

Anaphylaxis in an infant caused by menthol-containing cologne

To the Editor,

Severe allergic reactions to cologne or perfumes are rarely reported. Perfumes or colognes may aggravate respiratory symptoms in patients with asthma and they are also targeted as one of the most common causes of cosmetic allergic contact dermatitis.^{1,2} However, there is only one case of anaphylaxis to perfume reported in the literature.² We report the case of an infant who developed anaphylaxis after application of cologne to his face by his mother.

An otherwise healthy 2-month-old infant was admitted to the emergency department due to facial oedema, shortness of breath and cyanosis after application of menthol-containing cologne to his face. On physical examination, oedema of face, eyelids and lips and urticarial lesions on cheeks were noted. Cyanosis and respiratory distress were apparent. He was treated with intramuscular epinephrine, methylprednisolone, diphenhydramine and nebulised salbutamol. He was hospitalized for observation and discharged after his urticarial lesions and angioedema regressed. He had no history of wheezing, allergies or reactions to soap, perfumes or fragrances. There was no family history of atopy. The parents refused any diagnostic evaluation with the cologne or mint/menthol products. Avoidance of menthol-containing products was recommended to the parents.

Anaphylaxis is a severe life-threatening systemic allergic reaction that occurs suddenly after contact with an allergy-causing substance. To our knowledge, this is the first case of anaphylaxis caused by cologne in an infant. There has been only one case of anaphylaxis to perfume spray reported in a health-care worker.² One might think that reactions by cologne or perfume may be due to chemoreceptors. But as respiratory symptoms are concerned in the previous and in our case, we think that the mechanisms of these reactions are IgE-mediated although this has not been proven. In our

case, cologne might also enter systemic circulation quickly because of the thin skin of the infant besides its odour and mucosa related effects.

There are allergic reactions to menthol (cyclic alcohol derivative of mint) reported in the literature. Immediate hypersensitivity reactions to menthol ranges from urticaria and rhinitis to asthma.³⁻⁵ Anaphylaxis induced by menthol containing toothpaste has also been reported recently in a metamizol allergic woman.⁶

This is a rare case of an infant with anaphylaxis to menthol containing cologne. It emphasizes the possibility of an allergen in a form of cologne and investigation of the contents could lead to the diagnosis in relevant cases.

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Anaphylaxis to olive fruit due to lipoprotein sensitization

To the Editor,

The olive tree (*Olea europaea*) belongs to the oleaceae family, native to the coastal areas of the eastern Mediterranean. The olive is a small, large-pitted, firm fruit of *Olea Europaea* and is a major component of the agriculture and gastronomy throughout Mediterranean countries. That is the reason why olive pollen is a very important cause of respiratory allergic reactions in this area.

Olive fruit is also used as the raw material to obtain olive oil, which has been implicated in allergic contact dermatitis, contact urticaria and allergic airway disease due to inhalation of olive particles.

However, food allergy due to olive fruit is a rare pathology described in the literature, despite widespread consumption.

We report the case of a 21-year-old woman with a history of house dust mite allergic rhinitis and asthma treated with sublingual immunotherapy. When she was 16 years old, a left lung pneumonectomy was carried out, because a benign endobronchial tumour was found. After surgery no more lesions were detected.

Last year, the patient reported three episodes of oropharynx and palms itching, cough and dyspnoea, a few minutes after eating a snack with onion, gherkin, red pepper and olive. These symptoms subsided with b2-agonists and antihistamines some hours later. She did not have a history of food allergy and tolerated other foods.

Skin prick tests (SPT) were performed with a battery of common aeroallergens (dust mites, dog and cat epithelium, *Alternaria alternata*, *Aspergillus fumigatus*, *Plantago lanceolata*, *Parietaria judaica*, *Cupressus arizonica*, latex, *Lolium perenne*, *Olea europea*, *Betula verrucosa*, *Pinus radiata*, *Platanus acerifolia*) and different foods. Prick-by-prick with the fresh food implicated in the allergic reaction (onion, gherkin, red pepper and olive) was also done.

Skin prick tests were positive to different mites (*D. pteronyssinus*, *L. destructor* and *T. putrescentiae*) and negative to pollens (including olive pollen). Prick-by-prick with olive fruit (raw material) gave a positive result with a wheal of 25 mm × 20 mm, and the patient suffered a general skin itching that improved with antihistamines. Five control subjects showed a negative test with olive fruit.

Since the patient suffered allergic reactions after olive fruit ingestion, she avoided olive oil for cooking at home and in restaurants, but she did not remember any problem with it. Prick-by-prick with olive oil was 6 mm × 6 mm and the patient felt general itching.

Total and specific IgE to aeroallergens, including olive pollen, and different food allergens (olive fruit included), were determined with the enzymatic method (Pharmacia Immuno-Cap System, Uppsala, Sweden).

Total IgE was 2534 kU/L and specific IgE ((Pharmacia Immuno-Cap System, Uppsala, Sweden) was >100 kU/L to *D. pteronyssinus*, *L. destructor* and *T. putrescentiae* and negative to pollens and foods.

A SDS-PAGE followed by immunoblotting with the patient's serum was also carried out.

Proteins from the water-soluble fraction and oil body fraction were transferred to a PVDF membrane to analyse them with the above-mentioned analytical technique (Figure 1). The proteins were obtained by olives ground with glycerol/phosphate saline buffer and extracted using Chloroform/Methanol prior to using acetone solvent.

Immunoblotting with the patient's serum revealed different IgE-binding bands with 14.4, 20.1, 30 and 45 molecular weights, detected in the lipid-soluble fraction isolated from olive fruit. No IgE-binding bands were detected in the water-soluble fraction.

The most abundant oil body-associated proteins belong to the oleosin family, and much of the oil body surface may be covered by oleosin. Oleosins are alkaline proteins of 15–30 kDa.

Olive pollen is one of the most important causes of respiratory allergy in the Mediterranean area. The patients, who suffer from olive pollinosis, can simultaneously present allergy to vegetable foods like peach, pear, kiwi, melon and nut, due to cross-reacting proteins. Ole e7 has been associated with fruit anaphylaxis and anti-profilin IgE was detected in 90% of patients with oral syndrome. Recently a new pollen-food syndrome (olive-olive) has been reported, in a patient with olive pollinosis and food allergy to olive fruit with a positive result in prick-test and specific IgE with CAP system.¹

Olive oil has been frequently implicated in allergic contact urticaria or dermatitis. Most patients are sensitized by topical treatments and only few cases of occupational allergic contact dermatitis have been described in pedicurist, masseur, pizza maker and beautician.^{2–4}

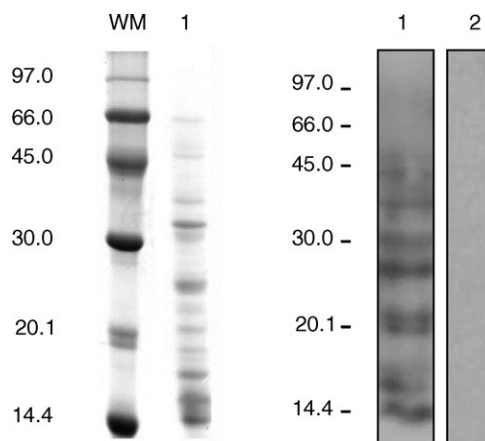


Figure 1 SDS PAGE: Lane 1, lipophilic fraction from olive fruit. IgE-immunoblotting: Lane 1, patient's serum. Lane 2: atopic serum.

Despite widespread consumption, olive fruit only uncommonly induces food allergy. Previously two cases of olive fruit allergy without pollinosis and good tolerance of olive oil have been reported, where specific IgE to olive fruit has been found with CAP system or immunoblotting.^{5,6}

Only one olive fruit allergen has been sequenced, two years ago. It was a 23 kDa allergen which showed homology to allergenic thaumatin-like proteins (TLPs) from plant foods and pollen, implicated in a case of occupational rhinitis and asthma due to the inhalation of particles from olive oil in an olive-oil mill worker.⁷

We describe a patient without pollen allergy who suffered anaphylactic reactions after olive fruit eating, where the skin prick test and immunoblotting suggest an IgE-mediated food allergy maybe caused by lipoproteins from olive fruit. Immunoblotting with the patient's serum revealed different IgE-binding bands with 14.4, 20.1, 30 and 45 molecular weights, detected in the lipid-soluble fraction isolated from olive fruit. No IgE-binding bands were detected in the water-soluble fraction, and that is perhaps the reason why specific IgE with CAP system was negative.

Most plant food allergens belong to a few protein families and superfamilies and new families of storage and structural proteins have been added in the last years.⁸ Recently peanut and sesame oleosins have been suggested as new allergens. Oleosins are proteins of 16–24 kDa that represent the protein components of plant lipid storage bodies called oil bodies.^{9,10} Olives are high in monounsaturated fat, and maybe oleosins are presented in oil bodies fractions from these fruits. For that reason we consider our patient to be sensitized to this protein subfamily among others (most allergens are obtained through hydrosoluble methods, which remove the lipid derivatives from the allergenic extract).

These proteins have never been tested before because of their unknown allergenic properties, which are as relevant as hydrosoluble proteins.

In conclusion, the possibility of lipoprotein sensitization to olive fruit and other vegetable foods must be taken into consideration, especially in food allergy when specific IgE with CAP system is not found.

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