

Allergy to durian

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Key words: anaphylaxis; durian; exotic fruit.

● TROPICAL FRUITS are part of the natural diet in countries in which these fruits are indigenous, and are now more frequently consumed in industrialized countries. We report a case of food anaphylaxis in a 47-year-old female of Thai origin. This patient with no history of atopy, had a past history of recurrent episodes of generalized urticarial eruptions (in one case associated with Quincke's edema) after ingestion of various foods, including papaya, shrimps, Thai beans, Chinese cabbage and Asian soup. Spontaneous resolution was the rule, occasionally after antihistamine intake. The last episode appeared 30 min after ingestion of durian, a

tropical fruit. She presented with generalized urticaria, nasal congestion and

IgE-mediated anaphylaxis to a tropical fruit.

rhinorrhea, laryngeal discomfort with hoarseness, diarrhoea and vomiting. Rapid recovery was observed after dimetindene (Fenistil®) medication.

The allergy work-up demonstrated positive skin prick tests (SPT) to various pollens (grass, trees), cat dander, house dust mites and cockroaches. SPT with commercial food extracts were also positive for papaya, shrimps, and various spices such as coriander, paprika, and black pepper. SPT to lobster, crab, celery, onion and peanut remained negative. SPT with durian, freshly prepared according to Ortolani (1), was classified as strongly positive (wheal 7×36); fresh papaya was also positive (5×32 mm). Fresh dried shrimps, Thai beans and Chinese cabbage tested positive.

None of the three nonatopic control individuals showed a positive reaction to fresh durian, ruling out a nonspecific irritant reaction.

The durian species with synonyms such as dourian or durio belong to the Angiosperm (order Malvales) and to the Bombacaceae family (tropical trees such as Baobab). There are 27 known species of the genus *Durio* of which only six have edible fruits (Table 1). The common durian refers only to *Durio zibethinus*, named by the botanist Murray who compared the strong offensive odour of its fruit with that of the civet cat (*Zibethinus*). Durian fruits are globular fruits measuring 15–25 cm, covered with spines and showing different colours ranging from dark green to brownish yellow. The Durian tree can reach up to 45 m in height and requires an equatorial climate. When ripe, the fruits fall from the tree. It is mainly grown in tropical areas such as Malaysia, Thailand, Cambodia, Birmanya, Sri Lanka and south India. The fleshy part of the fruit, with a cream-like aspect has a powerful garlic-like smell, probably due to a sulphuric compound (perhaps related to butyric acid). Its composition is rich in proteins, fats, minerals and carbohydrates (34.1%, mainly sugar and starch).

This patient is sensitized to papaya (*Carica papaya*), that's main allergen, a cysteine protease, is well known, and is probably responsible for numerous descriptions of anaphylactic reactions reported in the literature (2).

Sensitization to coriander, paprika and black pepper is probably responsible for the multiple past urticarial episodes in relation with the ingestion of Thai beans and Chinese cabbage (served with a spicy sauce).

The correlation between durian ingestion followed by anaphylaxis and positive SPT to durian in this patient, with three negative nonatopic controls, is highly suggestive of allergic food anaphylaxis (3) to durian. To our knowledge this is the first

description of an allergic food anaphylaxis related to this tropical fruit.

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References

1. ORTOLANI C, ISPARO M, PASTORELLO A, ANSALONI R, MAGRI GC. Comparison of results of skin pricks tests (with fresh foods and commercial food extracts) and RAST in 100 patients with oral allergy syndrome. *J Allergy Clin Immunol* 1989;**83**:683–690.
2. EZEKOE AC. Hypersensitivity to paw-paw (*Carica papaya*): report of a case. *Afr J Med Sci* 1985;**14**:121–124.
3. JOHANSSON SGO, O'B HOURIHANE J, BOUSQUET J, BRUINZEEL-KOOMEN C, DREBORG S, HAAHTELA T, KOWALSKI ML, MYGIND N, RING J, VAN CAUWENBERGE P, VAN HAGE-HAMSTEN M, WÜTHRICH B. A revised nomenclature for Allergy. *Allergy* 2001;**56**:813–824.

Isolated allergy to rice

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Key words: asthma; food allergy; IgE; ImmunoCAP; rhinitis; rice (*Oryza sativa*); urticaria.

● RICE PROVIDES 25–80% of the daily calories consumed by more than 50% of the world population. Second to maize it is the most frequent cereal produced and accounts for 27.6% of the world production of cereals (1). Even though 520 million tons of rice are consumed worldwide every year, most reports describe an immunologically-mediated urticaria after contact with raw rice (2,3), whereas reports of immediate

Table 1. Edible species of durian

	Origin	Local name	Production
<i>D. zibethinus</i>	Malaysia	<i>durian</i>	Cultivated
<i>D. kutjensis</i>	Borneo	<i>lai</i>	Cultivated
<i>D. oxleyanus</i>	Borneo, Sumatra	<i>keratongan</i>	Wild
<i>D. graveolens</i>	Borneo, Sumatra	<i>tabelak</i>	Wild
<i>D. dulcis</i>	Borneo	<i>lahong</i>	Wild
<i>D. grandiflorus</i>	Borneo	<i>durian munji</i>	Wild

hypersensitivity reactions after *ingestion* of rice are scarce (4,5). Therefore, rice is commonly regarded as hypoallergenic and is frequently included in diets for allergic patients.

A 27-year-old woman without a history of atopy presented at the allergy unit because of

several episodes of rhinitis with sneezing, itching of the scalp and

A rare case of IgE-mediated food allergy

asthma within minutes after eating meals with seafood and rice. With each episode the symptoms became stronger and the last reaction was accompanied by acute urticaria. Six months before the first reaction she spent several months in the Far East without experiencing any symptoms after consuming this kind of food.

Skin prick tests (SPT) with a battery of common inhalant (ALK, Hørsholm, Denmark) and food allergen extracts (Stallergènes, Antony Cédex, France), including different fishes, seafood and rice were all negative, however, 'prick-prick' and scratch tests were clearly positive with 'native' cooked rice. SPT with rice extract from another manufacturer (Bencard) elicited a positive wheal-and-flare reaction. The total IgE concentration was 55 kU/l, IgE specific to rice (CAP FEIA, Pharmacia) were 4.6 kU/l (CAP class 3), to oat 1.5 kU/l (CAP class 2), to wheat 0.9 kU/l (CAP class 2), to rye 0.7 kU/l (CAP class 2), to corn 0.56 kU/l (CAP class 1), to barley 0.36 kU/l (CAP class 1), to soy, buckwheat, fish and shrimps 0, respectively.

Based on the patient's history, the positive prick-prick tests and presence of IgE antibodies to rice, the diagnosis of food allergy to rice was made. The patient refused an oral provocation. She was advised to avoid further rice consumption and she received an emergency kit consisting of histamines, steroids and epinephrine. Eighteen months later she experienced an allergic reaction with rhinitis and asthma after a vegetarian meal consisting of tofu and rice, although she removed the rice from her plate. The concentration of IgE specific to rice was still increased (10.5 kU/l) (CAP class 3) while no IgE antibodies could be detected to soy. Under elimination diet the patient remained asymptomatic during two years and the level of IgE antibodies to rice dropped to 2.3 kU/l (CAP class 2). During

travel in the USA she ate Chinese noodles without knowing that they were produced from rice. Immediately after ingestion of these noodles she developed generalized itching and dyspnea. After this allergic reaction the patient carefully avoided meals containing rice. Three years after the last episode IgE specific to rice has decreased strikingly to 0.5 kU/l (CAP class 1). The SPT to native cooked rice became negative.

Rice (*Oryza sativa*) belongs with other cultivated cereals to different tribes of the Poaceae family. As previously described (2,4), we also observed the presence of IgE specific to different cereals, but in lower concentrations than to rice. The existence of close allergenic cross-reactivity between different cereal grains has already been demonstrated by RAST inhibition studies (4,6). A 16-kDa rice protein (RP) was identified as a cross-reactive IgE binding structure that fulfilled the criterion of a major allergen (6). Recently, a 33-kDa rice allergen, designated Glb33, was identified as a novel plant glyoxalase I (7). Our patient had no problems when eating other cereals nor she suffered from hay fever to grass pollen. A study from Japan described cross-allergenicity between rice and buckwheat antigens (8), but IgE antibodies to buckwheat were not found in our patient. Mücken et al. (4) found similar allergenic potency of different sorts of rice all containing allergens of low molecular weight (14.4 and 28 kDa) as detected by western blotting.

In conclusion, our patient demonstrated that in a nonatopic person ingested rice can produce IgE-mediated allergic reactions and therefore should be regarded as a potential cause of food allergy. The strict avoidance over years may lead to loss of the sensitization.

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References

1. WHITE P. Rice the essential harvest. Natl Geographic 1994;185:48–79.
2. DI LERNIA V, ALBERTINI G, BISIGHINI G. Immunologic contact urticaria syndrome from raw rice. Contact Dermatitis 1992; 27:196.
3. LEZAUN A, IGEA JM, QUIRCE S, CUEVAS M, PARRA F, ALONSO MD. Asthma and contact urticaria caused by rice in a housewife. Allergy 1994;49:92–95.
4. MÜSKEN H, SCHWARZ H, WAHL R, KLEINE-TEBBE, J. Nahrungsmittelallergie auf Reis. Allergologie 1991;14:239–242.
5. ARAI T, TAKAYA T, ITO Y, HAYAKAWA K, TOSHIMA S, SHIBUYA C, NOMURA M, YOSHIMI N, SHIBAYAMA M, YASUDA Y. Bronchial asthma induced by rice. Intern Med 1998;37: 98–101.
6. URISU A, YAMADA K, MASUDA S, KOMADA H, WADA E, KONDO Y, HORIBA F, TSURUTA M, YASAKI T, YAMADA M, TORII S, NAKAMURA R. 16-kilodalton rice protein is one of the major allergens in rice grain extract and responsible for cross-allergenicity between cereal-grains in the Poaceae family. Int Arch Allergy Appl Immunol 1991;96:244–252.
7. USUI Y, NAKASA M, HOTTA H, URISU A, AOKI N, KITAJIMA K, MATSUDA T. A 33-kDa allergen from rice (*Oryza sativa* L. Japonica) – cDNA cloning, expression, and identification as a novel glyoxalase I. J Biol Chem 2002;276:11376–11381.
8. YAMADA K, URISU A, KONDOU Y, WADA E, KOMADA H, INAGAKI Y, YAMADA M, TORII S. Cross-allergenicity between rice and buckwheat antigens and immediate hypersensitive reactions induced by buckwheat ingestion. SO Arerugi 1993;42:1600–1609.

Anaphylaxis to celecoxib

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Key words: anaphylaxis; celecoxib; cyclooxygenase-2 inhibitor; drug allergy; lymphocyte transformation test.

● CELECOXIB, a cyclooxygenase-2 inhibitor (Celebrex[®], GD Searle and Co, Skokie, IL), is increasingly being used for the relief of pain and inflammation in patients with osteoarthritis and rheumatoid arthritis. Elsewhere we reported on two patients with a