

UC Davis

Dermatology Online Journal

Title

Local heat urticaria

Permalink

<https://escholarship.org/uc/item/7pc9g2hh>

Journal

Dermatology Online Journal, 23(12)

Authors

White, Forrest
Cobos, Gabriela
Soter, Nicholas A

Publication Date

2017

DOI

10.5070/D32312037673

Copyright Information

Copyright 2017 by the author(s). This work is made available under the terms of a Creative Commons Attribution-NonCommercial-NoDerivatives License, available at <https://creativecommons.org/licenses/by-nc-nd/4.0/>

Peer reviewed

Local heat urticaria

Forrest White MD, Gabriela Cobos MD, and Nicholas A Soter MD

Affiliations: ¹ New York University Langone Health, New York

Abstract

We present a 38-year-old woman with local heat urticaria confirmed by heat provocation testing. Heat urticaria is a rare form of physical urticaria that is triggered by exposure to a heat source, such as hot water or sunlight. Although it is commonly localized and immediate, generalized and delayed onset forms exist. Treatment options include antihistamines and heat desensitization. A brisk, mechanical stroke elicited a linear wheal. Five minutes after exposure to hot water, she developed well-demarcated, erythematous blanching wheals that covered the distal forearm and entire hand.

Keywords: urticaria, local heat urticaria, physical urticaria

Introduction

HISTORY: A 38-year-old woman presented to the Skin and Cancer Unit for the evaluation of recurrent, intensely pruritic eruptions that were precipitated by exposure to heat, which included hot water and sunlight. Skin lesions would form within minutes and persist approximately 40 minutes before resolving. She reported that the lesions would appear anywhere on the body and occurred once every two days. She denied aspirin or NSAID use. Lesions were not precipitated by other physical stimuli. She denied other symptoms. She also denied a personal or family history of autoimmune diseases. She was taking diphenhydramine 25 mg daily, fexofenadine 180 mg daily, and cetirizine 10 mg each night without improvement.

PHYSICAL EXAMINATION: A brisk, mechanical stroke elicited a linear wheal. Five minutes after exposure to hot water, she developed well-demarcated, erythematous blanching wheals that covered the distal forearm and entire hand.

Conclusion

Physical or inducible urticarias are a group of urticarias that are triggered by various external physical stimuli, such as mechanical stimuli, pressure, cold, light, or temperature change. Urticarias due to temperature change include heat urticaria (HU), cholinergic urticaria, and cold urticaria.

HU is a rare form of chronic inducible urticaria, with approximately 60 reported cases [1]. In HU, contact with a heat source such as hot water, sunlight, hot air, radiant heat, or hot objects results in wheal formation



Figure 1. Ventral forearms and palms with well-demarcated, erythematous blanching wheals five minutes after exposure to hot water.

[1]. The pathogenesis of this condition is not well understood but is thought to involve histamine release from mast cells [2].

HU may be localized or generalized and immediate or delayed onset. In localized HU, lesions are confined to areas of direct contact with the stimulus, while in generalized HU wheals also appear at other sites. Immediate HU is found mainly in women 20 to 45 years old and is characterized by wheals that form within minutes and resolve within one to three hours [1]. A less common form is delayed HU, which may be familial, and occurs mainly in children [1, 3]. In delayed HU, wheals appear 30 minutes to two hours after contact with a hot stimulus and persist 12 to 14 hours [1]. While nearly all patients with HU report itching, a burning sensation is often present in patients with the delayed form [1]. Patients with HU may experience angioedema, and approximately one half of patients have systemic symptoms, such as weakness, headache, dizziness, syncope, nausea, vomiting, and diarrhea [1, 4].

Multiple types of physical urticaria may occasionally occur simultaneously. Both cold urticaria and dermatographism are found in approximately 8% of patients with HU [1]. In addition to HU, our patient also had dermatographism, which is the most common type of physical urticaria.

The diagnosis of HU is based on clinical features and heat provocation testing. This may be performed using a metal or glass cylinder filled with hot water or a Peltier element-based provocation device or by immersing the skin in warm water, with formation of wheals at exposed sites indicating a positive result [1, 5, 6]. The mean threshold temperature is 45°C; a range of 32°C to 80°C has been reported [1].

The differential diagnosis for HU includes cholinergic urticaria, solar urticaria, and exercise-induced anaphylaxis [1, 4]. Cholinergic urticaria is much more common than HU and is triggered by an active or passive increase in core body temperature; triggers include exercise, hot environments, hot showers, and strong emotions. Standardized pulse-controlled ergometry testing for cholinergic urticaria and ultraviolet and visible light testing for solar urticaria can help exclude alternative diagnoses in cases of HU

[1, 4].

HU is often difficult to treat, and no randomized clinical trials have been performed to help guide management [1, 4]. Heat desensitization has led to complete remission in 60% of patients and partial remission in 40% of patients. However, desensitization may be impractical to perform, and a standardized protocol has yet to be developed [1]. 58% of patients using second-generation H1 antihistamines at standard dosage showed improvement, but only 16% of patients achieved complete symptom control [1]. Addition of H2 antihistamines resulted in complete resolution for 2 of 7 patients and partial improvement for 5 of 7 patients [1]. omalizumab, which may also be used for chronic idiopathic urticaria, has induced complete remission in a small number of patients [7, 8]. Other reported treatments include indomethacin, systemic glucocorticoids, colchicine, montelukast, and cyclosporine [7-11].

References:

1. Pezzolo E, Peroni A, Gisondi P, Girolomoni G. Heat urticaria: a revision of published cases with an update on classification and management. *Br J Dermatol* 2016;175:473. [PMID: 26973062].
2. Grant, JA, Findlay SR, Thueson DO, Fine DP, Krueger GG. Local heat urticaria/angioedema: evidence for histamine release without complement activation. *J Allergy Clin Immunol* 1981;67:75. [PMID: 6161144].
3. Michaëlsson G, Ros AM. Familial localized heat urticaria of delayed type. *Acta Derm Venereol* 1971;51:279. [PMID: 4105776].
4. Weller K. Heat urticaria - easy to diagnose but also to misdiagnose. *Br J Dermatol* 2016;175:454. [PMID: 27632958].
5. Tóth-Kása I, Jancsó G, Obál F Jr, Husz S, Simon N. Involvement of sensory nerve endings in cold and heat urticaria. *J Invest Dermatol* 1983;80:34. [PMID: 6848608].
6. Magerl M, Borzova E, Giménez-Arnau A, et al. The definition and diagnostic testing of physical and cholinergic urticarias – EAACI/GA2LEN/EDF/UNEV consensus panel recommendations. *Allergy* 2009;64:1715. [PMID: 19793059].
7. Bullerkotte U, Wieczorek D, Kapp A, Wedi B. Effective treatment of refractory severe heat urticaria with omalizumab. *Allergy* 2010; 65:931. [PMID: 19930230].
8. Carballada F, Nuñez R, Martin-Lazaro J, et al. Omalizumab treatment in 2 cases of refractory heat urticaria. *J Invest Allergol Clin Immunol* 2013;23:519. [PMID: 24654322].
9. Koro O, Dover JS, Francis DM, et al. Release of prostaglandin D2 and histamine in a case of localized heat urticaria, and effect of treatments. *Br J Dermatol* 1986; 115:721. [PMID: 2432916].
10. Chung HS, Lee KH, Ro JY. Heat contact urticaria – a case report. *Yonsei Med J* 1996;37:230. [PMID: 8826790].
11. Pezzolo E, Peroni A, Schena D, Girolomoni G. Pre-heated autologous serum skin test in localized heat urticaria. *Clin Exp Dermatol* 2014;39:921. [PMID: 25283603].