

Pseudophakic Pupillary Block: Case Series

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Abstract:

Pupillary block is a frequent complication of cataract surgery with anterior chamber intraocular (ACIOL) implantation. This study is done to report pupillary block after complicated Cataract surgery other than ACIOL. In our case series, 2 cases have pupillary block after complicated cataract surgery (Retropupillary Iris Claw lens, Posterior capsular rent) and in one case, pupillary block after YAG Capsulotomy. In all 3 cases, pupillary block is relieved by Nd-YAG (Neodymium doped Yttrium Aluminum Garnet) Peripheral Iridotomy. All patients got visual acuity improved to 20/20 with normal intraocular pressure. None of the patients were on anti-glaucoma medications. So, early diagnosis and treatment of pseudophakic pupillary block can prevent the permanent vision loss.

Keywords: Pupillary block Glaucoma, Cataract surgery, Nd-Yag Capsulotomy, YAG peripheral iridotomy

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I. Introduction

Pupillary block occurs when aqueous flow from the posterior chamber and the irido-corneal angle is blocked by the strong apposition of the pupillary margin with adjacent structures¹. In pseudophakic pupillary block, the implanted intraocular lens (IOL) is partly or wholly involved in the obstruction of the aqueous flow through the pupil. This condition can develop in days, weeks, months or years after the lens implant surgery. The block is caused via mechanical closure of the pupil by the intra-ocular lens optic^{2,3} or excessive postoperative inflammation which causes the formation of posterior synechiae and adhesions between the pupillary margins and the anterior IOL plane.^{4,5} Pupillary block is a frequent complication of cataract surgery with anterior chamber IOL implantation¹

Thence, we are reporting three different cases of pseudophakic pupillary block other than anterior chamber intra-ocular lens (ACIOL).

Case 1: A 66 year male after left eye (LE) complicated cataract surgery presented at 1 week post operative day with complaints of pain and blurring of vision in LE. Uncorrected visual acuity (UCVA) in LE was 20/120, with intraocular pressure (IOP) by Goldmann applanation tonometer (GAT) 32 mm Hg at 1300 hours. On examination, anterior chamber (AC) was very shallow (Van-Herick grade 1) with non-patent peripheral iridotomy (PI), IRIS CLAW IOL in situ. Patient was diagnosed as pupillary block due to non-patent PI, after which Nd-Yag PI was done in LE. Post PI anterior chamber got deepened (Fig-1), IOP came down to 16 mm Hg. After 1 month, LE vision was 20/20 with GAT 18 mm Hg with normal fundus. Patient was not on any anti glaucoma medication.

Case 2: A 69 year old male after right eye (RE) cataract surgery with posterior capsular rent with intraocular lens (IOL) in sulcus, on post-operative day 1, the patient complained of severe pain in his RE. On examination, the IOP in RE was 42 mm Hg with microcystic edema, shallow AC (Van-Herick grade 0) with vitreous blob at the pupillary margin and IOL in sulcus. Patient was diagnosed as pupillary block glaucoma due to vitreous blob at the pupillary area. Multiple PI were done, AC got deepened after PI. At 1 week, RE vision was 20/30, IOP was 17 mm Hg. On examination, vitreous blob was seen at the pupillary area, not touching endothelium, AC was deep (Van-Herick grade 4) with patent PI. At 1 month, patient was asymptomatic. The best corrected vision (BCVA) in RE was 20/20 with GAT 14 mm Hg. Vitreous blob was present at the pupillary border not touching the endothelium with deep AC, multiple patent PI. Fundus was normal with no tractions

seen because of the the blob which warranted us to keep a close follow-up for the patient to be kept under observation. (Fig-2)

Case 3: A 53 year old male underwent for LE YAG capsulotomy. Post YAG capsulotomy, on day 2, the patient complained of decrease in vision in the LE associated with pain. UCVA in LE was finger counting at 1 meter (FC-1mtr) with GAT 52 mmHg. The IOP in the LE was 21mmhg before YAG capsulotomy with vision of 20/40. On examination, corneal edema was present with very shallow AC (Van-Herick Grade 1), mid dilated fixed pupil, pseudo-exfoliation at the pupillary margin with slightly inferiorly decentered IOL with status post YAG capsulotomy, the probable diagnosis was pupillary block glaucoma. Patient was advised eye drop timolol plus brimonidine combination twice a day with dorzolamide three times per day with stat dose of 30 ml oral glycerol and Tab acetazolamide (250 mg) following which LE YAG PI was done. Post PI, second day vision improved to 20/20 with GAT 6 mm Hg under antiglaucoma medication. On examination, cornea was clear, deepened AC with vitreous, patent PI with normal fundus. Patient was advised to stop all antiglaucoma medication and to follow up after 3 weeks. (Fig-3)

II. Discussion

Pupillary block may also be caused by aqueous accumulation between the posterior capsule and the anterior face of the vitreous or an alteration in the anatomy of the anterior chamber angle due to placement of the lens in the ciliary sulcus rather than in the capsular bag⁶, or a wrong apposition, possibly due to incorrect inverted implantation of the IOL. The risk is higher in diabetic patients, because of the abnormal permeability of the blood-aqueous barrier⁶ and in glaucoma patients, especially those with angle closure glaucoma⁷. The differential diagnosis for a shallow anterior chamber associated with elevated IOP after cataract surgery includes pupillary block, capsular block syndrome⁸ and malignant glaucoma⁹. After the initial medical treatment, Peripheral Neodymium YAG laser Iridotomy can be used to relieve the block¹⁰⁻¹¹. In our case series, the first case was pupillary block due to non-patent PI and pupil is blocked by Iris claw lens optics. The pupillary block in second case was caused due to vitreous blocking the pupil and in the last case, Yag capsulotomy done beyond the IOL margin could be the reason for vitreous to move anteriorly through pupil causing pupillary block. In this case series all cases were managed successfully by YAG PI. Presently, none of the patients are on anti-glaucoma medications.

III. Conclusion

Pseudophakic pupillary block can occur after the complicated cataract surgery like iris claw lens implantation or posterior capsular rent other than anterior chamber IOL. Even pupillary block can occur after YAG capsulotomy. It can be mostly relieved by Yag peripheral iridotomy. So Early diagnosis and treatment of pseudophakic pupillary block can prevent the permanent vision loss.

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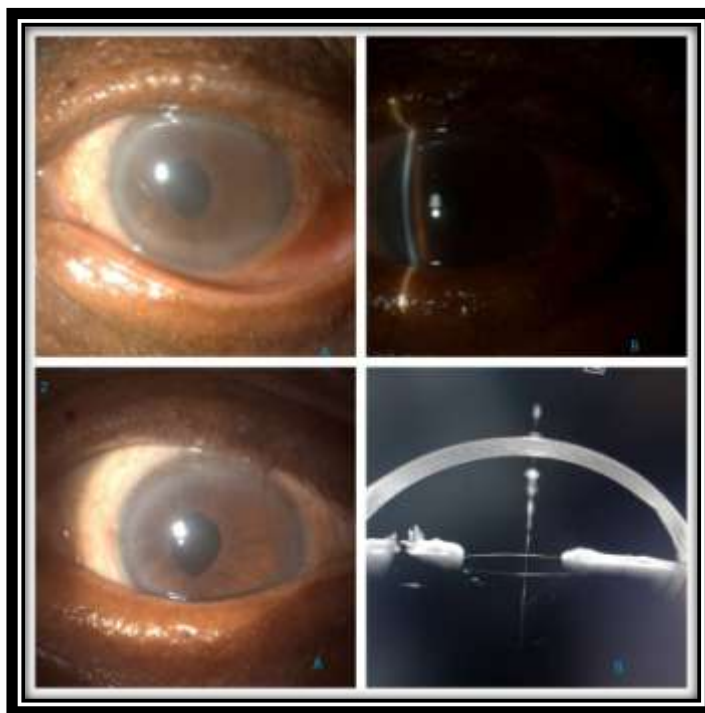


Fig- 1: 1 (A, B) showing shallow anterior chamber with iris claw
2 (A) shows deep anterior chamber status post Yag-Pi
2 (B) AS-OCT Shows deep anterior chamber with PI

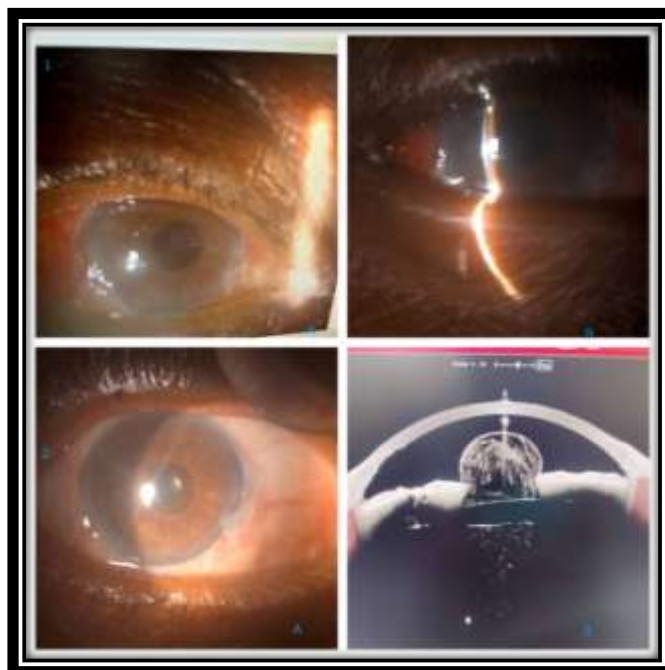


Fig-2: 1 (A,B) showing shallow anterior chamber, mid-dilated pupil with PCIOL
2 (A) shows multiple PI with deep AC (B) AS-OCT shows vitreous blob at the pupillary margin not touching the endothelium

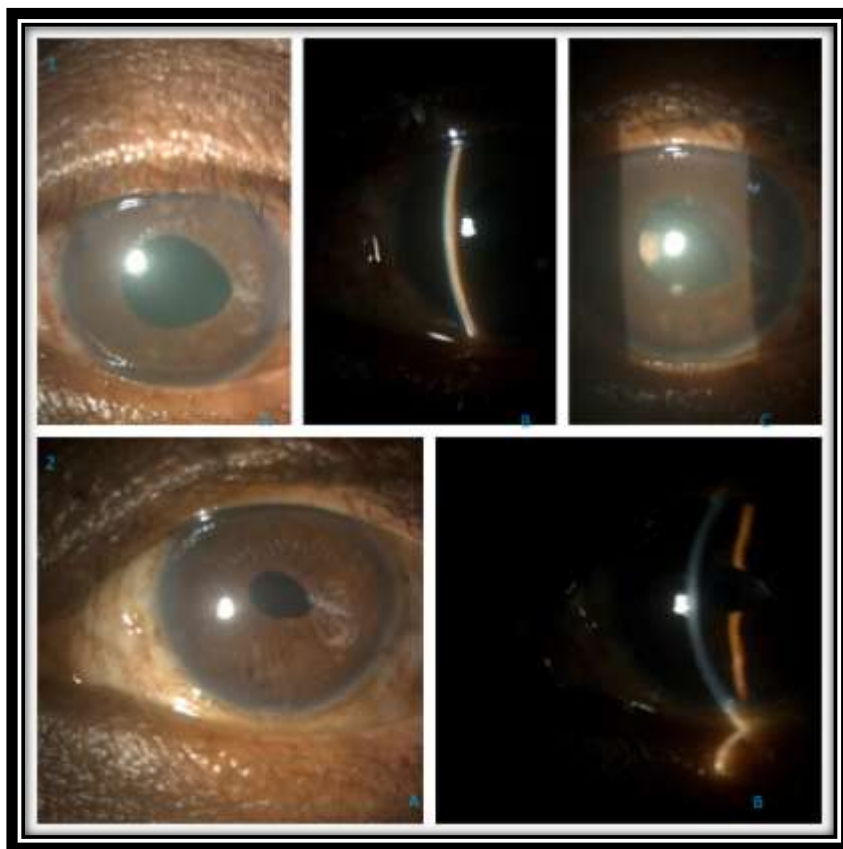


Fig-3: 1 (A,B,C) shows shallow AC with inferior subluxated IOL
2 (A,B) shows PI with deep AC