

Table 1. Patient's SPT and RAST results

	SPT	RAST			class
		Prick by prick	% Bound radioactivity	RAST unit	
Graminaceae	+++		5.7	1.61	2
<i>Olea</i>	+++		11.5	3.4	2
<i>Parietaria</i>	++		5.9	1.69	2
Cherry	++		2.6	0.67	1
Plum	++		0.0	0.0	0
Red grape		+++			
White grape		+++	9.5	2.88	2
Dried grape		+++			

groups. Serum gave class 2 RAST positivity for the pollens and grapes (Table 1). No cross-reaction between pollen and grape extracts was demonstrated by RAST inhibition; in fact, the IgE against grapes was not inhibited by pollen extracts; on the other hand, with the cherry extract at the highest concentration, the inhibition was about 50%, and the greatest inhibition of grape RAST (about 80%) was obtained at the highest concentration of grape extract.

■ The patient described here complained of oral allergy syndrome (OAS) symptoms after eating fresh grapes and drinking either red or white wine. The markedly positive SPT results correlated with RAST confirmed the diagnosis. The RAST result was positive (class 2) only when the polyphenols were chemically removed from the grapes, since they can affect diagnostic results (3). In fact, plant cells contain an enzyme, polyphenoloxidase, which accelerates the oxidation of phenols to quinones; these react in various ways with proteins, leading to the formation of polymers that interfere with allergenic reactivity. Therefore, for a reliable extract, compounds such as PVPP are employed to eliminate the polyphenols.

In the case reported here, skin tests gave significantly positive results for inhalant allergens – mainly pollens such as grass, *Parietaria*, and *Olea* – in agreement with the RAST findings and clinical data. The picture was similar for cherry. For plum, however, the positive SPT was not correlated with the RAST, and the patient had no history of allergy to this fruit. RAST inhibition with grape extract resulted in 80% inhibition of grape-specific IgE; with cherry extract, there was 50% inhibition of grape-specific IgE. Pollen extracts caused no inhibition.

Food allergy caused by grapes has previously been reported only occasionally. Contact dermatitis has been described among agricultural workers (4, 5). There is one report of occupational pollinosis (6).

We found no reports of OAS caused by grapes. Our patient suffered regularly from OAS symp-

toms on eating grapes and food or drinks containing them. Our tests showed that his simultaneous sensitivity to some pollens was not a question of cross-reactivity. The partial RAST inhibition by cherry extract is hard to explain, since the two fruits are taxonomically distinct.

Key words: atopy; grapes; oral allergy syndrome; pollen; polyvinylpyrrolidone; prick by prick; skin test; RAST; RAST inhibition.

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Anaphylaxis to curry powder

Several cases of food allergies caused by spices have been documented (1–3); however, bronchospasm caused by ingested curry powder has not so far been reported.

■ A 26-year-old nurse had been intermittently treated with topical corticosteroids for atopic dermatitis from childhood. She had no history of bronchial asthma. When she ate curry and rice one day in summer, she developed systemic itching, diarrhea, and stridor. She was treated with a bronchodilator and an antihistamine. Similar episodes a few months later prompted her to visit our hospital for further evaluation. Chest radiographs and results of respiratory function tests on admission were normal. Laboratory examination

revealed a slightly increased eosinophil count of 869/ μ l, an increased serum total IgE level of 8410 IU/ml, and positive antigen-specific IgE (RAST) against house-dust mites, cat hair, wheat, apples, rice, peanuts, almonds, and onions. However, she had never experienced allergic symptoms after eating these foods with positive RAST scores. Bronchial hyperresponsiveness was demonstrated by a methacholine challenge test with Astograph (4) ($D_{min} = 2.4$; reference range, 31.4–42.2).

■ After informed consent had been given, an oral provocation test was performed to confirm the causal relationship between curry and rice and allergic symptoms (Fig. 1). The patient developed stridor, diarrhea, and generalized itching 20 min after eating curry and rice. They persisted for 30 min. End-expiratory wheezes were heard on chest auscultation. The FEV₁ fell to 78% of the value before provocation. The serum histamine level rose from 1.4 μ M before challenge to 58.0 μ M 1 h after challenge. Injection of an antihistamine ameliorated her symptoms. These observations strongly suggested that one or more of the spices contained in curry powder were causative allergens in this case.

We purchased 30 spices known to be used in curry powder from spice shops. A quantity of each

spice corresponding to one meal (0.4–2.0 g) was prepared and ingested with 300 ml of water. The test was considered positive if an allergic symptom developed or FEV₁ decreased by 20% or more. Finally, two spices, cardamom (*Elettaria cardamomum*) and fenugreek (*Trigonella faenumgraecum*) were proved to be causative allergens; FEV₁ was decreased by 22% and 20%, respectively, and the patient developed wheezes and bowel symptoms.

We next measured allergen-specific serum IgE antibody by enzyme-linked immunosorbent assay (ELISA). Ten atopic patients who had a positive RAST score to house dust and a high serum IgE level served as control subjects. An irrelevant spice, allspice (*Pimenta dioica*), was used as a control antigen. The patient had a substantially high level of IgE antibody against both cardamom and fenugreek compared with control subjects (data not shown). An inhibition test for both cardamom and fenugreek showed an antigen dose-dependent decrease in measured antibody levels (data not shown). IgE antibody to allspice was undetectable, demonstrating the specificity of ELISA results for causative antigens.

■ Bronchospasm caused by various food allergens has been reported. For example, eggs, milk, and fish are common allergens of bronchial asthma (5).

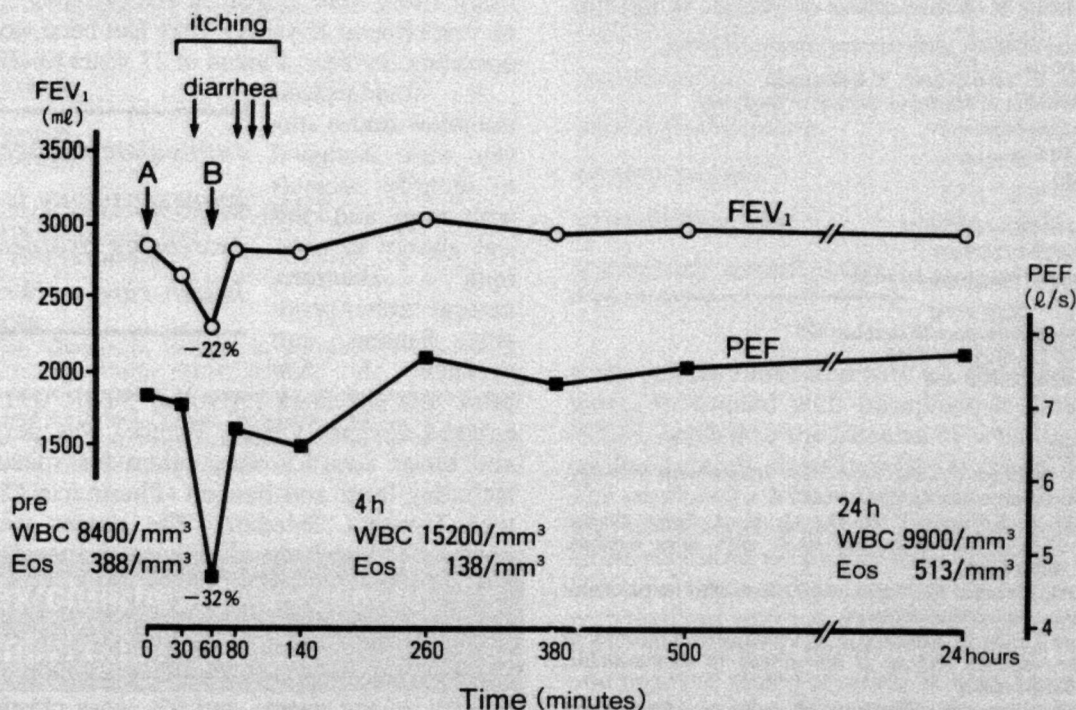


FIGURE 1 Curry and rice provocation test. A) Ingestion of curry and rice; respiratory function tests were done immediately before. B) Injection of antihistamine; respiratory function tests were done soon after. FEV₁: forced expiratory volume in 1 s; PEF: peak expiratory flow; WBC: white blood cell count; Eos: eosinophil count.

Allergic symptoms from spices are infrequent despite their widespread use; however, these symptoms are occasionally severe. A few cases of occupational asthma caused by inhaled spices have been reported (6–8). A recent report described two cases of allergy to fenugreek; one caused by inhalation of the spice powder and the other by cutaneous absorption (9). However, bronchospasm caused by ingestion of spices commonly used for curry has never been documented. The history of symptoms and the results of oral challenge tests and ELISA indicated the presence of IgE-mediated hypersensitivity to cardamom and fenugreek in our patient.

Curry powder is widely used in various dishes. It is a mixture of 20–50 kinds of natural spices made from the leaves and seeds of plants. Accordingly, we have abundant opportunities to ingest those spices, leading to unrecognized sensitization to them. Our case again draws attention to the fact that curry powder may be a rare cause of allergic symptoms.

Key words: bronchospasm; cardamom; curry powder; fenugreek.

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Latex allergy among nurses in an operating unit

IMMEDIATE hypersensitivity reactions to latex, a natural rubber, a disorder of current interest, has been diagnosed often during the past 15 years (1). Manufactured products, such as surgical and household gloves, surgical catheters, toy balloons, and condoms, may sensitize exposed atopic subjects. Nurses in hospitals are often exposed to latex, especially those in operating units.

The present investigation aimed to assess the prevalence of latex allergy among nurses with high occupational exposure to latex and determine the risk groups in our hospital.

■ All nurses in the operating units of the Central Hospital in Skövde, Sweden, participated in the study. There were 32 women and one man, aged 27–62 years (mean 42 years). They had been working in operating units for a mean of 17 years (3–39 years).

A standardized interview and a survey were designed to identify subjects with atopy and clinical allergy to common allergens, natural rubber products, banana, and avocado. A skin prick test for latex (Alyostal ST-IR 0903, Stallergènes, Fresnes Cedex, France) was performed, and blood samples were taken for specific IgE, including latex and banana (Pharmacia CAP System, Uppsala, Sweden). The nurses were also questioned about the glove material used.

■ Four of the nurses (12%) had obvious symptoms of allergic rhinitis/conjunctivitis from pollen and furs, and 15% were smokers. Latex gloves were not used by 18% of the nurses, and 9% wore plastic gloves under them. Symptoms related to use of latex gloves, diagnosed as contact dermatitis, were reported by 36% of the nurses, and an equal number had symp-

Immediate rubber latex hypersensitivity is an increasing problem for health-care workers.

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