
Correspondence

A CASE OF FOOD ALLERGY DUE TO LONGAN FRUIT

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To the Editor:

Longan fruit (also known as lungan fruit and Dragon's eye) is derived from the plant *Euphoria longana*, a major crop in Thailand. Previously described cases of food allergy have been reported to lychee fruit, which comes from the same family (Sapindaceae) as longan fruit.¹ We were unable to find any previously reported cases of food allergy to longan fruit.

A 52-year-old man with a history of severe allergic rhinitis, mild asthma, and food allergy to mango described itching and hives on his head and tightness, swelling, and hardening of his lips approximately 30 minutes after eating longan fruit. He took fexofenadine-phenylpropanolamine and then self-administered epinephrine, with only partial improvement. He reported to the emergency department and was found to have erythema of the face and chest but no signs of respiratory distress. He received a dose of diphenhydramine, was observed for a few hours, and was dismissed after full resolution of his symptoms. One month later he obtained a fresh sample of longan fruit, and prick-prick skin testing showed a 5 × 6-mm wheal with flare and pseudopods along with a negative control and a 6 × 7-mm wheal with flare and pseudopods for histamine. The patient has since avoided longan fruit and has experienced no further food reactions.

Given this patient's multiple allergic sensitivities, it is possible that he may have a specific IgE antibody that cross-reacts with a particular protein found in food and pollen. Many such proteins have been previously described, including profilin (bet v2), birch bet v1, PR-2, PR-3, and PR-5.^{2,3} We speculate that the patient may have an allergy to profilin, because longan fruit is from the same family as lychee, and allergy to lychee has been linked to profilin by immunoblot, immunoblot inhibition, and enzyme allergosorbent tests.¹ Profilins are components of the cytoskeleton in many plants and animals and were found to be prominent allergens in birch, timothy grass, and mugwort.⁴ Notably, this patient had positive allergy skin test reactions to birch and timothy.

Other patients have likely experienced allergy to longan fruit. Perhaps longan fruit in its native habitat does not frequently lead to food allergy because the necessary allergic priming from pollen is absent. On the other hand, there may be unique and separate antigenic determinants present in longan fruit that are completely independent of pollen allergy. Identification of additional patients will help clarify the allergic aspects of longan fruit, including the predictive value of a prick-prick longan fruit skin test.

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EVALUATION OF PENICILLIN ALLERGY WITHOUT BENZYL PENICILLOYL-POLYLYSINE

To the Editor:

A recent Letter to the Editor¹ highlights the dilemma allergists currently face when evaluating patients for penicillin allergy. The authors present an approach to patients with a history of penicillin allergy that starts with excluding patients with histories of anaphylaxis or clearly non-IgE-mediated reactions. Individuals with histories consistent with less severe IgE-mediated reactions are evaluated for the presence of radioallergosorbent testing (RAST) to penicilloyl and, if results are negative, undergo skin testing with penicillin G. Patients with negative skin test results then undergo a 2-step graded challenge with the penicillin compound in question. Those who tolerate the challenge return a month later to undergo an identical graded challenge to rule out the possibility of becoming resensitized as a result of the first challenge.

Overall, the outlined approach is a reasonable one, but I believe it warrants comment and some modification. The correlation between skin testing and RAST with penicilloyl is listed as 87% to 95%, but some studies show it to be as low as 45%.² Additionally, results of RAST evaluations performed in commercial laboratories may not be comparable to ones performed in academic settings. Hence, the sensitivity of penicilloyl RAST relative to penicilloyl skin testing is likely lower than the quoted values.

The authors recommend 2 challenges 4 weeks apart to detect potential procedure-induced sensitization, because they “have no established negative predictive value for the testing method.” This is not correct, because prior investigators found penicillin resensitization after treatment with oral penicillin to be low and comparable to the rate of sensitization.^{3,4} In these previous studies, patients with a positive

penicillin allergy history and negative skin test results received one or more courses of penicillin, and virtually no patients converted their skin test results to positive.^{3,4} Therefore, a typical patient with a history of penicillin allergy who tolerates a course of penicillin does not need to undergo additional penicillin skin testing to rule out potential re-sensitization. Using the same reasoning, the authors' recommended subsequent graded challenge procedure a month after the initial one is unnecessary.

The authors suggest that re-sensitization may have occurred in the 14-year-old girl they described. She had a history of pruritus without visible rash on the fourth day of an amoxicillin course and then had a negative evaluation for amoxicillin allergy. She tolerated the first amoxicillin graded challenge, but a month later developed isolated lower extremity pruritus with secondary dermatographic urticaria after the second amoxicillin challenge. Since the amoxicillin challenge was not blinded, this almost certainly represented a psychosomatic reaction, which frequently occurs during drug challenges in patients with a history of drug allergy. For example, Liccardi et al⁵ found that among 600 patients with a history of drug allergy who underwent single-blinded drug challenges, 27% reacted to placebo (ie, showed a nocebo effect). Although most of these patients demonstrated only subjective symptoms, some developed objective findings, such as blood pressure changes, tachycardia, emesis, and dermatographic urticaria.⁵ Therefore, physicians who perform drug challenges need to be wary of possible psychosomatic reactions and consider use of placebo dosing during these procedures.

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The above correspondence was referred to the original authors who provided the following response:

Dr Solensky has raised some thought-provoking issues about our Letter to Editor¹ entitled "Two-challenge approach to

evaluation of penicillin allergy in the absence of skin testing reagents." Although Dr Solensky agreed with the overall outlined approach, he shared some insightful comments and raised a few points of disagreement.

His first point was that the correlation between skin testing and radioallergosorbent testing (RAST) to penicilloyl could be as low as 45%.² We could not refute the results of this study; however, there are other reports of higher correlation in the range that was quoted (87% to 95%).^{3–7} The wide range of reported correlations may be partly explained by lack of standardization in skin test result interpretation between studies. Qiao et al⁷ found an increased correlation in the presence of serum specific IgE to major and minor determinants with increased degrees of skin test positivity. Although we certainly agree that skin testing to penicilloyl-polylysine would be the preferred method of screening, it is not available commercially at this time. In the interim, this RAST to penicilloyl test may provide some insight as to when to halt further testing and offer desensitization if there is no acceptable alternate. Also, to our knowledge, there is no reference in the literature to confirm Dr Solensky's statement that the results of RAST evaluation performed in commercial laboratories are not comparable to ones performed in academic centers.

Dr Solensky also suggested that our recommended subsequent graded challenge performed 1 month later was unnecessary. To prove this point, he referred to studies that found penicillin re-sensitization after treatment with oral penicillin to be low.^{8,9} We agree with the fact that the patients in these studies safely tolerated oral penicillin for 10 days or so without developing any reaction or any evidence of re-sensitization. However, in these studies, the graded challenges were only offered to patients with negative skin test results; therefore, the lack of reactions just confirms the excellent negative predictive value of a negative skin test result. As stated in our original letter, we do not have established negative predictive values for RAST testing followed by skin testing to penicillin G, and we are attempting to take a conservative approach of offering 2 challenges. It is our hope that 2 negative consecutive challenge results will rule out the possibility of procedure-induced re-sensitization and completely satisfy both physicians and patients. Finally, we share Dr Solensky's view on the role of placebo dosing during oral provocation testing to evaluate for possible false-positive results.

We extend our appreciation to Dr Solensky for his review of our proposed protocol. We eagerly await the return of penicilloyl-polylysine as a vital tool in our evaluation of penicillin allergy. In the meantime, this protocol will at least provide a safe alternate approach until skin testing reagents become more easily accessible.

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