

A 50-year-old man began experiencing nausea, breathing difficulty, and hives on his back and buttocks 10 min after eating Quorn.

Those anecdotal reports are supported by other data. Marlow Foods Ltd., Quorn's producer, receives about 100 adverse-reaction reports (including several IgE food-allergy reactions) annually (1). An 'idiosyncratic response' of vomiting and diarrhoea occurred in 10 complainants (2). Two complainants had a skin-prick test response to mycoprotein > 2 mm. Food challenges were not conducted.

In a company-sponsored, double-blind study, 200 volunteers ate up to 15 g (dry weight) of mycoprotein up to eight times over 4 weeks (3). Another 100 volunteers ate foods without mycoprotein. Six people in the test group vomited a total of seven times. Three of those people agreed to rechallenges (up to four), with one person vomiting again (4). One person in the control group vomited, but was not rechallenged. In contrast, another company-sponsored study did not detect symptoms that the researchers ascribed to the test material (5).

Research is needed to find the mechanism(s) by which mycoprotein causes symptoms. Regardless of the mechanism, physicians should be aware that Quorn may cause illnesses. Acceptance by government agencies (6) of Quorn as being safe raises questions about the adequacy of those agencies' premarket reviews and postmarket monitoring of novel ingredients.

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A case of isolated rice allergy

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Key words: food allergy; gastrointestinal symptoms; rice; urticaria.

Rice (*Oryza sativa*) belongs to the sub-family of Oryzoidea which is a member of the Gramineae family. Although rice is one of the most common cereals produced and consumed around the world, there have been only a few reports on rice allergy most of which define contact urticaria caused by raw rice (1, 2). There are only two reports in the literature describing immediate hypersensitivity reactions after ingestion of rice (3, 4). A 9-year-old girl was admitted to our asthma clinic for routine follow-up visit

and had been under regular follow-up during the last 2 years. She had been found allergic to grass pollens through intradermal but not epidermal tests. However, her history was not suggestive of any seasonal symptoms. Her skin prick tests (SPTs) with other common inhalant (ALK, Horsholm, Denmark) (mites, weeds, trees, animal dander, and molds) and food allergen extracts (Allergopharma, Reinbek, Germany) (hen's egg, milk, soy, wheat, fish, and peanut), and her specific IgE to grass pollens had also been found negative. During that visit, her parents informed that she 'dislikes' foods constituting rice and avoided eating them for the last 3 years. A couple of attempts to feed her with rice resulted in immediate nausea, abdominal pain and diarrhea. On one occasion, she had suffered urticaria-angioedema in the kitchen when her mother was sorting rice.

We performed SPT (Allergopharma, Reinbek, Germany) and prick-prick tests with various cereals including rice, wheat, barley, oat and lentil, and demonstrated a (++++) wheal and flare reaction only to rice with both tests. The total IgE concentration was 165 kU/l, and IgE specific to rice (CAP-FEIA, Pharmacia, Uppsala, Sweden) was 13.2 kU/l (Class 3). For a more definitive diagnosis we performed a double-blind, placebo-controlled food challenge which result in nausea, abdominal pain and diarrhea after 10 min of ingestion.

Although our patient demonstrated positive response to grass pollens through intradermal skin tests, her SPT response and specific IgE to grass pollens were negative, and her asthma symptoms were perennial rather than seasonal. It has been pointed out that the presence of a positive intradermal skin test response in the presence of a negative SPT response does not indicate the presence of a clinically significant sensitivity (5). Thus, we excluded grass pollen sensitivity. Cereal grains may show cross-reactivity with grass pollens and each other. Our patient had no problems when eating other cereals. Her SPTs and prick-prick tests with available cereals were also negative. Therefore, it seems rice allergy in our patient is isolated instead of being a co-sensitization to grass pollens or other cereals.

Our patient exhibits the symptoms of two different systems by two different routes of exposure of two different forms of rice. The first is ingestion of cooked rice resulted in acute gastrointestinal symptoms. The second is urticaria–angioedema while her mother was sorting rice, possibly caused by inhalation of minute particles of raw rice. Inhalation of foodstuffs in aerosol forms may cause allergic food reactions. Also, inhalant allergens may solely provoke urticaria without associated allergic rhinitis or asthma (6). To our knowledge, however, IgE-mediated allergic symptoms limited to skin following inhalation of food allergens have not been reported to date.

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Type I sensitization towards patent blue as a cause of anaphylaxis

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Key words: anaphylaxis; patent blue; lymphography.

Detection and excision of sentinel lymph nodes is an established technique for early staging and treatment of not only malignant melanoma, but also of other cancers (1, 2).

Allergic reactions to patent blue were firstly reported in the 1960s and 1970s (3, 4). Recently a few cases of anaphylaxis to patent blue after lymph node mapping were published (5–7). We report a 37-year-old female patient with a superficial spreading malignant melanoma who underwent lymph node mapping. The patient was sedated with midazolam (Dormicum®) and received anaesthesia with articain (Xylonest® 1%).

Five minutes after intralymphatic injection of 1 ml patent blue (Guerbet®) the patient developed a generalized urticaria and angioedema. A few minutes later, the patient became hypotensive (50/40 mmHg) and lost consciousness. The anaphylactic reaction was treated immediately with adrenaline (0.2 mg), prednisone (500 mg) and dimetindenmaleat (8 mg) intravenously and the patient recovered completely within 30 min. The patient's history revealed neither other allergic diseases like atopic dermatitis, allergic rhinitis or allergic asthma nor previous anaphylaxis. Accordingly, the total serum IgE antibodies were normal (19.7 kU/l), specific IgE to latex was negative (>0.35 kU/l) and no specific serum IgE was found regarding the most frequent inhalant allergens (SX1). Also the tryptase level was normal (4.79 µg/l).

Three weeks postoperatively a skin prick test (SPT) was performed. All used drugs were tested. The SPT using articain (1%), diazepam and midazolam was

Patent blue is frequently used for lymphnode mapping.



Figure 1. Positive skin prick test with patent blue at 1 : 100 dilution.

negative. By contrast, a strong positive SPT towards patent blue 1 : 100 was found (Fig. 1). In five control individuals SPT with patent blue (dilution 1 : 100) was negative. These findings indicate a type I allergy towards patent blue in this patient as a cause of the perioperative anaphylaxis.

Patent blue is a widely used agent in textile, paper, agriculture industries, cosmetic and medical products. In the past, a frequency of type I sensitization towards patent blue of 2.7% has been reported (8). A recent review revealed adverse reactions to injection of isosulfan blue dye during sentinel lymph node mapping in breast cancer patients in 1.6% of documented allergic reactions ($n = 2392$) (1). Most reactions produced urticaria and pruritus (69%) but only 0.5% of the patients showed hypotensive reactions. As the procedure of sentinel lymphnode biopsy becomes more frequent the risk of an increased incidence of adverse reactions to patent blue may be expected. The value of preoperative performed SPT to rule out preexisting type I sensitization towards patent blue will need to be clarified by prospective controlled studies.

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