



Garlic Allergy: A Rare Cause of Anaphylaxis in Infants

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ABSTRACT

Food allergy is seen in 5-10 % of the children in developed countries but garlic allergy is a rare condition. A case having anaphylaxis after consumption of garlic is presented in this report. After the history of consumption of yoghurt flavored with garlic, the 16-month-old male patient presented to the emergency room with diffuse erythema and itching on his body, swelling on the eye lids and lip, vomiting, cough and wheezing complaints, and was intervened with the diagnosis of anaphylaxis. Six weeks after the anaphylaxis episode with garlic, the result of the skin prick test with raw garlic was positive (11x8 mm induration). The garlic serum IgE level was determined as 11 kU/L. Patients with garlic allergy should be informed about cross-reactions in terms of other food such as onion, leek and asparagus which are in the same family (Liliaceae family). Although is a rare condition, this case is presented to emphasize the probability of anaphylaxis due to garlic consumption.

Keywords: Anaphylaxis, garlic, Liliaceae

INTRODUCTION

Food allergy is defined as an abnormal or exaggerated immune response to food proteins. It is a complex disease in which environmental factors play a role in addition to genetic predisposition. It is reported that approximately 5-10% of children in developed countries have food allergy (1). Although the etiology may vary according to age groups, geography and ethnic groups, foods are the leading cause of anaphylaxis in children under the age of 2 years worldwide (2, 3). Rudders et al. reported that food allergies were present in 83% of patients with anaphylaxis under 12 months of age and 40% of these were caused by milk (2). Studies conducted in our country have reported that preschool children are most susceptible to milk and egg allergy (3, 4). In another study, cow's milk and eggs were the most common triggering nutrients among infants with anaphylaxis in our country (5).

Garlic allergy is rarely reported in the literature (6). Garlic, onion, asparagus and leek are members of the Liliaceae family (6). There is also limited information in the literature about allergy to other members of the Liliaceae family. Allergic reaction to garlic develops mostly after

inhalation or direct contact with garlic (7, 8). Anaphylaxis after oral intake has been rarely reported (9). The major allergen identified to date is alliinase (6-8).

In this report, a pediatric case that presented with anaphylaxis after garlic-flavored yogurt consumption is presented.

CASE PRESENTATION

A sixteen-month-old male patient presented to the emergency department with the complaints of diffuse erythema, itching, swelling of the eye lids and lip, vomiting, cough and wheezing after garlic-flavored yogurt consumption and was intervened with the diagnosis of anaphylaxis. The patient's history revealed that he had no symptoms while only breastfeeding for the first 6 months, but developed rashes on his cheeks after additional foods were started, and was diagnosed as atopic dermatitis. After adding egg white to his diet at the age of 12 months the rashes on his body increased. His family history was unremarkable and he had no familial history of atopy. Skin prick tests with egg whites (11x13 mm) and egg yolk (5x3 mm) were positive at 13 months, but the other foods (milk, wheat, peanuts, chicken, beef, fish, and soy) were negative.

On laboratory examination, total IgE was 114 IU/L; milk, wheat, peanuts specific IgE were negative; and specific IgE levels to egg white and yolk were 7 kU/L and 3.6 kU/L, respectively. The patient was started on an egg elimination diet and skin care precautions for atopic dermatitis were recommended. Follow-up was planned for tolerance development and growth monitoring.

Upon the development of anaphylaxis with garlic-flavored yoghurt at 16 months of age, the garlic-specific IgE level was 11 kU/L. Six weeks after the anaphylaxis episode, the prick-to-prick test with raw garlic showed an induration of 11x8 mm, while the test with cooked garlic was negative (Figure 1). Because the patient refused, an oral food challenge with cooked garlic was not performed. Garlic elimination diet was recommended. An adrenaline autoinjector was prescribed and a written action plan was given. Control sIgE to garlic was found to be 2.6 kU/L after the elimination diet, which is still continued.

DISCUSSION

In studies conducted in our country among children, the most common causes of food allergy and the most common cause of food-related anaphylaxis were reported

as cow's milk and eggs in infants under the age of two years (3-5). Allergic reactions due to garlic are very rare in the literature (6-8). Anaphylaxis following garlic consumption has been reported in a few cases (8, 9). The first pediatric case with anaphylaxis related to garlic intake was a 9-month-old case from Spain (8). In this case, the garlic sIgE level was 3.15 kU/L and the prick-to-prick test with garlic revealed a 10 mm induration, while the prick-to-prick tests with other members of the family Liliaceae; onion, asparagus, chives and leek were negative. In another case presented in adult age, a 48-year-old male with known seasonal allergic rhinitis and gastroesophageal reflux disease who developed anaphylactic reaction after garlic consumption was reported (9). The prick-to-prick test with garlic revealed double induration of positive control, and the specific IgE to both garlic (10.3 kU/L) and onion (6.75 kU/L) were positive. In a study conducted in adults, 108 Saudi patients with food allergy suspicion were retrospectively screened for garlic and onion sIgE antibodies with the Radioallergosorbent test (RAST) (10). In 15 (13.8%) of the patients, sIgE was positive for garlic and/or onion. However, there was no correlation between the severity of symptoms and specific IgE levels. In another study, it was reported that anaphylactic reaction was caused by raw and immature garlic rather than the cooked form (11). In our case, sensitization was detected with the prick-to-prick test made with raw garlic but not the cooked form, and a history of anaphylaxis was related to raw garlic-flavored yoghurt consumption. The garlic sIgE level of our case was 11 kU/L and the control level measured after 6 months was 2.6 kU/L. Since the positive predictive value for garlic-specific IgE has not yet been identified in the literature and anaphylaxis was present in our case, an oral food challenge test was not performed. It was decided to continue the elimination diet for garlic.

On the other hand, studies have shown that serum egg sIgE values correlate with oral food provocation test results and 95% positive predictive values for egg sIgE levels have been determined. It has been shown that an egg white sIgE level ≥ 7 kU/L has a 95% positive predictive value for positive provocation in children older than 2 years, and ≥ 2 kU/L has a 95% positive predictive value in children 2 years or younger (12). Since the egg-specific IgE value (7 kU/L) of our patient at the age of 13 months was above the predictive value, no food provocation test was performed. The egg elimination diet was continued. The follow-up of our case is continuing to monitor tolerance and growth.



Figure 1. Epidermal prick-to-prick test.

In previous studies, it has been reported that sensitization to food can develop during breastfeeding (13). Moreover, detection of major food allergens in amniotic fluid points to the possibility of fetal food sensitization during pregnancy (14). When our case was questioned about previous garlic consumption, the family did not remember any details. However, it was reported that the mother consumed garlic frequently during the pregnancy. In our case, we thought that sensitization may have occurred during breastfeeding and /or pregnancy. Very little information is available about allergy to other members of the Liliaceae family. Patients with garlic allergy should be informed about cross-reactions in terms of other foods such as onion, leek, and asparagus among the same family (Liliaceae family). Allergic cross-reactivity has been reported not only among members of the Liliaceae family, but also between members of this family and grass pollen antigens (15). In our case, the prick-to-prick test with onion was found to be negative and there was no reaction with consumption.

Since garlic allergy is rare, especially in infants, we present our case to emphasize that serious systemic reactions such as anaphylaxis may occur, even without a previous consumption history.

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