

Contact Allergy due to Lychee

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Lychee (*Litchi chinensis*, Sonn) is a member of the Sapindaceae family; its common names are: litchee, lychee and litchi. Lychee has white, juicy edible flesh, surrounded by reddish prickly leather-like skin, containing a brown and, usually large, seed (Fig. 1). Lychee is a subtropical fruit that, once harvested, loses its red pericarp colour due to browning reactions probably involving polyphenols. The major areas of lychee production worldwide are China, Taiwan, Vietnam, Thailand, India and South Africa. During the past years some cases of skin allergic reactions due to lychee fruit have been reported (1–5).

CASE REPORT

A 69-year-old man presented to the emergency unit of our general hospital with urticaria on the hands (Fig. 2), itching and bronchospasm.

These symptoms developed 30 min after handling and eating a fresh lychee fruit. The patient was treated with systemic corticosteroids and anti-histamine, and the symptoms subsided after a few hours; however, he was monitored in hospital for 24 h. Three weeks later the patient was sent by his practitioner to our allergy unit for an allergological evaluation. His personal history revealed 2 similar events, which occurred after handling and eating a piece of cake covered with an exotic fruit cocktail containing lychees. The patient had noticed the first clinical manifestation of urticaria some years earlier: erythema, oedema and pruritus of both hands occurred 30–40 min after contact with lychee fruit. Moreover, his personal history included seasonal extrinsic asthma with positive skin-prick test to mix-grass and birch pollen. The patient had been treated previously with specific immunotherapy to mix-grass pollen with good clinical amelioration.

A prick-by-prick test with fresh lychee fruit was positive; 10 control subjects (5 patients with atopic eczema and 5 with chronic urticaria) were prick-tested with the same fresh lychee fruit and gave negative results.

Total serum IgE level was 580 kU/l; specific IgE antibodies to lychee fruit, detected by the Pharmacia CAP-System, were class 5 positive.



Fig. 1. Lychee fruit.



Fig. 2. Urticaria of the right hand after contact with lychee fruit.

To verify a possible cross-reaction between lychee and latex, our patient was prick-tested with a commercial latex extract (Lofarma Allergeni, Milan, Italy); no positive response was observed, and no specific IgE antibodies to latex were demonstrated.

DISCUSSION

With improvements in transportation, the consumption of exotic fruits, such as lychee, has gained in significance in the diet of Western countries, and this growing popularity has resulted in increasing reports of lychee allergy (1–5). In the patient described here, we observed a positive prick-by-prick test to lychee fruit; this result, together with his personal history and symptoms and the negative result in the control group, indicates a case of contact allergy due to lychee fruit. Some authors (4) suggested a possible cross-reaction between lychee and latex proteins. We performed prick-testing with a commercial latex extract, but we did not observe any positive reaction, and no specific IgE antibodies to latex have been demonstrated using the Pharmacia CAP-System. Little is known about the allergenic potency of lychee. Fah et al. (1) referred to cross-reactivity between lychee and various kinds of food and pollen. Wellhausen et al. (6) described the cross-reaction between birch pollen allergen and a lychee allergen, both having a similar molecular weight of 35 kDa. Some authors (7) identified an IgE-binding 35-kDa protein from birch pollen with cross-reacting homologues in different plant foods including lychee. These authors

demonstrated the presence of profilin in the lychee fruit, at present identified as allergen Lit c1. Recently, lychee allergen pattern was investigated by means of immunoblot; and IgE-binding proteins with molecular weights in the range 14–70 kDa were demonstrated (8). Allergens with molecular masses of 28, 35, 40, 43, 55 and 70 kDa were detected by more than 50% of sera. Further investigations of the same authors focused on the observation that the 28 kDa allergen was reactive in 67% of the sera and the allergen showed a high homology with a triose-phosphate isomerase, an enzyme described as allergen in other plants. Lychee pericarp tissues account for approximately 15% of the total weight of fresh fruit, and contain significant amounts of flavonoids (9); thus it can be taken as an important source of flavonoids. The presence of an isoflavone-reductase allergen can result in cross-reactivity between lychee fruit and other plants and foods (such as birch pollen, apple, banana, orange, carrot) (7). On the other hand, some years ago Karamloo et al. (9) showed that the rabbit anti-flavone-reductase and anti-Bet v5 mAb, as well as IgE from a patient sensitized to Bet v5 allergen, recognized cross-reacting proteins of plant foods, such as lychee fruit. In fact, our patient is sensitized to birch pollen, which explains the cross-reaction with birch pollen and lychee fruit; however, the patient can eat banana and/or carrot with no clinical reaction.

The authors declare no conflicts of interests.

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