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RESEARCH LETTERS

Food allergy to spinach in an infant

To the Editor,

Allergy to certain food in the early months of life, such as cow's milk proteins, eggs, fish or legumes, is widely documented and relatively frequent. However, in young children IgE-mediated allergy to other foods such as spinach is uncommon and scarcely published. The importance in the proof of this food allergy lies in the avoidance and cross-reactivity studies.

Spinach is the common name of the species *Spinacea oleracea*, *Spinacea* gender from the family Chenopodiaceae. This family also includes chard and beets, of the *Beta* genus, and some species whose pollens are well known to be allergenic, such as *Chenopodium album* and *Salsola kali*.

We report a case of a male patient aged 18 months who consulted for the eruption of a perioral rash and generalised urticarial reaction, no anaphylaxis, after the ingestion of different foodstuffs, including spinach, potato and chicken puree. Skin prick test was performed with positive results (> 3 mm over the negative control) with extracts from eggs, fish, lentils, chickpeas, carrots, spinach, chard, beet, and *Chenopodium album* pollen. Oral challenge tests to chicken and potatoes were performed, with negative results for both foods. Prick-by-prick test with raw and boiled spinach showed positive results. We determined the level of specific IgE by EAST (Enzyme AllergoSorbent Test) to extracts of spinach, chard, carrot, and pollens of *Chenopodium album* and *Salsola kali*, obtaining values below 0.35 kU/L, but higher than those obtained with a negative control serum (pool of sera from non-atopic subjects). The molecular mass of the IgE binding bands shown by means of SDS-PAGE immunoblotting assay was 63.5 kDa, 43.5 kDa and 39 kDa. (Fig. 1. Lane 1)

We performed a SDS-PAGE immunoblotting inhibition assay using spinach extract in solid phase and chard, beet, and mushroom extracts as inhibitors. The extracts from chard and beet produced a total IgE binding inhibition whereas the mushroom extract produced no inhibition at all. Therefore, in the patient serum there are specific IgE that cross recognise proteins from the spinach, beets and chard extracts but none from the mushroom extract (Fig. 1).

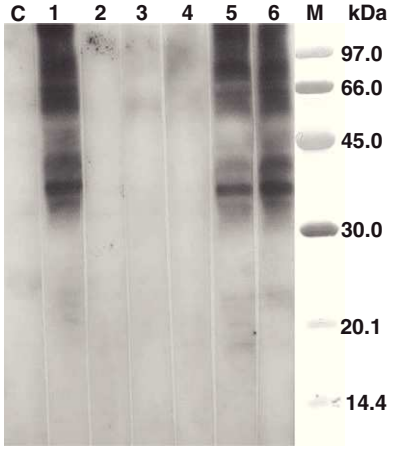

Figure 1 SDS-PAGE Immunoblotting inhibition. Spinach extract in solid phase. Lane 1: Patient serum; Lane 2: Patient serum previously incubated with spinach extract; Lane 3: Patient serum previously incubated with chard extract; Lane 4: Patient serum previously incubated with beet extract; Lane 5: Patient serum previously incubated with mushroom extract; Lane 6: Patient serum previously incubated with lamb extract M: Molecular mass marker.

Spinach allergy cases have been reported, both oral and inhalatory allergy,[1–5] but none of them on such a young patient as the one we described here. Furthermore, cases of cross-reactivity between foods with no taxonomical relationship, such as spinach and mushrooms[6] have been reported, as well as some new panallergen in food such as spinach, mushrooms and moulds.[7] Our patient presents sensitivity to different foods, some of them from the same botanical family as spinach (beet and chard), but not against moulds or mushrooms. He also showed sensitivity against *Chenopodium album* pollen. Before the allergic reaction occurred, our patient had occasionally eaten spinach and chard, but not beet.

In summary, we present a documented case of food allergy to spinach in an infant patient, which is highly unusual. We also demonstrated cross-reactivity with other types of food and of species from the same family.

References

1. Sanchez I, Rodriguez F, Garcia-Abujeta JL, Fernandez L, Quiñones D, Martin-Gil D. Oral allergy syndrome induced by spinach. Allergy. 1997 Dec;52:1245–6.
2. Maillard H, Lemerle E, Garot D, Leclech C, Machet L. Crossed spinach-latex allergy revealed by exercise-induced anaphylaxis. Allerg Immunol (Paris). 1999;31:156–7.
3. Ausin A, Moreno Escobosa MC, Rubira N, Amat P, Serra Baldrich E, Lluch Perez M, et al. Occupational asthma dul to spinach powder. Alergol Inmunol Clin. 2002;17:102–6.
4. Asero R, Antonicelli L, Arena A, Bommarito L, Caruso B, Colombo G, et al. Causes of Food-Induced Anaphylaxis in Italian Adults: A Multi-Centre Study. Int Arch Allergy Immunol. 2009;150:271–7.
5. Schuller A, Morisset M, Maadi F, Kolopp Sarda MN, Fremont S, Parisot L, et al. Occupational asthma due to allergy to spinach powder in a pasta factory. Allergy. 2005;60:408–9.
6. Herrera I, Moneo I, Caballero ML, De Paz A, Perez Pimiento A, Rebollo S. Food allergy to spinach and mushroom. Allergy. 2002 Mar;57:261–2.
7. Herrera-Mozo I, Ferrer B, Luís Rodriguez-Sánchez J, Juarez C. Description of a novel panallergen of cross-reactivity between moulds and foods. Immunol Invest. 2006;35:181–97.

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Recurrent angioedema and urticaria in patient with severe osteoporosis☆

To the Editor,

Hydatidosis is a parasitic disease caused by encysted larvae of *Echinococcus granulosus* which have the dog as the definitive host.

The presence of the cyst may be an incidental finding in many cases, often already present from childhood[1].

The determination of antibodies to Echinococcus is usually indicated in the study of chronic urticaria and angioedema because the hydatid cyst can cause skin symptoms (rash, urticaria and angioedema), anaphylaxis, pain (if there is an organ compression), haemoptysis...

We present the case of a patient with recurrent urticaria and angioedema who after the surgical removal of a hydatid cyst in liver has an improvement in her skin symptoms.

We present a female aged 69 with no toxic habits or drug allergies known controlled in the allergy service since 2005 for moderate persistent bronchial asthma, mild intermittent allergic rhinitis and food allergy (urticaria after the ingestion of peach and shrimp).

Pathological history

- Severe osteoporosis with loss of 12 cm of her height in recent years, for this reason she is being treated with subcutaneous teriparatide.
- Mild decrease of immunoglobulins without clinical relevance.
- No other relevant history.

Clinical Evolution

The patient remains asymptomatic of respiratory disease and she avoids eating peaches and shrimp. Although the clinical evolution of her asthma and food allergy was good, she began to present recurrent episodes of facial angioedema with lingual involvement that were treated in the emergency service with oral corticosteroids. She also referred generalised urticarial lesions almost daily. There are no dietary transgressions or relation to other specific triggers that might explain the appearance of skin symptoms. Approximately one month after initiating these episodes, the patient suggests that it could be caused by an adverse reaction to subcutaneous administration of teriparatide that she was receiving for osteoporosis. If she suspends treatment for a few days, the skin lesions do not appear.

Allergy studies were performed and we raise the possibility of undertaking a study of drug allergy to assess the involvement of teriparatide in this cutaneous reaction.

Allergy study

- *Prick test with inhalant allergens*: positive to grass pollen, hazel, birch, and *Chenopodium*. Negative for cat and dog dander, latex, dust mites, and fungi.
- *Prick test with food allergens*: positive to peach and shrimp. Negative for anisakis, vegetables, nuts, legumes, fish, meat, milk, eggs, and other fruits and seafood
- *Simple spirometry*: mixed ventilatory disorder (secondary to important kyphosis).
- *Analytical*:
  - normal haemogram, calcium 8 mg / dl,
  - alpha-1-antitrypsin 122 mg / dl, normal thyroid function, antithyroid antibody negative, basal tryptase 1.8 mcg / L.
  - Total IgE 64 IU / ml, IgA 642 mg / dl, IgG 684 mg / dl, IGM 35 mg / dl, IgG1 359 mg / dl, IgG4 5 mg / dl, normal other subclasses, specific IgE to *Phleum* 2.9 IU / ml, shrimp 1.1 IU / ml, peach 3.4 IU / ml, *Anisakis*, *Ascaris*, *Echinococcus* <0.35 IU / ml.
  - ANAS, antiDNAs, rheumatoid factor negative.
  - Complement: normal.
  - Serology HBV, HCV, toxocara and echinococcus: negative.
- *Parasites in stool* (three serial samples): negative.

☆ The case described was presented in January 2009 at the annual meeting of the Catalan Society of Allergy and Clinical Immunology (SCAIC), having received an award for best communication.