



Contents lists available at ScienceDirect



Letter

Successful treatment of occupational delayed pressure urticaria and angioedema with omalizumab

Physical urticarias are present in approximately 17% of patients with chronic urticaria.¹ Most of the time delayed pressure urticaria and angioedema are associated with chronic spontaneous urticaria. This type of physical urticaria is usually nonpruritic, causes pressure-induced pain and burning 4 to 6 hours after exposure, and causes significant impairment in quality of life. It is a lymphocyte inflammatory condition associated with increased skin expression of tumor necrosis factor α and interleukin 3.² Constitutional symptoms may be present, such as fever, malaise, myalgias, arthralgias, and headaches. Laboratory analysis may reveal acute episodes of leukocytosis with a shift to the left and elevated erythrocyte sedimentation rate and C-reactive protein level, which are biomarkers of the ongoing inflammatory process. Histamine₁ and histamine₂ antihistamines are not typically helpful, and oral corticosteroids usually work very well.^{3,4} Dapsone can be a corticosteroid-sparing alternative.⁵ Rarely has the use of omalizumab been reported to completely control delayed pressure urticaria and angioedema^{6,7} because this condition is usually managed with daily corticosteroid administration. Omalizumab-depleting free circulating IgE reduces the ability of mast cells to express inflammatory processes mediated by the release of vasoactive substances present in the cytoplasmic granules and also stabilizes the mast cell with the downregulation of the high-affinity IgE receptors.⁸ In this letter, we present the successful treatment of a patient with severe occupational delayed pressure urticaria and angioedema with omalizumab administered every 4 weeks for a period of 10 months.

A 33-year-old, white woman, who was a professional physical trainer at an aerobic exercise and fitness center and had a previous history of spontaneous chronic idiopathic urticaria, presented with a recent-onset delayed pressure urticaria and angioedema. She had diffuse, painful, and burning urticaria and facial, palmar, and plantar angioedema 4 to 6 hours after exposure to pressure during sessions of aerobic exercises while teaching as a personal trainer in a fitness center. She reported drug hypersensitivity to aspirin, nonsteroidal anti-inflammatory drugs, and pyrazolones with facial angioedema and urticaria. She never experienced anaphylaxis. Allergy prick skin testing results to 30 different food antigens were negative. She had perennial allergic rhinitis to house dust mites (*Dermatophagoides farinae*, *Dermatophagoides pteronyssinus*, and *Blomia tropicalis*) documented by skin prick testing to 6 prevalent local aeroallergens. On physical examination, she presented with painful and burning urticaria on her forehead related to pressure 6 hours earlier during a fitness exercise during which she maintained her equilibrium by holding her forehead against a leather surface (Fig 1). Immediate dermatographism results were negative but became positive 6 hours afterward. The results of routine tests for complete blood cell count,

platelets, serum thyroxine and thyrotropin, antithyroperoxidase, blood chemical analyses, liver and renal function tests, serum tryptase, and serum C4 were all normal. Her serum IgE level was 488 IU/mL, her erythrocyte sedimentation rate was high at 35 mm in the first hour, and her C-reactive protein level was also elevated at 1.09 ng/dL (reference range, <0.5 ng/dL). She did not respond to high doses of oral agents: fexofenadine (360 mg/d), cetirizine (40 mg/d), bilastine (40 mg/d), ranitidine (600 mg/d), ketotifen (4 mg/d), montelukast (10 mg/d), colchicine (1 mg/d), and cyclosporine (300 mg/d). She therefore required frequent courses of prednisone (40–80 mg/d) to control her work-related urticaria and angioedema. She also developed severe hemolytic anemia with a trial of dapsone (200 mg/d) despite normal blood glucose-6-phosphate-dehydrogenase levels. She was finally prescribed 300 mg of subcutaneous omalizumab injections every 4 weeks and became completely asymptomatic within 48 hours, requiring no other medicines since. Approximately 1 month later, her erythrocyte sedimentation rate returned to a normal level of 4 mm in the first hour, and the same happened with the C-reactive protein level (0.09 ng/dL). Her serum IgE level was not rechecked because omalizumab only reduces the small free circulating IgE. She continues to work daily as a fitness personal trainer with no urticaria or angioedema, continuing to follow the monthly omalizumab regimen for the last 10 months.

More reports of the potential benefit of omalizumab treatment of patients with delayed pressure urticaria and angioedema are encouraged. Only 2 well-documented cases of delayed pressure urticaria and angioedema controlled with omalizumab have been reported in the literature.^{6,7} So far, omalizumab is approved by the

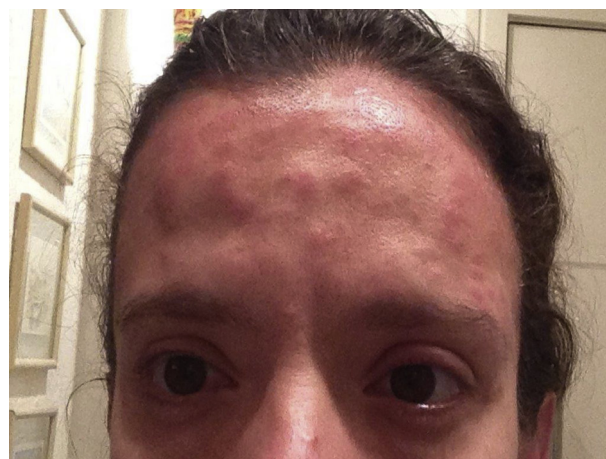


Figure 1. Delayed painful urticaria in the forehead 6 hours after pressure during a fitness training exercise.

Disclosures: Authors have nothing to disclose.

<http://dx.doi.org/10.1016/j.anai.2015.10.009>

1081-1206/© 2015 American College of Allergy, Asthma & Immunology. Published by Elsevier Inc. All rights reserved.

US Food and Drug Administration only for chronic spontaneous urticaria, and off-label use might be considered in difficult-to-control physical urticarias.

Mario Geller, MD
Division of Medicine
Academy of Medicine of Rio de Janeiro
Rio de Janeiro, Brazil
drmariogeller@gmail.com

References

- [1] Geller M. Physical urticarias: mast cell dysfunction: preventive, diagnostic and therapeutical approach. *Einstein*. 2007;5:273–280.
- [2] Hermes B, Prochazka AK, Haas N, Jurgovsky K, Sticherling M, Henz BM. Upregulation of TNF- α and IL-3 expression in lesional and uninvolved skin in different types of urticaria. *J Allergy Clin Immunol*. 1999;103(2, pt 1): 307–314.
- [3] Casale TB, Sampson HA, Hanifin J, Kaplan AP, Kulczycki A, Lawrence ID. Guide to physical urticarias. *J Allergy Clin Immunol*. 1988;82(5, pt 1): 758–763.
- [4] Bernstein JA, Lang DM, Khan DA. The diagnosis and management of acute and chronic urticaria: 2014 update. *J Allergy Clin Immunol*. 2014;133: 1270–1277.
- [5] Grundmann SA, Kiefer S, Luger TA, Brehler R. Delayed pressure urticaria-dapsone heading for first-line therapy? *J Dtsch Dermatol Ges*. 2011;9:908–912.
- [6] Bindslev-Jensen C, Skov PS. Efficacy of omalizumab in delayed pressure urticaria: a case report. *Allergy*. 2010;65:138–139.
- [7] Metz M, Altrichter S, Ardelean E, et al. Anti-immunoglobulin E treatment of patients with recalcitrant physical urticaria. *Int Arch Allergy Immunol*. 2011;154: 177–180.
- [8] Chang TW, Chen C, Lin CJ, Metz M, Church MK, Maurer M. The potential pharmacologic mechanisms of omalizumab in patients with chronic spontaneous urticaria. *J Allergy Clin Immunol*. 2015;135:337–342.