

# Latanoprost and Herpetic Keratitis

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*Pak J Ophthalmol 2011, Vol. 27 No. 4*

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Herpetic Simplex is a common cause of infection of the cornea. Primary open angle Glaucoma (POAG) is the most common cause of irreversible blindness in the world. Prostaglandin analogues are commonly prescribed as the first line therapy for POAG.

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This is a report of a patient with recurrence of herpetic keratitis, who was on latanoprost for two months.

Clinicians should be alert to Latanoprost as a cause of recurrence of herpetic keratitis.

Submission of paper  
March' 2011

Acceptance for publication  
October' 2011

**H**erpes simplex virus is a DNA virus, which causes infection in humans only. There are two sub types; HSV-1 which causes infection above the waist while HSV-2 causes infection below the waist (Genital).

## CASE REPORT

A 70 years old lady presented to the outpatient clinic with left painful red eye. Her visual acuity in the left eye was count fingers. Left eye slit lamp examination revealed injected conjunctiva with hazy cornea. On fluorescein staining, there was a linear branching ulcer mimicking dendritic ulcer. The ends of branches characteristically had swollen appearance as terminal bulbs. Corneal sensitivity was reduced.

She had been operated on for cataract with posterior chamber intraocular lens implantation one year back. Her post operative visual acuity was 6/18 and 6/24 in the right and left eye. After a year her visual acuity dropped to 6/24 in the right and 6/36 in the left eye. Intra ocular pressure (IOP) was 22 and 28mm of Hg. Visual fields showed characteristic features of glaucoma. Her cup disc ratio was 0.5 and 0.8 in the right and left eye. A diagnosis of primary open angle glaucoma was made and she was advised Latanoprost eye drops in the evening in both eyes. While using latanoprost for a couple of months, she

developed herpetic keratitis. She had no previous history of herpetic keratitis. She was neither hypertensive nor diabetic. Latanoprost was stopped with initiation of Brimonidine and a combination of Timolol Maleate and Dorzolamide eye drops in order to control intraocular pressure in both eyes. Acyclovir ointment five times a day with Tropicamide eye drops two times a day, were also started in the left eye. After three days Tropicamide drops were stopped and Acyclovir eye ointment was continued. Dendritic ulcer resolved after two weeks of treatment.

## DISCUSSION

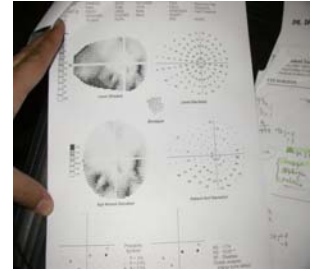
Latanoprost is a prostaglandin with alpha analogue and it is used to reduce intraocular pressure. It increases uveoscleral outflow and reduces intraocular pressure by up to 25%. Antiglaucoma prostaglandin analogues (latanoprost) because of their ability to induce the release of endogenous prostaglandins in the iris and the ciliary muscles may induce reactivation of HSV keratitis. Viral Infection is spread by direct contact of the skin or the mucous membranes to infected secretions. The initial attack is generally self-limiting and is often subclinical. However herpetic disease is recurrent and a wide range of clinical manifestations can result from an infection with this

agent. The most common site of primary infection in humans is the skin and the mucous membrane innervated by the trigeminal nerve. The virus is transported via the nerve axon to its cell body in the sensory ganglion where it persists in a latent state until reactivation. Some evidence exists that the human cornea also may harbor latent virus.

Recurrent disease is the result of reactivation of this latent virus. Of adults in the United States, 50-90% have antibodies to HSV type 1, indicating previous exposure to the virus. Incidence of ocular HSV infection is approximately 0.15%. The mean age of presentation is in the late fifth to early sixth decade of life. It is known that prostaglandin have effect on multiplication of herpes virus. Harbour, Blyth and Hill<sup>1</sup> have observed Prostaglandins enhance spread of herpes simplex virus in cell cultures. Ultra violet light and trauma may induce herpes activation by releasing pharmacologically active agents in skin, including prostaglandins (PGs) such as PGE<sub>2</sub>. These agents, and other compounds, which alter levels of adenosine cyclic monophosphate (cyclic AMP), were tested for their effect on the replication of herpes simplex virus (HSV) in Vero cells. Prostaglandin E<sub>2</sub> (PGE<sub>2</sub>) and prostaglandin F<sub>2</sub> alpha both increase the size of HSV plaques. Analysis of the results suggests that prostaglandins can enhance cell-to-cell spread of HSV, but that cyclic AMP is probably not involved in this effect. In one study by Wand and associates<sup>2</sup>, recurrence of herpetic keratitis was reported in three patients using topical latanoprost. In one patient with latanoprost-associated herpes simplex keratitis cleared with the discontinuation of latanoprost and start of antiviral therapy; reinstatement of latanoprost with prophylactic antiviral medication kept the cornea clear, but as soon as the antiviral suppression was discontinued, herpes simplex keratitis reappeared. In a study conducted in rabbits by Herbit E. Kaufman and associates<sup>3</sup>, it was found that latanoprost increase the recurrence of herpetic keratitis in rabbits<sup>3</sup>. Deai, Fukuda and Hibino<sup>4</sup>, quantitated herpes simplex virus (HSV) DNA in tear film obtained from 2 patients who developed herpetic epithelial keratitis (HEK) during treatment with latanoprost and a beta-blocker. In both cases, a real-time PCR assay was used to quantify HSV-DNA in the tear film.



Dendritic ulcer stained with fluorescein



Visual fields

## CONCLUSION

Latanoprost which is an anti-glaucoma prostaglandin analogue may predispose to herpes simplex reactivation resulting in herpetic keratitis. It can cause inflammation and may have a common pathway for reactivation. Therefore before prescribing anti glaucoma prostaglandin analogue one should take careful history of any previous herpetic infection.

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