Case report

Herpes simplex keratitis - an unusual clinical presentation

Arya S K, Malhotra C, Bhatia R, Sood S
Department of Ophthalmology, Government Medical College,
Sector 32, Chandigarh-160030, India

Abstract

A case of posterior corneal abscess with extension into the anterior chamber, in the presence of an intact corneal epithelium and clear anterior corneal stroma, occurring in a young patient is described. The patient responded to treatment with systemic and topical acyclovir. The diagnosis of presumed herpes simplex keratitis was made. We report this unusual presentation of ocular herpes manifesting as a posterior corneal and anterior chamber abscess.

Keywords: ocular herpes, corneal abscess, acyclovir

Introduction

Herpes viruses are an important source of ocular morbidity worldwide. Ocular herpes simplex virus infection (HSV) may present as dermatitis with periocular ulceration, blepharitis, conjunctivitis, epithelial, stromal or disciform keratitis, endothelitis, anterior, intermediate or posterior uveitis and trabeculitis (Tabbara KF et al 1998). Ocular varicella zoster virus infection (VZV) has been known to cause conjunctivitis, scleritis, episcleritis, epithelial and stromal keratitis, neurotrophic keratopathy, iridocyclitis, Horner's syndrome, Argyll Robertson pupil, retinitis, choroiditis, optic neuritis and optic atrophy (Karbassi M et al 1992). We report an unusual presentation of herpes simplex keratitis, manifesting as a localized posterior corneal abscess and extending into the anterior chamber up to the anterior surface of the crystalline lens, in the presence of an intact corneal epithelium and clear anterior corneal stroma.

Case report

A 22-year-old female came with the complaints of pain, diminution of vision, redness and photophobia in the left eye of two months duration. There was no history of antecedent trauma with vegetative matter to the eye. History of prior episodes of labial herpes was present. Best corrected visual acuity was 6/6 in the right eye and counting fingers at 2 meters in the left eye. Ocular examination of the right eye was essentially normal. Both the upper and lower lids of the left eye were swollen. However there was no evidence of a periocular rash. Conjunctival chemosis and circumciliary congestion were present. On slit-lamp biomicroscopy a localized posterior corneal abscess (measuring 4.5 mm vertically and 2.8 mm horizontally) was seen associated with deep vascularisation. The abscess had extended into the anterior chamber upto the anterior surface of the crystalline lens (Fig.1). The overlying corneal epithelium was intact (flourescein stain negative) and the anterior two thirds of the corneal stroma were clear. The anterior chamber showed a reaction of 2+ cells and flare. There was no hypopyon. Corneal sensations of the left eye were diminished as compared to the right eye. The vitreous cavity was optically clear and posterior segment examination was normal.

Received: 07.04.2009 Accepted: 06.06.2009
Correspondence and reprint request to: Dr Sudesh K Arya, MD
Professor and In-charge, Cornea services
Department of Ophthalmology
Government Medical College
Sector 32, Chandigarh-160030
India.
Telephone: 00-91-1722646352, 9646121656
Fax: 00-91-172-2609360
Email: aryasudesh@yahoo.co.in

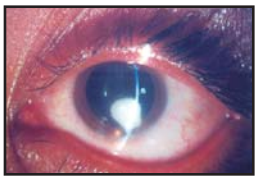

***Fig.1** : Slit lamp biomicroscopic photograph of left eye showing intact corneal epithelium, clear anterior corneal stroma, and a posterior corneal abscess extending into the anterior chamber upto the anterior surface of the lens.*

Before presenting to our institute the patient had been treated with topical antibiotic (ofloxacin 0.3%) and antifungal (natamycin 5%) eye drops and oral fluconazole 100 mg twice a day for a period of 2 weeks without showing any improvement. A complete systemic work up including blood counts, erythrocyte sedimentation rate, Mantoux test, chest X ray, blood and urine cultures and ELISA for HIV was done to rule out any systemic infection metastasing to the eye. All systemic investigations were within normal limits. The diagnosis of herpes simplex keratitis manifesting with this unusual picture of a localized posterior corneal and anterior chamber abscess was considered and the patient was given a therapeutic trial of oral acyclovir 800 mg five times a day and acyclovir eye ointment 3% five times a day along with atropine 1% eye drops tds and prednisolone acetate 1% eye drops qid. All other topical and systemic medications were stopped. Simultaneously, blood samples were sent for herpes virus serology and low titres of antibodies were detected against both HSV and VZV. The aqueous however was not subjected to serology because of risk of disseminating the infection, which presently was well localized. Three days after starting treatment with systemic and topical acyclovir, the patient started showing improvement. Best-corrected visual acuity improved from finger counting at 2 meters to 6/60 and then to 6/18 by the end of two weeks. Pain, redness, and photophobia decreased. The abscess reduced in size, anterior chamber inflammation decreased and deep vascularization started regressing (Fig 2). The abscess in the anterior chamber disappeared completely 6 weeks after starting therapy with acyclovir (Fig 3).

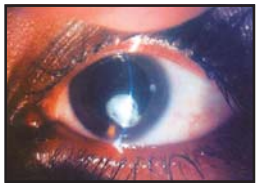

***Fig.2**: Gradual resolution of posterior corneal and anterior chamber abscess 2 weeks after starting treatment with acyclovir.*

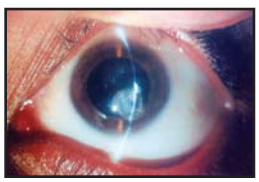

***Fig.3:** Further decrease of abscess 6 weeks after starting treatment.*

Infiltrates in the posterior corneal stroma resolved more gradually and were replaced by chalky white deposits with intervening areas of clear stroma. Topical acyclovir was continued five times a day while oral acyclovir was tapered to 200 mg five times per day and then to 400 mg BD over a period of two months. Oral and topical acyclovir was given for a total duration of six months at which time the best corrected visual acuity was 6/9, posterior corneal stroma had minimal deposits (Fig. 4) and the eye showed no signs of persisting inflammation.

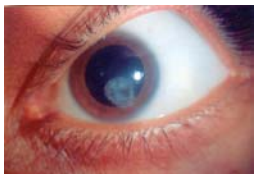

***Fig.4:** Minimal posterior corneal stromal deposits at the end of six months of treatment.*

Discussion

Ocular infections with HSV and HZV involve a varied spectrum of presentations. The manifestations of epithelial disease as infectious dendritic or geographic ulceration and trophic ulceration are well known. Stromal disease can occur in the form of necrotizing keratitis, immune mediated stromal keratitis, immune rings, limbal vasculitis or disciform keratitis. Our case was however different from these well-documented manifestations as the epithelium was intact, anterior two thirds of the corneal stroma was clear and a posterior corneal abscess was present which had extended into the anterior chamber upto the anterior surface of the crystalline lens. A thorough literature search did not reveal a similar presentation of herpes keratitis.

The diagnosis of herpes simplex keratitis in our case was initially based on the therapeutic response to antiviral agents. Though serum antibodies to both HSV and VZV were present in our patient, this seropositivity was not of much clinical significance as the prevalence of antibodies to herpes simplex virus has been reported to vary from 50-97% of the general population (Leopold IH et al, 1963) and up to 90 % of adult population can have detectable titers of VZV antibodies (Liesegang TJ, 1999). An initial attempt to isolate the causative organism from the aqueous was not made as the anterior chamber paracentesis, being an invasive procedure, could have caused dissemination of the infection. Later

the response to acyclovir obviated the need for doing this procedure. Review of literature revealed that isolation of herpes virus from aqueous specimens is difficult because of the presence of neutralizing antibodies, high intraocular levels of which may persist after the patient has recovered from the primary infection (Oh, 1979). Although polymerase chain reaction (PCR) may detect HSV DNA in patients with active herpetic uveitis, its diagnostic value is limited as corneal epithelial and stromal tissue has been shown to harbor the HSV DNA in the absence of active viral infection (Rong, 1991). The possible risks of doing an aqueous tap were thus felt to outweigh the potential benefits from the procedure. Our diagnosis of herpes virus being the causative organism in this case was however strongly supported by a prompt and sustained response to antiviral therapy. The absence of any evidence of a periocular rash and the fact that the patient was a young healthy female without any evidence of immune suppression, and a previous history of labial herpes goes more in favour of HSV being the etiological agent. However, infection with VZV cannot be ruled out as *Herpes zoster ophthalmicus sine herpete,* i.e. ocular herpes zoster without a preceding history of a zosteriform rash has been recognized as a distinct though rare clinical entity since the early 1900 (Ross JVM, 1949 & Silverstein BE et al, 1997). This case demonstrates that herpes virus infection of the anterior segment of the eye can have an unusual presentation in the form of a posterior corneal abscess and anterior chamber abscess. This is, to the best of our knowledge, the first such report and adds to the existing literature on manifestations of herpetic ocular disease.

References

Karbassi M, Raizman MB, Schuman JS (1992). Herpes zoster ophthalmicus. Surv Ophthalmol; 36: 395-410.

Leopold IH, Sery TW (1963). Epidemiology of herpes simplex keratitis. Invest Ophthalmology; 2 :498.

Liesegang TJ (1999).Varicella- Zoster virus eye disease. Cornea; 18: 511-531.

Oh JO (1979). The role of immunity in the pathogenesis of herpes simplex uveitis. In: Silverstein AM, O' Connor R, eds. International symposium on immunology and immunopathology of the eye. New York: Masson

Rong BL (1991). Detection of herpes virus thymidine kinase and latency- associated transcript gene sequences in human herpetic cornea by polymerase chain reaction amplification. Invest Ophthalmol Vis Sci; 32: 1808-1815.

Ross JVM (1949). Herpes zoster ophthalmicus sine eruptione. Arch Ophthalmol; 42:808-812.

Silverstein BE, Chandler D, Neger R et al (1997). Disciform keratitis: a case of herpes zoster sine herpete. Am J Ophthalmol 123; 254-255.

Tabbara KF, Chavis PS (1998). Herpes simplex anterior uveitis. Int Ophthalmol Clin ; 38: 137-147.

Source of support: nil. Conflict of interest: none