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Jackfruit Anaphylaxis In A Patient With No Other Known Allergies

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Abstract

Anaphylactic reactions to Jackfruit, while uncommon, may not be linked to known cases of cross-reactivity. It's noteworthy as the first documented instance of jackfruit-induced anaphylaxis in a patient taking lisinopril. ACE inhibitors may have contributed to the severity of the reaction, underscoring the need for further investigations into the interplay between ACE inhibitors and anaphylactic responses, particularly concerning jackfruit consumption.

Keywords: Jackfruit, Anaphylaxis, Cross-reactivity, Pectin

Introduction

Artocarpus heterophyllus Lam., commonly known as Jackfruit, is a fruit native to Western India and is widely enjoyed by people in Asia, Africa, and some regions of South America. More recently, it has been studied for its nutritional benefits and versatility in various foods, such as jellies, ice creams, and traditional medicine products, due to its antimicrobial, anti-carcinogenic, and anti-inflammatory effects **[6]**. Jackfruit is rich in vitamins A, C, B1-3, calcium, potassium, iron, and zinc, in addition to having a low caloric content **[5]**. With the fruit gaining popularity for its nutritional value, there should be heightened awareness of potential allergies and anaphylaxis, with the possibility of cross-reactivity with other fruit and nut allergies. The aim of this case review is to draw attention to the potential cross-reactivity between Jackfruit and other food products and to demonstrate the course of treatment for a patient experiencing anaphylaxis to Jackfruit.

Case Report

The case involves a 52-year-old male of Bangladeshi background with a medical history of type II diabetes mellitus treated with Glucophage, hypertension managed with lisinopril and amlodipine, hyperlipidemia controlled with atorvastatin, fatty liver, obesity classified as class I, and coronary artery disease. The patient has no relevant family or surgical history. He presented to the emergency department with sensations of his throat closing, Mallampati class IV, bilateral eye edema, and shortness of breath. These symptoms occurred shortly after consuming Jackfruit. He had previously eaten Jackfruit without any noticeable symptoms. The patient's only known allergy is to codeine (with an unknown reaction). Chest X-ray and CTA yielded negative results. The patient received 1 L of normal saline, 125 mg of solumedrol, three doses of epinephrine (0.3 mL each), and 25 mg of Benadryl. Subsequently, he was admitted to the step-down ICU for ongoing care.

In the ICU, the patient continued to receive IV solumedrol at a dose of 60 mg every 6 hours for four doses, with a tapering regimen as his symptoms improved. An epinephrine drip was administered at a rate of 0.5 mcg/min. All oral medications were temporarily discontinued. By the second day in the ICU, the patient's symptoms improved, leading to the discontinuation of the epinephrine drip and steroids.

Upon discharge, all medications were resumed except for lisinopril, which was replaced with 5 mg of amlodipine. The patient received an epinephrine auto-injector (Epipen), famotidine 20 mg, loratadine 10 mg (Claritin), and prednisone 10 mg.

Discussion

This case involves a 52-year-old male who experienced a severe anaphylactic reaction characterized by bilateral periorbital edema, tongue swelling, and shortness of breath shortly after ingesting Jackfruit **[1]**. The close timing of the response to the consumption of Jackfruit makes it unlikely to be a consequence of another factor. Oral allergy to Jackfruit is common **[7,3]**. However, anaphylaxis triggered by Jackfruit is rarely reported, with only three documented cases in the literature originating from Thailand, Florida, and the Midwest US **[8,9,10]**. Notably, two out of these three cases of jackfruit-induced anaphylaxis were individuals with known latex allergies **[9,10]**. In contrast, this patient had no known latex allergy; his sole known allergy was to codeine, with an unknown reaction.

Interestingly, there is also a connection between jackfruit anaphylaxis and the Bet V1 allergen found in birch pollen **[8]**. Birch pollen (Bet V1) is present in Moraceae fruits, which include figs, mulberries, and Jackfruit, and has been documented in cases of oral jackfruit allergy

in previous studies **[3,12]**. However, this patient had no known history of birch pollen allergy.

Furthermore, Jackfruit is known to have a high level of pectin, with one study isolating 38% pectin from jackfruit waste **[4]**. Pectin, when inhaled, has been associated with occupational asthma, and cross-reactivity has been observed with nuts that contain high levels of pectin, such as cashews and potentially pistachios **[11]**. This is significant because the substantial pectin content in Jackfruit may trigger allergic reactions in individuals with nut allergies.

The fact that this patient in the case study was being treated with an ACE inhibitor is noteworthy. In the context of ACE inhibitor use, it has been demonstrated that these drugs can increase bradykinin levels, which might have induced or exacerbated the severity of the anaphylactic attack **[2]**. In this patient, who had prior exposure to Jackfruit without any history of anaphylaxis, it is possible that the prolonged use of an ACE inhibitor contributed to the increased severity of his symptoms.

Conclusion

This case suggests that a jackfruit allergy leading to anaphylaxis was not related to previously documented instances of cross-reactivity. It is the first reported case of anaphylaxis to Jackfruit in a patient taking lisinopril. ACE inhibitors could have affected his symptoms, potentially increasing the severity of angioedema and anaphylaxis. Further studies should be conducted to investigate the interactions between ACE inhibitors and anaphylactic reactions, particularly in the context of jackfruit consumption.

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