Images in Allergy

Aquagenic Urticaria

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FIGURE 1. Before water challenge.

A 40-year-old healthy white woman developed acute diffuse urticaria, angioedema, lightheadedness, nausea, and abdominal pain 10 minutes after lying supine with 80% of her body submerged in bath water. She had consumed nothing before nor used any novel products during her bath. Afterward, while preparing for work, she felt weak and her symptoms, although mildly improved, persisted. Four hours after onset she presented to the emergency department. Other than faint urticarial lesions, her examination was otherwise normal and showed no evidence for dermographism. The results of her laboratory studies, including serum tryptase, were normal. She was discharged with prednisone, antihistamines, an epinephrine self-injector, and was referred to our allergy/immunology clinic.

During our consultation, she reported a 7-month history of recurrent bilateral lower extremity pruritus, erythema, and swelling that occurred within 10 minutes of continual water exposure, typically while showering. Her symptoms lasted approximately 20 minutes and resolved spontaneously. Because of these symptoms, she had avoided swimming or other significant water exposures but reported similar lesions and symptoms on her hands after washing dishes. She occasionally took antihistamines to manage her symptoms. Apart from oral contraceptives, she denied the use of other medications. She had no significant past medical or surgical history, relevant family history, or known drug allergies. Although she denied symptoms with heat and cold, our differential diagnosis included localized heat, cold, and aquagenic urticaria with anaphylaxis.

A dry test tube filled with hot water and a dry bag of ice was applied to the patient's forearm for 5 minutes to test for localized heat and cold urticaria, respectively. Neither elicited a reaction at 30 minutes. A water challenge was performed by applying a wet compress saturated in room temperature water just distal to the antecubital fossa (Figures 1 and 2). The compress was left in place for 16 minutes and removed when the patient reported pruritus and developed punctate, perifollicular lesions with surrounding erythema in the antecubital fossa (Figure 3). The patient had resolution of symptoms and skin lesions within 15 minutes of removing the water compress. She remained hemodynamically stable throughout, and tryptase level from the challenged arm was 5 ng/mL. Our diagnosis was aquagenic urticaria.

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FIGURE 2. Water challenge was performed on the patient using the water compress technique.

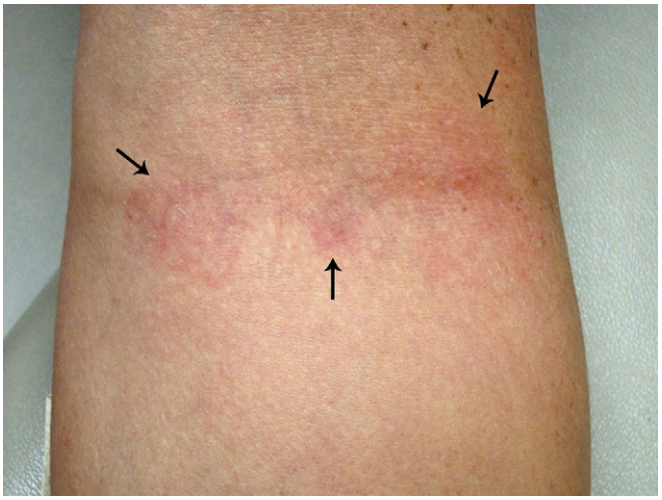

FIGURE 3. After the water challenge a positive response was seen with localized erythema, edema, and scattered urticarial lesions (*arrows*).

The patient responded well to fexofenadine 180 mg twice daily to three times daily, reporting significant symptomatic improvement without recurrence of anaphylaxis. She was counseled about high-risk activities and instructed to carry an epinephrine self-injector at all times. Our case uniquely describes anaphylactic symptoms secondary to significant water exposure in a person with aquagenic urticaria. Aquagenic urticaria is a rare physical urticaria that is characterized by pruritic, perifollicular lesions and surrounding erythema, triggered by cutaneous water exposure. Although the clinical history remains invaluable, it is important to consider and exclude, with appropriate provocative challenges, other physical urticarias which could be triggered by overlapping factors (eg, localized heat urticaria, cold urticarial, and cholinergic urticaria with sweating).

An extensive review of the appropriate provocative challenges for various physical urticarias is beyond the scope of this article, but they are reviewed in Casale et al[1] and Magerl et al[2] and briefly summarized as follows: dermographism, moderate stroking of the skin with a blunt smooth object or a dermographometer at 36 g/mm^2; localized heat urticaria, placing a test tube of heated water (45°C) on the forearm for 5 minutes; cold urticaria, placing an ice cube in a plastic bag on the forearm for 5 minutes; delayed pressure urticaria, suspension of 7-kg weights over the shoulder for 15 minutes; solar urticaria, exposure of the forearm to specific light spectra; vibratory urticaria, vortex vibration of the forearm for approximately 10 minutes; and cholinergic urticaria, either vigorous exercise to the point of sweating or exogenous heat that causes a rise in body temperature of >0.7°C.

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