

IgE-mediated Urticaria/Angioedema After Ingestion of Mussels

Sir,

The ingestion of crustacea and mollusca is one of the most frequent causes of food allergy (1). The mollusca phylum includes lamellibranchia (bivalves) and involves the following orders: mytiloidea (familia mytilidae: mussels); ostreoida (familia ostreidae: oysters) and veneroida (familia veneridae: clams) (2). Herein we report a study of 11 cases of IgE-mediated urticaria/angioedema caused by mussels.

MATERIAL AND METHODS

Eleven patients (8 females, 3 males; age 18–50 years; median age 28 years; 5 with a family history of atopy and 4 with a personal history of atopy) presented allergic reactions soon after ingestion of raw and/or cooked mussels. All patients underwent both *in vivo* and *in vitro* evaluations. Skin-prick tests were performed by using unprepared and differently diluted (1:1000, 1:100, 1:10, undiluted) extracts from raw and cooked clams, oysters and mussels (3). Commercially available extracts were also utilized (oysters: Lofarma Allergeni, Milan, Italy; mussels: Lofarma Allergeni, Milan, Italy; clams: Dome/Hollister-Stier, Bayer, Milan, Italy). Skin tests were performed on 10 normal and 10 atopic control subjects. Specific serum IgE determination was carried out by means of CAP (Pharmacia Diagnostics, Sweden) for clams, mussels, oysters and Anisakis.

RESULTS

All 11 cases presented urticaria and angioedema as primary symptoms. Four cases (Nos. 1, 4, 5 and 10) also presented gastrointestinal symptoms (nausea, vomiting and/or diarrhoea); 3 cases showed rhinitis (Nos. 1, 5 and 9); and asthma occurred in 2 cases (Nos. 2 and 9). The test results for clams and mussels are reported in Table I. No patient showed positive RAST or skin sensitivity to oysters. Skin-prick tests performed on normal and atopic control subjects were negative.

DISCUSSION

We reported 11 cases of urticaria/angioedema after ingestion of mussels. *In vivo* and *in vitro* positivity indicated that these reactions may have been IgE-mediated. The possibility that the reactions

could have been ascribed to contamination by *Anisakis simplex* (a parasite of several breeds of fish, excluding bivalves) was excluded in all subjects by a negative RAST for *Anisakis* (4, 5).

The fact that the incidence of positive skin tests to unprepared cooked mussel and/or clam preparations (7/11) was higher than that to raw preparations (3/11) might have been due to the cooking procedure (a possible cause of generation of new allergens) (3). Finally, the relation between clinical symptoms and the results of *in vivo* and *in vitro* investigations was poor, probably as a result of poorly standardized extracts.

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E. Nettis, A. Pannofino, P. Dambra, M. P. Loria, G. Di Maggio, E. Damiani, A. Ferrannini and A. Tursi

Department of Clinical Medicine, Immunology and Infectious Diseases, Division of Allergy and Clinical Immunology, University of Bari, Piazza Giulio Cesare, IT-70124, Bari, Italy.

E-mail: e.nettis@allergy.uniba.it

Table RAST and skin reactivity to mussels and clams

	Patient											
	1	2	3	4	5	6	7	8	9	10	11	
Skin-prick test (reaction diameter in mm)												
Mussel extract ^a	0	0	0	0	0	0	3	0	0	4	4	
Clam extract ^d	0	0	0	0	0	0	0	0	0	0	0	
Cooked mussels	0	5(1:100) ^b	0	0	0	0	0	0	4 ^c	3 ^c	4 ^c	
Cooked clams	0	0	0	4(1:10) ^b	0	4 ^c	3(1:10) ^b	0	0	0	0	
Raw mussels	0	0	0	0	0	0	3(1:10) ^b	0	0	0	4 ^c	
Raw clams	0	0	0	0	0	0	3(1:10) ^b	0	0	0	0	
Histamine	3	4	4	4	3	4	3	4	3	4	4	
RAST (kU/l)												
Mussels	1.65	16.6	3.7	4.2	1.57	0.54	6.72	1.86	<0.35	<0.35	<0.35	
Clams	<0.35	<0.35	0.66	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	

^aCommercially available extracts.

^bSkin reactivity at different dilutions (1:1000, 1:100, 1:10).

^cUndiluted.