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Spontaneous malignant glaucoma in a patient with patent peripheral iridotomy

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Abstract

Background: To report a case of spontaneous malignant glaucoma in an Asian female. To propose the term "positive vitreous pressure glaucoma" to reflect the pathophysiology, treatment and prognosis of the condition.

Case presentation: A 56-year old Chinese female was diagnosed of primary angle closure glaucoma and had bilateral laser peripheral iridotomy one year ago. She presented with spontaneous onset of malignant glaucoma involving the left eye. The condition was treated successfully; the final best corrected visual acuity was 0.67 (decimal notation).

Conclusion: This case highlights that acute angle closure attack can occur in an eye with patent peripheral iridotomy. Early recognition and treatment is essential for good visual prognosis.

Background

Malignant glaucoma is a form of secondary angle closure glaucoma characterized by marked elevation of the intraocular pressure (IOP), shallow anterior chamber despite a patent laser peripheral iridotomy (LPI), and a normal posterior segment anatomy. A recent review of modern literature classified malignant glaucomas into classic malignant glaucoma, nonphakic malignant glaucoma and other malignant glaucoma syndromes [1]. Classic malignant glaucoma typically develops in patients with primary angle closure glaucoma after incisional surgery. Non-phakic malignant glaucoma occurs after cataract extraction. Other malignant glaucoma syndromes may be spontaneous, or associated with any ocular pathologies or the use of miotics. We report a case of malignant glaucoma that occurred spontaneously in an eye that underwent LPI one year ago.

Case presentation

A 56-year-old Chinese female with primary angle closure glaucoma, underwent bilateral LPI one year ago. Her eyes were treated with topical timolol 0.5% twice daily and topical latanoprost 0.005% at night. During her last clinic visit, the IOPs were 20 mm Hg (right) and 21 mm Hg (left). She presented with three days' history of sudden left eye pain, redness, lacrimation and blurring of vision associated with headache. The episode occurred spontaneously. Visual acuity was 0.17 (decimal notation). Ocular examination showed marked ciliary flush, corneal edema and mid-dilated pupil (Figure 1). The anterior chamber was very shallow (Figure 2).

Retro-illumination revealed a patent peripheral iridotomy (Figure 3). The IOP was 60 mm Hg. Relative afferent pupillary defect was absent. The crystalline lens was cataractous with grade 2 nuclear sclerosis. Ultrasonographic biomicroscopy showed peripheral iridocorneal touch and forward rotation of the ciliary body (Figure 4). B-mode ultrasonography showed a normal posterior segment.

The diagnosis of malignant glaucoma was made. She was treated immediately with intravenous mannitol 20%, oral acetazolamide 250 mg, topical atropine 1%, topical timolol 0.5% and topical latanoprost 0.005%. The IOP came down to 26 mm Hg after 2 hour, but subsequently rose to 36 mm Hg with persistent shallowing of the anterior chamber. An emergency anterior vitrectomy was performed via the pars plana, followed by phacoemulsification cataract extraction, primary posterior capsulotomy, and posterior chamber intraocular lens implantation.

Postoperatively the anterior chamber depth increased (Figure 5) and the IOP came down to 20 mm Hg.

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