

## Case Report of Chronic Urticaria with Dust Mite Sensitization Treated with Sublingual Immunotherapy in An Adolescent Patient

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### Abstract

We present the case of an 18-year-old female Lebanese patient who initially presented to the clinic because of chronic urticaria rebel to treatment. The investigations showed dust mite sensitization. Treatment with sublingual immunotherapy was started with resolution of the urticaria.

**Keywords:** chronic urticaria, sublingual immunotherapy, dust mite sensitization, dust mite allergy.

### Abstract

The term “Urticaria or Hives” refers to kind of pink or red skin rash notable for raised and itchy bumps (1). Up to 15-20% of the population will develop hives once or more during a lifetime (2). Chronic urticaria (CU) is defined by recurrent episodes occurring most days of the week for 6 weeks period (3) and it affects female more than males (4). In the literature we find rarely chronic urticaria as only main symptom due to dust mite sensitization (5,6) and only few case reports were found with dust mite sensitization induced urticaria treated with sublingual immunotherapy (SLIT) (7). In this article we present a rare case of chronic urticaria caused by dust mite sensitization treated with SLIT.

### Case Report

In this study, we present the case of an 18-year-old girl patient who initially presented to the clinic for chronic urticaria rebel to treatment.

The patient is a full-term infant born to non-consanguineous parents. She was delivered at the hospital via spontaneous vaginal delivery. There were no complications during pregnancy or delivery. Her developmental history was negative: all the milestones were normal for age. Family history is negative for allergies.

She is nonsmoker healthy girl. No plants, moistures, animal in the house nor carpets. She goes to high school with good performance.

In the clinic, her physical exam is completely normal; she is a smart, sociable girl. Her weight was on the 75th percentile and her height was on the 50th percentile.

4 years before the presentation to the clinic, she started to have sudden episodes of almost daily urticaria with some episodes of pruritus and sneezing upon awakening mainly during autumn and winter seasons.

Physically during the attack, she was having hives over all the body most of week days in addition to some nasal blockage and sneezing. She was treated initially with antihistamine daily with amelioration of symptoms, but recurrence once treatment stopped.

She was later started on Omalizumab 150 mg every 4 weeks for 8 months, which is a recombinant DNA-derived humanized IgG1k monoclonal antibody that bind to free and membrane bound form of IgE.

All other routine blood tests including, CBCD, liver function tests, electrolytes, thyroid stimulating hormone and free thyroxine, were all negative except for a high IgE with high dust mite sensitization - both Dermatophagoids Pteronyssinus and Dermatophagoid Farinae.

8 months after monthly injection with Omalizumab, patient was still having flair ups, and upon stopping of treatment, she developed almost daily urticaria. Note that the symptoms of allergic rhinitis were almost resolved.

Due to the finding of dust mite sensitization, treatment with SLIT with Staloral (50% dermatophagoids Pteronyssinus and 50% Dermatophagoid Farinae) was started with clear instruction given for routine daily usage. Initially antihistamine was added for the first few weeks as needed for mouth itching or urticaria. No side effects were noted, and few months post treatment, patient mentioned complete resolution of episodes of urticaria without the need of usage of anti-histamine.

To note that the last follow up was done 16 months after initiating treatment, while the patient was still on SLIT showed complete resolution of urticarial episodes (only 1 episode was noted during the treatment).

## Discussion

We reported in this article a case of an adolescent female patient who suffered from chronic urticaria found to be related to dust mite sensitization with resolution of symptoms with sublingual immunotherapy.

Chronic urticaria is a common skin disease which affect almost 15% of the population during their life span. The etiology remains unclear in most of the cases (80 to 90%) (8,9). The common possible identified causes of the disease include autoimmunity, infections and food additives. Two cases were reported to have reduction of chronic urticaria with dust mite sensitization after using SLIT (7). To our knowledge, we think this case is the 3<sup>rd</sup> case reported in the literature; Chronic urticaria is usually of good prognosis with around 50% resolution within 3 years of onset (9).

The house dust mites, who measures only about one-quarter to one-third of a millimeter, are the most common environmental allergens. Mite sensitization induce allergic disorders such as perennial rhinitis and asthma in predisposed individuals. In addition, house dust mites are important deteriorating factors in patients with atopic dermatitis (10). Mites may enter the body by inhalation, by ingestion (with food contaminated especially the wheat flour) or even through the epidermis (11). The diagnosis of dust mite allergy needs the presence of symptoms of even allergic rhinitis or asthma with positive allergic test. The available allergic test to diagnose IgE mediated allergy are even blood test or skin prick test.

The treatment of dust mite allergy consists of treating the symptoms with antihistamines and intranasal steroids for allergic rhinitis, inhaled steroids for asthma, in addition to dust mite precaution measures. For the chronic urticaria, the usual treatment is antihistamine, with a 4 times higher dose then the regular dose, and even two antihistamines can be used in the same time. The treatment might be upgraded to leukotriene receptor antagonist, Omalizumab or even adding immunosuppressant mainly cyclosporine. Those are the usual algorithm for the urticaria treatment (9).

Sublingual immunotherapy is an effective and extremely safe treatment. It can be considered the ideal modality for home-based immunotherapy. It is approved for treatment of allergic rhinitis and asthma in patient with dust mite allergy by the FDA on 2017m but till now there is no indication of using the SLIT in case of atopic dermatitis vs chronic urticaria. There is no mortality till now documented with SLIT but some local adverse reactions are documented (mainly with local reactions from labial swelling to itchy oral cavity and some gastro-intestinal symptoms) (12,13). It is a pain free treatment but it should be administered daily under the tongue for a long period of time depending on the allergen used.

In our case, the patient was sensitized to the 2 types of dust mites (Dermatophagoids Pteronyssinus and Dermatophagoid Farinae) and the SLIT used contains extracts from both types. Initially some local reaction was noted but it was controlled with intermittent use of antihistamine. Few weeks post starting treatment, we noted gradual significant decrease in the urticaria and even almost complete resolution during the follow up period.

This is one of the few reported cases of chronic urticaria, not controlled with regular treatment, associated to aeroallergen sensitization (dust mite in this case) treated off label with SLIT and was associated with clinical improvement.

## Conclusion

Chronic urticaria is a common skin manifestation due to mast cells degranulation and is rarely due to a serious underlying disease. It has usually a good prognosis, and treatment consists of antihistamine with possible Omalizumab and immunosuppressants (14). In this case report, our patient showed resolution of symptoms with 2 years follow up on dust mite sublingual immunotherapy due to high sensitization. Further studies are still needed to evaluate the role of immunotherapy in chronic urticaria.

## Conflict of Interest

The authors declare no conflict of interest.

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