

Acute cases from internal medicine department

Dr. Mark Zimmerman

Asaf-ha-Rofeh medical center

Case 1

Chest pain and anxiety

- 50 y.o. female
- H/o steroid-dependent asthma, hypothyroidism and depression
- Admitted due to chest pain and breathlessness during meal
- Hospitalization course unremarkable, ruled out ischemic event
- Impression : food stuck in esophagus and anxiety

מכתב סיכום

פרטים אישיים						
נ	מין:	כוכבה	שם פרטי:	סיאג	שם משפחה:	61821534
		[REDACTED]	ארץ לידה:	[REDACTED]	גיל:	15/08/1953
			מספר ילדים:			
3	מספר ילדים	נשואה	מצב משפחתי:			
						כתובת: ראשלי"צ

פרטי אשפוז						
			מס' ימי אשפוז:	22/09/2003	בתאריך:	20/09/2003
			סוג אשפוז:	1106977	מס. קבלה:	חדש
			דחוף			שוחרר
						שם הרופא: ד"ר גיאבר מורסי

אבחנות בשחרור

NON SPESIFIC CHEST PAIN
 NORMOCYTIC ANEMIA
 COPD
 HYPOTHYROIDISM
 DEPRISIVE DISORDER

Case 1, cont.

- Additional episode with identical complaints during meal, less severe
- Food ingested prior to symptoms- tuna fish, eggs, rice, buckwheat and sesame.

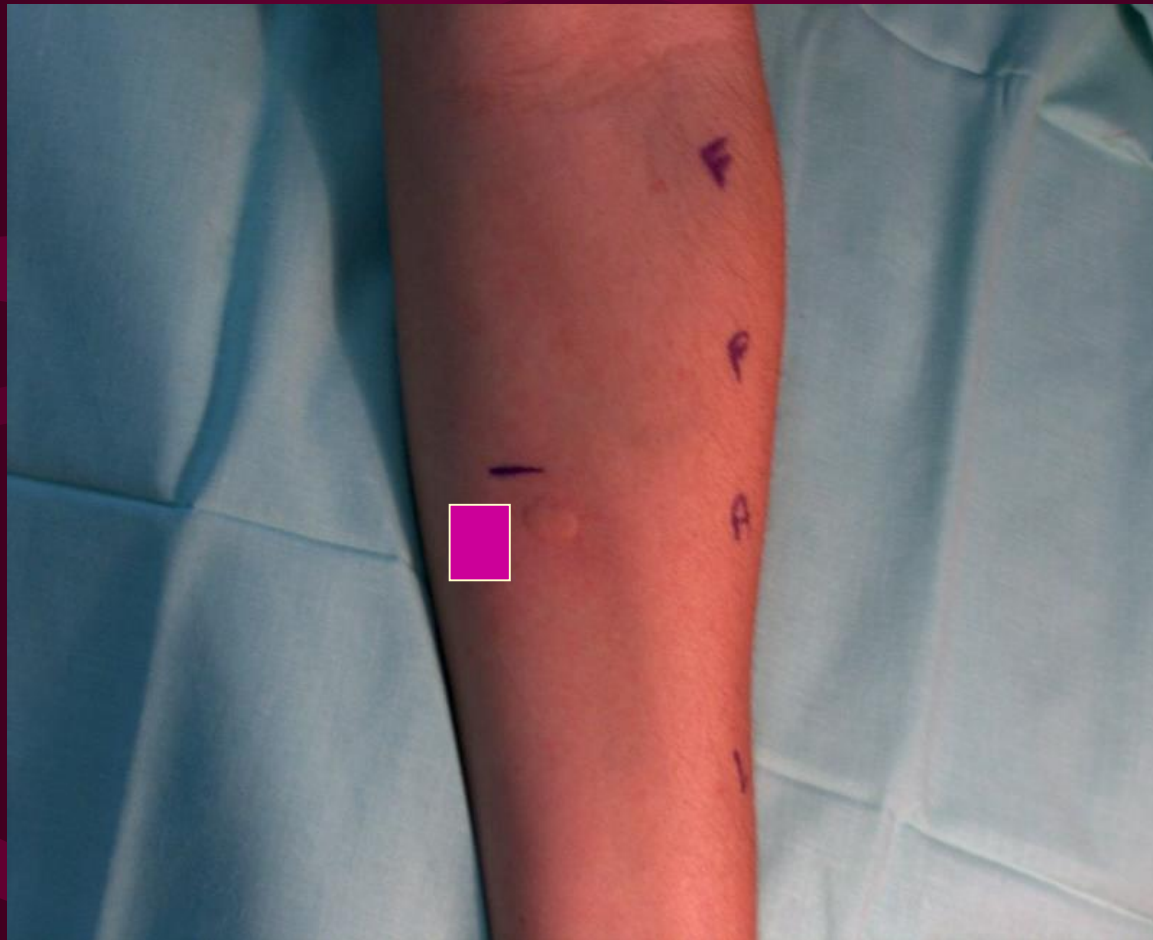
Case 1, cont.

- Additional episode with identical complaints during meal, less severe
- Food ingested prior to symptoms- tuna fish, eggs, rice, buckwheat and sesame.

Suspected food allergy

Case 1, cont.

Suspected food allergy



Case 1, cont.
Suspected food allergy



Buckwheat allergy healthy food or health risk



Buckwheat allergy

Food allergy

169 cases from Japan in 1974

Classical IgE- mediated manifestations

- asthmatic attacks
- urticaria
- conjunctival congestion and rhinitis
- GI symptoms

Sensitisation via ingestion or inhalation

Studies on the buckwheat allergose report 2: clinical investigation on 169 cases with the buckwheat allergose gathered from the whole country of Japan.

Nakamura S, Yamaguchi MY.

In this report are mentioned the results and comments of clinical investigation of 169 cases with the buckwheat allergose gathered from the whole country by sending out enquetes. The purpose of this studies is to corroborate the clinical character of the buckwheat allergose and to establish the typical pattern of manifestation. The most distinguishing traits of the buckwheat allergose are that 1) the manifestation develops both when the allergen substance invades into the body through mouth and when through air way and 2) among such hypersensitive manifestations with buckwheat as asthma attacks, urticaria eruption, gastrointestinal disorders, nasal symptoms or congestion of conjunctiva, the boundary line cannot be drawn. And from results of various kinds of allergic examinations the authors have come to conclusion that the buckwheat allergose is the model of the type I allergy (is immediate type allergy) proposed by Coombs and Gell. The authors have been unable to find any medical records on the similar subject by preced investigators, and this is, the authors believe, quite unique in the world.

PMID: 4283491 [PubMed - indexed for MEDLINE]

Buckwheat allergy

Food allergy - 20 years of follow-up
- importance

[Buckwheat allergy in 90,000 school children in Yokohama]

[Article in Japanese]

Takahashi Y, Ichikawa S, Aihara Y, Yokota S.

Department of Pediatrics, Yokohama City University School of Medicine.

Hypersensitivity to buckwheat allergen frequently causes anaphylactic type reactions including urticaria, wheezing, dyspnea and/or shock. Though the susceptible pupil would be recommended to be careful for school lunch and picnic meals, the prevalence of buckwheat allergy in school children has not yet been elucidated. In this study, data on the children allergic to buckwheat were collected by sending questionnaire to 341 nurses in elementary school in Yokohama. Among the total subjects of this investigation, 92,680 children, the incidence of buckwheat allergy was determined 0.22% (140 boys and 54 girls). This percentage was not so low level besides the prevalence of such allergic diseases as bronchial asthma, atopic dermatitis, allergic rhinitis, allergic conjunctivitis and food allergy was 5.4%, 4.2%, 3.1%, 1.6%, and 1.3%, respectively. Although a large majority of clinical symptoms of buckwheat allergy were urticaria (37.3%), skin itching (33.3%), and wheezing (26.5%) Four children (3.9%) experienced anaphylactic shock having a need of medical emergency treatment. The incidence of anaphylactic shock due to buckwheat was higher than those to egg and milk allergy. Actually 7 pupils were provoked allergic reaction by buckwheat noodle served at school lunch, and 1 pupil at picnic meals. Thus, school children allergic to buckwheat is not rare, and it is important to withdraw buckwheat food from school lunch and picnic meals.

[The national survey of immediate type of food allergy]

[Article in Japanese]

Imai T, Iikura Y.

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BACKGROUND: The actual conditions regarding immediate type food allergy have not been fully understood. Appropriate countermeasures have not been taken so far. The objective of our research is to identify the actual conditions of immediate type food allergy in Japan for the purpose of contributing to future practices. **SUBJECT:** We conducted a survey on the patients in collaboration with 2689 domestic hospitals which have pediatric and more than 100 beds. We focused on these cases who presented with symptoms of allergy within 60 minutes of the intake of any offending food. **RESULT:** 60.4% of collaborators returned the questionnaire. We investigated 1420 cases in 498 hospitals. Average age of cases was 6.7 \pm 13.1 (Mean \pm SD). Ages not more than 8 years-old comprised 80.1% of whole population. The most common offending foods were eggs, milk products, wheat, buckwheat, fish and fruits. In addition, offending foods varied depending on age. The clinical symptoms appeared at 24.2 minutes \pm 19.4 minutes (Mean \pm SD) after the intake of offending foods. The most common clinical symptom was observed on the skin and respiratory organs. **CONCLUSION:** Based on the results of this study, the Ministry of Health, Labor and Welfare amended the ministerial ordinance concerning the allergy food labeling system. Five major offending foods (eggs, milk, wheat, buckwheat, and peanuts) were designated as ingredients to be specified on the label.

Buckwheat allergy

Food allergy - 20 years of follow-up

- major cause of food anaphylaxis
- principal allergens

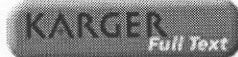


Identification and characterization of the major allergens of buckwheat.

Park JW, Kang DB, Kim CW, Koh SH, Yum HY, Kim KE, Hong CS, KY.

Institute of Allergy, Department of Internal Medicine and Pediatrics, Yonsei University College of Medicine, Seoul, South Korea.

BACKGROUND: Buckwheat (BW) has been recognized as a common food allergen in Korea, Japan, and other countries. Until now, serologic findings in BW food-allergic patients and its major allergenic components have not been clarified. In this study, we analyzed the serologic findings of BW food allergy and characterized its major allergenic components. **METHODS:** Nineteen BW-allergic subjects with symptoms after BW ingestion and 15 asymptomatic control subjects with positive skin prick test to BW were recruited. BW-specific IgE was measured with the Pharmacia CAP kit. Allergenic components of BW were analyzed by IgE immunoblotting, periodate oxidation, two-dimensional PAGE, and sequencing of N-terminal amino acids. **RESULTS:** From the BW-allergic patients and asymptomatic controls, the sensitivity (100%), specificity (53%), and negative (100%) and positive predictive values (73%) of Pharmacia CAP specific IgE for diagnosis were estimated. The prevalence of IgE binding to 24-kDa (pI 8.3), 16-kDa (pI 5.6), and 9-kDa (pI 5.0/ 6.0) allergens was higher than 50% in BW-allergic and asymptomatic subjects. However, the specific IgE to split 19-kDa (pI 6.5/7.0) allergens were more specifically found in BW-allergic patients than in asymptomatic subjects (78% vs 7%). N-terminal amino-acid sequences of 19-kDa and 16-kDa allergens showed moderate and weak homology to that of 19-kDa globulin protein of rice and alpha-amylase/trypsin inhibitor of mung bean, respectively. The N-terminus of the 9-kDa isoallergens were not different from each other and were identified as the reported trypsin inhibitors of Elysiopsis. Attenuation of the IgE binding to the 9-kDa allergen was found with periodate oxidation. **CONCLUSIONS:** The allergens of 24, 19, 16, and 9 kDa are strong candidates to be major allergens, and the 19-kDa allergen was relatively specific for BW-allergic patients. Moreover, measurement of BW-specific IgE and the features of immunoblotting should be very useful for the diagnosis of BW allergy.



Pepsin-resistant 16-kD buckwheat protein is associated with immediate hypersensitivity reaction in patients with buckwheat allergy.

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Department of Allergy and Immunology, National Research Institute for Child Health and Development, Showa University School of Medicine, Tokyo, Japan.

BACKGROUND: Buckwheat is becoming popular in many countries as a health food and the incidence of buckwheat allergy is increasing in Asia. Ingestion of small amounts sometimes provokes an anaphylactic reaction. However, it remains controversial which is the major allergen responsible for such reactions. **METHODS:** The patients whose sera are positive for buckwheat-specific IgE antibody measured by the CAP system fluorescent enzyme immunoassay (CAP-FEIA) were classified into two subgroups depending on the history of immediate hypersensitivity reactions (IHR). Major buckwheat allergens were identified with immunoblotting, ELISA and N-terminal amino acid sequencing. Various treatments such as pepsin digestion were added to characterize the proteins. **RESULTS:** We found the 24-kD protein that had previously been reported to be a major allergen reacted to IgE antibodies present in sera from almost all subjects (19/20) regardless of symptoms. On the other hand, 16- and 19-kD proteins were bound with IgE antibodies present in sera from 9 of the 10 patients with IHR including 8 patients with anaphylaxis but not in sera from buckwheat-specific IgE-positive subjects without IHR. After pepsin treatment, the 16-kD protein but not the 19- and 24-kD proteins remained undigested and preserved the capacity of IgE binding. This pepsin-resistant 16-kD protein had no homology with the 24-kD protein by the N-terminal amino acid sequencing.

CONCLUSIONS: The 16-kD buckwheat protein was resistant to pepsin digestion and appeared to be responsible for IHR including anaphylaxis, while the pepsin-sensitive 24-kD protein was responsible for CAP-FEIA but not IHR. Copyright 2002 S. Karger AG, Basel

Buckwheat allergy

Food allergy - 20 years of follow-up

- major cause of food anaphylaxis

- principal allergens:

 - 16 kDa pepsin-resistant protein homologous to amilase/trypsin inhibitor of mite

 - 19 kDa protein homologous to 19kDa protein of rice

- possible cross reactivity: latex, avocado, rice

Buckwheat allergy

Food allergy - 20 years of follow-up

- major cause of food anaphylaxis
- principal allergens:
 - 16 kDa pepsin-resistant protein homologous to amilase/trypsin inhibitor of mite
 - 19 kDa protein homologous to 19kDa protein of rice
- cross reactivity: latex, avocado, rice
- screening for hypoallergenic buckwheat species

Screening and selection of hypoallergenic buckwheat species.

Nair A, Adachi T.

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2154, Japan. nairarunc@yahoo.com

Both common buckwheat (*Fagopyrum esculentum*) flour and meal cause allergy in sensitive patients, and if unnoticed, it can be fatal. It has become a potential occupational hazard for some mill workers. The development of hypoallergenic buckwheat would be more efficient if natural mutants for allergenic protein are detected. A screening and selection method was developed using SDS-PAGE coupled with PCR techniques. SDS-PAGE analysis of 14 different species of buckwheat revealed that *F. lineare* and *urophyllum* lack the 22-kDa major allergenic protein. PCR-based screening with specific primers for sequences encoding the allergenic protein was effective in distinguishing the allergen-deficient species.

PMID: 12806007 [PubMed - indexed for MEDLINE]

Buckwheat allergy

- Occupational asthma or rhinitis



[Occupational asthma caused by buckwheat flour]

[Article in French]

Choudat D, Villette C, Dessanges JF, Combalot MF, Fabries JF, Lockhart A, Dall'Ava J, Conso F.

Service de Pathologie Professionnelle, Hopital Cochin, Paris.

Buckwheat flour, mainly used for pancakes, may induce asthma following inhalation and anaphylactic reactions following ingestion. These allergic reactions are mediated by specific IgE and may be confirmed by skin test radio-allergo-sorbent test. The occupational asthma of a patient working in a pancake restaurant was confirmed by specific challenge test with a computerised device to generate particles. A very small amount of buckwheat flour (10 micrograms) induced an immediate fall of the FEV1 to 56% of the initial value. No bronchial reaction was observed with lactose nor with wheat flour. Specific bronchial challenge identifies the allergen responsible for asthma, measures the level of sensitization and thus can prevent the occupational exposure.

Full text article at
oem.bmjournals.com

Two patients with occupational asthma who returned to work with dust respirators.

Obase Y, Shimoda T, Mitsuta K, Matsuse H, Kohno S.

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OBJECTIVES: To assess the efficacy of dust respirators in preventing asthma attacks in patients with occupational asthma (asthma induced by buckwheat flour or wheat flour). **METHODS:** The effect of the work environment was examined in two patients with occupational asthma with and without the use of a commercially available mask or a dust respirator. Pulmonary function tests were performed immediately before and after work and at 1 hourly intervals for 14 hours after returning to the hospital. **RESULTS:** In patient 1, environmental exposure resulted in no symptoms during and immediately after work, but coughing, wheezing, and dyspnoea developed after 6 hours. Peak expiratory flow rate (PEFR) decreased by 44% 7 hours after leaving work environment, showing only a positive late asthmatic reaction (LAR). In patient 2, environmental exposure resulted in coughing and wheezing 10 minutes after initiation during bread making, and PEFR decreased by 39%. After 7 hours, PEFR decreased by 34%. The environmental provocation tests in both patients were repeated after wearing a commercial respiratory. This resulted in a complete suppression of LAR in patient 1 and of immediate asthmatic reaction (IAR) and LAR in patient 2. **CONCLUSIONS:** Two patients with asthma induced by buckwheat flour or wheat flour in whom asthmatic attacks could be prevented with a dust respirator are reported. Dust respirators are effective in preventing asthma attacks induced by buckwheat flour and wheat flour.

Buckwheat allergy

- Non occupational asthma and rhinitis



Buckwheat pillow-induced asthma and allergic rhinitis.

Fritz SB, Gold BL.

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BACKGROUND: Immunoglobulin (Ig)E-mediated hypersensitivity is a mechanism suggested to explain adverse reactions to buckwheat. This is the first reported case in the United States of a person who developed asthma worsening allergic rhinitis after exposure to a buckwheat pillow.

OBJECTIVE: To describe a patient who developed asthma and worsening allergic rhinitis after exposure to a buckwheat pillow and to provide evidence that the adverse reaction was IgE-mediated. **METHODS:** The patient underwent skin prick and ImmunoCAP testing (Pharmacia Diagnostics, Kalamazoo, MI) to buckwheat as well as skin prick testing to several environmental allergens. **RESULTS:** The patient showed a 4+ skin prick response to buckwheat. He also showed 4+ positive skin prick responses to multiple trees, grasses, and weeds, Alternaria, Helminthosporium, dog, and histamine control and was 3+ positive to house-dust mites, Penicillium, Aspergillus, cat, and feather mix. His negative control was negative. His ImmunoCAP test for buckwheat-specific IgE was class 4, or strongly positive. He had normal spirometry values. Performance of house-dust mite avoidance measures did not result in improvement of the patient's symptoms. Removal of the patient's two buckwheat pillows resulted in resolution of asthma and improvement of rhinitis symptoms. **CONCLUSIONS:** The positive skin prick and ImmunoCAP test to buckwheat along with the positive clinical response to buckwheat pillow elimination support an IgE-mediated mechanism in explaining our patient's buckwheat pillow-induced asthma and allergic rhinitis.



Three cases of childhood nocturnal asthma due to buckwheat allergy.

Lee SY, Lee KS, Hong CH, Lee KY.

Department of Pediatrics, Ajou University School of Medicine, San 5, W Chon Dong, Pal-Dal Ku, Suwon 442-749, South Korea.

BACKGROUND: Buckwheat flour (BF) is known as a potent food allergen. Sensitization to it usually occurs by ingestion but also by inhalation in occupational or domestic exposure. Buckwheat chaff-stuffed pillows (BCP) can be contaminated with BF during the process of pilling, and many Korean children and adults use BCP for health reasons. **METHODS AND RESULTS:** We here present three cases of BF allergy in children using BCP, who had been treated as nonatopic asthmatics after undergoing the routine allergy tests and serologic tests. We took careful clinical histories, and performed skin prick tests (SPT), the radioimmunoassay (RIA) for specific IgE, the BCP-elimination test, the BF bronchial provocation test, and IgE Western blot. All three children showed positive skin reactions to BF, but none of them had positive reactions to house-dust mites. Nocturnal asthmatic symptoms were improved during 7 days of BCP elimination, and asthmatic responses were observed by bronchial provocation tests with homemade BCP extract. Serum BF-specific IgE antibodies and several IgE-binding proteins were detected by RIA and Western blot analysis, respectively. **CONCLUSIONS:** Thus, a small amount of BF attached to BCP can induce BF sensitization, and BCP should be considered a main cause of childhood nocturnal asthma in those asthmatics exposed to these pillows.

□ 1: Ned Tijdschr Geneesk. 2002 Mar 30;146(13):624-5.

Related Articles,

[Sensitisation to 'poffertjes' as a result of sleeping on a pillow containing buckwheat]

[Article in Dutch]

van Ginkel CJ.

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A 19-year-old man suffered an anaphylactic reaction after eating 'poffertjes' (small Dutch pancakes). This reaction appeared to be the result of an IgE-mediated allergy to buckwheat, a principal ingredient of 'poffertje'. It is highly likely that the patient was sensitised by sleeping on a pillow stuffed with buckwheat husk.

Buckwheat allergy

Summary

- Occupational asthma or rhinitis
 - Immediate and late reactions possible
 - Respirators may be helpful
- Non-occupational asthma and rhinitis
 - Consider in case of nocturnal asthma in non-atopic patient
 - Avoidance may be curative
- Food allergy
 - Major cause of anaphylaxis
 - Cross-reactivity with latex, avocado, rice
 - Cross-sensitization via inhalation ?

Buckwheat allergy

Back to the patient



Buckwheat allergy

Why Far East ?



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