

Title: Honey-induced anaphylaxis in an adult

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Honey is a rare culprit of allergy with an incidence rate of <0.001% in the general population and can cause a range of mild to systemic reactions.^{1,2} Honey is a heterogenous mixture of pollen proteins, flower nectar, honeybee parts, sugars, and honeybee gland enzymes with the main allergens being pollen proteins and glandular enzymes.^{1,2,3,4} Case reports have diagnosed honey allergy through honey IgE testing and prick-to-prick testing. We will discuss a case of anaphylaxis to orally ingested honey in an adult.

A 27-year-old healthy white male was seen in the allergy clinic after a severe allergic reaction requiring hospitalization. The patient attended a honey tasting venue where, within 30 seconds of consuming various honey infusions, he developed presyncope, generalized urticaria, and flushing. Before this episode, the patient had no history of angioedema, epinephrine autoinjector use, exposure to Hymenoptera, or pollen allergy. The patient was taken to a local emergency department where he was hypertensive (BP 152/64), tachycardic (HR of 135), and normoxic. Physical exam revealed lip angioedema, conjunctival injection, enlarged uvula, and generalized urticaria. After receiving 50 mg IV diphenhydramine, 0.3 mg epinephrine injection, 20 mg IV famotidine, 125 mg IV methylprednisolone, and 50 mg oral prednisone, his symptoms resolved. He was discharged home with an oral solumedrol dose pack and laboratory workup nine days after his ED visit showed a baseline serum tryptase level of 1.8 (reference < 11.5 ng/mL). No tryptase level was obtained during ED admission. The patient was evaluated in Allergy/Immunology clinic 10 days after his anaphylactic episode and was counseled on avoidance measures, epinephrine injector technique, and advised to return after his anergy period subsided to perform skin prick testing.

Eighteen weeks later, the patient returned for a follow-up visit. There was no remarkable interval history and the patient avoided exposure to honey. The patient brought extracts that he

had consumed: raw, blackberry, wildflower, orange, and bourbon. Prick-to-prick testing was done using these samples in the patient and 10 healthy controls who previously consumed honey without allergic reactions. Histamine was used for positive control and normal saline for negative control. The patient had a positive response to wildflower and orange-induced honey with an adequate response to positive control (Figure 1). One of the healthy controls was dermatographic and had positivity to all samples. Another healthy control had positive testing to certain extracts but previously consumed honey without adverse reactions. The remainder of the controls had negative skin testing results. Additionally, the patient had a negative serum IgE against honeybee (<0.10; reference <0.10 kU/L). These results in conjunction with our patient’s clinical history support the diagnosis of a honey allergy. The patient was advised to continue avoiding honey and carry an epinephrine autoinjector with him.

We have described a case of a patient who experienced anaphylaxis upon ingesting honey and was treated with immediate epinephrine, steroids, and antihistamines. Diagnosis of honey allergy requires a thorough clinical history. Prick-to-prick skin testing serves as a simple mechanism to screen for presumed honey allergy, and workup with honey IgE, pollen proteins, and honeybee proteins testing may be utilized to further investigate the cause of honey allergy.¹ Our findings are limited but suggest that prick-to-prick skin testing is useful in diagnosing honey allergy without inducing anaphylaxis and that honey avoidance can prevent recurrence of anaphylaxis.

Learning Point for Clinicians: Honey allergy is rare in the general population but can present as range of symptoms from mild allergy to anaphylaxis. Since honey is a heterogenous mixture, prick-to-prick testing against honey, pollen proteins, honeybee proteins, and honey IgE may be implicated for investigation of the culprit behind a potential honey allergy.

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80 Figure Legend

81 Figure 1. Skin testing results on patient with histamine as positive control (H), normal saline
82 as negative control (NS), raw honey (RH), wildflower (WF), blueberry (BB), orange (O), and
83 bourbon (B) honey samples.

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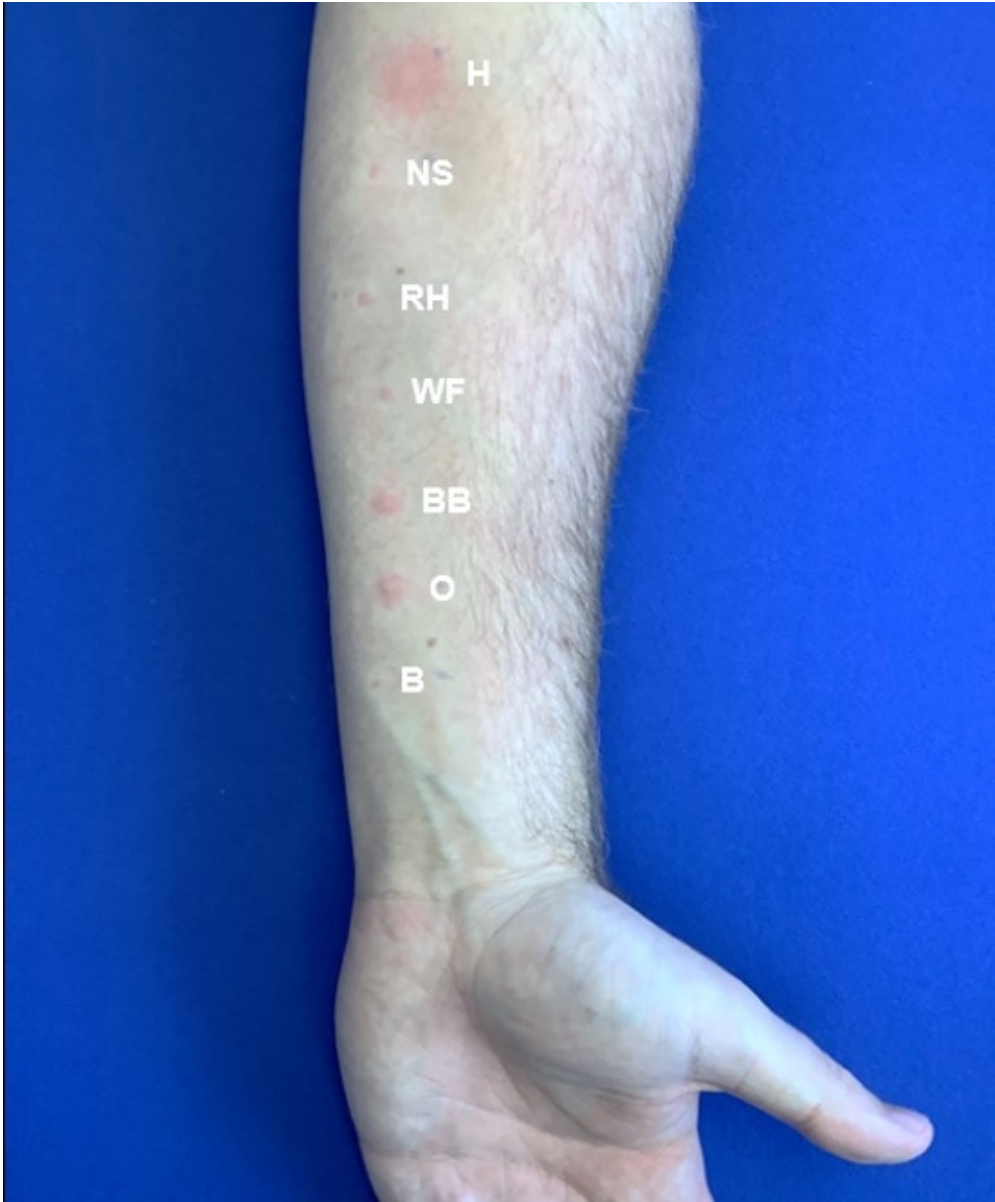


Figure 1. Skin testing results on patient with histamine as positive control (H), normal saline as negative control (NS), raw honey (RH), wildflower (WF), blueberry (BB), orange (O), and bourbon (B) honey samples.

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