

LETTER TO THE EDITOR

Anaphylaxis due to ingestion of jellyfish with possible evidence of epicutaneous sensitization

Dear Editor,

It is well known that some venomous jellyfish stings can cause fatal reactions.¹ On the other hand, recent case reports of anaphylaxis due to ingestion of normally harmless edible jellyfish^{2–4} cannot be overlooked. Here, we report a case of anaphylaxis after ingestion of jellyfish salad in a fisherman with possible evidence of epicutaneous sensitization.

A 30-year-old man had dinner including jellyfish salad at a restaurant. Two hours later, he noticed swelling of his lips and pruritus of the whole skin, and visited our hospital. On arrival, his consciousness was alert, blood pressure 71/48 mmHg, oxygen saturation level less than 70% and there were generalized wheals. He was diagnosed with anaphylaxis and treated with an i.m. injection of epinephrine and i.v. administration of hydrocortisone sodium succinate. His symptoms cleared without biphasic reaction.

He had no significant medical history except for hay fever. A laboratory test showed an elevated serum level of immunoglobulin (Ig)E of 1300 IU/mL. A multiple antigen simultaneous test-33 (LSI Medience, Tokyo, Japan)

showed a 195 lumicount (class 6) of Japanese cedar (*Cryptomeria japonica*), whereas food-related results were all negative.

Four weeks later, prick-to-prick tests with components of the dinner, which were supplied by the restaurant, were performed. A positive result with jellyfish using *Stomolophus meleagris* was obtained (6 mm × 6 mm wheal), whereas the other results were negative (Fig. 1a). Three healthy volunteers showed no reaction to the jellyfish. He was diagnosed with anaphylaxis due to jellyfish.

He was a fisherman and had been frequently stung by jellyfish. He provided us two pictures; one demonstrated wheals on his left forearm 2 h after contact with *Aurelia aurita* during fishing (Fig. 1b), and the other showed a colony of *A. aurita*, which he had encountered in the same area (Fig. 1c). Because both *S. meleagris* and *A. aurita* belong to the same class, *Scyphozoa*, we speculated that he was primarily sensitized through the contact with *A. aurita*.

There are four cases of anaphylaxis after jellyfish ingestion, including ours.^{2–4} Interestingly, two of them were surfers and

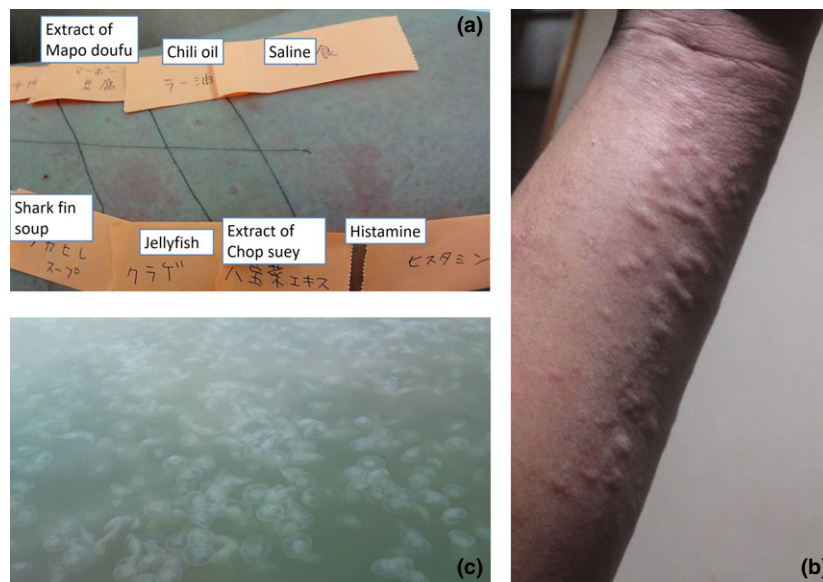


Figure 1. (a) Results of prick-to-prick test. The positive reaction to jellyfish (6 mm × 6 mm wheal, 25 × 26 mm erythema) was comparable with that of 1% histamine dihydrochloride (positive control) (8 mm × 10 mm wheal, 25 mm × 30 mm erythema), and the reaction to normal saline (negative control) was negative, as well as extract of mapo doufu, chili oil, extract of shark fin soup and extract of chop suey. (b) Wheals on the left forearm after contact with jellyfish (*Aurelia aurita*) during fishing. (c) Colony of jellyfishes (*Aurelia aurita*) with which he had had contact.

had a history of frequent stings by jellyfish.^{2,3} Although the causative antigen of jellyfish allergy remains unknown, Imamura *et al.*² reported a case of jellyfish allergy and IgE immunoblotting suggested that the causative antigens were those of approximately 200 and 25 kDa. Inomata *et al.*³ reported jellyfish allergy in a subject with fermented soybean (*nattō*) allergy. They proposed the possibility of epicutaneous sensitization by jellyfish stings to poly- γ -glutamic acid, which is a major allergen of *nattō* and has been detected in cnidarian nematocyte capsules. The cross-reactivity between jellyfish and *nattō* was not clarified in our patient because he refused additional prick tests. The patient has not experienced any episode of anaphylaxis during the subsequent 3-year follow-up period by avoiding eating jellyfish and *nattō*.

Recently, an increase in the jellyfish population has been noticed, probably due to global warming.⁵ Therefore, it is important to provide information on the risk of epicutaneous sensitization due to jellyfish for those who may come into contact with them.

CONFLICT OF INTEREST: None declared.

Yoshio KAWAKAMI,¹  Shu TAGA²

¹Department of Dermatology, Okayama City Hospital, Okayama, and

²Department of Clinical Laboratory, Tosei General Hospital, Aichi, Japan

REFERENCES

- 1 Burnett JW, Calton GJ, Burnett HW. Jellyfish envenomation syndromes. *J Am Acad Dermatol* 1986; **14**: 100–106.
- 2 Imamura K, Tsuruta D, Tsuchisaka A *et al.* Anaphylaxis caused by ingestion of jellyfish. *Eur J Dermatol* 2013; **23**: 392–395.
- 3 Inomata N, Chin K, Aihara M. Anaphylaxis caused by ingesting jellyfish in a subject with fermented soybean allergy: possibility of epicutaneous sensitization to poly-gamma-glutamic acid by jellyfish stings. *J Dermatol* 2014; **4**: 752–753.
- 4 Okubo Y, Yoshida K, Furukawa M *et al.* Anaphylactic shock after the ingestion of jellyfish without a history of jellyfish contact or sting. *Eur J Dermatol* 2015; **25**: 491–492.
- 5 Purcell JE. Climate effects on formation of jellyfish and ctenophore blooms: a review. *J Mar Biol Ass UK* 2005; **85**: 461–476.