

CASE LETTERS

Oral allergy syndrome and contact urticaria to apples

To the Editor: A 12-year-old Asian boy presented with a pruritic eruption that occurred within 5 minutes after eating a red apple. His medical history was significant for atopic dermatitis during infancy, contact urticaria to eggplant, urticaria after ant stings, seasonal allergies relieved with antihistamines, and allergic contact dermatitis to rubber waistbands in underwear. At the age of 3 years, he developed an urticarial drug eruption to penicillin. The patient was otherwise healthy and taking no medications. The patient stated that while he was eating the apple, his hard palate started to itch and, shortly after that, he developed a rash around his mouth. Although all the previous times he had eaten an apple—whether yellow, green, or red—his hard palate would become pruritic, this was the first time a rash had ever developed. On physical examination, there were confluent, urticarial, erythematous patches in a perioral distribution (Fig 1). He was treated with cetirizine (10 mg by mouth) with alleviation of pruritus and complete clearance of the eruption within 2 hours (Fig 2).

DISCUSSION

Allergic reactions after the ingestion of a wide variety of fresh fruits and vegetables including avocado, celery, eggplant, banana, pineapple, jackfruit, mango, kiwi, and strawberry are well recognized.¹⁻⁶ The most commonly encountered manifestation of hypersensitivity to fresh fruits is oral allergy syndrome (OAS), a form of contact urticaria that occurs within minutes of ingestion and presents as itching, burning, and swelling of lips, tongue, roof of the mouth, or throat. Only rarely do more widespread symptoms such as rhinoconjunctivitis, angioedema, asthma, anaphylactic shock, or a combination of these occur. The existence of hypersensitivity to apple, manifesting as OAS, is well established. In a study of 262 patients who exhibited fresh fruit and vegetable allergic reactions, 139 patients (53.1%) were found to be allergic to apples.⁷ Often when hypersensitivity to a single food exists, hypersensitivity to other foods exists as well. Our patient had a history of contact urticaria to eggplants and developed a similar reaction to apples, suggesting the possibility of cross-reactive antigens between eggplants and apples. Similarly, many patients



Fig 1. Perioral urticarial patches.



Fig 2. Normal skin 2 hours later after one 10-mg dose of cetirizine.

who demonstrate IgE antibodies to fruits and vegetables are also allergic to natural rubber latex. Cross-reactivity between allergens most likely exists between the two entities.⁸

OAS to fresh fruits also often occurs for patients with a history of pollen allergies and is believed to be caused by pollen protein cross-reactions with proteins present in apple or apple products. Hypersensitivity to apples has been linked to birch tree allergy in particular. In a study of 230 patients with both atopy and birch pollinosis, 26% of patients were found to be allergic to apples whereas in a study population of 150 patients with atopy without pollen hypersensitivity, only 2% exhibited an allergy to apples. Of 105 individuals with no atopic history or hayfever, no allergies to apples were identified.⁹

The major allergen identified in apple extract is Mal d 1, a protein structurally homologous to the birch pollen major allergen Bet v 1, a protein that

belongs in a family of pathogenesis-related proteins.¹⁰ Serologic and cellular immunoassays have determined that a limited epitope coincidence occurs between Mal d 1 and Bet v 1. Not all patients with a birch pollen allergy have a corresponding apple allergy, as an individual's IgE determines the degree of cross-reactivity. Injection-specific immunotherapy with birch pollen extract can reduce or cure the associated apple allergy in a significant number of patients with both forms of sensitivity.¹¹ Although most patients show a gradual apple re-sensitization after immunotherapy is stopped, for some patients apple tolerance can last longer than 3 years. Further studies with larger sample sizes are needed to determine long-term clinical efficacy and practical guidelines.

Cutaneous contact urticaria has been documented after the direct contact or exposure of the skin to numerous vegetables, fruits, herbs, nuts, and grasses and is classically seen in patients who are long-time food handlers and/or have atopy.¹² Patients with OAS can develop urticarial reactions of the skin if direct cutaneous contact with the allergen occurs. In a study looking at the distribution of symptoms of vegetable and fruit allergies, of 262 patients, 96 presented with only oral symptoms, 43 had only extraoral symptoms, and 123 presented with both oral and systemic symptoms, although not necessarily to the same food. Of 1390 allergic symptoms, 722 symptoms were oral in nature (58.95%); 299 (18.64%) involved urticarial, angioedema presentations; and 164 (13.35%) exhibited gastrointestinal manifestations.⁷

Although it may be argued that OAS and contact urticaria to fresh fruits and vegetables occur on a spectrum of IgE-mediated allergic symptoms, OAS to apples has been widely documented in the English-language allergy/immunology literature whereas no reports on the development of cutaneous contact urticaria of the skin after exposure to apples exist in the dermatologic literature. The distribution of our patient's rash suggests direct exposure of the perioral skin to the responsible allergen, likely present in the juice or apple meat/pulp as the cause of his urticarial skin eruption.

We present this case to highlight the presence of hypersensitivity to apples, its association with atopy and seasonal allergies, and its possible presentation with both oral and cutaneous urticarial reactions after exposure. Given the frequent ingestion of the fruit by the general population and rapidly growing prevalence of atopy and seasonal allergies, allergic reactions to apples may become an increasingly encountered dermatologic condition of which to be aware.

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Human papillomavirus type 26—associated periungual squamous cell carcinoma in situ in a HIV-infected patient with concomitant penile and anal intraepithelial neoplasia

To the Editor: HIV-infection is associated with a high prevalence of human papillomavirus (HPV) infection, causing a broad clinical spectrum of lesions ranging from common warts to anogenital cancer. Increasing rates of squamous cell carcinomas (SCCs) of the genital and perianal region have been recently reported in HIV-infected individuals with AIDS.¹ So far, only limited data are available for the incidence