

Case report

Anaphylaxis caused by banana

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B. Savonius, L. Kanerva

Institute of Occupational Health, Section of
Dermatology, Helsinki, Finland

An anaphylactic reaction following ingestion of banana occurred in a 32-year-old female cook. The sensitization to banana occurred simultaneously with the development of occupational asthma caused by grain flour. The patient was sensitized to a wide range of airborne and ingestible proteins but not to rubber latex.

Key words: prick tests; spices; fruits;
vegetables; occupational asthma; grains; latex.

L. Kanerva, MD, PhD
Section of Dermatology
Institute of Occupational Health
Topeliuksenkatu 41 aA
SF-00250 Helsinki
Finland

Introduction

Allergy to various spices, vegetables, and fruits is common, and anaphylactic reactions may be seen in persons with such allergy. Allergy to banana is probably rare, and we have seen only two published reports of allergic reactions to it (1, 8). Recently, cross-reactivity between banana and rubber latex, between banana and ragweed, and between banana and the gourd family (watermelon, zucchini) has been reported (1, 4, 9).

We report on a case of anaphylaxis caused by allergy to banana, without latex allergy.

Case report

A 32-year-old, previously healthy female cook had worked in the kitchen of a large factory for over 10 years. There was atopy in her family; her father had had asthma and her sister dermatitis. She herself had not had any atopic symptoms earlier. In 1986-7 she developed a long-standing fever and was thoroughly examined, but no cause was found. All laboratory tests, including IgE, were normal, and both prick tests, with 22 common environmental allergens (Allergologisk Laboratorium, Copenhagen, Denmark), and patch tests, with 39 common contact allergens (Chemotechnique Diagnostics Ab, Malmö, Sweden), were negative at that time.

In 1988 she developed respiratory symptoms, rhinitis, conjunctivitis, and occasional eczema, mostly on the eyelids and face, at work. At the end

of 1990 she developed work-related dry cough and chest tightness.

Occupational asthma caused by grain was diagnosed on the basis of specific chamber challenge (6); prick tests for all Finnish grains (rye, wheat, oats, and barley) were strongly positive, and RASTs were positive for all grains except oats. RAST tests were performed as Phadebas RAST tests; banana, other fruits, and vegetables were tested with the prick-prick test method (3) because no good standardized allergen products exist for many fruits such as banana, the allergens of which are labile. Prick tests with grain and spices were tested as described by Kanerva et al. (5).

The patient had often eaten bananas, but she had no banana exposure at work. In 1991 she had once shown oro-pharyngeal symptoms after eating kiwi fruit and also after eating a cake containing banana. When she again ate banana (and nothing else) 1 month later, her lips began to swell at once, she was affected by strong oropharyngeal symptoms, a generalized urticarial rash, and difficulty in breathing. The symptoms worsened and she was treated at a first-aid clinic with i.v. epinephrine and steroids; this treatment relieved her symptoms. She was treated in the hospital the next day and night and was given oral steroids.

Examinations 1 month later revealed moderate to strong prick reactions (greater than 50% of the histamine reaction) for birch, alder, meadow fescue (*Festuca elatior*), mugwort (*Artemisia vulgaris*), horse, dog, cat, sheep, chicken, house-dust mite, (*Der-*

matophagoides pteronyssinus) and all Finnish grains. Prick tests for timothy, cow, dandelion, willow (*Salix caprea*), rubber latex, and fungamyl enzyme were negative. Prick tests for spices, fruits, and vegetables showed strong reactions to swede, onion, celery, and potato. Banana and kiwi produced a histamine-size reaction, while tests with strawberry, cinnamon, tomato, carrot, allspice, ginger, cardamom, pepper (spice), and curry powder were negative. The total serum IgE concentration was 170 ku/l, and the banana RAST was 0.68 ku/l. The patient had no latex-associated symptoms, and the latex RAST was negative.

Discussion

The patient was carefully examined in 1988 and no signs of atopy could be seen. At the time of the reaction she had become highly atopic and sensitized to a wide range of both airborne and ingestible proteins. Her allergy to banana developed in parallel with her occupational asthma and overall sensitization. Patients reported elsewhere with crossreactivity between banana and other proteins were also all atopic (1, 8); allergy to banana may in general be connected with a more generalized sensitization to proteins. A new high-risk group may be comprised by eaters of "living food" (persons who eat only food, mostly vegetables, that has not been heated), who may develop anaphylactic reactions (7).

Our patient did not develop a positive prick reaction to latex. Individual reasons may explain this, as well as the discrepancy between the positive prick reaction to meadow fescue and the negative reaction to timothy, the latter also noted by Dirksen & Østerballe (2). She also had a very minor specific IgE concentration in reaction to banana, as compared with her strong prick reaction. This could be explained by a difference in allergenic strength between the banana extract in the prick-prick reaction and

that in the RAST reagent. Anaphylaxis may, however, develop even though specific IgE concentration is low, as has been reported, for example, with latex (10).

Unexpected adverse and even potentially life-threatening allergic reactions to different ingestible proteins are a risk which must be taken into account in otherwise strongly sensitized persons. Personal advice concerning this possibility could also be given to patients. Such patients should carry intramuscular epinephrine, disposable pen-syringe first-aid kits.

We could not, for ethical reasons, perform a provocation test with banana in this case.

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