

A Case of Combined Cholinergic and Cold Urticaria

To the Editor,

Cold urticaria is a disorder in which patients experience pruritus and urticaria within a few minutes after exposure to cold [1]. Cholinergic urticaria, which is also known as generalized heat urticaria, develops after an increase in body temperature [1]. A 34-year-old man presented with urticaria. The urticaria began following exercise and presented with pruritus followed by diffuse punctate wheals surrounded by erythema, as seen in cholinergic urticaria (Fig. 1). The patient also had pruritus and erythema after exposure to cold winds (Fig.

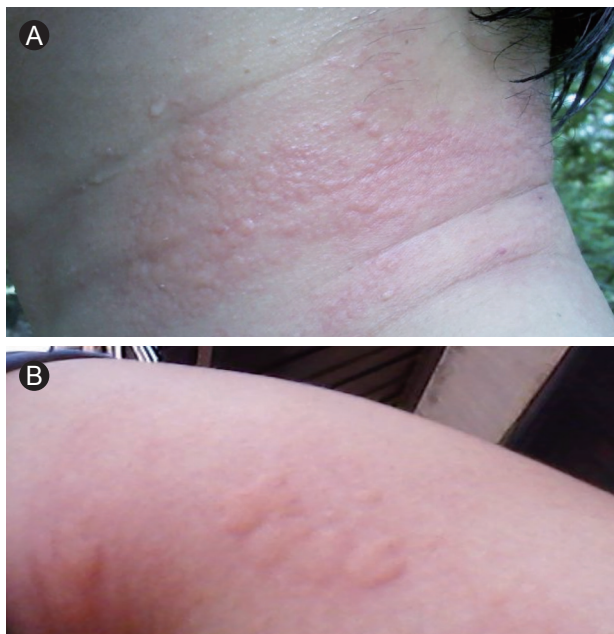


Figure 1. (A, B) The patients had punctate 1- to 5-mm wheals on the neck and arms after 10 minutes of exercise.

2). In addition, the patient's urticaria following exercise was provoked by a cold wind. His history suggested two different types of physical urticaria: 1) generalized erythema characterized by small, well-circumscribed wheals precipitated by exercise and 2) a localized type of urticaria occurring on exposure to cold, such as when he was exposed to a cold wind. He had no history of asthma, hepatitis, allergic rhinitis, or other allergic diseases. The initial physical examination revealed no abnormalities. The total immunoglobulin E (IgE) was 336 kU/L. He was positive to *Dermatophagoides farinae* and *Dermatophagoides pteronyssinus* with the pharmacaria specific IgE detection system. The venereal disease research laboratory, cryoglobulin, hepatitis B surface antigen, cold agglutinin titer, and rheumatoid factor were negative. On exercising by running in place for 10 minutes, he developed generalized pruritus and discrete urticaria 1- to 5-mm-diameter over his neck, trunk, and extremities, with no hypotension or wheezing (Fig. 1). Since the history of urticaria associated with a cold wind suggested cold urticaria, an ice challenge was performed on his forearm and hands. Within 5 minutes of removing the ice, he developed pruritus and urticaria at the challenge site. He also had pruritus, a burning sensation, and edema on the hands after removing the ice (Fig. 2).

Physical urticaria constitutes 20% to 30% of all cases of chronic urticaria [2]. A few patients have multiple types of physical urticaria simultaneously [2-4]. Cholinergic urticaria constitutes 5% of all cases of chronic urticaria [4] as generalized heat urticaria seen as hives precipitated by an increase in core body temperature. Common triggers include exercise, emotional stress, and bathing in hot water. Cholinergic urticaria is characterized by numerous punctate wheals (1 to 3 mm) surrounded by large flares [4]. The mechanism underlying cholinergic urticaria is generally believed to involve an abnormal cutaneous response in the presence of cho-

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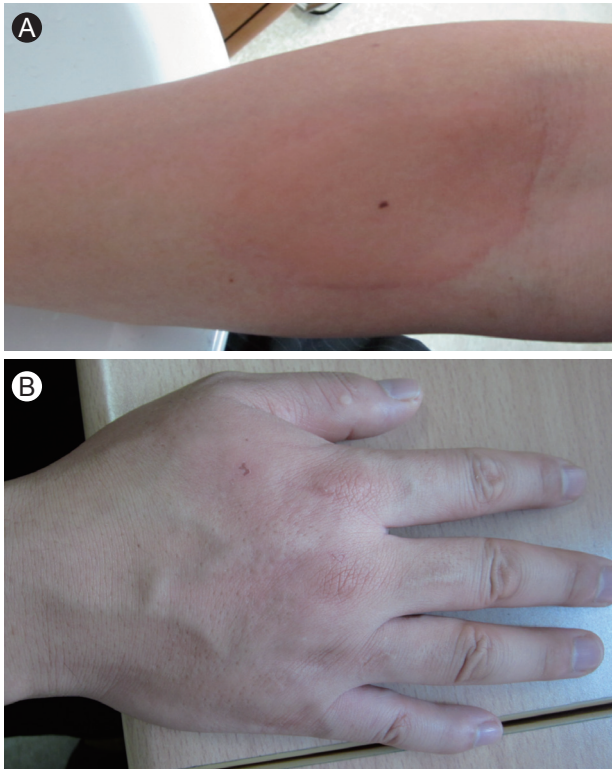


Figure 2. The patient had a positive ice cube test. (A) The ice cube was placed on the forearm for 5 minutes and the arm observed 5 and 10 minutes later. Five minutes after removing the ice cube, the patient developed a 67 × 55 mm wheal and 68 × 57 mm area of erythema. (B) After placing the ice cube on the hand for 5 minutes, the patient had pruritus, wheal and flare, a burning sensation for 10 minutes, and edema.

linergic agents. Elevated histamine levels have been detected in the serum during an attack [5] with an increased number of muscarinic receptors in these areas. Confirmation involves provocation testing using a variety of methods. Our patient had pruritus and wheals induced by running. The identification and avoidance of known triggers are the first steps in controlling cholinergic urticaria. Bathing in hot water and performing strenuous exercise during hot weather should be avoided. Hydroxyzine is the classic treatment of choice and is generally believed to be more effective than other antihistamines.

Cold urticaria is a form of physical urticaria that can be primary (idiopathic) or secondary to underlying hematological or infectious diseases [5]. The activation of mast cells and subsequent release of histamine and

other inflammatory mediators is thought to play a central role [5]. However, the mechanism by which the cold stimulus is transformed into a signal for molecular and cellular activation has not been elucidated. Anti-IgE antibodies may play a role [5]. Typically, patients with cold urticaria develop pruritic wheals and angioedema that can be localized or generalized after cold exposure. Our patient had skin lesions including itching and erythema and wheals after exposure to a cold wind. The diagnosis is dependent on a complete history and physical examination, as well as a positive cold stimulation test. Treatment consists primarily of antihistamines.

Keywords: Cold urticaria; Cholinergic urticaria

Conflict of interest

No potential conflict of interest relevant to this article is reported.

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