

Photoallergic systemic dermatitis caused by sorbitan monooleate in craft beer

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KEYWORDS: case report, craft beer, photoallergic contact dermatitis, photopatch test, sorbitan monooleate

CASE REPORT

A 58-year-old man was referred to our contact eczema department presenting with an eczematous rash on the photo-exposed skin areas that had developed over the past 2 months. The patient reported no personal history of interest, topical or oral treatments, or topical cosmetic or sunscreen application. The only information of interest was the daily consumption of a new craft beer that he bought in a supermarket. The patient denied a history of eczema prior to the current presentation. All other possible sources of contact to sorbitol derivatives were ruled out, including personal care products.

Physical examination showed a symmetrical, erythematous-edematous rash on the head, neck, neckline, forearm, on both forearms and backs of the hands (Figure 1A,B), with superficial scaling. Patch tests were performed with the European Comprehensive Baseline Series (Chemotechnique Diagnostics, Vellinge, Sweden), the European Photopatch Baseline Series (Chemotechnique Diagnostics), sorbitan monooleate 5% pet. and sorbitan sesquioleate 20% pet. (in a cosmetic series, Chemotechnique Diagnostics). The sorbitol-derived compounds were added to the photopatch test, which was irradiated with UVA 10 J/cm². The results were interpreted according to the criteria of the International Contact Dermatitis Research Group. Patch tests were read on day (D) 2 and D4. The patient showed a positive photopatch test reaction to sorbitan monooleate 5% pet. (D2 and D4, in a crescendo type reaction), whereas test results for the remaining allergens were negative.

Photoallergic contact dermatitis caused by sorbitan monooleate present in the craft beer was diagnosed. Avoidance of craft beer led to complete clinical resolution in 1 month follow-up (Figure S1A-B).

DISCUSSION

Sorbitol-derived compounds, namely sorbitan monooleate (Span 80) and sorbitan sesquioleate (Arlacel 83), have been recognized increasingly as a cause of allergic contact dermatitis. Sorbitol derivatives are found in

cosmetics, topical and oral medications, and topical emollients, among others. Sorbitan sesquioleate is added as an emulsifier to many of the fragrances used for patch testing, mainly in fragrance mix I eg by Chemotechnique Diagnostics. Sorbitol is used as an osmotic stabilizer in the preparation of yeast strains, and also is a byproduct of fermentation, found in beer. Nevertheless, sorbitol derivatives are not commonly reported in the ingredients lists of foods, such as beer and bread. In recent years, the consumption of craft beer has become fashionable. This is the reason that contact with this substance has increased. In 1985 the first case (or one of the first cases) of beer allergic contact dermatitis was described.¹ Other published articles have shown immediate-type hypersensitivity caused by IgE antibodies to malt and barley proteins.² Occupational contact dermatitis caused by sorbitol derivatives is common in bakers and food handlers. Irritant contact dermatitis is more frequent than allergic contact dermatitis. Sorbitan monooleate and sorbitan sesquioleate may cross-react. Moreover, several oral medications contain among their excipients sorbitol, including oral antihistamines.³ Furthermore, patients with atopic dermatitis could be considered a risk group for sensitization to these allergens, particularly those with a filaggrin mutation,⁴ since emulsions and topical corticosteroids⁵ are applied from an early age, where sorbitol derivatives can be among its ingredients.

Some case reports of allergic contact dermatitis to sorbitan monooleate⁶ and sorbitan sesquioleate⁷ have been published; however, we have not found any case of photoallergic contact dermatitis caused by sorbitan monooleate. The location of the eczema was a key for suspecting photoallergic contact dermatitis, and therefore, performance of photopatch test with sorbitol-derived compounds. Recently, Saussy et al⁸ have published two cases of allergic contact dermatitis caused by sorbitol derivatives related to the consumption of beer and sandwich. The dermatologist should inquire about dietary habits when patch tests to sorbitol-derived compounds are positive, mainly with bread and beer.



FIGURE 1 (A), Erythematous-edematous rash on the head, neckline, forearm, on both forearms and backs of the hands. (B), Erythematous-edematous rash on the scalp, neck, and ear

In summary, we present the first case report of photoallergic systemic dermatitis caused by sorbitan monooleate as an ingredient of craft beer. The location of the eczema is mandatory to suspect the most presumable allergen, although in this case, without an adequate patient history we would not have detected the source of the culprit.

ACKNOWLEDGEMENTS

We would like to acknowledge all staff working in the Department of Contact Eczema and Immunoallergic diseases, especially the specialized nurse Victor Alfredo Cassini Gómez de Cádiz.

CONFLICT OF INTERESTS

The authors declare no potential conflict of interest.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

How to cite this article: Navarro-Triviño FJ, Ruiz-Villaverde R. Photoallergic systemic dermatitis caused by sorbitan monooleate in craft beer. *Contact Dermatitis*. 2020;1–2. <https://doi.org/10.1111/cod.13562>

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