

ALLERGYNet

A case of sesame seed-induced anaphylaxis

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Key words: anaphylaxis; food allergy; poppy seed; sesame seed.

• THE increasing ingestion of foods containing sesame (*Sesamum indicum*) seeds and oil (e.g., vegetarian dishes, Oriental foods, bread, cakes, pastries, appetizers, salad dressings, etc.) seems to be paralleled by an increase of reported sesame-induced allergic reactions. Both IgE-mediated allergies, including anaphylaxis (1-4) and occupational asthma (5), and non-IgE-mediated reactions (2, 4, 6) have been observed to follow sesame ingestion. Moreover, common allergenic structures have been found in sesame seeds, hazelnut,

A case of severe sesame allergy characterized by immunologic cross-reactivity with poppy seed.

rye grain, kiwi, and poppy seeds (7), and it has been observed that some patients with sesame allergy are positive on skin prick test (SPT) with soybean or peanut as well (4). Little is known about sesame allergens: the only study which recently investigated this issue showed that 6/9 sesame-allergic patients reacted to a 25-kDa protein and that a minority of patients showed reactivity to a 14- or a 30-kDa protein (8). In the present paper, we report a case of anaphylaxis induced by sesame seeds in which responsible allergens have been characterized.

A.D., a 16-year-old girl, experienced systemic urticaria, wheezing, laryngeal edema, vomiting, and abdominal pain, followed by loss of consciousness, about 5 min after eating a small piece of chocolate candy rolled in sesame seeds. The patient was promptly taken to the emergency department of this hospital, where she recovered after intravenous epinephrine, corticosteroids, and antihistamines. Some days after discharge from hospital, the girl was evaluated at this allergy center. She did not have a familial history of allergic diseases nor did she suffer

from respiratory allergy; moreover, she had not experienced drug- or food-induced adverse reactions before. The girl did not remember a previous intake of sesame seeds. The patient underwent SPT with a large panel of commercial vegetable food extracts including cereals, soybean, pea, peanut, Rosaceae, Apiaceae, walnut, orange, tomato, garlic, and banana (by Dome-Hollister/Stier, Spokane, WA, USA); with self-made extracts of both white and brown sesame seeds and poppy seeds (extraction at 10% w/v, final protein content 1.5 and 4.5 mg/ml, respectively, both by Lofarma, Milan, Italy); and with a commercial preparation of sesame oil.

Moreover, SPTs with fresh Golden Delicious apple, kiwi, fennel, hazelnut, walnut, and white sesame seeds were carried out with standard 1-mm tip lancets (DHS) by the prick-prick technique.

Sesame seed-specific IgE was measured by RAST. Moreover, both immunoblot and immunoblot inhibition analyses were carried out according to Towbin et al. (9). The same self-made white and brown sesame seed and poppy seed extracts were used to carry out both *in vivo* and *in vitro* studies.

SPT with both fresh sesame seed and sesame seed extract induced 20×15 mm wheals with pseudopods, and SPT with poppy seed extract caused a 10×10 mm wheal. No reactivity to the remaining fresh vegetable foods as well as commercial extracts (including sesame seed oil) was noted. RAST showed a high level of sesame-specific IgE (24.9 kU/l; class 4).

SDS-PAGE profile showed several bands ranging from 10 to 97 kDa in sesame seed extract. Immunoblot analysis showed an intense IgE-binding activity at about 10, 15-20, and 30-67 kDa. Less intense bands were present at about 12 and 25 kDa (Fig. 1). Poppy seed extract showed a complex

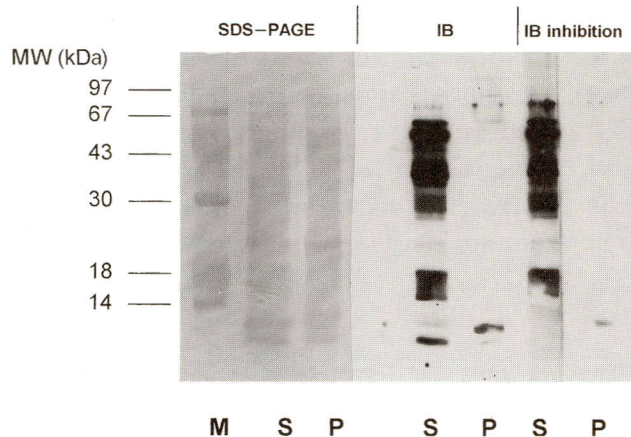


Figure 1. Protein profiles of sesame seed (S) and poppy seed (P) extracts by SDS-PAGE; IgE reactivity of patient's serum with S and P extracts by immunoblotting (IB); and immunologic cross-reactivity between S and P extracts by IB inhibition. M: molecular weight markers.

SDS-PAGE profile, whereas only one IgE-binding band was observed at about 12 kDa on immunoblot analysis (Fig. 1). Cross-inhibition studies carried out with both sesame seed and poppy seed extracts showed the complete cross-reactivity of the 10–12-kDa band (Fig. 1).

This patient, a girl who neither had respiratory allergies nor reported other food allergies, experienced a severe IgE-mediated anaphylactic reaction a few minutes after the ingestion of sesame seeds. The patient did not remember having previously eaten sesame seeds; however, at least one previous contact with the allergen present in some commercial food preparations seems to be the most reasonable explanation for hypersensitivity. The absence of skin reactivity against sesame oil suggests that most relevant allergens are lost during oil extraction procedures, and that SPT with sesame oil does not represent an adequate means to diagnose sesame hypersensitivity. Nonetheless, previous studies showed that even the small amounts of allergens remaining in sesame oil may induce severe clinical symptoms in allergic patients (1, 4). Interestingly, a strong skin reactivity against poppy seed was found, probably as a consequence of cross-reactivity with sesame seeds (the girl did not remember any ingestion of poppy seeds); in contrast, no reactivity to other vegetable foods previously found to cross-react with sesame seeds (7) was found. The immunoblot profile of this patient showed some difference from that of other sesame seed-allergic subjects (8).

Acknowledgment We thank Ms Manuela Casarini for technical assistance.

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Accepted for publication 12 January 1999
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ISSN 0105-4538

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Anaphylactic reactions to topical rifamycin

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Key words: anaphylactic reaction; rifampicin; rifamycin.

● RIFAMYCIN is a broad-spectrum semisynthetic antibiotic with activity against Gram-positive and Gram-negative microorganisms, produced by *Streptomyces mediterranei*. It is topically used in eye-drops for the treatment of infectious conjunctivitis as well as for control of infected traumatic or surgical wounds. Another drug belonging to the rifamycin

group is rifampicin, used in tuberculosis therapy. Both drugs have a very similar chemical structure.

A 36-year-old nonatopic woman was treated with eye-drops containing rifamycin for 6 days because of acute conjunctivitis. Three weeks later, her conjunctivitis recurred, and the patient started to use rifamycin solution again. From day 4 of treatment, the ocular symptoms increased, intense ocular pruritus and eyelid angioedema immediately following the instillation of rifamycin. She suffered generalized urticaria 24 h later. On discontinuing the eye-drops, the urticarial reaction disappeared.

A 42-year-old man without any personal or familial history of atopy was admitted to our hospital for a

femoral fracture.

His surgical wound was daily washed with a rifamycin solution and on day 6 after the

osteotomy, the patient noticed itching erythema on the area of instillation. In a few minutes, he exhibited systemic urticaria, bronchospasm, and hypotension. Volume expansion, subcutaneous epinephrine, and intravenous antihistamines were administered. All the symptoms resolved within a few hours.

Both patients were studied several weeks after the acute episodes. The physical examination and laboratory tests, including blood count, globular sedimentation rate, and biochemistry, were normal. A standard prick test with common foods was negative.

Skin prick tests with rifamycin (1 mg/ml) were performed, showing a positive reaction in our first patient (++) and a stronger positivity in the second one (++++). Then, the prick test with rifampicin (2 mg/ml) was carried out in patient 1 (who had never received this drug), resulting in a positive (++) test, too. Rifampicin was not tested in patient 2. Skin prick testing with rifamycin and rifampicin was negative in 10 control patients.

Two patients presenting systemic, probably IgE-mediated reactions to eye-drops.