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**Case Report** 

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# A Rare Case Report of Corneal Wasp Sting

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#### Abstract

Corneal sting by wasp is a relatively rare phenomenon. Wasp, bees and yellow jackets belong to Hymenoptera species of insects. A triad of mechanical, toxic and immunologic damage has been proposed to explain the spectrum of injuries from wasp stings.

Wasp venom is a complex mixture of toxic substances such as Phospholipase A, Phospholipase B, Apamine, Hyalouronidase, Mast cell degranulating peptide and Mastoparan peptide, which is implicated in direct mast cell degranulation leading to histamine release. A wide range of immunologically mediated ocular sequel have been described which include focal or diffuse corneal edema, bullous keratopathy, panuveitis, hyphema, anterior polar cataract, papillodema, lens subluxation and optic neuritis. The author hereby tends to report a case of Striate Keratitis following wasp sting, its expected pathogenesis, treatment and outcome.

## **Key Words:**

Corneal wasp sting; Hymenoptera; Striate keratitis

## Introduction

A 50-year-old female presented with eye OPD with a wasp sting injury to her right cornea while gardening. She presented within two hours after the bite. The patient complained of severe eye pain along with redness, tearing and mild blurring of vision (Figure 1).



**Figure 1:** Corneal haze paracentrally in superior quadrant between 11 to 2 O'clock (OD) following wasp bite, day 1 of presentation.

On examination, visual acuity in her right eye was 6/18 and in the left eye was 6/6. Minimal lid edema was present. Generalized conjunctiva hyperemia was present. Cornea revealed focal descemet striae paracentrally in the superior quadrant between 11 to 2 o'clock. There was the presence of stromal and endothelial edema paracentrally in superior quadrant between 11 to 2 o'clock. No AC reaction was present. Pupillary reactions were normal. No history of hypertension, DM or use of traditional eye medicines could be elicited (Figure 2).



**Figure 2:** Descrets folds on slit lamp examination paracentrally in superior quadrant (OD) between 11 to 2 O'clock on day 1 of presentation.

After studying literature, the marked corneal edema with folds in the descemet's membrane was presumed to be the result of the toxic and inflammatory effects of wasp venom and infiltration of PMN leucocytes. The lid swelling was expected to be a consequence of allergic reaction to bee sting.

Keeping this in mind the patient was started on antibiotic steroid (Predmox 1%) combination 6 times a day to limit the toxic and inflammatory response to wasp venom. Oral histaminic (Levocetrizine 10 mg) was prescribed for five days at bed time to address allergic lid edema. Patient was told to report in case redness, blurred vision or pain worsened. After 5 days of treatment the corneal edema decreased dramatically and lid swelling resolved. The antibiotic steroid combination was tapered one drop weekly over a course of 5 weeks while levocetrizine was terminated after five days (Figures 3 and 4).



**Figure 3:** Reduced corneal haze is evident (OD), day 5 of treatment with antibiotic steroid eye drops.



Figure 4: Minimal descmets folds (OD), 5th day of presentation.

# Discussion

Sting injuries have long been recognized as a significant source of ocular trauma [1].

Bee and wasp stings can directly initiate a variety of ocular manifestations, as well as yield secondary systemic repercussions. In general, injuries from wasp/bee stings may be categorized as mechanical, toxic and/or immunologic [2].

• **Mechanical:** The aculeus or "stinger" (modified ovipositor) in females of Hymenoptera species usually lies in the abdomen and has toothed lancets and venomous glands. Therefore, only female insects are capable of producing sting injuries [3].

Honeybee during the act of stinging introduces its chitinous barbed sting and specific venom into the cornea. While wasps, hornets and bumblebees do not own a hooked stinger, parts of this assembly sometimes get fragmented and persist in tissue. Hence sting wounds to ocular structures frequently terminate in a penetrating injury and a foreign body impact.

• **Toxic:** The aculeus finds its attachment to a venomous sac at the base of the insect's abdomen. During the process of stinging, an eminently poisonous, species-precise toxin is introduced and actively forced into host tissue. The toxic action of the venom of Hymenoptera species is result of constituent biogenic amines, polypeptides and enzymes [2-4].

Envenomation with constituents Amines (e.g., histamine and dopamine) potent protoplasmic poison results in an instant pain reaction, likely to halt additional damage [5].

Significant peptides, such as apamin, bradykinin and melittin result in cellular destruction of usual metabolic processes, and can serve as potent neurotoxins [2,3]. Enzymes, including phospholipase A, hyaluronidase and phosphodiesterase additionally aggravate local insult by augmenting the immune reaction [5].

• **Immunologic:** The mechanical and toxic impacts of insect venom amalgamate to commence an inflammatory cascade in the victim of sting wound. Constituents of the toxin initiate a profound reaction at the injection site that incorporates vasodilatation, tissue edema and leukocyte chemotaxis [2,4]. With protracted exposure to the retained stinger in case present, chronic inflammation along with secondary local tissue degradation may set in.

# Conclusion

A Wasp sting no matter how mild it seems should be investigated meticulously and followed up intensively as late complications are known to occur by virtue of the envenomating nature of poison injected. Insect repellents or protective glasses while working in fields should be used as common practice as these injuries are more common in a population with agriculture as a main occupation. Tissue reactions whether acute or chronic could be treated successfully by conservative means. Topical antibiotic steroid drops, oral anti-histaminics and mildly potent analgesics are very potent in the management of mild wasp stings. Morbidity of wasp sting can be reduced if patients present early. It's crucial to provide Health education regarding wasp sting in farming population since this population is more prone to suffer from it. The Patient needs to be kept in close follow up to observe late complications such as bullous keratopathy and glaucoma. Citation: Sood T, Tomar M, Sharma A, Thakur B (2016) A Rare Case Report of Corneal Wasp Sting. J Clin Exp Ophthalmol 7: 589. doi: 10.4172/2155-9570.1000589

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