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Sympathetic Ophthalmia after Ocular Wasp Sting

Dear Editor,

Although wasp stings are common environmental injuries, those regarding the eye are rare. Symptoms vary from mild hyperemia to sight-threatening complications [1-4]. Wasp stings to the eye lead to a mechanical insult caused by stinger penetration, resultant toxicity, and an immune response [1]. A few reports have documented ocular inflammation induced by the venom or a retained stinger. In most cases, intraocular inflammation is treated with steroids or by removal of the stinger [2,3]. However, we encountered a case of severe panuveitis after an ocular wasp sting which could not be controlled by conventional therapy, resulting in sympathetic ophthalmia (SO) of the fellow eye. To our knowledge, this is the first report of SO induced by wasp venom.

A 53-year-old man was stung in his right eye, and one day later, arrived at Kyungpook National University Hospital with complaints of visual disturbance. The best-corrected visual acuity (BCVA) was hand motion and intraocular pressure (IOP) was 34 mmHg. We observed conjunctival injection, marked corneal edema with folds in Descemet's membrane, epithelial defects, stromal opacity, and severe anterior chamber reaction. Corneal and perilimbal infiltration was noted between 8 and 10 o'clock (Fig. 1A). The wasp stinger could not be identified during slit-lamp examination. The lens and fundus were obscured by corneal edema and anterior chamber reaction. B-scan ultrasonography showed hyperechoic signals in the vitreous. The patient was diagnosed with panuveitis, keratitis, and secondary glaucoma, and conservative treatment was initiated with moxifloxacin ophthalmic solution 0.5%, prednisolone acetate 1%, atropine sulfate 1%, fixed-combination dorzolamide/timolol, sodium hyaluronate 0.1% eye drops, oral prednisolone, and an antihistamine. The following day, the corneal edema had reduced, but keratic precipitates were observed (Fig. 1B). After one week, BCVA deteriorated to no light perception. Two months later, BCVA and IOP of the affected eye were not changed, but corneal stromal infiltration had remarkably worsened (Fig. 1C), and the patient complained of visual disturbance with conjunctival injection in the fellow eye, despite a visual acuity of the fellow eye was 20 / 20. However, IOP was 32 mmHg, and slit-lamp examination revealed keratic precipitates, with mild inflammatory reactions in the anterior chamber and vitreous (Fig. 1D). Fundus examination showed multiple small whitish-yellow infiltrations at the posterior pole and

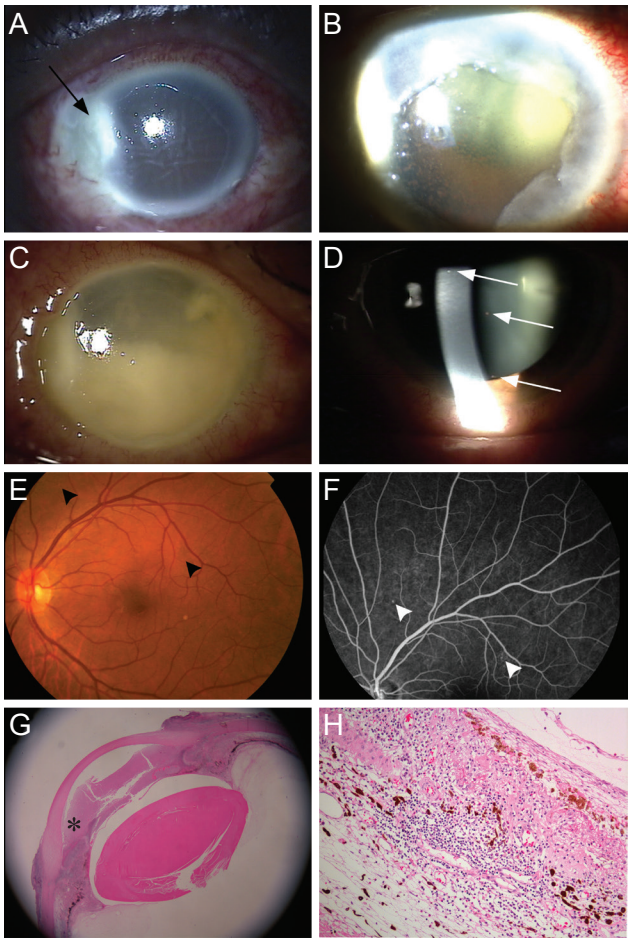

Fig. 1. Changes of the injured and fellow eyes after wasp sting. (A) Slit-lamp examination of the right eye shows infiltration of the corneal and perilimbal sclera (black arrow). (B) Keratic precipitates present on the posterior corneal surface of the right eye. (C) Corneal stromal infiltration had remarkably worsened in the right eye. (D) The uninjured eye shows keratic precipitates (white arrows) and cells in the anterior chamber two months after wasp sting. (E) Multiple small whitish-yellow infiltrations (black arrowheads) are seen in the retina of the fellow eye. (F) Fluorescein angiography shows multiple hyperfluorescent spots (white arrowheads) in the uninjured eye. (G) Histopathological study of the injured eye shows inflammatory infiltrations in the ciliary body, and the anterior chamber is filled with inflammatory exudate (asterisk) (H&E, ×10). (H) Lymphocytes, plasma cells, eosinophils, and pigmented melanocytes infiltrate in the choroid and retina (H&E, ×200).

mid-peripheral retina (Fig. 1E). Fluorescein angiography showed multiple hyperfluorescent dots, which were assumed to be Dalen-Fuchs nodules (Fig. 1F). Because there was no history of trauma or uveitis in the fellow eye, the patient's left eye was diagnosed as SO. Ten days later, enucleation of the right eye was performed because of severe ocular pain. The histopathological study found severe fibrinous membrane in the anterior chamber, inflammatory cellular infiltration in the ciliary body, and a severely disorganized retina in the enucleated eye (Fig. 1G). Many inflammatory cells, including lymphocytes, plasma cells, eosinophils, and pigmented melanocytes had infiltrated the choroid and retina, which suggested severe granulomatous inflammation (Fig. 1H). With systemic steroid treatment and immunosuppression with cyclosporine, inflammation of the left eye was well controlled.

Wasp stings are often associated with ocular inflammation. This is induced by a retained stinger or the inoculation of venom. The clinical manifestations commonly involve the cornea and anterior chamber [2,4]. However, wasp venom can invade the posterior segment and panuveitis can result from the accumulation of toxins in the vitreous [3]. In our case, despite the absence of a wasp stinger in careful ophthalmic examinations, ocular inflammation was severely aggravated. Thus, direct inoculation to the vitreous or deep penetration of the venom is a likely explanation. Furthermore, the patient suffered ocular inflammation in the fellow eye. This supports the notion that wasp venom can trigger severe inflammation with destruction of the eye structure and sensitize the fellow eye. Diagnosis of SO is based on the history and clinicopathologic findings. Dalen-Fuchs nodules, whitish-yellow lesions, are found typically at the choroid in the peripheral fundus of SO patients. In our case, multiple whitish-yellow infiltrations were found in the fundus, which were hyperfluorescent on fluorescein angiography.

Careful treatment of ocular wasp sting should proceed according to the mechanism of injury and the clinical manifestations. Nakatani et al. [3] reported that panuveitis after an ocular bee sting could be treated successfully through vitrectomy. In this case, we could not perform vitrectomy because corneal opacity and a severe anterior chamber reaction obscured the surgical field. Early and aggressive treatment, including surgical treatment, can be helpful to ensure functional and anatomical recovery.

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Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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