

A case of allergic contact dermatitis caused by fructo oligosaccharide

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Fructo oligosaccharides are carbohydrate homopolymers of fructose. In cosmetic products, they act as a skin-conditioning agents and humectants. They are also used as artificial sweeteners in food. We report the first case of allergic contact dermatitis caused by a fructo oligosaccharide, which was present in a skin cream.

Case Report

A 6-year-old child had a curettage procedure for molluscum contagiosum, and a skin cream was prescribed for after-care. He then developed acute dermatitis on his arms and trunk at the sites of application of the cream. He was patch tested with the European baseline series

and his own skin cream with 2-day occlusion using Finn Chambers® (Epitest Ltd Oy, Tuusula, Finland) on Scanpor® tape (Alpharma AS, Oslo, Norway). Readings were taken on D2 and D4 according to International Contact Dermatitis Research Group recommendations. The only positive reaction was to the skin cream (+ on D2, and ++ on D4). A repeated open application test with this cream gave a positive reaction after 3 days.

Further patch testing was performed with all ingredients of the skin cream. These ingredients were also tested with open tests. The parents removed the patches at D2, and a reading was performed on D3. There was a strongly positive reaction (+++) to fructo oligosaccharide 10% aqua in an occlusive patch test. There was also a positive reaction (+) in the open test with fructo oligosaccharide 10% aqua. Patch testing with fructo oligosaccharide 10% aqua in 30 control subjects gave negative results. After the child had avoided any skin products containing fructo oligosaccharide, the dermatitis cleared. He could eat fruits without any problem.

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Discussion

A fructo oligosaccharide (CAS registry number: 470-68-9) was present in this skin cream.

Fructo oligosaccharides are carbohydrates such as glucan oligosaccharide. A case of an allergic contact

reaction to glucan oligosaccharide has been reported previously (1). Currently, the use of these chemicals in cosmetics is completely unrestricted. This case shows that the use of carbohydrates may cause problems, particularly if they are more widely used in cosmetic products in the future.

Reference

- 1 Kumiko Washizaki, Hiromi Kanto, Masatoshi Ito. A case of allergic contact dermatitis caused by glucan oligosaccharide. *Contact Dermatitis* 2009; **60**: 345.