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Case Report

Corneal ulcer? Think beyond only a bacterial etiology

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delays the initiation of timely appropriate treatment often resulting in permanent damage.

Case report

A 46-year-old patient was transferred from a peripheral hospital as a case of closed globe injury with a corneal ulcer. The patient gave a history of being hurt in his right eye while playing basketball, 2 weeks back. 3 days after the injury he reported with pain and mild diminution of vision in his right eye. The treating doctor documented his vision as 6/9 right and 6/6 left eye. He also noticed a small corneal opacity in his right eye. The patient was admitted as a case of closed globe injury with corneal ulcer and started on topical and systemic broad-spectrum antibiotics and analgesics. However over the next 10 days, the patient's condition deteriorated with increasing pain, further diminution of vision and an increase in size of the corneal opacity. He was subsequently transferred to this center. On presentation, the vision in his right eye was reduced to just 2/60. There was also severe circum-corneal congestion with a large nebulo-macular grade central corneal ulcer (Fig. 1). His intra-ocular pressure (IOP) however was normal i.e. 16 mm of Hg both eyes as measured with a non-contact tonometer (NCT). On staining with fluorescein, the classical branching dendritic pattern of herpes simplex keratitis was seen (Fig. 2). The patient was started on systemic and topical antivirals i.e. tablet acyclovir 400 mg five times daily as well as eye ointment acyclovir 0.3% five times

Introduction

Though globally, an estimated 4.0 billion people are infected with the herpes virus, however even after several years of intensive research into herpes simplex virus keratitis (HSK) and substantial progress in understanding its virology, the management of this condition continues to be challenging.¹ In addition, in an under developed country like ours where bacterial and fungal keratitis are far more common, a viral etiology for keratitis is generally not thought of initially, which

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Fig. 1 – On presentation – eye highly inflamed with circum-corneal congestion as well as a large nebulo-macular grade central corneal opacity.

along with topical mydriatics i.e. eye drop homatropine 0.5% QID. Within 48 h of treatment the patient claimed a symptomatic relief, with his pain reducing and his vision improving to 6/36. However 5 days later the patient complained of an increase in pain. His vision was reduced to 4/60 and the IOP had increased to 54 mm of Hg NCT. Slit lamp examination revealed a hazy edematous cornea, cells in the anterior chamber as well as keratic precipitates on the corneal endothelium (Fig. 3). A diagnosis of anterior uveitis in association with the stromal keratitis and endothelitis was made. Systemic as well as topical antiglaucoma drugs i.e. tab acetazolamide 250 mg QID as well as eye drop timolol 0.5% BD and eye drop dorzolamide 2% TDS was added to his treatment. In addition topical steroids i.e. eye drop prednisolone acetate 1% QID was also added. The IOP decreased to below 20 mm of Hg NCT within 3 days and the tablet acetazolamide was stopped, however the topical antiglaucoma medication was continued for another 2 weeks. The patient too symptomatically improved with his vision improving to 6/24 and pain totally disappearing. The oral and topical acyclovir was continued for 2 more weeks. The topical prednisolone was continued for a month in tapering dosage and replaced by a milder steroid

Fig. 2 – On fluorescein staining – the classical dendritic pattern of staining is evident.

Fig. 3 – Hazy, edematous cornea with cells in the anterior chamber and keratic precipitates on the corneal endothelium.

i.e. eye drop fluoromethonole 0.1% BD. The patient was finally sent on 4 weeks sick leave after 1½ months of hospitalization with a vision of 6/6 in both eyes (Fig. 4), however very mild nebular grade opacity still persisted.

Discussion

In industrialized countries herpes simplex virus (HSV) keratitis is the most common cause of corneal opacity and subsequent visual disability and blindness, primarily because of its recurrent nature.² In contrast, in developing countries where prevalence of bacterial and fungal keratitis and associated ocular diseases is high, herpetic keratitis, although known to be present, is generally regarded as a less significant ophthalmic problem.

The herpes simplex virus (HSV) is an extremely successful parasite in humans and is one of the most common causes of infection in man. There are 2 distinct serotypes of HSV: HSV type 1 (HSV-1) and type 2 (HSV-2). HSV-1 classically causes

Fig. 4 – On Discharge; Vision 6/6.

infections above the waist, for example, the eyes and mouth; HSV-2 usually causes infections below the waist, for example, the genitals.³ The HSV, type 1, is carried in an inactive state in up to 90% of adults and can cause a wide variety of ocular problems like blepharitis, conjunctivitis, dendritic epithelial keratitis, corneal ulceration, stromal keratitis, endothelitis, trabeculitis, episcleritis, scleritis, iridocyclitis, and the acute retinal necrosis syndrome.^{4–6}

In our case the patient had presented with a history of injury to his eye following which he had pain and diminution of vision. Although he denies a history of similar complaints earlier, we feel that he would have had an attack of mild HSV earlier which maybe went un-noticed. Subsequently, following the injury there was a reactivation of the virus. Also he later developed stromal keratitis which is rarely seen in primary infection.^{1,7}

On arrival to this center, only the corneal epithelium was involved, which is also the most common ocular presentation of HSV,⁸ manifesting as a dendritic ulcer. This was treated with systemic and topical antivirals.^{1,3,5} Later with the development of stromal keratitis the patient also had an associated anterior uveitis and raised IOP. Both of which are only seen with stromal keratitis and never with just a dendritic ulcer.

The increased IOP in HSV kerato-uveitic glaucoma is related to trabecular blockade or trabeculitis.⁴ This was managed with the addition of topical steroids as well as antiglaucoma medicines because it has been shown that the management of increased IOP occurring secondary to HSV kerato-uveitis is directed initially at halting the viral disease, followed by treatment with corticosteroids which are necessary to control the inflammatory aspects of the disease and reduce the IOP by suppressing the trabeculitis.^{1,4} This also is the recommended line of management as far as endothelitis is concerned. Additional antiglaucoma medications are sometimes needed to control the ocular hypertension. Glaucoma filtration surgery is rarely indicated.⁴

Conclusion

Viral keratitis should always be kept in mind while dealing with non-healing corneal ulcers.⁷ While dealing with non-healing corneal ulcers, as the one described above, the medical officers must realize the importance of referring such

patients early to higher specialized centers because such delay may sometimes lead to a permanent corneal scarring and disability. Oral antiviral prophylaxis has been shown to be associated with a decreased risk of recurrence of epithelial keratitis, stromal keratitis, conjunctivitis, and blepharitis due to HSV.^{5,8,9} And tablet acyclovir 400 mg BD for 1 year is recommended in patients who have 2 or more scarring epithelial infections per year or stromal immune disease even once. Treatment-wise, there is no drug presently available in the market that can permanently cure herpes infection.

Conflicts of interest

All authors have none to declare.

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