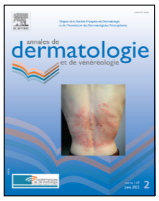
Annales de Dermatologie et de Vénéréologie xxx (xxxx) xxx

Available online at
ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com/en



Letter to the editor

Omalizumab-induced paradoxical urticaria responsive to dupilumab

A 47-year-old woman with a history of severe asthma since childhood, allergic conjunctivitis, epilepsy, depression, and cardiac arrhythmia consulted for urticaria lesions present for 3 months. Her treatment included omalizumab 600 mg every 4 weeks for 12 months, montelukast, fluticasone-salmeterol, tiotropium, salbutamol, carbamazepine, topiramate, perampanel, bisoprolol, salicylic acid, agomelatine, mirtazapine and pantoprazole without any recent changes. She had no recent history of infection or vaccination and had not received any oral corticosteroids over the previous 4 months. Although she had had no personal history of urticaria, she reported urticaria and angioedema for 3 months, without inducible urticaria. Omalizumab injections were without effect on the course of her urticaria. She presented no extracutaneous signs. Treatment with H1 antihistamines (ebastine, up to 4 tablets daily for 1 month, followed by bilastine, up to 3 tablets daily for 1 month) combined with hydroxyzine 25 mg daily produced no improvement. The urticaria control test (UCT) score was 5, indicating uncontrolled urticaria. Her blood count, renal and hepatic tests were normal, CRP was 15.2 mg/L, and total immunoglobulin (Ig) E level was 389 IU/L. Screening for anti-thyroid and antinuclear antibodies was negative, and complement levels were normal. Findings for a skin biopsy of an urticaria lesion were consistent with urticaria, without evidence of vasculitis or neutrophilic dermatosis. Direct immunofluorescence was negative. Management of this chronic urticaria included maintenance of bilastine at 3 tablets daily, and discontinuation of omalizumab, which was relayed by dupilumab (600 mg, then 300 mg every other week). The patient reported an improvement in urticarial symptoms after the first injection of dupilumab. After 3 months of treatment, the UCT score was 15, indicating complete control of urticaria. She reported minor reactions at the dupilumab injections sites. Chronic urticaria remained well controlled under dupilumab and bilastine, which were subsequently decreased to 2 tablets daily, with 15 months of follow-up. Her asthma was well controlled despite some exacerbations, with a favorable outcome after symptomatic treatment. The patient's respiratory function tests improved in relation to her previous condition.

Herein we report what is to our knowledge the first case of chronic urticaria under omalizumab treatment. Omalizumab is an IgG1 kappa monoclonal antibody targeting IgE. It is indicated as an add-on-therapy in severe persistent allergic IgE-dependent asthma after failure of inhaled treatment combining corticosteroids and long-acting beta-2 agonists, and as add-on therapy in chronic spontaneous urticaria with inadequate response to antihistamines. A case has been reported of acute urticaria during the first two injections of omalizumab for asthma, without recurrence during subsequent injections [1]. Instances of paradoxical omalizumab-induced urticaria have been reported as anaphylactic reactions, mainly related to polysorbate allergy [2]. This paradoxical urticaria could hypothetically be explained by immunological activation by omalizumab of mast cells through binding to Fc receptors at their surface. Chronic spontaneous urticaria may also have been a comorbidity of the patient's atopy and resistance to omalizumab. Dupilumab was rapidly effective in our patient, as has been reported for patients with chronic urticaria refractory to omalizumab [3–5]. However, spontaneous resolution of chronic spontaneous urticaria cannot be ruled out.

Ethics statement

The patient in this manuscript provided written informed consent to publication of her case details.

Funding

No funding source

Conflict of interest disclosure

AC Fougerousse and A Badaoui are speakers, consultants or investigators for Novartis and Sanofi.

References

[1] Velarde-Domínguez T, Pantoja-Alcantar JM, Martínez-Sáenz NP. Acute urticaria associated to omalizumab treatment in a child with asthma. Rev Alerg Mex 2012;59:209–13.
[2] Perino E, Freymond N, Devouassoux G, et al. Xolair-induced recurrent anaphylaxis through sensitization to the excipient polysorbate. Ann Allergy Asthma Immunol 2018;120:664–6. https://doi.org/10.1016/j.anai.2018.02.018.
[3] Errichetti E, Stinco G. Recalcitrant chronic urticaria treated with dupilumab: Report of two instances refractory to H1-antihistamines, omalizumab and cyclosporine and brief literature review. Dermatol Ther 2021;34:e14821.
[4] Sun Y, Lin SY, Lan CE. Dupilumab as a rescue therapy for a chronic urticaria patient who showed secondary failure to omalizumab. Kaohsiung J Med Sci 2022;38:610–1. https://doi.org/10.1002/kjm2.12531.
[5] Abadeh A, Lee JK. Long-term follow-up of patients treated with dupilumab for chronic spontaneous urticaria: a case report. SAGE Open Med Case Rep 2022;10:. https://doi.org/10.1177/2050313X221117702 2050313X221117702.

A.-C. Fougerousse *
Dermatology Department, Military Teaching Hospital Begin, Saint Mandé, France
GEM Reso, Paris, France

https://doi.org/10.1016/j.annder.2023.06.007

* Corresponding author at: Dermatology Department, Military Teaching Hospital Begin, 69 avenue de Paris, 94163 Saint-Mandé Cedex, France.

A. Badaoui
Dermatology Department, Military Teaching Hospital Begin, Saint Mandé, France
GEM Reso, Paris, France

Received 6 January 2023
Accepted 26 June 2023

Available online xxxx