

A case of postural urticaria in a 14-year-old girl

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To the Editor,

Chronic urticaria (CU) is defined by the presence of wheals and/or angioedema for more than six weeks¹. CU is classified as spontaneous (CSU) or inducible (CIndU) urticaria, based on the ability to identify a trigger¹. CIndU, which can be classified into physical and non-physical forms, is less common than CSU and can be diagnosed by provocation test. We describe the case of a 14-year-old female patient with postural urticaria induced by changing from a seating to standing position. To our knowledge, there is only one other case of postural urticaria described in a teenage boy².

A 14-year-old female patient presented with a two-year history of intermittent hives on her bilateral legs which developed 20 minutes after standing. The patient also described symptoms of tingling in her legs prior to the development of the hives. The symptoms usually resolved after a few hours. In addition, the patient reported spontaneous hives almost daily not related to an identifiable trigger. The patient was otherwise healthy and was not taking any medication. The patient's father reported a history of urticaria in childhood which resolved, although he still rarely experiences episodes of hives.

Upon examination, the patient developed prominent vasculature (livedo reticularis) and urticaria on her bilateral legs 20 minutes after changing from a seated to a standing position (Figure 1A and 1B). When seated, the patient's blood pressure was 113/77 and her heart rate was 102. Upon standing, the patient's blood pressure was 101/82 and her heart rate was 118. All laboratory tests, which included a complete blood count, thyroid stimulating hormone, anti-thyroid peroxidase Immunoglobulin (Ig) G, tryptase, and total IgE, were within the normal limits. The patient's weekly Urticaria Activity Score (UAS7) in the week prior to exam was 9.

Given poor response to standard doses of second-generation anti-histamines, the patient was treated with bilastine 40 mg twice daily. After one year, due to poor response to treatment, the patient was placed on 300 mg of omalizumab administered once per month. Over the period of one year, the patient did experience improvement in her spontaneous urticaria symptoms, with her UAS7 decreasing from 38 to 9 over a period of two years. However, there was no improvement in the symptoms related to change in posture.

The mechanism of action of postural urticaria in this patient is unknown. It was previously hypothesized that change in venous pressure or blood flow volume from sitting to standing may induce the release of mediators such as acetylcholine that may induce hive development².

The management of postural urticaria in our patient was not clear as she did not improve with antihistamines, nor with the addition of omalizumab treatment. It possible that the patient may gain better control of her hives with other management strategies, such as a higher dose of omalizumab³ or a different biologic, such as ligelizumab⁴. Clinicians should be made aware of this presentation of postural urticaria given that it may reflect a more recalcitrant form of CIndU. We suggest that a provocation test consisting of standing for 10 to 20 minutes should be used to confirm the diagnosis of postural urticaria.

References:

1. Zuberbier T, Aberer W, Asero R, et al. The EAACI/GA²LEN/EDF/WAO guideline for the definition, classification, diagnosis and management of urticaria. *Allergy*. 2018;73(7):1393-1414.
2. Hirohata A, Yamaoka T, Hayashi M, Murota H, Tani M, Katayama I. Unique case of postural cholinergic urticaria induced by a standing position. *Clin Exp Dermatol*. 2016;41(4):439-440.
3. Maurer M, Metz M, Brehler R, et al. Omalizumab treatment in patients with chronic inducible urticaria: A systematic review of published evidence. *J Allergy Clin Immunol*. 2018;141(2):638-649.
4. Kolkhir P, Altrichter S, Munoz M, Hawro T, Maurer M. New treatments for chronic urticaria. *Ann Allergy Asthma Immunol*. 2020;124(1):2-12.

Figure 1.

- A. Leg of patient without skin eruption prior to standing provocation test.
- B. Livedo reticularis and urticaria development on leg of patient after standing for 20 minutes.



