widmer® deodorant was provided. When this customized patch test kit was applied, all patients had positive reactions to sorbitan caprylate 1% pet., which is present in both Louis Widmer® deodorant and Louis Widmer® shampoo. Only 2 of 4 patients reacted to sorbitan monooleate. The patients' characteristics and patch tests results are summarized in Table 1.

Table 1. Patient characteristics and results of patch tests

Patient no.	Age (years)	Anatomical site of contact dermatitis	Patients' own products	Louis Widmer® test kit ^a	Other positive test reactions ^b
1	26	Axillae, periocular	Louis Widmer® deodorant (++) , Sanex® deodorant (+)	Sorbitan caprylate 1% pet. (++)	<i>Myroxylon pereirae</i> 25% pet. (++) , nickel sulfate 5% pet. (++) , sorbitan monooleate 5% pet. (++) , lauryl polyglucose 3% pet. (+)
2	52	Axillae, palms of hands	Louis Widmer® deodorant (++) , Louis Widmer® shampoo (++)	Sorbitan caprylate 1% pet. (++)	Sorbitan monooleate 5% pet. (+) , dexpantenol 5% pet. (+) , decyl glucoside 5% pet. (++) , ethylhexyl glycerin 5% pet. (++)
3	39	Axillae	Not done	Sorbitan caprylate 1% pet. (+) , chitosan (+)	Nickel sulfate 5% pet. (+) , hydroperoxides of linalool 1.0% pet. (+) , decyl glucoside 5% pet. (+)
4	44	Axillae	Louis Widmer® deodorant (?+)	Sorbitan caprylate 1% pet. (+) , Mix 1 ^c (++) , Mix 2 ^d (++)	<i>p</i> -Phenylenediamine 1% pet. (+++) , benzoyl peroxide 1% pet. (++) , textile dye mix 6% pet. (++) , decyl glucoside 5% pet. (++) , fragrance mix II 14% pet. (?+), hydroperoxides of linalool 1.0% pet. (?+)

^aLouis Widmer® test kit ingredients: aq., lactic acid, allantoin, steareth-2, steareth-21, panthenol, pantolactone, phenoxyethanol, ethylhexyl glycerin, dimethicone, cyclopentasiloxane, propylene glycol, octenide hydrochloride, titanium dioxide, silver chloride, diethylhexyl sodium sulfosuccinate, perfume, sorbitan caprylate, chitosan, and liquid paraffin. Sorbitan caprylate was prepared as 1% pet. The concentrations of the other ingredients are unknown.

^bEuropean baseline series and Belgian extended series, and cosmetic and pharmaceutical series.

^cMix 1: mixture of sorbitan caprylate and chitosan.

^dMix 2: mixture of sorbitan caprylate, propylene glycol, ethylhexyl glycerin, and octenidine.

Discussion

This is the first report concerning allergic contact dermatitis caused by sorbitan caprylate. Sorbitan caprylate was an ingredient in Louis Widmer® deodorant only temporarily. However, it is still present in other products of Louis Widmer® (shower gel, Remederm shampoo, and anti-dandruff and soft shampoo without perfume). Allergic contact dermatitis caused by sorbitan esters has been reported for sorbitan monooleate and sorbitan sesquioleate (1). As sorbitan caprylate is less frequently used in cosmetics and pharmaceuticals, allergic reactions are possibly rare. However, as sorbitan

caprylate has not been tested previously, assessment of the true prevalence might warrant testing in a larger cosmetovigilance network. Importantly, only half of our patients showed cross-reaction to sorbitan monooleate, a related sorbitan ester that is present in many cosmetics and pharmaceuticals. Therefore, sorbitan caprylate should be tested separately if it is present in a cosmetic product to which the patient has reacted.

Acknowledgements

We are grateful to Louis Widmer for supplying the allergens for patch testing.

References

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