

MAIZE FLOUR-INDUCED RHINITIS

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SUMMARY: Food allergy rarely causes allergic rhinitis.

We report the case of a patient who developed non-occupational persistent rhinitis in adult age, evoked by the ingestion of maize (corn) flour.

The symptoms and typical reactions of food allergy occurred only 15 years after the onset of the rhinitis signs.

INTRODUCTION

Wheat flour is a well-known occupational allergen that evokes respiratory symptoms in more than 15% of bakers and pastry-cooks.

Besides the wheat allergen itself, the flour alpha-amylase is another sensitization agent known to induce IgE-mediated responses.

Contaminants such as aspergillus can likewise induce sensitization. These are always allergic reactions observed in workers of the baking and milling industries as responses to the inhalation of these agents.

By contrast, there is not much scientific literature on maize flour. This allergen is not frequently taken into account (1), and its potential for sensitization is poorly reported (2, 3).

CASE REPORT

In November 2004 we examined a Caucasian male aged 50 showing symptoms of chronic rhinitis that had been going on for 15 years and irregular symptoms of summer bronchospasm of which he could not determine the onset.

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The patient, who is a metal and mechanical worker and does not enjoy cooking, presents asthmatic familiarity (mother) and negative pathological anamnesis except for Meniere's disease. The otorhinolaryngologist defined the patient's mucosa as "allergic".

Before referring to our outpatient clinic, the patient had undergone skin tests for inhalants with negative results.

Owing to the presence of typical symptoms, to obtain better diagnostic sensitivity we performed intradermal allergy tests with seasonal and perennial inhalants, such as mix graminaceous pollen, compositae, parietaria, betulaceae, oleaceae, plantaginaceae, ambrosia, dermatophagoides pteronyssinus and farinae, aspergillus fumigatus, penicillium, mucor, alternaria, cladosporium, dog and cat dandruff, which gave negative results.

We diagnosed the illness as persistent non-allergic rhinitis and recommended therapy with nasal steroids and the keeping of a food diary.

In the following months the patient once reported intestinal trouble (abdominal cramp-like pain and diarrhea) and another time acute urticaria after ingestion of *polenta* (corn flour cooked in water and salt).

The patient spontaneously stopped maize flour intake, thus obtaining remission of rhinitis symptoms.

At the next allergy examination, on the basis of anamnesic data, the patient underwent a skin test with maize and wheat flours and corn pollen, which gave a frankly positive result (++++ with pseudipodia) for maize flour and a negative response for wheat flour, respectively.

Measurement of the specific IgE with CAP-Pharmacia method showed the presence of 1.56 Kua/L for maize flour (f8), while wheat flour (f4) and corn pollen (g202) were negative (<0.35 KUa/L).

DISCUSSION

Maize flour has always been widely used by the populations of Northern Italy and in the past, cooked as *polenta*, it was the staple nourishing dish in this area. At present, it finds favour as a diet food product and, since it does not contain gluten, it is also suitable for the celiac patient's diet.

Maize biscuits, crackers, and pasta can easily be found on the market. Maize is also used in bakery and in a number of ready-made food products as bread-crumbs.

We report this clinical case because for years a rare type of allergy sensitization to ingestion only showed rhinitis symptoms before developing the typical symptoms of food allergy. Moreover, the signs occurred in an age (35 years) when true food allergies are unusual. Since the rare and uncertain episodes of bronchospasm appear during maize flowering (summer), it can be speculated about whether they are related to pollination(4). In the presence of the typical symptoms of allergic rhinitis with objective data of frankly allergic mucosa, the possibility of food allergy should therefore be taken into consideration.

References

1. Moneret-Vautrin D.-A., Kanny G., Beaudouin E. - Food allergy to corn, does it exist?. *Allerg Immunol (Paris)* 1998;30:230.
2. Pauls J.-D., Cross D. - Food-dependent exercise-induced anaphylaxis to corn. *J Allergy Clin Immunol* 1998;101:853-854.
3. Pastorello E.-A., Farioli L., Pravettoni V. The maize major allergen, which is responsible for food-induced allergic reactions, is a lipid transfer protein. *J Allergy Clin Immunol* 2000;106:744-51.
4. Gonzalo-Garijo M.-A., Perez-Calderon R., Munoz-Rodriguez A. - Hypersensitivity to maize pollen. *Allergy* 2004;59:365.