



ORIGINAL RESEARCH PAPER

Ophthalmology

BILATERAL ACUTE ANGLE CLOSURE GLAUCOMA IN A COVID 19 PATIENT FOLLOWING HEPARIN THERAPY- A CASE REPORT

KEY WORDS: Acute Angle Closure Glaucoma, Anticoagulants, Heparin, COVID 19.

Dr. Vikram Chellakumar

Associate Professor, Department Of Ophthalmology, Sree Balaji Medical College And Hospital, Chromepet , Chennai 44.

Dr. Vishali Kandasamy*

Junior Resident, Department Of Ophthalmology, Sree Balaji Medical College And Hospital, Chromepet , Chennai 44. *Corresponding Author

ABSTRACT

Acute angle closure glaucoma is an ophthalmic emergency and can lead to blindness if left untreated. Pupillary block is the most common mechanism. Drug induced angle-closure has been reported to cause a significant proportion of these cases particularly in developing countries. The common drugs implicated are antidepressants, antipsychotics, antihistamines, anticonvulsants like topiramate, sulfa based drugs namely acetazolamide and hydrochlorothiazide, nebulized ipratropium bromide and salbutamol. Anticoagulants have also been reported to cause AACG in predisposed eyes. As the COVID-19 pandemic has spread throughout the world, a high rate of thrombotic complications has been described, including deep vein thrombosis. Although the mechanisms of thrombosis are unclear, anticoagulation with high doses of heparin has been proposed for these patients. Critically ill patients with COVID-19 develop life-threatening coagulopathy and thromboembolic complications that justify aggressive anticoagulation with close monitoring. We report a patient who developed bilateral angle closure glaucoma following heparin therapy who was misdiagnosed as having conjunctivitis by treating physicians which is an ocular manifestation of COVID 19.

INTRODUCTION

Acute angle closure glaucoma is an ophthalmic emergency and can lead to blindness if left untreated. Pupillary block is the most common mechanism and occurs when the pupil comes into contact with the lens and obstructs the aqueous flow from the posterior to the anterior chamber resulting in a rapid rise in the IOP. Common anatomical risk factors include shallow anterior chamber, plateau iris configuration, thick and anteriorly placed lens and rarely intraocular tumours.[1]

Drug induced angle-closure has been reported to cause a significant proportion of AACG. The common drugs implicated are antidepressants, antipsychotics, antihistamines, anticonvulsants like topiramate, sulfa based drugs namely acetazolamide and hydrochlorothiazide, nebulized ipratropium bromide and salbutamol.[2,7] Anticoagulants have also been reported to cause AACG in predisposed eyes.[2] Any medication with sympathetic or anticholinergic effects has theoretical potential to precipitate angle-closure in at-risk eyes. The underlying mechanism may be due to pupil dilatation as a medication side effect, or due to choroidal effusion, causing swelling of the ciliary body and forward movement of the lens and iris towards the chamber angle [3,5]

CASE REPORT

A 63 year old female patient presented to the OPD with h/o fever for the past 3 days, there was no h/o cough, sore throat or GI symptoms. She gave a positive h/o contact with husband who was COVID positive. COVID 19 RT PCR which was positive and her chest X ray revealed lower lobe opacities. Patient was admitted and started on antibiotics, vitamin supplements, LMWH and other supportive measures. Patient was under quarantine for two weeks and later discharged after she improved symptomatically. Two days following discharge she developed pain in both eyes with redness and decreasing vision. The consulting physician treated her with topical antibiotics as conjunctivitis is known to occur in COVID 19 patients. But her symptoms rather worsened and she was referred to the ophthalmology OPD.

Ocular examination revealed bilateral red eyes, cloudy cornea and a shallow anterior chamber. Visual acuity was only hand movements in both eyes and IOP measurement with Goldmann applanation tonometer was 40 and 44 in the right and left eye respectively. A diagnosis of bilateral angle closure glaucoma was made and patient was immediately

started on intravenous mannitol, tablet acetazolamide, topical pilocarpine and timolol. Patient made significant recovery over the next couple of days and her IOP came down to 16 and 18 and her visual acuity also improved to 5/60 and 6/60 in the right and left eye respectively. B scan was done in both eyes which was normal. Patient was later operated for cataract in both eyes the following week and now continues to do well with BCVA of 6/12 and 6/9 P in the right and left eye.



Fig A : A 63 yr old female patient with bilateral red eyes, pain and decreasing vision

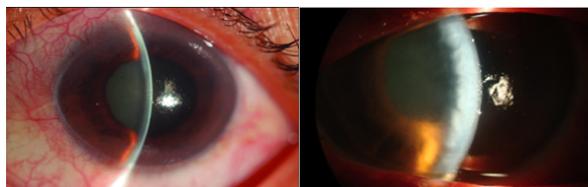


Fig B & C: Slit lamp examination showing corneal edema, shallow anterior chamber and mid dilated pupil

DISCUSSION

AACG classically presents with a unilateral red eye with pain and reduced vision, bilateral presentations may occur and are more common in medication-induced cases. Drug-induced acute angle-closure usually develops soon after initiation of treatment, and generally within 30 days. Anticoagulant therapy may be associated with complications like vitreous, choroidal or subretinal haemorrhage which may induce acute angle-closure glaucoma. The mechanism for angle closure is the sudden forward displacement of the lens-iris diaphragm resulting from the detached retina or choroid[2]. Risk factors are over-anticoagulation, nanophthalmos and exudative age-related macular degeneration [12,13,14]. Since the mechanism of angle closure is non-pupillary block, peripheral iridotomy is not effective in these cases. It is suggested that the clinician should consider discontinuing the anticoagulant to prevent further damage.[2]

As the COVID-19 pandemic has spread throughout the world, important efforts have been made to describe its physiopathology and complications. In critically ill patients with COVID-19, a systemic inflammatory response associated with endothelial activation is observed. A high rate of thrombotic complications has been described, including deep vein thrombosis. Although the mechanisms of thrombosis are unclear, anticoagulation with high doses of heparin has been proposed for these patients. Critically ill patients with COVID-19 develop life-threatening coagulopathy and thromboembolic complications that justify aggressive anticoagulation with close monitoring.

This case is being reported to create awareness among physicians treating COVID patients of this potential side effect of heparin therapy particularly in elderly patients who are at risk for developing angle closure glaucoma

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