

## Type I and Type IV sensitization to *Anisakis simplex* in 2 patients with hand eczema

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Ingestion of raw or undercooked sea fish carries the risk of parasitic infection by *Anisakis simplex* larvae. This can be the cause of allergic reactions, with urticaria and/or angioedema, and even of parasitization with digestive symptoms (1, 2). We have studied whether this nematode could be the cause of hand dermatitis in patients sensitized to *Anisakis simplex*.

### Case Reports

#### Case no. 1

A 34-year-old cook had had eczematous lesions on his face, hands and feet for a year before presentation. He also reported an episode of angioedema after eating a kiwi fruit.

He was patch tested with the TRUE Test standard series and the Chemotechnique cosmetics and metals series. At D4 there were positive reactions to potassium dichromate, cobalt chloride, PPD and colophonium. These sensitivities were not related to his occupation.

Total IgE was 750 and specific IgE for *Anisakis simplex* was 90.1 kU/mL. Specific IgE for mussel and fresh anchovy was less than 0.35 kU/mL. Prick tests to *Anisakis simplex* and kiwi fruit were positive. Histamine release was positive to *Anisakis simplex* and negative to avocado, kiwi fruit and natural rubber latex.

Table 1. Results of patch tests with *Anisakis simplex* larvae

| Patient no. | Raw larvae | Frozen larvae | Cooked larvae |
|-------------|------------|---------------|---------------|
| 1           | ++         | +             | +             |
| 2           | +++        | ++            | –             |

The 10 controls tested with raw larvae were all negative.

The patient remains at work. The facial lesions have cleared but he still has the lesions on the hands, which improve during the holiday period.

#### Case no. 2

A 37-year-old office worker and housewife, with a 10-year history of atopic dermatitis, presented with widespread eczema that was worse on her hands and forearms, and exacerbated by contact with natural rubber latex and cleaning fresh fish.

She gave positive prick tests to *Anisakis simplex*, natural rubber latex, sardine and chestnut. Specific IgE was 82.9 kU/mL for *Anisakis simplex*, 18.7 kU/mL for cod, 19.8 kU/mL for banana, 7.5 kU/mL for chestnut, 66.9 kU/mL for dory and 2.82 kU/mL for kiwi fruit. IgE for latex was >100 kU/mL.

The patient has been avoiding contact since with latex and with fish. Her hand eczema has improved, though she still has relapses of atopic dermatitis.

Both patients were patch tested with larvae of *Anisakis simplex* obtained directly from fresh raw whitening. The larvae were divided into 3 groups: group 1 consisted of larvae in their natural state; group 2 of larvae that had been cooked at 100°C for 10 min; and group 3 of larvae that had been frozen for 48 h at –20°C. The 3 groups of larvae were placed on Leucotest patches and covered with Fixomull adhesive bands. The readings at D4 are shown in Table 1.

### Discussion

There is controversy concerning the antigenic capacity of cooked or frozen larvae (3). Our results lead us

to believe that such antigenic capacity still exists, though less so than when the larvae are raw.

We consider that sensitization to *Anisakis simplex* is an aetiological possibility that should be borne in mind in the case of food handlers presenting with chronic hand eczema. This possibility was raised by Carretero Anibarro et al. (4), who reported the case of a housewife with protein contact dermatitis caused by *Anisakis simplex*. Her only symptom was the hand dermatitis that she had from cleaning and handling fresh fish.

We believe that this may open a new pathway for studying sensitization to *Anisakis simplex* in patients with chronic hand dermatitis. Many changes are taking place in gastronomic tastes in Spain and surrounding countries. Consumption of smoked fish and raw fish is becoming increasingly frequent due to the influence of Japanese cuisine. This may be causing an increase in sensitization to *Anisakis simplex*.

### References

1. Kasuya S, Hamano H, Izumi S. Mackerel-induced urticaria and *Anisakis*. *Lancet* 1990; : 17–665.
2. Montoro A, Perteguer M J, Chivato T, Laguna R, Cuellar C. Recidivous acute urticaria caused by *Anisakis simplex*. *Allergy* 1997; 52: 985–991.
3. Ortega Paino E, Cespón C, Bootello A, Moneo I, González-Porqué P. Aislamiento y caracterización de antígenos principales en *Anisakis simplex*. *Alergol Inmunol Clin* 2000; 15: 262–266.
4. Carretero Anibarro P, Blanco Carmona J, García González F et al. Protein contact dermatitis caused by *Anisakis simplex*. *Contact Dermatitis* 1997; 37: 247.

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