to landslides, thanks to its robustness and its capacity to generate a great number of radical sprouts. The spreading of *Ailanthus* in Cagliari's district has led to high concentration of its pollen grains in April–June, as detected by the pollen trap. Although *Ailanthus* was mentioned in two ancient books of allergology (1, 2), has been ignored in the recent literature. The possible sensitization to *Ailanthus* pollen in patients suffering from allergic symptoms (rhinitis, asthma and conjunctivitis) in this season, which corresponds with the presence of many other pollens (grass, olive, *Parietaria*, plantain, amaranth) has been investigated. The pollen was collected from *Ailanthus* female trees in the Cagliari province, extracted overnight at 5% w/v in phosphate-buffered saline (PBS), centrifuged, the surnatant filtered on Millipore membranes and dialysed. The antigen was covalently bound to solid-phase polystyrene balls and tested by standard radioallergosorbent test (RAST) procedure (reagents Sferikit®, Lofarma SpA, Milan, Italy) with the sera of 54 randomly selected patients with allergic symptoms in April–June 2001. The same pollen was used to prepare a diagnostic extract for skin-prick testing according to standard procedure. The 54 patients were skin-prick tested with *Ailanthus* extract and other common commercial extracts (Lofarma SpA, Milan, Italy). Forty-two patients tested RAST-positive to common allergens, 10 tested RAST-positive also to *Ailanthus* extract, in class 1 or 2. The 10 *Ailanthus*-positive patients were skin-prick positive to other allergens also: six to *Dermatophagoides*, eight to grass, seven to *Parietaria* and six to olive pollen. Specific-IgE by RAST were positive in seven of 10 *Ailanthus*-positive patients, six in class I and one in class II.

These results suggest the possibility that a cross-reaction between *Ailanthus* and other pollens could explain the constant multisensitization observed in *Ailanthus*-positive patients.

In conclusion, the pollen of *Ailanthus* needs to be considered as a possible allergenic source, and its extract should be introduced in the diagnostic screening panels in areas where this tree is widespread.

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Egg allergy – to be or not to be boiled

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Key words: anaphylaxis; egg allergy; ovomucoid; raw egg; tolerance.

Children are frequently afflicted by food allergy. Hen's egg is among the most commonly implicated food, representing the second cause (30%) of food allergy in our outpatient clinic (1). Egg allergy usually decreases with age. However, anaphylactic reactions to raw eggs after negative challenges with cooked eggs have been described (2). In this report, four such cases have been verified.

Children presenting anaphylactic reactions to raw eggs while tolerating cooked eggs.

Case 1. This patient was a 5-year-old boy, with asthma and rhinitis. His first contact with egg, at 8 months, was followed by angioedema and generalized urticaria. The skin prick test (SPT) to egg was positive. He followed an exclusion diet until the age of 3 years when an open challenge with boiled egg was performed; its result was negative. Egg was introduced in his diet and there were no reports of reactions until 2 years later when, after eating scrambled eggs not properly cooked, he developed a generalized urticaria and labial angioedema.

Case 2. This patient was an 8-year-old boy, with a history of cow's milk allergy, atopic dermatitis, asthma and rhinitis. As sensitization to egg was identified by SPT, this food was strictly avoided. An open challenge with boiled egg was performed when he was 6 years old, which was negative. Later, although eating cooked eggs without any problem, he ate a dish containing raw egg, developing an anaphylactic reaction with laryngeal angioedema.

Case 3. This patient was a 3-year-old boy, with cow's milk allergy and atopic dermatitis. He had eaten cooked eggs since the first year of life with no symptoms, although he had a SPT positive to egg white. At 19 months of age, and after the ingestion of raw eggs, he developed generalized urticaria. He continues to eat boiled eggs without any reactions.

Case 4. This patient was a 9-year-old boy, with atopic dermatitis, asthma, and rhinitis and had fish, peach and nut allergy. He ate scrambled eggs for the first time at 8 months of age, developing urticaria and labial angioedema. SPT to egg was positive. This food was withdrawn from his diet until the age of 2.5 years; then, an open challenge with boiled egg was performed, which was negative. The food was allowed in his diet. Later, at 4 years of age, labial angioedema and facial urticaria was reported after the ingestion of raw egg.

These reports show that a negative follow-up challenge with cooked eggs is not a guarantee that complete tolerance has been achieved. Contrary to what was thought earlier, the major egg allergen, ovomucoid, is thermolabile, leading to a reduced IgE binding to its denaturated form (2), which can explain the described reactions. Nowadays, in our hospital, sequential challenges with cooked and raw eggs are performed, which allows the verification if tolerance has been achieved. If the food is tolerated only in its cooked form, the parents can be advised to strictly avoid meals containing raw eggs and give eggs well cooked. This advice goes to cases of mild to moderate reactions; if severe reactions occurred, avoiding eggs in all its forms is

recommended. This attitude raises several questions. Are we delaying the complete immunologic tolerance to egg proteins? On the contrary, can this measure favour acquisition of oral tolerance? More studies are necessary to completely answer these questions.

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Corn-induced hypersensitivity pneumonitis

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Key words: corn flour; flow cytometry; hypersensitivity pneumonitis.

We studied a 50-year-old male farmer, non-smoker, who had worked harvesting corn for 17 years. For the last 4 years, he had recurrent episodes of fever, dyspnea and chest pain during the corn harvest season, 4–5 h after corn dust exposure. The patient associated these symptoms with the handling of corn and showed marked relief when exposure to this material was avoided. Several corn samples were sent to our laboratory by the patient. These samples were ground to obtain a very thin dusty material and 5 g were extracted by magnetic stirring in 50 ml of phosphate-buffered saline (PBS, pH 7.3), for 24 h, passed through filter paper, dialyzed against PBS for 24 h, and then filtered through a 0.22 μM Millipore filter for sterilization. Different samples of corn provided by the patient were studied in order to identify the presence of microorganisms: *Penicillium* sp., *Fusarium* sp., and *Rhizopus* spp. were able to be isolated. Double immunodiffusion tests for precipitin antigens were performed according to Ouchterlony's method (1). Precipitation bands were shown between our patient's serum and *Aspergillus fumigatus*, *P. notatum*, *P. nompactum*, *P. brevicompactum*, *P. roqueforti*, the corn extract and corn flour extracts. Specific IgG antibodies against *A. fumigatus*, *P. notatum*, *A. alternata*, *C. herbarum* and corn flour extracts were also found in the patient's serum using the ELISA method. Pulmonary inhalation provocation test (PIPT) was performed with the corn extract at 1/10 p/v, following the method previously described (2). Five minutes after PIPT, a bronchoconstriction reaction was detected. Four hours afterwards, the patient suffered clinical symptoms similar to those reported in his occupational environment. The patient presented a significant decrease in PaO_2 from baseline blood gas and marked leukocytosis 6 h after PIPT. Spirometric values are expressed in Fig. 1. Twenty-four hours after PIPT, bronchoalveolar lavage (BAL) studies and transbronchial biopsy were carried out. The histopathological examination of transbronchial biopsy specimens revealed interstitial alveolitis with lymphocyte-macrophage infiltrate. The lymphocytes included in the BAL were subtyped according to their expression of different surface markers. For this purpose, all cells in the BAL were washed in saline and stained with fluorochrome-conjugated monoclonal antibodies, specific for the different surface markers, prior to their analysis in a FACScan flow cytometer. By means of flow cytometry, we obtained the following results: lymphocytes, 19.5%; mean CD4/CD8, 1.3; natural killer cells, 6.6%; B lymphocytes, 2.4%; neutrophils, 29%; monocytes/macrophages, 5.5% and eosinophils, 2%. We have described a case of hypersensitivity pneumonitis (HP) caused by corn reported by our patient. His clinical history suggested a possible subacute form of HP. We have found precipitating antibodies in the patient's serum using diffusion techniques and ELISA IgG. Also, we performed the PIPT with the corn extract supplied by our patient. BAL fluid revealed an acute inflammatory infiltrate with prevalence of neutrophils and lymphocytes, an increase of the CD8 subpopulation and a decreased CD4/CD8 ratio compared with the normal population. There is only one case described in the medical literature of HP caused by corn contaminated with *A. flavus* (3). No pulmonary functional

Corn flour: a new allergen related to hypersensitivity pneumonitis.

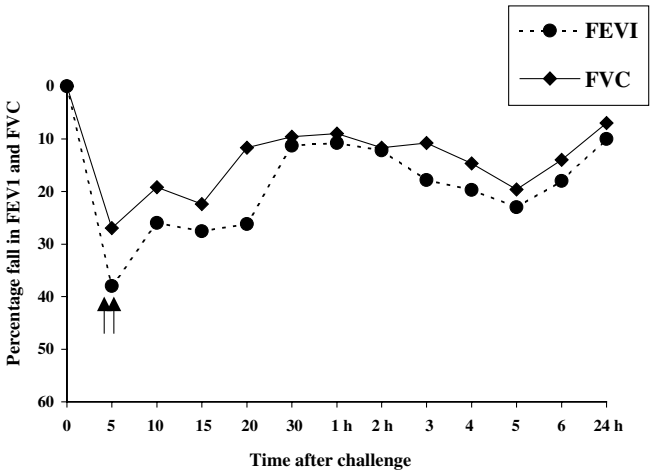

Figure 1. Five minutes after PIPT, a bronchoconstriction reaction was detected. Two puffs of salmoterol were given to the patient. Arrows indicate salbutamol inhalation (400 μg).