

Hypersensitivity systemic reaction to cactus fruit (*Opuntia ficus-indica*)

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Cacti are dicotyledonous flowering plants belonging to the family Cactaceae. They are located primarily in the drier regions of tropical and subtropical America, although these plants have been exported to many other areas like the Mediterranean region.

Prickly pear cacti produce cactus fruit also called cactus figs or *Opuntia ficus-indica*. Some few cases have been published reporting dermatitis with cactus fruit (1, 2), occupational contact urticaria and rhinoconjunctivitis with the related species Christmas and Easter cacti (3, 4) and only one case of food allergy to red pitaya (fruit derived of a particular specie of cactus) (5).

In August 2008, a 30-year-old woman experienced a generalized reaction with facial and labial angioedema, erythema and micropapular eruption in trunk and wrists, nausea and dyspnoea 5 min after eating two cactus fruits. After treatment in the emergency room with methylprednisolone and dexchlorpheniramine, she progressively improved. Since then she has avoided them. The patient had been previously diagnosed in our department from allergic rhinoconjunctivitis and asthma and oral allergy syndrome with several fruits and vegetables (melon, watermelon, banana, orange and tomatoes).

We present a patient with an immediate systemic reaction IgE-mediated to cactus fruit not previously described.

Skin prick tests were performed with common allergens (mites, pollens, moulds and epithelia) and fruits, latex, birch pollen profilin and peach lipid transfer protein (peach LTP) of commercial origin with positive results for pollens, house dust and store mites, *alternaria* and cat epithelia. They were also positive for birch profilin, melon and watermelon, banana, pineapple, apple and strawberry. They were negative for peach LTP, latex, orange, kiwi, cherry and prune. Prick-prick test was performed with cactus fruit pulp and skin resulting positive with both (maximum wheal of 8 and 6 mm, respectively) and negative in 10 control subjects. Total serum IgE was elevated (1058 IU/ml) and specific IgE against latex was positive (7.28 kU/l). Specific IgE against chitinase mix (Cas s 5 + Prs a 1), apple profilin (Mald d 4) and peach LTP (Pru p 3) were determined by the quantitative specific IgE assay ADVIA-Centaur resulting 0.12, 16.2 and 0.25 kU/l, respectively. Sodium dodecylsulphate polyacrylamide gel electrophoresis (SDS-PAGE) was performed with 16% acrylamide. After SDS-PAGE, the proteins were transferred to nitrocellulose by the method of Towbin et al. (6). In the immunoblotting (Fig. 1), several bands were detected, one of them with a low molecular weight of about 15 kDa and the rest of them with molecular weights between 37 and 100 kDa.

We present a patient with an immediate systemic reaction IgE-mediated to cactus fruit demonstrated by prick-prick test and immunoblotting. Our patient was previously diagnosed from oral allergy syndrome with several fruits and tomatoes which could be explained because she is sensitized to profilin as demonstrated by positive skin prick test and specific IgE. The 15 kDa band present in the immunoblotting could be the cactus fruit profilin. The exclusive oral reactions suffered by this patient

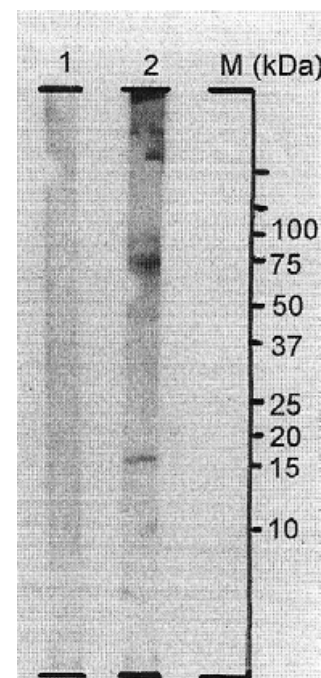


Figure 1. Immunoblotting performed after transfer from SDS-PAGE. Lane 1: negative control incubated with tampon. Lane 2: patient's serum.

with different fruits and tomatoes are probably due to profilin present in both pollens and vegetable foods. Immunoblotting show another several bands of different molecular weights being the main of them of about 75 kDa. We do not know if this specific band is the responsible for the systemic reaction suffered by our patient and further investigations are needed to elucidate the protein band or bands responsible for systemic symptoms in patients with food allergy to cactus fruit. The positive result to specific IgE against latex could be explained by possible cross-reactivity between cactus fruit and latex as it has been indicated between a related fruit as fig fruit and *Ficus benjamina* latex. To the best of our knowledge, this is the first reported IgE-mediated food reaction to cactus fruit.

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References

1. Yoon HJ, Won CH, Moon SE. Allergic contact dermatitis due to *Opuntia ficus-indica* var. *saboten*. Contact Dermatitis 2004;**51**:311–312.
2. Goodheart HP, Huntley AC. Rash after visiting Tucson. Dermatol Online J 2001;**7**:10.
3. Paulsen E, Stahl S, Bindslev-Jensen C, Voitenko V, Poulsen LK. Occupational type I allergy to Christmas cactus (*Schulumbergera*). Allergy 1997;**52**:656–660.
4. Andersen F, Bindslev-Jensen C, Stahl S, Paulsen E. Immediate allergic and nonallergic reactions to Christmas and Easter cacti. Allergy 1999;**54**:511–516.
5. Damiani E, Aloia AM, Priore MG, Delle Donne P, Nettis E, Ferrannini A. Allergy to red pitaya. Allergy 2008;**63**:1252–1253.
6. Towbin N, Staehelin T, Gordon J. Electrophoretic transfer of proteins from polyacrylamide gel to nitrocellulose sheets. Procedure and applications. Proc Natl Acad Sci USA 1979;**76**:4350–4354.