

Table 1. Chronological details of patient with egg allergy

Date	Symptoms	Total white cell counts per mm ³	Eosinophil counts % and absolute	Other investigations	Treatment
September 1994	Abdominal pain Nausea Vomiting Diarrhoea	22 480	35% 7868	Endoscopy normal; gastric biopsy normal	Albendazole 400 mg once; ranitidine 300 mg daily; antacids
October 1994	Abdominal pain Nausea Vomiting	22 800	38% 7904	Stool negative for parasites	Ranitidine; antacids
January 1995	Abdominal pain Nausea Vomiting	21 760	36% 7834	IgE 190 ku; SPT—egg 14 mm, histamine 5 mm (DBPCFC with egg at 200 mg)	
March 1995	Abdominal pain Nausea	19 200	28% 5376		Egg avoidance; cetirizine 10 mg daily
April 1995	Nil	10 000	13% 1300		Egg avoidance; cetirizine 10 mg daily
July 1995	Nil	8200	5% 410		Egg avoidance; cetirizine stopped
August 1995	Nil	8400	4% 336		Egg avoidance

acts against eosinophils and may be recommended in the treatment of food allergies. Moreover, since no side-effects were noted, cetirizine could be used safely for several months. However, double-blind, placebo-controlled trials with a larger number of patients must be carried out before cetirizine can be firmly established in the treatment of food allergies.

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Mite-related allergy and oral tolerance

Key words: allergy; increase; mite; oral tolerance.

ALL EPIDEMIOLOGIC studies on childhood asthma have shown an increasing prevalence of mite-related asthma, even in countries thought to have little asthma. In a recent issue of *Allergy*, we read with interest the review by Woolcock et al. (1), and agree with the authors' proposal that there is no reason to believe that the increase in the prevalence of mite-related asthma is linked to an increase in the mite allergen, because domestic mite-allergen levels have always been high in humid climates. They argued that some factor which protects children from asthma has been lost, making mite-related asthma more common.

We recently reported two patients in whom systemic anaphylaxis developed shortly after they had eaten food contaminated by a storage mite, *Tyrophagus putrescentiae* (2). We were able to demonstrate that these patients were sensitive to the storage mites but not to food allergens, leading us to conclude that the anaphylactic episodes were the result of ingestion of the storage mites.

Are we eating too little mite-contaminated food?

In Japan 40 years ago, many mites contaminated stored foods, such as flour, soybean paste, soybean powder, chocolate, etc. (3). The oral administration of an antigen has been shown to induce antigen-specific peripheral immune tolerance (4, 5). It is likely that routine ingestion of the mites through ordinary meals might prevent systemic allergic reaction to the mites, since anaphylaxis in response to storage mites has not been reported before.

The sanitary conditions of stored foods have improved much in Japan, and the consumption of traditional foods such as soybean paste and soybean powder has decreased (6), leading to the lower ingestion of storage mites through ordinary meals. Since accumulated evidence demonstrated cross-antigenic and allergenic properties of the storage mite *Tyrophagus putrescentiae* and the house-dust mite *Dermatophagoides farinae* (7), lower ingestion of the storage mites might be involved in the increase in dust mite allergy. Successful treatment of mite-related asthma with oral administration of a house-dust mite extract has been reported (8, 9). Therefore, we assume that the circumstantial change in storage-mite contamination may be partly responsible for the recent increase in the prevalence of mite-related asthma.

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Neoallergens in heated pecan nut: products of Maillard-type degradation?

A RECENT communication in this journal describes the formation of skin-active and IgE-binding neoallergens upon storage or heating of extracts of the pecan nut (1). This interesting observation does not stand alone. A similar case was communicated in 1977, concerning an extract of wheat flour that developed increased potency upon storage at room temperature (2). A patient with baker's asthma undergoing hyposensitization treatment with aqueous solutions of the proteins of wheat flour quite unexpectedly experienced a severe anaphylactic reaction when receiving his monthly injection. The patient himself noted that the nurse was using a brown solution, whereas on previous occasions the protein extract had been colorless. Investigation revealed that the brownish treatment solution had been kept in the ward at room temperature for 7 months, contrary to instructions at the time to prepare sterile fresh solutions from the freeze-dried proteins just before use. Spectroscopic analysis of the brown liquid revealed considerable protein degradation due to autolysis involving the interaction of hydrolyzed sugars with the proteins in the extract; i.e., a so-called Maillard or "browning" reaction.

The Maillard reaction enables the chemical conjugation of free sugars to α -amino groups and to the ϵ -amino side-chains of lysine residues in the protein, leading to *de novo* haptens or to melanoidin-like complexes with proteins in a complicated series of chemical rearrangements. Such protein derivatives are known to induce non-antibody-mediated activation of the human complement system, as was demonstrated with the wheat-flour extracts in the same communication (2). Elevated skin-reactivity of heated cow's milk proteins had earlier been demonstrated by Bleumink & Berrens (3) with β -lactoglobulin, which acquired a 100-fold increase of skin test potency after mixtures of the protein with the milk sugar lactose had been maintained at 50°C. Such artificially prepared protein-sugar adducts were subsequently shown to consume

Analysis of IgE-binding material generated during processing and storage should be part of a quality-control regimen

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