

CLINICAL CASE

Anaphylaxis after ingestion of sharon fruit

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SUMMARY

Background: the sharon fruit is the edible fruit of the persimmon tree (*Diospyros Kaki*) which belongs to the Ebenaceae family. There are few references of allergic reaction to this fruit. We introduce a case of a 33-years old man with a anaphylactic reaction immediately after ingestion of sharon fruit.

Methods: skin prick test (SPT) were performed by prick by prick with sharon fruit, legumes, vegetables, and fresh fruit. The test was considered positive when the average diameter of the wheal was > 3 mm. Serum-specific IgE was identified with use of the EIA, and SDS-PAGE Immunoblotting.

Results: the skin by prick test with sharon fruit was positive in our case, and negative in five controls patients. Specific IgE in patient serum, assayed by EIA was positive for sharon fruit, but the results of immunoblotting were non-specific.

Conclusion: we have introduced a cause of anaphylaxis by sharon fruit that suggest an IgE mediated hypersensitivity reaction.

Key words: Anaphylaxis. Sharoni. Skin prick test. EIA. SDS-PAGE Immunoblotting.

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INTRODUCTION

The sharon fruit, also know as kaki or persimmon fruit, is the edible fruit of the persimmon tree (*Dyospiros kaki*) which belongs to the *Ebenaceae* family. It is native to China and Japan, where it was been cultivated for centuries. Persimmon were introduced into Europe and California (*Dyospiros*

Virginiana or American Persimmon) in the mid 19 th century and are currently produced in the south of France, Italy and Spain, where it is known as kaki.

The sharon fruit can be classified into two general categories: those that bear astringent fruit until they are soft ripe and those that bear nonastringent fruits. Astringent cultivars contain high levels of soluble tannins and cannot be eaten until fully ripe and very soft, unless the astringency has been artificially removed. Non-astringent cultivars contain low levels of soluble tannins and can be eaten at various stages or firmness, from very hard to very soft.

The fruit consist of a berry, as large as an apple, orange in color, with soft, juicy pulp, sweet if ripe, and is usually eaten fresh by itself. The sharon fruit, 5-8 cm or more in diameter, resembles a tomato in appearance and contains vitamin A, with lesser amounts of vitamin C.

CASE REPORT

This report describes a case of a 33-years-old-man who suffered from an anaphylactic reaction after eating a sharon fruit. Previously he presented a history of oral allergy syndrome by nuts and peanuts and occupational asthma due to cereals included in poultry feeding stuffs.

He exhibited urticaria, facial angioedema, asthma, vomit, and loss blood pressure 15 minutes after eating a fresh sharon fruit. The symptoms responded promptly to adrenaline and glucocorticoids. He climed to have never eaten this food before.

MATERIAL AND METHODS

Skin prick test (SPT) were performed with standardized extracts of grass pollens, mites, animal

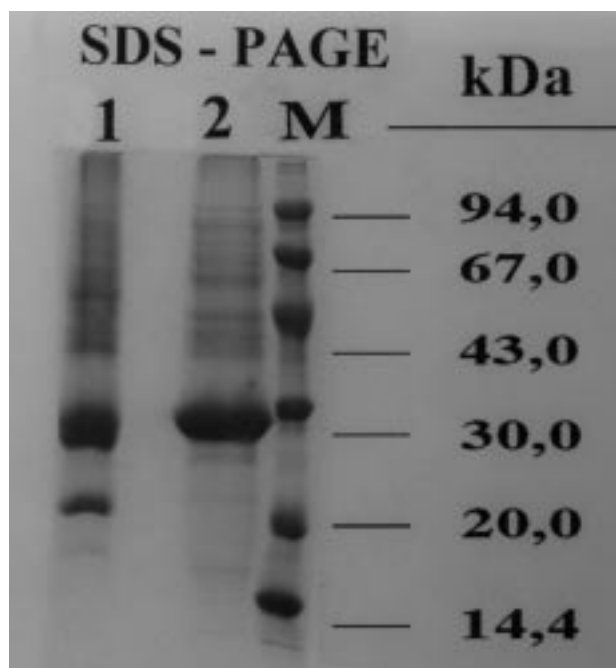


Figure 1A.—Sharon fruit extract electrophoretic results after Coomassie brilliant blue R-250 staining. Lane 1: non reducing-conditions. Lane 2: protein bands which were electrophoresed after being treated with beta-mercaptoethanol. Lane M: molecular mass marker.

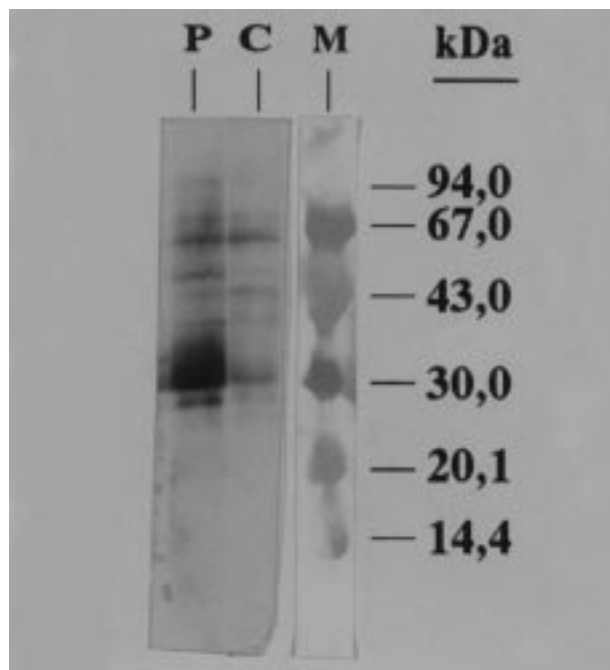


Figure 1B.—Sharon fruit extract IEF after Coomassie Brilliant Blue R-250 staining and IEF Immunoblotting. Lane P: Immunoblotting incubated with patient serum. Lane C: Immunoblotting incubated with control serum (pool from non atopic subjects'sera). Lane M: molecular mass marker.

danders, moulds and foods, and legumes, vegetables, nuts, fresh fruits, and sharon fruit by prick by prick. The test was considered positive when the average diameter of the wheal was > 3 mm.

Serum-specific IgE was identified with the use of the EIA: solid- phase antigen was obtained by coupling the extract solution (2 mg/ml) to the 6 mm diameter CNB-activated paper disc as described by Ceska and Lundquist (1). This chromogenic immunoassay was considered positive when a value higher than 0.35 KU/L was obtained for the tested serum.

SDS-PAGE was carried out according to the method of Laemli (2). After electrophoresis, gels were stained by diffusion in 0.1 % Coomassie Brilliant Blue R-250. The proteins were electrophoretically transferred to Immobilon-P-membranes (PVDF membranes) essentially as described by Towbin et al (3).

RESULTS

SPT was positive for barley (12 mm), nuts (10 mm), peach (8 mm) and kiwi (8 mm). A prick by prick test with sharon fruit resulted positive (15 mm),

but the same test in five controls patients, 2 atopic and 3 non-atopic, were negative.

Serum specific IgE was positive for sharon fruit 0.4 KU/L (class 1), wheat 0.73 KU/L (class 2), rye 0.88 KU/L (class 2), and barley 3.95 KU/L (class 3).

SDS-PAGE of sharon fruit in absence of beta-mercaptoethanol, demonstrated 12 proteins bands with following apparent molecular masses: 93, 83, 77, 74, 66, 56, 47.8, 42, 39, 36, 27.2, and 20.8 KDa.

After beta-mercaptoethanol treatment the 27.2 KDa protein band originated a unique protein with an apparent molecular mass of 28.2 KDa (fig. 1A).

The immunoblot revealed (fig. 1B) showed 7 IgE-binding protein bands with apparent molecular masses of 72- 62- 47.7- 41.7- 37.3- 29.4, and 26.4 KDa; other similar bands also was seen with a nonallergic control serum.

DISCUSSION

We have demonstrated by *in vivo* and *in vitro* test that a new variety of kaki (sharon fruit) can be cause of anaphylaxis.

Prandini et al described an anaphylactic reaction after eating persimmon (4). In our case, an IgE

mediated mechanism was supported by immediate positive skin reaction, EIA and immunoblotting. However, the results of this methods *in vitro* might be considered non-specific because we found different allergic bands. We were not able to perform inhibition immunoassays to investigate cross-reactivity between food allergens and sharon fruit because of the low level of IgE binding to the solid-phase allergen. Further assays must be done in order to characterize and purify the involved major allergens.

RESUMEN

Antecedentes: el saroni es la fruta comestible del árbol Persimon (*Diospyros kaki*), perteneciente a la familia de las Ebenáceas. Existen pocas referencias de reacciones alérgicas a esta fruta. Presentamos el caso de un hombre de 33 años con una reacción anafiláctica inmediatamente después de comer un saroni.

Métodos: se realizaron pruebas cutáneas por prick-by-prick con saroni, legumbres, verduras y frutas frescas. Se consideró la prueba positiva cuando el diámetro medio del habón fue > 3 mm. La IgE específica fue identificada por EIA

(enzimoinmunoanálisis) y SDS-PAGE Immunoblotting.

Resultados: el prick-by-prick con saroni fue positivo en el paciente, y negativo en cinco controles. La determinación de IgE específica por EIA fue positiva para saroni, pero los resultados del immunoblotting fueron inespecíficos.

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Conclusión: en este caso de anafilaxia por saroni, el mecanismo probable parece ser una reacción de hipersensibilidad mediada por IgE.

Palabras clave: Anafilaxia. Saroni. Pruebas cutáneas. EIA. SDS-PAGE Immunoblotting.

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