

Coexistence of Type I and Type IV sensitization in occupational coffee allergy

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Case Report

In February 1996, a 33-year-old technician, who had been working in a coffee roastery for 4 years, presented with occupational rhinoconjunctivitis and eczema of the hands and face, both having been present for 9 months. He had had seasonal rhinoconjunctivitis since he was 14 years old and was a smoker. Skin prick test was positive to green coffee bean, grass and birch, and negative for raw coffee dust and all forms of roasted coffee (roasted coffee bean, roasted coffee dust, roasted coffee powder, coffee drink), *Dermatophagoides pteronyssinus* and *D. farinae*. CAP-*FEIA* (Pharmacia, Freiburg, Germany) showed a total IgE of 52 kU/l, specific IgE of 7.1 kU/l for green coffee bean and 38 kU/l for *D. pteronyssinus*; it was negative for roasted coffee bean, castor bean, *D. farinae*, *Acarus siro* and moulds. A slight bronchial hyperreactivity was shown by methacholin provocation. Patch tests were positive at 1, 2 and 3 days to green coffee bean (+/+ /++) and roasted coffee dust (+/+ /+), showed an irritant reaction to roasted coffee bean and raw coffee dust (+/? /-), and negative to roasted coffee powder, coffee drink and a standard series of contact allergens, including fragrance. Patch tests in 10 healthy controls showed 2 irritant reactions to roasted coffee dust (+/? /-), but no reactions to all other forms of coffee tested.

Discussion

Allergic rhinoconjunctivitis from green coffee bean has been described in up to 40% of coffee workers (2, 7). Atopic individuals and smokers, 2 factors in our patient, seem to be at risk for sensitization (5). Other allergies to coffee in different forms have been described: rhinoconjunctivitis from contact with the leaf of the coffee plant (1) contact from roasted coffee dust and coffee drink (8), mucosal lesions in the mouth from instant coffee (9), urticaria (2) and anaphylactic shock (6) from ingestion of coffee drink. Our patient showed Type I and Type IV sensitization to green coffee bean and Type I sensitization to roasted coffee dust. No combined Type I and Type 4 sensitization to coffee has been reported previously.

The allergen responsible for coffee allergy is still unknown; in allergic rhinoconjunctivitis, it seems to be present only in green coffee bean and is destroyed in roasted coffee. Castor beans (a possible pollutant in transportation devices) and chlorogenic acid were suspected, but could not be confirmed as involved (3–5). Allergic contact dermatitis due to green coffee bean could possibly be related to the same allergen as in Type I sensitization, corresponding to an IgE-mediated Type IV reaction. However, as is known for latex, 2 different allergens might be responsible for Type I and Type IV sensitization. The allergen involved in allergic contact dermatitis from roasted coffee might be generated in the roasting processes. The complex chemical composition of coffee and the rarity of coffee allergies make identification of the responsible allergens very difficult.

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