

Case Report

Allergy to grape: A case report

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We report a case of a 5-year-old child who suffered an oral allergy syndrome and lip angioedema after eating grapes. We obtained a positive prick test with commercial grape extract and a positive prick-by-prick test with pulp and peel of fresh white grape (*Moscatel* variety) and pulp and peel of blue grape. Sodium dodecyl sulphate–polyacrylamide gel electrophoresis followed by immunoblotting revealed specific immunoglobulin E (IgE) antibodies in the patient's serum against a 94,000 molecular-weight antigenic band. Lip open challenge was positive.

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Grape belongs to the *Vitis vinifera* species of the *Vitaceae* family. It is widely consumed in Spain as fresh fruit, juice, and wine. However, allergy to this fruit is infrequent.

We report a case of a 5-year-old child who suffered an oral allergy syndrome and lip angioedema after eating grapes.

Case report

A 5-year-old female had several episodes of oral allergy syndrome with lower lip angioedema minutes after eating several fresh grape species (mainly the *Moscatel* variety of white grapes). The patient had been previously diagnosed as having atopic dermatitis, sub-clinical sensitization to grass and olive, and urticaria-angioedema caused by nuts (walnut and almond), apple, kiwi, peach, and egg. She had tolerated grapes in the past.

We obtained a positive prick test with commercial grape extract (5×4 mm) and the prick-by-prick test was positive with pulp (9×8 mm) and peel (8×5 mm) of fresh white grapes (*Moscatel* variety) and pulp (13×8 mm) and

peel (9×9 mm) of blue grapes. Seven control subjects were negative.

Total immunoglobulin E (IgE) level was 484 KU/l. Specific IgE to grape was 1.1 KU/l (CAP method; Pharmacia & UpJohn Diagnostics AB, Uppsala, Sweden). A grape *Moscatel* extract was produced in our laboratory for *in vitro* analyses. Sodium dodecyl sulphate–polyacrylamide gel electrophoresis followed by immunoblotting revealed specific IgE antibodies in the patient's serum against a 94,000 molecular-weight (MW) antigenic band.

Written, informed consent was obtained from the parents for their daughter to undergo a lip open challenge. We applied a piece of grape pulp in the internal face of the lower lip for 10 min. Erythema and vesicles were observed immediately in the contact area.

Discussion

Grape allergy has only occasionally been reported (1–5). In those cases diagnosis was always based on a positive prick-by-prick test with a negative prick test using the commercial extract. Vegetables, like other fruits, have in

general a low diagnostic yield using commercial extracts, so the prick-by-prick method with natural food is recommended to obtain better results and higher sensitivity.

Grape allergy may be specific to a certain grape variety with tolerance to the others (1). However, sometimes patients may not tolerate any grape species, wine or raisins (2). Bircher et al. (1) reported a patient who had anaphylaxis after ingestion of *Americana* blue grapes but tolerance to other blue and white grapes. In that study, the prick-by-prick test was positive only to the *Americana* grape, being negative to other grape varieties. In our patient, the prick-by-prick test was positive for both white and blue grape species.

Antón et al. (3) and Sánchez et al. (4) identified a 31,000-MW protein that was recognized by IgE antibodies in their patients' sera. The grape species were not specified.

Our patient's serum recognized a differently sized protein (of 94,000 MW) in the *Moscatel* extract. There may therefore be allergenic proteins common to all grape species and specific ones. Our patient seems to be reactive to white and blue grapes; however, the patient reported by

Bircher et al. (1) was selectively sensitive to the *Americana* blue grape.

In conclusion, we present a case of immediate grape IgE-mediated allergy. A 94,000-MW grape protein seems to be the allergen involved in the reaction.

Further studies are required to identify all possible grape allergens.

References

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