








Late-Onset Chronic Localized Urticaria After a Wasp Sting

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ABSTRACT

Although cases of late-onset localized rash after bee sting and localized cold urticaria after insect sting have been rarely reported, late-onset localized urticaria or recall urticaria after a wasp sting has not previously been reported as far as we are aware.

A 24-year-old male patient was stung once in the neck by a wasp in October 2018. After 15 minutes, the patient developed dizziness, fainting, flushing and dyspnea that resolved in a few hours with the treatment administered in the emergency room. One week after this event, a wasp stung his right arm and he fainted within 5-10 minutes. The patient vomited and recovered in a few hours with the treatment provided in the emergency room.

Approximately one month after the last wasp sting, skin lesions that were localized only to the right forearm and consistent with urticaria developed. There were no skin lesions in other parts of the body. While this complaint of the patient was under control with cetirizine 10 mg/day, it recurred every day if he did not use an antihistamine. This situation was not related to any trigger (cold, heat, drug use, etc.).

The *Vespula* spp. (10 mcg/mL) skin prick test was positive and the wasp-specific IgE level was found to be 56.2 IU/mL (class5). *Vespula* spp. subcutaneous immunotherapy was started and the patient has been on maintenance therapy for two years. No side effects related to immunotherapy have been observed so far. However, localized urticaria on the right forearm still persists in the absence of antihistamine use.

A very rare case of late onset chronic localized urticaria after a wasp sting is presented. Past history of wasp or bee stings should be questioned in cases of localized urticaria.

Keywords: Anaphylaxis, immunotherapy, chronic localized urticaria

INTRODUCTION

Urticaria (hives) is a raised, red, and itchy skin rash caused by vasodilation together with increased blood flow and vascular permeability. One of the most important distinguishing features of the lesions is that they disappear without a trace in less than 24 hours. The cells that play the main role in the development of urticaria are mast cells and basophils.

Clinical manifestations lasting less than six weeks are classified as “acute urticaria” and urticaria that recurs at least twice a week and persists for more than 6 weeks is called “chronic urticaria” (1). Localized urticaria is a rare form of urticaria that occurs only in a certain area of the skin. Ta and White have reported a 27-year-old female patient who developed localized urticaria at the previous allergen immunotherapy injection sites (2). Similarly, a

28-year-old patient diagnosed with asthma and allergic rhinitis and previously treated with subcutaneous allergen immunotherapy developed exercise-induced localized urticaria at the immunotherapy injection sites a few years later (3). Although cases of a late-onset localized rash after bee sting (4) and localized cold urticaria after insect sting (5) have very rarely been reported, late-onset localized urticaria after a wasp sting has not been reported before as far as we know.

CASE REPORT

A 24-year-old male patient was stung once in the neck by a wasp in October 2018. After 15 minutes, the patient developed dizziness, fainting, flushing and dyspnea. He presented at the emergency department and recovered in a few hours with the symptomatic treatment provided there.

One week after this event, a wasp stung him once in his right arm and he fainted within 5-10 minutes. The patient vomited and recovered in a few hours with the treatment given in the emergency room. Approximately one month after this last wasp sting, pruritic and erythematous skin lesions that were localized only to the right forearm (in the area where the last wasp sting occurred) appeared, consistent with urticaria (Figure 1). There was no swelling in the other parts of the body. This complaint of the patient was controlled with cetirizine 10 mg/day; however, it recurred every day if he does not use an antihistamine. The localized urticaria was not related to any current trigger (cold, heat, drug use, etc.). The patient's blood samples were examined for the etiology of urticaria (such as rheumatological factors, sedimentation, autoimmune tests and thyroid function tests) and the results were found to be normal. No pathology was detected in urine culture.



Figure 1: Localized urticaria on the patient's right forearm.

In the investigation of the patient, the *Vespula* spp. (10 mcg/mL) skin prick test was positive and the *Vespula* spp. specific Immunoglobulin E level was found to be 56.2 IU/mL (class 5). In the prick test, no diameter difference was detected between the arms. Additionally, the tryptase value was 4.67 µg/L. Subcutaneous immunotherapy with *Vespula* spp. was started and the patient has been on maintenance therapy for two years. No side effects related to immunotherapy have been observed but the localized urticaria on the right forearm still persists in the absence of antihistamine use.

DISCUSSION

Although cases of localized cold urticaria (6), late-onset localized rash after bee sting (4), late local urticaria as a long-term sequelae after immunotherapy (3). and localized cold urticaria after insect sting (5) have rarely been reported in the literature, late-onset localized urticaria after a wasp or bee sting has not been reported as far as we know. In the current case, the localized urticaria on the right forearm occurred one month after the wasp sting in the same area. Recall urticaria is a rare and interesting urticaria phenomenon that reappears after an allergen exposure at the previous injection site (or bee, insect sting). The entry of antigens into the body can be in the form of injection into the contralateral arm or inhalation (7). The most common examples are patients receiving subcutaneous immunotherapy and patients who have had a local skin reaction to an allergen before, and are re-stimulated with the same allergen or are exposed to this allergen intensely from the environment (2). Karaayvaz and Ozangüç have reported a patient who was diagnosed with allergic rhinitis and received subcutaneous immunotherapy with grass pollen allergens for 4 years and then developed a 1 cm urticarial plaque at the injection site while passing by a newly cut lawn (environmental intense exposure) after the end of immunotherapy (3 months after the immunotherapy ended) (7). In addition, heparin and nonsteroidal anti-inflammatory drugs have been reported as other stimulant agents (8). The current case report differs from recall urticaria as there is no re-stimulation with the suspected stimulus (wasp sting). In our patient, localized chronic urticaria developed in the right forearm one month after the wasp sting, and this was not related to any trigger.

Kutlu et al. reported a 20-year-old patient who presented with urticaria triggered by cold that started after a wasp sting on his head ten years ago (5). In this patient, the com-

plaints started ten years later. In our case, localized chronic urticaria developed one month after the wasp sting and is still ongoing for three years. In the study of Garcia et al., two patients with localized urticaria triggered by cold after immunotherapy were presented (9).

The mechanisms of localized urticaria have not been fully elucidated yet. However, a localized abnormality in mast cells, a neuronal response, or local tissue damage has been suspected (6). Axonal reflex mechanisms and severe late reactions are thought to play a role in the pathogenesis of recall urticaria (10,11). Changes in the previous injection sites, further degranulation of mast cells and their increased number, and release of histamine-releasing factor by reintroducing the allergen into the body may be other possible causes (10). It has been suggested that epigenetic changes may also explain this persistent susceptibility (12).

CONCLUSION

A very rare case of late onset chronic localized urticaria after a wasp sting is presented. Past history of wasp or bee stings should be questioned in cases of localized urticaria.

Conflict of Interest

No conflicts of interest were declared in this article.

Authorship Contributions

Concept: **Seçil Kepil Özdemir**, Design: **Bülent Akkurt**, **Seçil Kepil Özdemir**, Data collection or processing: **All authors**, Analysis or Interpretation: **Bülent Akkurt**, **Seçil Kepil Özdemir**, Literature search: **All authors**, Writing: **Bülent Akkurt**, **Seçil Kepil Özdemir**, Approval: **All authors**.

REFERENCES

1. Zuberbier T, Bindslev-Jensen C, Canonica W, Grattan CE, Greaves MW, Henz BM, et al; EAACI/GA2LEN/EDF EAACI/GA2LEN/EDF guideline: definition, classification and diagnosis of urticaria. *Allergy* 2006;61(3):316-20.
2. Ta V, White AA. An unusual case of recurrent "recall urticaria" in a patient on immunotherapy. *J Allergy Clin Immunol Pract* 2014;2(4):459-60.
3. Choi IS, Koh YI, Chung SW, Wi JO, Sim DS. Late local urticaria as a long-term sequela of allergen-specific immunotherapy. *Korean J Intern Med* 2004;19(3):202-4.
4. Light WC, Reisman RE, Shimizu M, Arbesman CE. Unusual reactions following insect stings. Clinical features and immunologic analysis. *J Allergy Clin Immunol* 1977;59(5):391-7.
5. Kutlu A, Aydin E, Goker K, Karabacak E, Ozturk S. Cold-induced urticaria with systemic reactions after hymenoptera sting lasting for 10 years. *Allergol Immunopathol (Madr)* 2013;41(4):283-4.
6. Kepil Özdemir S, Özgüçlü S. Contribution of Increasing Stimulation Time of the Ice Cube Test to the diagnosis in patients with Cold Urticaria. *Asthma Allergy Immunol* 2018;16:90-6.
7. Karaayvaz M, Ozangüç N. Recall urticaria: a case report. *J Allergy Clin Immunol* 1996;97:1419-20.
8. Cimbollek S, Ávila-Castellano MR, Labella M, Baynova K, Aramburu T, Quiralte J. Recall Urticaria: Aspirin Also Induces It. *J Investig Allergol Clin Immunol* 2018;8:131-2.
9. García F, Blanco J, Pérez R, Alonso L, Marcos M, Carretero P, et al. Localized cold urticaria associated with immunotherapy. *Allergy* 1998;53(1):110-1.
10. Kelso JM, Hugh MY, Lin FL. Recall urticaria. *J Allergy Clin Immunol* 1994;93:949-50.
11. Bruyzeel DP, Mailbach HI. Excited skin syndrome (angryback). *Arch Dermatol* 1986;122:323-8.
12. Schmidle P, Reidenbach K, Kugler C, Eberlein B, Biedermann T, Darsow U. Recall urticaria-A new clinical sign in the diagnosis of alpha-gal syndrome. *J Allergy Clin Immunol Pract* 2019;7(2):685-6.