

Anaphylaxis to a pine caterpillar

PINE processionary caterpillars (*Thaumetopoea pityocampa*) cause considerable damage to forests and also cause contact dermatitis, conjunctivitis, and, rarely, respiratory signs in animals and people (1). This report describes a pine-forest worker with an IgE-mediated anaphylactic reaction caused by pine processionary caterpillars.

■ A 41-year-old male pine-forest worker was admitted with a history of a sudden onset of

A case of severe, IgE-mediated occupational allergy to the pine processionary caterpillar,

Thaumetopoea pityocampa.

he had complained of rash and conjunctivitis for several years, but these symptoms appeared only in association with his work. On physical examination, his blood pressure was 80/50, and the patient had tongue edema and a generalized rash, although it mainly involved the neck. Chest radiography, electrocardiogram, and physical examination were normal. He received 1 mg of subcutaneous epinephrine, as well as methylprednisolone and dexchlorpheniramine, both intravenously.

■ Pine processionary caterpillars were collected from pine trees. Extracts of whole caterpillars, feces, and silk from the nest were prepared by maceration in phosphate-buffered saline (PBS), 1/10 w/v, for 24 h (constantly shaking), centrifuged for 15 min at 15 000 g, and sterilized by filtration. The extracts were stored at -20°C and tested in 38 subjects (atopics and nonatopics) as a specific control.

itching rash that started in the neck and then extended to the whole body, with tongue edema, shortness of breath, weakness, blurred sight, and nausea. He said he had disturbed caterpillar nests while knocking pine cones down with a long pole. The patient was nonatopic although

SDS-PAGE of the different extracts was performed in 16% acrylamide minigels. Specific IgE detection by immunoblotting was performed by a diffusion method, as previously described (2).

■ Total IgE was 110 kU/l. Skin prick tests to pollens, molds, and mites were negative. The patient had a positive skin prick test result with the caterpillar extract (10 mm diameter); the test was negative in control subjects. Specific IgE to common pollens was weakly positive to *Salsola kali* and *Chrysanthemum maximum* (class 2). SDS-PAGE of the caterpillar whole extract revealed the presence of several bands of 10-200 kDa. Feces and silk extracts had insufficient protein content. IgE immunoblotting (Fig. 1) detected in caterpillar extract two reactive bands with apparent mol. wt. of nearly 25 and 35 kDa, respectively. Nonspecific IgE to the feces and silk extracts was found. Thirty-eight control sera gave negative results.

T. pityocampa has a recently described hair protein: thaumetopoein (3). This protein has a direct effect on mast cells, leading to an IgE-independent degranulation (4). This fact explains

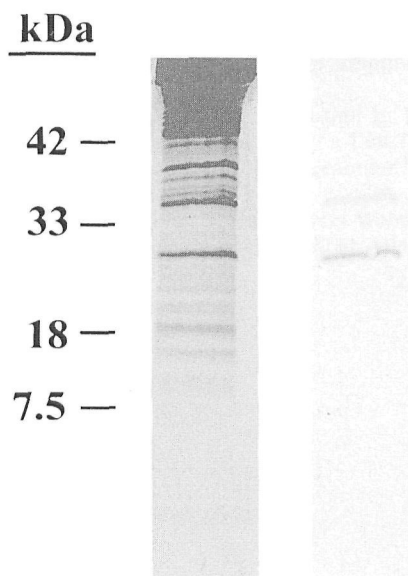


FIGURE 1 SDS-PAGE (16% acrylamide) (left lane) and IgE immunoblotting (right lane) with whole processionary caterpillar extract. Two IgE-binding protein bands were detected by patient's serum.

the urticating properties of these caterpillars. An IgE-mediated mechanism of hypersensitivity to these caterpillars has been demonstrated in only one study in 21 pine-forest workers (5). Specific IgE antibodies directed against pine processionary and oak processionary caterpillars assayed by ELISA were detected in four of the 21 samples studied by these authors. Three out of four positive samples had significant levels of IgE directed against purified thaumetopoein and, in Western blotting, each of the four sera had IgE-reactive bands with a pine processionary caterpillar extract. The reactive sera recognized thaumetopoein (28 kDa) and a 45-kDa protein. Our work is the second study to demonstrate the presence of IgE directed against pine processionary caterpillar antigens and the first description of an IgE-mediated anaphylactic reaction to these caterpillars.

In our department, we see some patients with cutaneous/ocular symptoms after several hours of walking in a pine forest without direct contact with caterpillars. These symptoms do not appear in other equally exposed accompanying persons. Moreover, *T. pityocampa* urticating hairs should be considered important airborne insect allergens (4); further research with this new allergen, particularly in pine-forest workers, is necessary.

Key words: anaphylaxis; caterpillar; occupational allergy; *Thaumetopoea pityocampa*.

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Accepted for publication 1 July 1997

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ALLERGY 1997;52:1244-1245

ACKNOWLEDGMENT

The study was supported by a grant from the Fundación de la Sociedad Española de Alergología e Inmunología Clínica.

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Oral allergy syndrome induced by spinach

SPINACH (*spinachia*) is a vegetable of the Chenopodiaceae family. Other members of this group are beet and chard. IgE-mediated allergy to spinach has been previously described, although there are only a few reported cases (1).

■ We present a 48-year-old woman who showed an episode of tongue itching and lip edema, 5 min after eating spinach cooked at home. One month later, she developed uvular edema, oropharyngeal itching, and facial angioedema while eating fresh spinach. Previously, she had readily tolerated spinach and other vegetables. She had no family or personal history of atopy.

Prick tests for the most common inhalant and food allergens other than Chenopodiaceae

were negative. Cutaneous tests with spinach and other members of the Chenopodiaceae family showed the following results:

A case of oral allergy syndrome due to spinach is presented; cross-reactivity with chard was demonstrated.

Food	Method	Resulting wheal (mm)
Spinach (commercial extract)	Prick	10×16 with pseudopods
Spinach (fresh)	Prick-prick	8×10
Chard (commercial extract)	Prick	6×9
Chard (fresh)	Prick-prick	4×8
Histamine	Prick	4×5

The total IgE level was 466 IU/ml, and the specific IgE level for spinach (CAP System) was 2.62 kU/l (class 2). The oral challenge test with chard was negative.

■ Oral allergy syndrome (OAS) is a type of food allergy resulting from direct contact between food and oral mucosa. It seems to be related to the very high concentration of mast cells in the oropharyngeal mucosa, leading to a wide interaction between allergen and specific IgE bound on the mast-cell surface (2).

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