

IMMEDIATE MANAGEMENT OF OCULAR BEE STING RESULTS IN BETTER VISUAL OUTCOME – A CASE REPORT

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ABSTRACT

Introduction: Ocular bee stings is an uncommon environmental eye injury that can result in various ocular complications. Due to the rarity of cases and controversial management, there are only a few literatures reported. Unfortunately, delay in management will be fatal for patients.

Purpose: To highlight early management and complication of ocular bee sting case

Case Presentation: A 24-year-old man presented to our hospital with chief complaint pain and blurred vision on his right eye in the last 2 days ago after being stung by bee. A part of the sting was already revoked, and the eye was rinsed off with tap water. The visual acuity on the right eye was hand movement with corneal edema, and bee sting track seen at the cornea. The anterior chamber was covered with hypopion and fibrins. An emergency bee sting extraction was quickly performed. We found the sting pierced in a diagonal way to the iris. We injected triamcinolone acetate intracamerally to make sure the exact location and how deep the sting embedded. The visual acuity improved to 6/30 a day after the surgery, but the cornea was melted and anterior uveitis still discovered, with increasing intraocular pressure. Topical and systemic corticosteroid, oral acetazolamide, topical antibiotic, and atropine were prescribed. The last condition, 2 weeks after extraction, best corrected visual acuity became 6/12 and no anterior chamber reaction discovered with corneal scarring.

Conclusions: Immediate bee sting extraction with triamcinolone acetate injection intracamerally to ensure the location of the sting can be beneficial to patient's visual outcome.

Keywords: bee stings, corneal bee stings, triamcinolone acetate, immediate surgery, high IOP

INTRODUCTION

Ocular bee stings are an infrequent form of eye trauma characterized by penetrating, infectious, toxic, and immunologic reaction¹. This rare condition that can lead to potentially devastating complications including keratitis, corneal opacity, uveitis, iris atrophy, glaucoma, cataract, lens subluxation, bullous keratopathy, optic neuritis, and retinopathy². Bee venom is a mixture of toxic substances such as phospholipase A, phospholipase B, apamine, hyaluronidase, and mast cell degranulating peptide^{2,3,4}. The ocular morbidity associated with this trauma would depend on the interplay between the nature and virulence of the venomous toxins elaborated by the constituents of

the bee and the subsequent inflammatory response of the patient^{3,5}.

Unfortunately, due to rarity of this condition, there is no clear guideline for management of affected individuals. Overall, in the current literature, the clinical approach to corneal bee stings remains controversial, ranging from conservative to surgical choices⁶. The current clinical approach to corneal bee sting is to remove the embedded sting from the cornea, followed by topical steroid and antibiotics, and mydriatic-cycloplegic eyedrops^{3,6,7}. This case is made to highlight early management and complication of a rare case patient with ocular bee sting resulting better visual outcome and manageable complications achieved.

CASE PRESENTATION

A 24 year old man presented to emergency department complaining moderate pain and blurry vision on his right eye (RE) since 2 days ago after being stung by bee. From history taking, the patient admitted that a part of the sting was already revoked with bare hand and then the eye was rinsed off with tap water. Before admitted to the hospital, patient was already being prescribed some medications, but the patient could not recall the medications. The right upper and lower eyelids were swollen and spasm, and significant conjunctival and

perivascular injection were present. His best corrected visual acuity was hand movement in the affected eye. Slit lamp biomicroscope revealed a bee sting embedded into the cornea at 1 o'clock position with fibrin filled all layer of cornea and severe descemet fold around the sting (Figure 1a). Anterior chamber reaction was notable with hypopyon presenting. The intraocular pressure and depth of the anterior chamber were within normal limits and the lens was seems clear. Examination was unremarkable in the left eye.

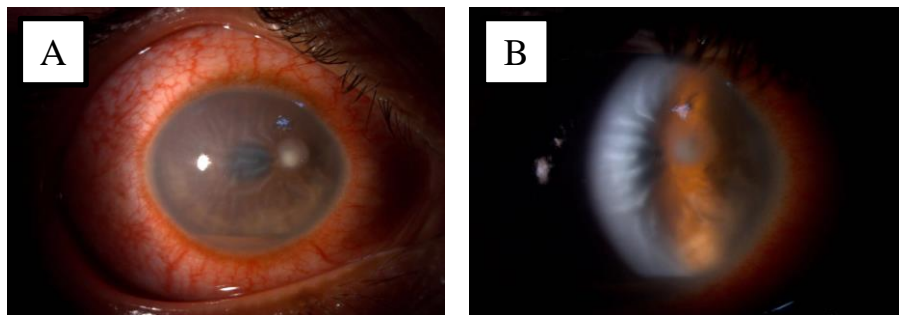


Figure 1.(A) Photographs of the sting cornea in diffuse and (B) slit illumination during initial examination

Slit-lamp guided sting removal was not possible because the tip of the sting was not accessible (Figure 1b). the patient was initially treated with a topical antibiotic (levofloxacin eye drops every 3 hours), a topical and oral corticosteroid (prednisolone acetate eye drops every 3 hours and methyl prednisolone 24 mg every 8 hours), a topical cycloplegic (1% atropine sulphate eye drops every 8 hours), and oral analgesic (diclofenac sodium every 12 hours). A local anesthesia assisted bee sting removal was immediately prepared. Explore the cornea using crescent make sure where was the sting. Stung was not discovered in the cornea. We made main incision at 9 o'clock and put some 10% triamcinolone acetate into the anterior chamber to locate the exact location of the bee sting. Removal of the foreign body was done by

45° curved forceps. We made sure the iris was free from bee sting toxin by irrigating and aspirating the anterior chamber. Intracameral antibiotics and air bubble were injected to made sure the anterior chamber was deep.

Postoperatively, the patient received extra vitamin C every 8 hours orally and, epithelial regeneration sterile eye drops every 6 hours. Follow-up on the first day after the removal of bee sting, the visual acuity improved to 6/12 with minimal descemet fold, and keratic precipitate (Figure 2A&B). The intraocular pressure was 47 and the patients was prescribed acetazolamide every 6 hours, and aspartate kalium every 12 hours orally the being discharged from the hospital. Follow-up day 5, the intraocular pressure was decreased to 23 but the visual acuity became 1-meter counting finger due to

moderate descemet fold and dilated pupil on cycloplegic agent (Figure 2C). The corticosteroid being tapered off, as well as the acetazolamide. Within approximately

15 days of follow-up, the fibrin inside all layer of cornea decreased gradually leaving scarring (Figure 2D), and BCVA improved to 6/12.

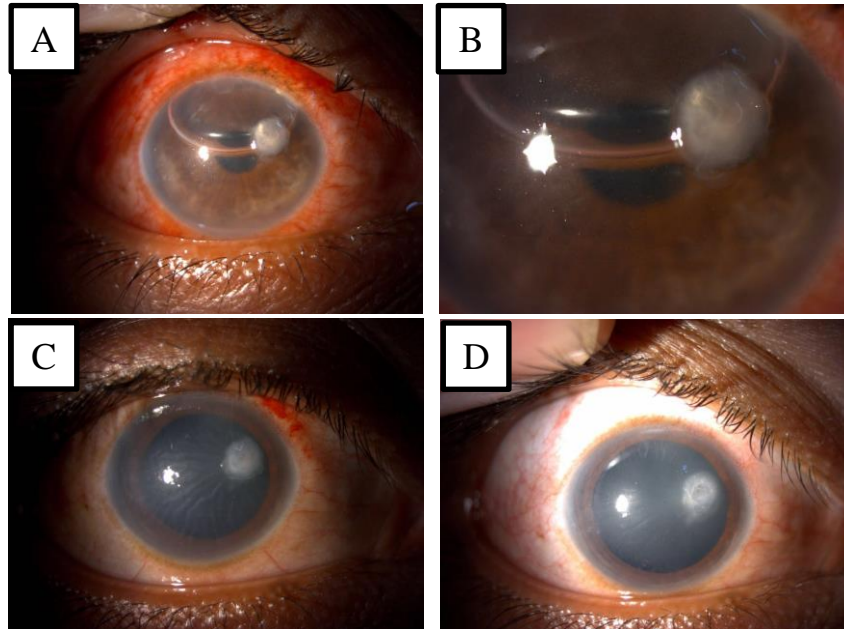


Figure 2. Photographs of anterior segment in diffuse illumination during approximately 15 days of follow-up (A-B) Day 1 of follow-up (ie, the surgery date). Note the air bubble in the anterior chamber and leaving corneal fibrin after removing the sting. (C) Day 5 of follow-up. The pupil was dilated do to cycloplegic agent. The descemet fold started to reform, and the fibrin was reduced. (D) Day 15 after the surgery, descemet fold was reduced, leaving the scarring.

DISCUSSION

In the present study, we describe a patient with a deeply embedded bee sting in the cornea. We conducted immediate sting extraction due to possible severe complication following the toxic venom. The condition of the eye is judged by severity of corneal reactions in the inflammation, infiltration, edema, the distance of the stinger from the visual axis and consequent visual disturbances, depth of the protrusion, and its external accessibility. Based on these factors, removal of the sting at the slit lamp or in the operating room may be indicated. The bee sting in the superficial cornea can be readily accessed and removed at the slit lamp³.

In the literature, studies are controversial in respect of management

strategies, depending on the severity of ocular complications and the status of the sting within the eye. Several studies recommend initial therapy with topical antibiotics and corticosteroids for the prevention of secondary infection and suppression of venom-induced inflammation. Analgesics and cycloplegics were also reported to be beneficial in some instances^{6,7,9,10}. In several studies, the sting was removed manually from the cornea in the first step by extracting its visible end from the cornea. However, external removal of the sting can be difficult and is sometimes associated with the risk of leaving broken fragments within the cornea^{6,9,12}. Deeply embedded sting, especially those extending to the anterior chamber, need surgery. A technique described by Sedaghat is that with a side port knife, an incision perpendicular to the

corneal surface over the area of the sting was removed completely and one 10-0 polyamide suture applied^{3,12}. In our case, the sting was embedded into the iris and it was not possible to remove it on slit lamp. So, we perform emergency surgery to remove bee sting from iris. An incision was made with a side port knife and triamcinolone acetate was injected intracamerally to locate the sting, and then removed the sting from iris using 45° curved forceps. Irrigation and aspiration were done to clean toxin from anterior chamber. Then the patient continued the topical antibiotics (levofloxacin eye drops), topical and oral corticosteroid (prednisolone acetate eye drops and methyl prednisolone 24 mg), topical cycloplegic (1% atropine sulphate eye drops), and oral analgesic (diclofenac sodium). We also prescribed vitamin C and epithelial regeneration sterile eye drops.

Complications following ocular bee sting penetration such as uveitis (59.09%), cataract (34.09%), raised intraocular pressure (18.18%) were reported in many literatures as described by Semler-Collery et al. In more than 70% of previous publications, there was conjunctival hyperemia associated with conjunctival edema on initial examination, which indicated a local inflammatory reaction due to the components of bee venom. In 60% of cases, there was a visible corneal stromal inflammation around the bee sting site, and in 40% of cases, there was associated edema of the eyelid⁷. Such findings were also found in our study which intraocular pressure began to raise the first day after removal of bee sting that was controlled with antiglaucoma agent. Anterior uveitis was also occurred before and after extraction of bee sting. Conjunctival hyperemia and edema were also discovered on initial examination followed by corneal stromal inflammation that occurred post operatively.

High dose systemic steroid to suppress the active inflammation was suggested in previous report^{2,14}. With the intensive initial treatment, we obtained visual recovery and decreasing of corneal fibrin in 15 days. We believe the intensive treatment including early surgical interventions and high-dose steroid therapy has advantages such as prevent sight-threatening serious sequelae by eliminating the venom and blocking the inflammatory response in early stage, enables rapid visual recovery so early return to work and daily life can be achieved. Quality of life of the patients can also be promoted. Thus, we believe attention should be paid to the risk of secondary infection and reverse raise of intraocular pressure when administering high dose steroid. In the present case, we used systemic and topical antibiotics for prevention of the secondary infection and systemic antiglaucoma agent to control intraocular pressure.

CONCLUSION

Ocular bee stings injuries are rare but can have serious complications that can include uveitis, and raised intraocular pressure. Although there are no treatment guidelines, management includes the withdrawal of the stinger and the use of topical anti-inflammatory eye drops and antibiotics combined with systemic corticosteroid treatment and cycloplegics agent. We recommend surgical removal of bee sting in all cases. Preferably, patients should be admitted in the ward for close monitoring of complications until the condition improves. Appropriate management of bee sting can save the patient's vision and reduce the risk of complications.

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