

Allergy to yucca

G. Munno, F. Giannocco, G. Riva, L. Antonicelli*

Key words: contact urticaria; IgE-mediated hypersensitivity; Liliaceae allergy; yucca.

• CONTACT dermatitis and IgE-mediated reactions to decorative plant species (hyacinth and easter lily) and after inhalation and/or ingestion of Liliaceae family plant foods (salsaparilla, garlic, asparagus, and leek) have been previously described (1–8). The Liliaceae family contains about 3700 species and 250 genera (1).

Urticaria and rhinoconjunctivitis caused by yucca leaves.

We report a case of acute urticaria and rhinoconjunctivitis induced by contact with airborne particulates of yucca leaves, associated with immediate skin reactions and specific IgE antibodies. Yucca (*Yucca filamentosa*), a plant of the Liliaceae family, is native to Central America, but is very well adapted to Italy, where it is common as a decorative indoor and outdoor plant.

A 38-year-old male nurse reported slight angioedema of the eyelids, urticaria, and itching of the face in his garden while working very close to a yucca plant. A month later, he suffered from an outbreak of acute urticaria-angioedema of the face and the neck and rhinoconjunctivitis after trimming a yucca plant. Prompt treatment with antihistamines and steroids I.M. relieved the symptoms. After this episode, he had no further contact with this plant.

Two years later, when he was studied for this reaction, his case history was negative for inhalant or food allergic diseases, as was the skin prick test

with a large panel of inhalant and food (such as onion, garlic, and asparagus) commercial extracts (Lofarma Milano, Italy) was negative. The prick by prick test was performed with raw yucca leaves and flowers of yucca in our patient and in 10 controls (six atopic and four nonatopic); saline solution and histamine (10 mg/ml) were used as negative and positive controls, respectively. A wheal at least 3 mm larger than the negative control was considered to be positive. The prick by prick test with yucca leaves, but not flowers, elicited a strong wheal and flare reaction in our patient (8 mm), but both were negative in the control subjects.

Serum total IgE was 52 kU/l (CAP System, Pharmacia, Sweden). Specific IgE to yucca leaves was detected with RAST, which was performed with the commercial kit Sferikit IgE (Lofarma SpA, Milan, Italy). The solid phases were polystyrene beads sensitized with an extract obtained with yucca leaves and yucca flowers.

The allergenic extract was especially prepared at 5% w/v in PBS (0.15 M), pH 7.2, by the following procedure:

- 5 g of yucca leaves or yucca flowers in 100 ml of PBS
- extraction overnight at room temperature with stirring
- centrifugation at ~25 000 g for 15 min
- supernatant prefiltered and dialyzed against PBS containing Thimerosal in a tube with cutoff of 3500 Da at 4°C for 24 h
- filtration with 0.8-µm Millipore filters.

With this extract, the solid phase was prepared, and we detected specific IgE to yucca leaves in the patient's serum: a positivity of class 2 was obtained, and the IgE content was 3.4 RAST AU (arbitrary units). No positivity was obtained with yucca flowers.

The patient's IgE reactivity to both yucca leaf and flower extracts was assessed by immunoblot. There was no specific IgE-binding by immunoblotting, because of the very low level of specific IgE, probably due to the length of the time that elapsed (2 years) between the reaction and the study of the patient.

The clinical findings and the results of the tests performed in our patient support an IgE-mediated mechanism underlying the reaction (contact urticaria and rhinoconjunctivitis) after exposure to airborne yucca leaf particulates.

The patient was not atopic (skin test negative for common inhalant and food allergens) nor did he show allergenic cross-reactivity with the Liliaceae family foods (onion, garlic, and asparagus) very common in the Mediterranean diet.

To the best of our knowledge, this is the first description of an allergic reaction to yucca.

The major role of airborne leaf particulates in inducing reactions may represent an occupational risk factor for florists, floriculturists, and gardeners who handle and, in particular, trim these plants.

*Dipartimento di Malattie Respiratorie ed Allergiche
Ospedale Umberto I°
Ancona
Italy

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Phenoxyethanol-induced urticaria

S. Bohn, A. J. Bircher*

Key words: contact allergy; Euxyl K[®] 400; phenoxyethanol; preservatives; urticaria.

● PHENOXYETHANOL (PE) is a preservative added to cosmetics and pharmaceuticals such as antibiotic ointments and solutions, ear-drops, and vaccines (1). PE is used as a single agent and in combination with other preservatives such as 1,2-dibromo-2,4-dicyanobutane (Euxyl K[®] 400) and parabens, or in conjunction with quaternary ammonium compounds. Despite its widespread use for many years, contact allergy to PE has been very rarely described (2, 3), as its sensitizing potency appears to be very low (3–5). To our knowledge,

this is the first report in the literature of an immediate hypersensitivity reaction to PE.

A 24-year-old Asian woman suffered her first episode of acute urticaria 1 h after eating papaya salad.

Four days later, she again experienced generalized urticarial exanthema just after taking a shower, while applying a recently bought body lotion. She had never suffered from aquagenic or any other physical urticaria. She had no history of atopy or previous allergic reactions to food or drugs. She had been taking oral contraception with the same preparation for many years. She did not take any other drugs.

Skin prick tests with common aeroallergens were all negative. The prick test with fresh papaya was negative. Prick test with the body lotion gave a +++ reaction (Histamine: ++). In an open application test with the single ingredients of the body lotion and with papaya for 30 min we found a strong wheal reaction with pseudopods to PE. Tests with all the other ingredients and with papaya were negative. The prick test with Euxyl K 400 1% in pet. and with a dilution series of PE resulted in a ++ reaction to Euxyl K 400 and in a + reaction to 1% PE, +to 5% PE, and ++ to 10% PE. The same tests in control persons ($n=2$) gave negative results. The single components of the body lotion (except PE) were negative also in the patch test. A serum sample from the patient was tested for IgE antibodies against PE with experimental prototype reagents. The test could not confirm the presence of IgE against PE. Total IgE were slightly elevated at 75.10 kU/l. Specific IgE to papaya was negative. We observed an immediate reaction to PE with contact urticaria to a body lotion containing PE 1%. The strong +++ wheal reaction to the body lotion is not

Immediate hypersensitivity to a body lotion.

completely consistent with the results of the dilution series with PE. The reason for this difference might be the vehicle. The dilution series were performed in an aqueous solution, by which the percutaneous penetration and absorption might have been lowered. The exact pathogenesis remains unclear. Both an IgE-mediated mechanism and nonimmunologic contact urticaria are possible in our case. Since PE is a hapten, protein-binding and elicitation of symptoms within a few minutes are unlikely, suggesting a nonimmunologic pathogenesis.

PE is a clear, aromatic, slow-evaporating, viscous liquid. It is compatible with most cosmetics, stable in extreme conditions, and nontoxic. The antimicrobial properties of PE cover a wide spectrum against Gram-positive and Gram-negative bacteria, particularly *Pseudomonas aeruginosa*, as well as against yeasts. Therefore, it is a highly effective preservative in pharmacy and cosmetics (6). According to the EEC guidelines, the maximum allowed concentration of PE in cosmetics is 1%. This is also the patch test concentration for PE. The only two other reported cases in the literature of PE sensitization with a clearly clinical correlation were delayed-type hypersensitivity. Lovell et al. reported on a 53-year-old man with hand eczema caused by PE in an aqueous cream. Patch tests were positive to 1% PE, and the eczema improved with avoidance of the cream (3). Vogt et al. observed an 18-month-old boy who developed generalized eczema within 24 h after administration of a DPT (diphtheria, pertussis, tetanus) vaccine. Patch tests with the individual components of the vaccine gave a positive result to PE 2% pet. (2).

Hypersensitivity, immediate or delayed-type, to PE should be considered a very rare cause of adverse reactions to cosmetics, toiletries, or pharmaceuticals.

*Allergy Unit
Department of Dermatology
University Hospital