

Occupational contact urticaria caused by squid

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Sensitization to fish or crustaceans requires intensive skin contact and/or airway exposure. Therefore, workers in the seafood-processing industry, and workers directly handling seafood in particular, may develop occupational seafood allergy in terms of contact urticaria, contact dermatitis, and asthma.

Case Report

For 2 years, a 20-year-old restaurant worker had suffered from recurrent localized urticaria within 15 min after contact with squids (Fig. 1). Her symptoms worsened during the working week, and improved at weekends and when she was on vacation. She had no history of atopy. Although protective gloves were provided by her employer, she did not wear them; thereby, she had direct skin contact with water and the foodstuff that she was handling. She tolerated eating or handling cooked or grilled squid or other shellfish, but nevertheless avoided eating such seafood. She had no problems when handling oysters, lobsters, or crabs, but she noted burning and itching when handling octopus. Laboratory findings

were within normal limits. Prick testing with pollen, cat and dog dander, house dust mites, and common food allergens, including cow's milk, egg, meat, and fish, showed no IgE-mediated sensitization (Imunoloski zavod, Zagreb, Croatia). Total serum IgE was slightly elevated (218.2 kU/l) (Immuno-CAP, Phadia, Sweden). The results for IgE specific for seafood (abalone, cod fish, octopus, oyster, shrimp, squid, and tuna) were positive for squid (0.35 kU/l). Prick-to-prick testing with squid showed a clear positive reaction: 12 × 15 mm after 15 min (Fig. 2). An open challenge with fresh squid applied to the forearm provoked contact urticaria within minutes. The patient was advised to avoid handling squid, and to use protective gloves to avoid further sensitization.

Discussion

Squid are cephalopod molluscs, and are also known as calamari. Allergy to molluscs such as squid is less common than allergy to shrimps (crustaceans). Although squid have no shells, they are related to clams and mussels. Hypersensitivity to squid may induce symptoms of food allergy in sensitized individuals. An individual can develop an immediate hypersensitivity reaction after eating squid or inhaling vapours while cooking squid, and contact dermatitis and contact urticaria when handling squid (1–6).

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Fig. 1. Contact urticaria after handling the squid (courtesy of the patient T.P.).

The main allergenic protein in squid is tropomyosin (7). The allergens appear to be present in the squid's body, ink, and tentacles (3). Tropomyosins can be found in invertebrates such as crustaceans (shrimp, lobster, crab, and crawfish), arachnids (house dust mites), and insects (cockroaches). Cross-reactive allergens from squid, cuttlefish and octopus have been identified (8). Cross-reactivity to tropomyosin from molluscan shellfish species has been observed with sera from patients allergic to oysters, suggesting that individuals with allergies to molluscan shellfish should avoid eating all species of molluscan



Fig. 2. Positive prick-to-prick test with squid.

allergens in crustacean shellfish may also occur, but this is less clearly defined (9). However, immunological relationships among crustaceans, cockroaches and house dust mites have been established, suggesting that tropomyosin is an important cross-sensitizing pan-allergen (10).

Occupational allergy resulting from exposure to squid has been rarely described, mainly as contact dermatitis or contact urticaria. In our patient, IgE-mediated sensitization to squid was confirmed by positive prick test and open skin test results with native squid, whereas there was no evidence for sensitization to house dust mites.

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