
Allergy to macadamia nut

David E Pallares, MD*

Background: Nuts are one of the most common foods causing allergic reactions in children and adults although an allergic reaction to macadamia nut has been reported only once previously.

Objective: To report a case of macadamia nut-induced allergic reaction.

Methods: Skin prick test with macadamia nut was performed in a private practice office.

Results: The results demonstrated type-I hypersensitivity reaction with macadamia nut.

Conclusion: Macadamia nut ingestion can cause immediate-type allergic reactions.

Ann Allergy Asthma Immunol 2000;85:385–386.

INTRODUCTION

Nuts are one of the more common food allergens implicated in children and adults. Peanut and/or tree nut allergy affects approximately 1.1% of the general population, or about 3 million Americans.¹ Macadamia nut anaphylaxis has been reported only once previously.² The macadamia nut is a tree nut unlike peanut, which is a legume. It is a round edible seed that grows on two species of trees (*Macadamia tetraphylla* and *Macadamia intergrifolia*).³ Macadamia trees are evergreens native to tropical Australia. The “smooth shell” macadamia tree (*Macadamia intergrifolia*), the only commercially important species, grows more than 40 feet tall and bears creamy-white flowers.³ It was brought to Hawaii in the 1800s. The nuts are cracked, and the white kernels are then dried, roasted in oil, and salted. The roasted nuts are often used in cakes, cookies, candy, and ice cream. The nuts are also called Australian nuts, bopple nuts, bush nuts, and Queensland nuts.³ Here reported is an acute allergic reaction secondary to macadamia nut ingestion.

CASE REPORT

A 36-year-old man developed uvular angioedema, angioedema of the posterior part of the tongue, dysphagia, chest tightness, chest pain, and chest pruritus 5 minutes after eating one chocolate covered macadamia nut (Mauna Loa; Hilo, Hawaii). He immediately took two 25-mg diphenhydramine capsules. The symptoms did not improve after 30 minutes, so he went to the emergency department for further evaluation. In the emergency department he was noted to be somewhat anxious, but not diaphoretic. He complained of anterior chest wall pruritus. His vital signs were blood pressure, 126/77 mm Hg; pulse, 70 bpm; and respiratory rate of 18 per minute. His physical findings included uvular and posterior tongue angioedema. He did not have wheezing, urticaria, vomiting, or diarrhea. He was treated with intravenous diphenhydramine, methylprednisolone, and famotidine. The pruritus resolved in 15 minutes. The angioedema improved in 30 to 40 minutes. He was observed for several hours and then discharged home. His discharge instructions included macadamia nut avoidance, prednisone, diphenhydramine, and allergy evaluation.

In his past medical history, this patient had eaten cookies with macadamia nut in 1997 and developed facial angioedema that resolved with oral diphenhydramine. In 1998 he again ate cookies with macadamia nut and developed throat swelling and chest pain that resolved with oral diphenhydra-

mine. At present he tolerates peanut, hazelnut, almond, cashew, pecan, and chocolate without any allergic reaction. He has no family history of angioedema or asthma. He does have a personal and family history of allergic rhinitis.

Skin prick testing (SPT) to hazelnut (0 mm; Hollister-Stier; Spokane, WA; glycerinated 1:20), almond (0 mm; Greer; Lenoir, NC; glycerinated 1:20), and chocolate (0 mm; Greer; Lenoir, NC; glycerinated 1:20) were all negative. Serum-specific IgE assay was not performed to hazelnut, almond, or chocolate. Commercial macadamia nut extract for SPT and macadamia-specific IgE assay are not available. A roasted macadamia nut (Mauna Loa; Hilo, Hawaii) was cut in half and firmly rubbed three times on the volar surface of the patient's forearm and a nonallergic control individual. At the site where the macadamia nut was rubbed, SPT with Duotip (Lincoln Diagnostics; Decatur, Illinois) was performed. After 20 minutes the patient demonstrated a 6-mm wheal and 7-mm of erythema, but the nonallergic control individual did not (0 mm). Histamine (Center; Port Washington, NY; Histatrol; histamine base 1 mg/mL) SPT on the patient demonstrated a 4-mm wheal and 7-mm of erythema. Histamine (Center; Port Washington, NY; Histatrol; histamine base 1 mg/mL) SPT on the nonallergic control individual demonstrated a 5-mm wheal and 7-mm of erythema. Control normal saline with HSA (Greer; Lenoir, NC) SPT was 0 mm in the patient and the nonallergic control. An oral food challenge was not performed.

DISCUSSION

This individual presented with an allergic reaction secondary to ingestion of macadamia nut. He had had two prior exposures with milder allergic reactions. Patients with mild allergic reac-

* Louisville Allergy & Asthma, PSC; Louisville, Kentucky.

Received for publication January 10, 2000.

Accepted for publication in revised form March 22, 2000.

tions to nuts can frequently develop anaphylactic reactions.^{4,5} The patient was instructed to avoid macadamia nut and an EpiPen (Dey, Napa, CA) was prescribed. The emergency department physician failed to prescribe an EpiPen. He was instructed not to avoid the other nuts since he tolerated them, but to be cautious and carry an EpiPen at all times. The SPT to fresh macadamia nut was positive. Due to the nature of the reaction, a double-blind placebo-controlled oral food challenge was not performed. The only previous report of macadamia nut allergy showed partial cross reactivity with hazelnut.² Interestingly, the patient reported he had a negative skin test

to hazelnut and could eat hazelnut without an allergic reaction. Macadamia nut allergy is rare, but can be a cause of significant allergic symptoms like other tree nuts.

REFERENCES

1. Sicherer SH, Munoz-Furlong A, Burks AW, Sampson HA. Prevalence of peanut and tree nut allergy in the US determined by a random digit dial telephone survey. *J Allergy Clin Immunol* 1999;103:559–562.
2. Sutherland MF, O’Hehir RE, Czarny D, et al. Macadamia nut anaphylaxis: demonstration of specific IgE reactivity and partial cross-reactivity with hazelnut. *J Allergy Clin Immunol* 1999; 104:889–890.
3. Tanabe, MJ, “Macadamia nut,” World Book Online, <http://www.worldbookonline.com/na/ar/fs/ar335680.htm>, February 14, 2000.
4. Yunginger JW, Sweeney KG, Sturner WQ, et al. Fatal food-induced anaphylaxis. *JAMA* 1988;260:1450–1452.
5. Sampson HA, Mendelson LM, Rosen JP. Fatal and near-fatal anaphylactic reactions to food in children and adolescents. *N Engl J Med* 1992;327: 380–384.

Request for reprints should be addressed to:
David E. Pallares, MD
4402 Churchman Avenue
Suite 401
Louisville, KY 40215-3109