

Food Intolerance to Honey

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A 42-year-old beekeeper who had an inhalant allergy to Compositae pollen presented an adverse reaction while eating a honey which contained large numbers of Compositae pollens. As she was not intolerant to honeys of own production, which contained no Compositae pollen, the adverse reaction seems to be attributed to these pollens.

Key words: honey; pollen allergy.

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CLINICAL ASPECTS

Honey bees usually gather pollens from insect-pollinated plants, but some major bee pollen supplying plants are wind-pollinated, especially those of the Compositae family, and may cause reactions of allergy or intolerance when the pollens are inhaled or ingested. Honeys can therefore be eaten by pollen-allergic patients, but only when they are aware of their pollen sensitivities and when the pollen content of the honey has been characterized.

Many pollen species are known to elicit an IgE-mediated immune response in atopic individuals. Most allergenic pollens are emitted by wind-pollinating plants, although insect-pollinating plants were shown to have allergenic pollens which sensitized patients (1, 5). Anaphylactic reactions to pollens collected by honey bees and used in health foods have been reported (3, 6). In three cases the offending pollen was of the Compositae family (3) and in the other a Mesquite pollen (6).

Honey contains a large number of pollen grains mainly provided by entomophilous plants. However, honey bees may collect pollens from wind-pollinating plants and some major bee-pollen-supplying plants may also cause pollinosis. This is true for dandelion, golden rod, maple, short ragweed, walnut and willow (10). Patients allergic to these pollens and presenting hay fever or asthma can develop an adverse reaction after eating such pollens. Moreover, owing to cross-reactivities

among pollen species, some strictly insect-pollinated pollens may be allergenic when ingested. This may be the case with Acacia pollens, which were shown to cross-react with grass pollens (4). Allergy to honey has been rarely reported (8) and Strem & Stroesser (9) concluded that honey is seldom involved in an adverse reaction to food. However, many allergists do not recommend the use of honey as it can produce a harmful effect (11) the cause of which is not clearly understood.

A case of intolerance to honey is described showing that honey can be eaten by allergic subjects when they are aware of the pollen taxonomy and the cross-reactivities.

CLINICAL CASE

A 42-year-old French beekeeper, while participating in a Mexican beekeeper convention, visited a honey farm. She tasted the Mexican honey and ingested a tea-spoonful of freshly

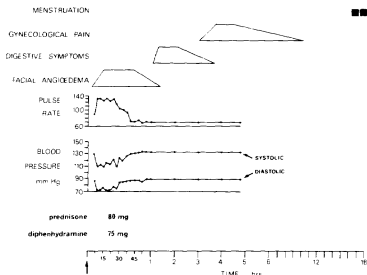


Fig. 1. Clinical case. Arrow: represents time of ingestion of the Mexican honey.

harvested honey. Within 15 min (Fig. 1) she developed an angioedema of the lips which reached a maximum within 15 min and started to decrease 1 h later. Meanwhile she had minor symptoms of anaphylactic shock associated with increased radial pulse rate (95 min, normal value: 65 min) and a slight fall in blood pressure (110/70, normal value: 135/85). These symptoms subsided promptly. The beekeeper received 80 mg prednisone and, perorally, 75 mg diphenhydramine. One hour after the ingestion of honey she developed an acute and severe epigastralgia followed within minutes by profuse diarrhea and vomiting. For 2 h she had a steady abdominal pain which resolved slowly. Three hours after the initial symptoms she complained of lower abdominal pain, and the next morning she had her menstrual period, 6 days before the predicted date.

INVESTIGATIONS

This amateur beekeeper was used to helping her husband, a professional beekeeper, and when stung had shown no symptoms of honey bee allergy, and venom skin tests or venom

Table 1
Pollen content in Mexican and French honeys

Mexican honey	%	French honey	%
Abanema	<1	Acer	<1
Acer	<1	Ailanthus	1.6
Compositae	53.7	Castanea	77.9
Cruciferae	27.7	Cruciferae	7.5
Epilobium	7.3	Gramineae	<1
Eucalyptus	4	Lecaleae	<1
Euphorbiaceae	<1	Jasione	<1
Galium	<1	Papaveraceae	1
Gramineae	<1	Papilionaceae	1
Rosaceae	<1	Rosaceae	5.9
unknown	3	unknown	2.8

specific IgE (RAST, Pharmacia AB, Uppsala, Sweden) suggested no bee venom sensitivity.

The patient could eat the honey she produced without any symptoms. As the flora of the Lyon area (Central France) differed largely from that of Central Mexico, we were able to analyse the pollen content of both honeys and found significant differences (Table 1).

The beekeeper had a Fall pollinosis and prick tests were positive according to the criteria used

in our clinic, i.e. a prick test size of over 75% of the codein phosphate positive control. Specific serum IgE (RAST, Pharmacia AB, Uppsala) was titrated, and found highly positive (RAST class 4 in the Pharmacia scoring system) for short ragweed (*Ambrosia eliator*), and some Compositeae pollens (mugwort: *Artemisia vulgaris*, dandelion: *Taraxacum officinale*). Specific serum IgE was also positive (RAST class 3 in the Pharmacia scoring system) for other Compositeae pollens (wormwort: *Artemisia absinthium*, and, oxeye-daisy: *Chrysanthemum leucanthemum*). These weeds are very common in the area where the patient lives but the beehives were situated in the Alps where these plants are less common. Skin tests and RAST showed no other sensitivity to either inhalant or food allergens.

DISCUSSION

The symptoms presented by the patient were clearly related to an adverse reaction to foods involving many organs. The cardinal feature of this observation is that the patient could eat the French honey, which contained no Compositeae pollen, whereas she developed symptoms after the ingestion of the Mexican honey rich in Compositeae pollens. An ingestant bee venom allergy is unlikely since she was not allergic to bee venom and had no bee venom IgE antibodies. As the patient was allergic to inhaled Compositeae pollens it may be considered that the clinical reaction was consistent with an immunological, IgE-mediated reaction, although similar reactions can be elicited by non-specific agents such as Na-benzoic acids, salicylates and related compounds. This finding appears similar to that of Cohen et al. (3). There were no chest or nasal symptoms during the outbreak of anaphylaxis induced by the oral ingestion of pollens. This was a not unexpected finding, since the target organ differs considerably from the target organ of inhaled pollens. A minor asthmatic reaction cannot be excluded but was not clearly observed.

Most pollens found in honey are emitted by entomophilous plants, but in some instances amphiphilous plants are the major suppliers of pollens for bees (7). Honey pollens retain their

allergenic properties, the granular structure being insufficiently altered during the natural honey-making process to enable the avoidance of allergic or adverse reactions. Moreover, it is possible that due to unexpected cross-reactions among pollen allergens (2, 12) some strictly entomophilous pollens may share antigens with those of anemophilous. This may be the case in alfalfa and red clover (Bousquet, submitted) or acacia (4) and grass pollens. Thus, a pollen-allergic patient need not avoid eating honey but he must know its exact composition and his own pollen sensitivities.

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