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Unusual sensitization to *Anisakis simplex*

Z. Pulido-Marrero*, E. González-Mancebo, T. Alfaya-Arias, B. de la Hoz-Caballer, M. Cuevas-Agustín

Key words: *Anisakis simplex*; bronchial hyperresponsiveness; occupational asthma; specific bronchial provocation.

● A 50-year-old woman cook in a restaurant had developed rhinitis, dry cough, and wheeze 2–3 h after she began to handle raw fish or when she was cooking fish; she also complained of dyspnea at night. The patient was symptom-free in holiday periods.

A case of occupational asthma to *Anisakis simplex*.

Skin prick tests (SPT) with commercial *Anisakis simplex* (AS) extract and several fish extracts (salmon, tuna, anchovy, cod, hake, and sole) were performed. Specific IgE to AS and sea fish were measured. We also used the leukocyte histamine-release test for AS. The specific bronchoprovocation test (BPT) was done with an aqueous AS extract of 1 mg/ml (provided by Bial-Aristegui

Laboratories, Bilbao, Spain). Decreasing dilutions of this extract (1/10000, 1/1000, 1/100, 1/10, and 1/1) were used in skin titration until we reached a final dilution that produced a wheal of 3 mm in diameter. This final dilution was the initial dose in the BPT. A positive response was defined as a decrease of 20% or more in FEV₁ as well as a drop of 25% or more in the measurement of peak-flow expiratory rate (PEFR) in the 24 h following the BPT. We also performed a nonspecific BPT with methacholine before and after the specific BPT.

We obtained positive results with SPT to AS (papule of 7×9 mm), whereas sea-fish extracts were negative. A high specific IgE value to AS (>100 ku/l) was detected in the patient's serum, and the AS histamine-release test was positive. Specific IgE antibodies against sea fish were not found.

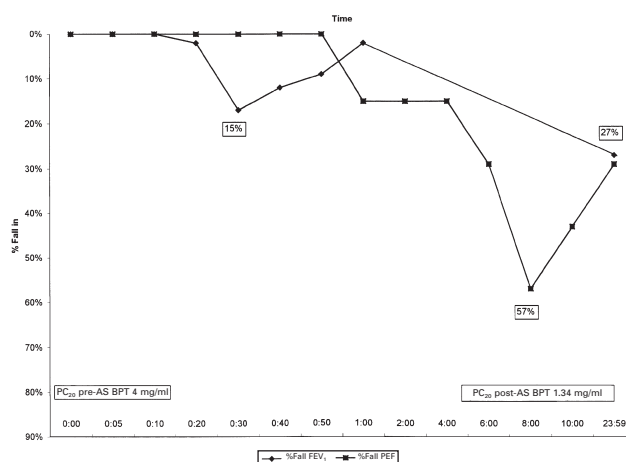
The specific AS BPT (dilution 1/1) showed a decrease in spirometric values of 15% from baseline FEV₁ at 20 min that returned to baseline values in the following minutes without the need of treatment with bronchodilators.

During the following period, a positive late response was observed with asthmatic symptoms as well as a decrease in ventilatory parameters (Fig. 1). The late response was seen at 8 h and consisted in a

maximum drop of PEFR of 57% and a decrease in FEV₁ of 27% at 24 h. The methacholine test revealed a high increase of bronchial hyperreactivity after the specific AS BPT (PC₂₀ methacholine carried out 24 h before the AS BPT was 4 mg/ml whereas PC₂₀ methacholine 48 h after specific BPT was 1.34 mg/ml).

In summary, we have confirmed respiratory sensitization to AS in this patient; the results of SPT, immunologic studies, and BPT suggest that our patient had allergic asthma due to AS sensitization. In the specific AS BPT, we obtained a nonsignificant immediate bronchial response and an evident late asthmatic response (LAR) confirmed by PEFR measurements and an increase of bronchial hyperresponsiveness. It was clearly indicated that the respiratory symptoms suffered when the patient handled parasitized fish were caused by the inhalation of AS antigens released during the processing of the fish. These airborne allergens could play a role in the maintenance of AS sensitization due to repetitive and inevitable contact, although the patient did not eat fish (1, 2).

Nonspecific bronchial hyperreactivity (NBH) is considered an important parameter in relation to the LAR. An increase in NBH could begin 6–8 h after a



specific BPT and persist for several hours (3). In our case, the measurement of NBH was useful.

In countries such as Spain, with a high incidence of AS sensitization, AS allergens should be considered a potential cause of asthma.

*Zeida Pulido-Marrero
López de Hoyos 346-B, 1° C
28043 Madrid
Spain

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Latex and amoxicillin-induced asthma

M. T. Ventura*, R. Di Corato, M. Dagnello,
G. Giuliano, A. Tursi

Key words: amoxicillin; congenital polysyndactyly; cross-reactivity; latex.

● In recent years there has been a significant increase of latex sensitivity (1, 2). In addition, some cases of dual sensitization to latex and β -lactams in exposed subjects have been described (3). We report here another double sensitization to amoxicillin and latex.

In September 1998, a 9-year-old girl came under our observation because she had to undergo, after eight operations, another one

for congenital bilateral polysyndactyly. She suffered from urticaria and asthma, but her family history for allergy was negative.

Owing to the persistence and increasing severity of allergic symptoms, she underwent a skin

prick test (SPT) for inhalants and foods (Bayer Allergens, Milan, Italy) and a fluorescence enzyme immunoassay (FEIA) for the determination of specific serum IgE to latex and foods (CAP System, Pharmacia, Uppsala, Sweden). The results are reported in Table 1.

The medical history revealed that about 2 years before she had suffered from some episodes of asthma with urticaria localized in the dorsal region and strong itching, after i.v. injection of an antibiotic. The determination of specific IgE to β -lactams (CAP System-FEIA, Pharmacia, Uppsala, Sweden) revealed sensitization to amoxicillin (5.02 kUA/l). SPT with commercial extract of NRL and the inhalation challenge test with NRL gloves were not performed because of the risk. Patch tests of the GIRDCA (Gruppo Italiano di Ricerca per le Dermatiti da Contatto ed Ambientali) were applied and gave negative results. To evaluate the role of amoxicillin in inducing asthmatic symptoms, a challenge test with the antibiotic was carried out as previously

A multioperated girl with dual IgE-associated allergy.

described (4). Briefly, according to Pepys' method (4), "analar" lactose was used both as control and as the vehicle for the test material (1 g of commercial amoxicillin in 250 g of antibiotic powder with the provocation challenge continuing for 30 min). The late asthmatic reaction was blocked by administering 0.24 mg of isoprenaline sulfate.

Results were calculated as previously described (3). In particular, the maximum percent fall in FEV₁ was obtained before exposure to the antibiotic powder and resulted in a 36% fall in comparison to prechallenge values. This confirms a strict correlation between the presence of asthmatic symptoms and amoxicillin sensitization.

We have already described this double sensitization in an operating room nurse. In addition, Vandenplas et al. (5) suggested the prevalence of such a dual sensitization in exposed subjects. In the light of the previous observation, one should never underestimate the degree of risk of patients, including children with any congenital anomaly. It might be advisable to operate on these subjects in a latex-free operating theater even before any sensitization to latex is observed, since the frequency and length of exposure to latex is an important sensitization factor.

*Department of Internal Medicine,
Immunology and Infectious Diseases
University of Bari
Policlinico
70124 Bari
Italy

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Table 1. Positive results of skin prick and IgE specific tests

Allergen	SPT	IgE-specific tests (kUA/l)
Avocado	++	2.03
Banana	++	2.63
Chestnut	++	1.69
Latex	NT	13.4
Kiwi	++	NT
Olive	++	NT
Tomato	++	NT