Case Report

Electric cataract: a case report

Abstract

We report on a 25year old male, who developed Electrical Cataract in both eyes after a shock from high voltage. Although electrical cataract due to high voltage or lightning is rare, they may still occur after industrial or home electric accidents. Even if cataract extraction with intraocular lens implantation is successfully performed, the final visual acuity will depend on other ocular damage due to the electric current.

Keywords: electric cataract, electric current, ocular injury

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Introduction

Electric trauma producing cataract is rare, however, there have been few cases reported in literature. Such cataracts are known to develop several months later and then progress with startling rapidity. The majority of cases respond well to surgery, but final visual acuity depends on the other ocular damage due to electrical current. The need for awareness of the possibility of this complication and screening of all cases of electrical injuries is stressed. We report such a case of electric cataract in a young adult.[1]

Case report

A 25year old male patient reported to eye department with the complaints of gradual painless diminution of vision in both eyes. The history of the patient revealed an injury from a high-voltage electric cable 1.5years ago due to high voltage wire falling on his head. He had undergone right eye cataract surgery with intraocular lens implantation 6 months back.

On examination, there was a scar on his scalp with loss of hair. His best corrected visual acuity on Snellen's chart was 6/9 in right eye and 6/30 in left eye. On slit lamp examination lids, conjunctiva, cornea and pupils showed no abnormality in either eye. Right eye had a posterior chamber intraocular lens. Left eye showed multiple, mid-peripheral snowflake - like anterior subcapsular lens opacities (Figure 1). Also a central cortical opacity with shrunken anterior capsule was seen. There was a complete cleavage of cortex and a separation was visible in retro illumination (Figure 2). Fundus examination was unremarkable in right eye and faintly visible in left eye.

Phaco-emulsification with foldable hydrophobic posterior chamber IOL in the capsular bag was done under peribulbar anesthesia in left eye. Postoperatively the recovery was uneventful. He regained uncorrected visual acuity of 6/9 in left eye.

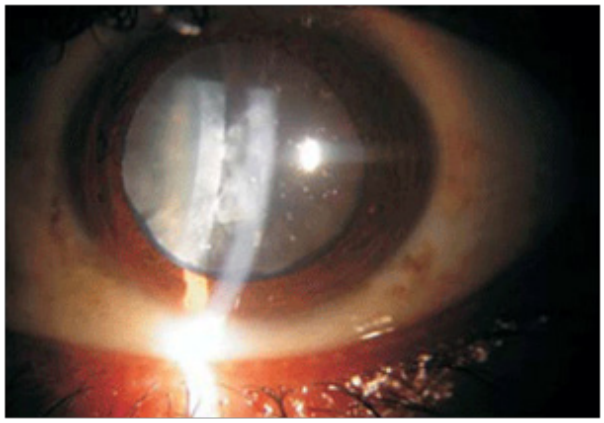

Figure 1 Left Eye shows anterior subcapsular lens opacities.

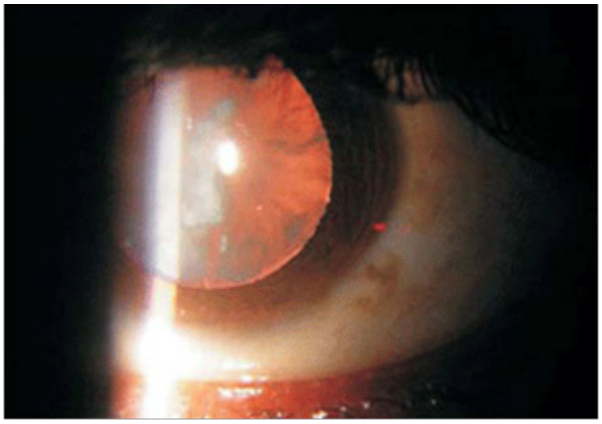

Figure 2 Left Eye lens opacities under retroillumination.

Discussion

High voltage electric burns can cause various ocular injuries in the form of conjunctival hyperemia, corneal opacities, uveitis, miosis, spasm of accommodation, cataract, retinal edema, papilledema, chorio-retinal necrosis/atrophy, retinal detachment and optic atrophy, macular edema and macular cysts or holes.[2,3]

Damage from lightening shock leading to cataract has been recorded in 1722 by St. Yves.[4] Electric current as proved by Weeks and Alexander[5] passes through the animal body as though it was passing through a structure less gel, always choosing the shortest path from contact to contact without deflection by anatomical landmarks. The amount of energy delivered depends on the resistance between two points. It is known that lower the resistance greater the internal injuries, higher the resistance greater the surface burns.

The cataract is believed to be due to coagulation of lens proteins and the osmotic changes following damage to the subcapsular epithelium which results in decreased ability of the lens to absorb water. A lenticular change usually develops 1–12months after the electric shock.[6] Opacities form in the capsule and in the anterior subcapsular cortex. Posterior cortex may also be affected. Large blebs appeared beneath the posterior capsule later replaced by irregular filamentous opacities. The progression of the cataract varies from case to case. It may remain stationary for a long time or progress slowly over a period of 6months to become mature or hypermature cataract. Localized electrical current in one eye doesn't produce cataract in other eye.

Conclusion

The involvement of crystalline lens exclusively with sparing of other ocular structures is rare as in our case. In our case phaco-emulsification followed by foldable in the bag implantation of posterior chamber intraocular lens resulted in stable and good visual acuity.

When lenticular opacities are the sole manifestations of electrical injury, cataract extraction is expected to produce a functional outcome. However, with concurrent damage to the optic nerve and retina, complete visual rehabilitation may be limited.[7]

Thus, proper surgical management of electric cataract will result in a good visual rehabilitation if the eye has no additional damage, as in this case.

Acknowledgements

None.

Conflict of interest

Author declares that there is no conflict of interest.

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