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A child with anaphylaxis to grapes without reaction to grape seed oil

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Key words: anaphylaxis to grape; food allergy; grape seed and sunflower oil; immunoblotting.

Allergy to grapes is uncommon in despite of the vast areas of *Vitis vinifera* cultivation and consumption of this fruit in the Mediterranean area. Although adverse reactions to foods are encountered much less frequently in adults than in the children, anaphylaxis to grapes has, until now, been reported mainly in adulthood, as single case reports (1, 2), associated with alcohol consumption (3) or induced by exercise.

Anaphylaxis to grapes in childhood.

Herein, the case is described of a child with a severe reaction after the first consumption of white grapes (*Vitis vinifera*).

A 6-year-old boy, with perennial allergic rhinitis, mild atopic dermatitis and mite allergen sensitivity, was admitted to our Emergency Department because of the appearance of generalized urticaria, facial/oropharyngeal angioedema, abdominal pain and diarrhoea which had commenced 30 min after eating white grapes. He was treated in an emergency room for anaphylaxis.

The clinical history revealed a previous similar episode after eating shrimps, very likely in relation to IgE-binding cross-reactive epitopes of shrimp and house dust mite tropomyosins.

Skin prick tests performed after a few days were positive for mites, grass pollen and olive tree pollen. Because fresh fruits are prone to fungal contamination in the field, during harvesting, transport, marketing and with the consumer, a search was made for mould allergy which resulted negative.

Prick tests, on the contrary, to native grape, with the prick-by-prick procedure, yielded positive results both for grape skin and grape juice (mean wheal diameter 4 mm for both) and the grape-specific serum IgE was also positive by the modified CAP-RAST (3.21 kU^A/l).

Specific IgE was further analysed by immunoblotting with fruit extracts obtained from white grape juice and skin which disclosed the presence, in the patient's serum, of a 27 kDa protein (Fig. 1) in agreement with previously identified grape and wine allergens (4). The child avoided grape, in his diet, and, at follow-up, in our outpatient clinic, 6 months later, did not report any subsequent allergic reaction. In one of his follow-up visits, 4 months later, the mother reported the use of a bath oil (Envioil®; Envicon, Verona, Italy) for softening the child's dry skin, during winter time. The ingredient information for Envioil® declares that the preparation contains grape seed and sunflower oil which are included on account of their antioxidant, cicatrizing and antimicrobial properties.

The child presented no skin reaction and the mother reported no adverse effects associated with the use of this bath oil. Because the lack of adverse effects could be due to both dilution and transient contact of the bath oil; a patch test with immediate (after 30 min) and delayed (after 48 and 96 h) reading was performed. The patch preparations with the oil were applied with Finn Chambers on Scampor following the IRDGC recommendations (5). Immediate and delayed reading of the patch test was negative thus demonstrating the absence of contaminating *Vitis vinifera* proteins in the grape seed oil.

In effect, complete refining of oils was shown to result not only in the almost total removal of proteins from the oil, which are responsible for the allergic

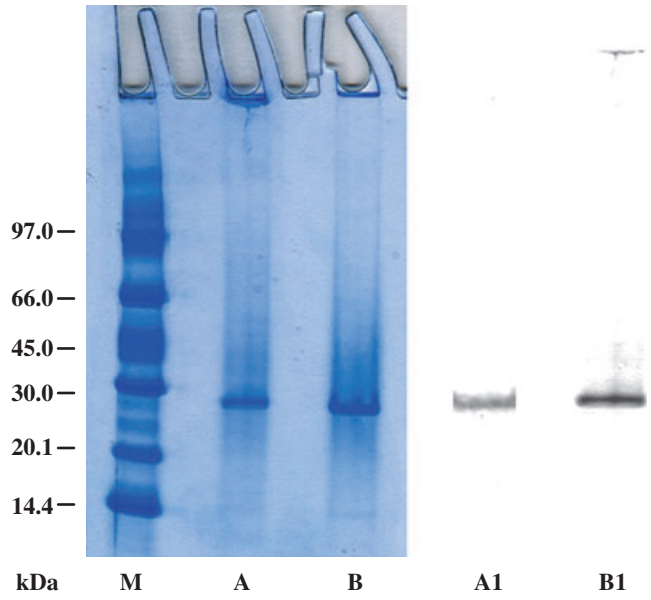

Figure 1. Grape extract gel electrophoresis and immunoblotting results. Lane M, molecular mass markers; Lane A, grape peel SDS–PAGE; Lane B, grape pulp SDS–PAGE; Lane A1, IgE-reactivity of the patient to grape peel; Lane B1, IgE-reactivity of the patient to grape Pulp.

reactions but also to present no risk of provoking allergic reactions in the large majority of susceptible people (6).

Despite these reassuring findings, the mother was advised not to use this product and to take great care when reading the labels on manufactured goods, inasmuch as the use of similar items, with a less meticulous refinement in the production process, could be potentially harmful for this very sensitive child.

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