

ANAPHYLAXIS TO HONEY IN POLLINOSIS TO MUGWORT: A CASE REPORT

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SUMMARY: A case of anaphylaxis to honey in a 19 year old female sensitized to *Compositae* pollen is described. The patient suffered from summer rhinoconjunctivitis since seven years; in January 2006, ten minutes after eating bread and honey she developed angioedema of the lips and tongue, runny nose, cough, dyspnoea, and collapse, requiring hospitalization and treatment with high dose corticosteroids and anti-histamines. After two weeks, skin prick tests (SPT) with a standard panel of inhalant allergens and prick + prick with a number of kinds of honey were performed.

SPTs were positive to mugwort, ragweed, dandelion, and goldenrod. Concerning honey, the prick + prick was positive to "Millefiori" (obtained from bees foraging on *Compositae*) and also to sunflower, limetree, and gum tree honey, while was negative for other kinds of honey, including the frequently used chestnut honey and acacia honey.

The allergenic component responsible of anaphylaxis in this case seems to be a molecule occurring in *Compositae* pollens, as previously reported for other three reports, but also in pollen from plants of different families. Honey contains a large number of components derived from bees, such as gland secretions and wax, as well as from substances related to their foraging activity, such flower nectar and pollens (1, 2). Honey as a food has been associated to allergic reactions and particularly to anaphylaxis (3-6). Among the pollens, the role of *Compositae* is somewhat controversial, since its responsibility is clear in some studies (3, 5, 6) but considered negligible in others (7). Here we present the case of a patient sensitized to *Compositae* pollen who had an anaphylactic reaction to the ingestion of honey obtained from bees foraging on *Compositae* flowers and was tested with a number of different varieties of honey.

CASE REPORT AND DIAGNOSTIC PROCEDURES

The patient was a 19 years-old female, suffering from summer rhinoconjunctivitis since seven years; in January 2006, ten minutes after eating bread and honey (of the kind "Millefiori" produced in Italy, obtained from bees who had foraged on *Compositae* flowers) the patient developed angioedema of the lips and tongue, runny nose, cough, dyspnoea, dizziness, followed by collapse; this required hospitalization and treatment with high dose corticosteroids and anti-histamines.

After two weeks, the patient underwent to skin prick tests with a standard panel of inhalant allergens and to skin test by the prick + prick technique with a number of kinds of honey, namely Millefiori, sunflower, limetree, Eucalyptus gum tree, rosemary, heather, orange, strawberry tree, chestnut, and acacia honey.

RESULTS

Skin prick tests to aeroallergen extracts were positive to mugwort, ragweed, dandelion, and goldenrod. A commercial CAP/RAST for mugwort was positive (class 3) Concerning honey, the prick + prick was positive to Millefiori and also to sunflower, limetree, and Eucalyptus gum tree honey, while was negative for the other kinds of honey, including the frequently used chestnut honey and acacia honey.

DISCUSSION AND CONCLUSIONS

Honey contains remarkable amounts of pollens, estimated in up to 100.000 grains in 10 grams (10), and this accounts for a role of pollen allergens in causing the allergic reactions to honey, which however are very rare, being available only a few reports on this issue. The importance of pollen allergens is confirmed by their identification in immunoblotting studies. In particular, in the study by Bauer *et al.* IgE binding to proteins at a molecular mass of 30-33 kd, 54 kd, 60 kd, and 72 kd, to both sunflower and honey extracts were found (9). The

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three bands corresponding to higher molecular mass proteins could also be observed in three other kinds of honey (locust tree, European chestnut and forest honey), while the 30 kd/33 kd bands could be identified as sunflower honey-specific. More recently, Lombardi *et al.* detected in both honey and mugwort extract a component at about 50 kd by serum IgE from patients allergic to honey (6). These observations outline the important role of *Compositae* pollen in allergic reaction to honey, though the factors determining such clinical reactivity are unknown. A study reported that double-blind challenges with honey in 46 patients with pollinosis were unable to find clinical reactions (7), but the number of challenged patients was too small to observe a so rare clinical syndrome. Indeed, our data confirm the association between respiratory allergy to *Compositae* and anaphylaxis to honey containing their pollen. The prick + prick technique may represent a simple method to rule out such risk in subjects sensitized to *Compositae*.

In any case, our finding of positive skin reactions to honey obtained from plants unrelated to *Compositae*, such as limetree - belonging to *Myrtaceae* - and

Eucalyptus - belonging to *Malvaceae* - claim for further in vitro investigation on cross-reactivities in pollen-honey allergy.

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