

Contact Dermatitis Following Sustained Exposure to Pecans (*Carya illinoensis*): A Case Report

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Type I hypersensitivity reactions following ingestion of peanuts and tree nuts are well characterized. Cutaneous hypersensitivity reactions are less well characterized, yet they remain the second most common reaction pattern to contact with or ingestion of such nuts. We present a case of a patient who experienced an acute vesicular cutaneous reaction after prolonged contact with pecans. This case illustrates the salient features of contact dermatitis and serves as a reminder that contact with allergenic foods can lead to hypersensitivity reactions.

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The pecan tree (*Carya illinoensis*) belongs to the same family of plants as the walnut tree (Juglandaceae), which is the most common cause of tree nut allergies in the United States.¹ Both the pecan shell and the untreated nut contain potent allergens that have been isolated but not characterized. Anaphylaxis, sometimes with associated mortality, has been reported in persons who consumed small quantities of the nut.^{2,3} Despite mounting information in the public and medical literature that characterizes the systemic allergic reactions to tree nuts, reports of protein contact dermatitis from tree nuts remain scarce. An extensive search of the literature

revealed only 2 reported cases of allergic contact dermatitis derived from contact with pecans.^{4,5} Many cases of similar eruptions following contact with cashews have been reported.^{2,3,6}

Case Report

A 51-year-old Filipino woman presented complaining of a pruritic burning eruption on her hands. The eruption had been present for 5 days at the time of presentation to our clinic. The lesions and symptoms began less than one day after she had shelled approximately one bushel of fresh pecans as preparatory work for baking pecan pies. No shortness of breath or oropharyngeal edema was reported in association with this episode. The patient denied a history of similar skin eruptions and denied any history of urticaria or respiratory difficulties following intake of pecans or other tree nuts in the past. The patient stated that although she occasionally had shelled small quantities of nuts, she had never shelled such a large number of nuts (of any type) in one sitting. On the day of the injury, the patient sought treatment in the local emergency department where she was treated with hydrocortisone 1% cream. Minimal transient relief of the associated pruritus was noted with this therapy, but the skin lesions continued to evolve.

The patient presented to our dermatology clinic 4 days later. Results of an examination were remarkable for the presence of copper-brown patches located diffusely on the patient's dorsal hands. The hyperpigmented patches involved the volar digits and lateral palms as well but spared the center of both palms. Multiple well-circumscribed erosions were present over several of the proximal interphalangeal and metacarpophalangeal joints, presumably at the sites of ruptured bullae. There were no intact vesiculobullous lesions at this time. Mild underlying erythema of the hands remained (Figures 1–3).

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Figure 1. Hyperpigmentation, ruptured bullae, and erythema of dorsal hands following contact with pecans.



Figure 2. Hyperpigmented patches on palms that spare the center of hands.



Figure 3. Erosions overlying proximal interphalangeal joint at site of ruptured bullae.



Figure 4. Dorsal hands after clobetasol propionate 0.05% ointment treatment for 2 weeks.



Figure 5. Palms following treatment.



Figure 6. Dorsal hand following treatment. No erosions or bullae remain.

Following 2 weeks of treatment with clobetasol propionate 0.05% ointment, the patient demonstrated marked improvement. Results of an examination at that time revealed mildly hyperpigmented patches on 3 dorsal digits and the palms. No vesicles, bullae, significant erythema, or erosions remained (Figures 4–6). The patient reported that the symptoms of pruritus and burning had remitted one day after starting the treatment regimen. Rechallenge with pecans has not been attempted.

Comment

C. Illinoensis, indigenous to the southeastern United States, is found principally along the Mississippi Delta riverfront lands, extending west into Texas along other major rivers. Pecans are cultivated in all temperate regions of the world, though the United States remains the main agricultural producer of the nut.^{7,8} The deciduous tree, which can grow to 50 m in height with a trunk diameter of up to 2 m, can live for hundreds of years and produce thousands of nuts annually. Seed

production starts when the trees are about 20 years old, with optimal seed-bearing occurring when the trees are between 75 and 225 years old. A mature tree yields about 100 lbs of nuts annually.⁸ Each nut is brown, cylindrical, thin-shelled, and enveloped in a 4-winged husk.

A large voluntary registry of peanut and tree nut allergies was established in 1997.⁶ According to the registry, approximately 90% of first-time reactions to either peanuts or tree nuts were caused by ingestion. Of interest, skin contact with resultant dermatitis was reported as the second most common mode through which allergy was displayed. Approximately 9% of respondents noted dermatitis on exposure to nuts. The relative frequencies of reactions (systemic or localized) to specific tree nuts were reported as follows: walnut, 34%; cashew, 20%; almond, 15%; pecan, 9%; pistachio, 7%; and hazelnut, Brazil nut, macadamia nut, and hickory nut each were less than 5%.⁶ It is thought that this stratification more likely is related to consumption frequency than to allergenicity.

Contact sensitivity to tree nuts is a relatively uncommon phenomenon; nevertheless, this sensitivity is an important clinical entity that must be recognized. Serious systemic reactions following contact with pecans have not been described; however, reexposure of a patient who has demonstrated marked reactivity to the nut poses likely risk of further problems. Our patient's case highlights the

potential for significant cutaneous reaction to elements of the pecan nut. Her bullous eruption and marked symptomology illustrate the propensity for pecan proteins to induce a hypersensitivity reaction in susceptible individuals.

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