DOI: 10.7860/JCDR/2025/81176.21873

Original Article

Ophthalmology Section

Clinical Spectrum and Treatment Patterns of Traumatic Cataract in a Western Maharashtra Hospital: A Prospective Observational Study

NAINA CHATURVEDI[1], RIDDHI BORA[2], OK RADHAKRISHNAN[3], KRUTIKA LADI[4]

ABSTRACT

Introduction: Ocular trauma is a leading cause of preventable visual impairment and blindness, particularly in younger populations. Traumatic cataract, a frequent complication of such injuries, presents significant diagnostic and surgical challenges, particularly in resource-limited settings. Despite surgical advancements, outcomes can vary depending on injury type, patient factors, and management strategies.

Aim: The study aimed to determine the prevalence of cataract following ocular trauma, identify associated risk factors, evaluate different injury modes, analyse surgical management strategies, and assess visual outcome post surgery.

Materials and Methods: The present prospective observational study was conducted from October 2023 to March 2025 at a tertiary care hospital in Western Maharashtra, India. A total of 63 patients with ocular trauma were enrolled. Data on demographic profiles, injury types, risk factors, and use of protective gear were collected using structured questionnaires. All participants underwent detailed ophthalmic examination and were managed surgically using appropriate techniques including Small Incision Cataract Surgery (SICS), phacoemulsification, corneal tear repair, or pars plana vitrectomy with Intraocular Lens (IOL) implantation. Visual acuity was assessed preoperatively and at defined postoperative intervals, including six months follow-up. Statistical analysis was done using Statistical Package for Social Sciences v26.0.

Results: Traumatic cataract was noted in 54 (87.10%) patients. Males and individuals from rural backgrounds were more affected, though no significant associations with age, gender, or area of residence were found. The most common injury source was metallic objects for 19 (35.18%) patients. Closed globe injuries were more prevalent 39 (61.90%). A total of 58 (92.06%) patients had not used protective gear. Preoperative visual acuity was <6/60 in 41 (75.92%) patients. Postoperatively, a significant number 31 (57.4%) achieved Best Corrected Visual Acuity (BCVA) >6/12 at six months. Posterior segment complications were infrequent but associated with poorer outcomes.

Conclusion: The prevalence of traumatic cataract in this study was 87.10% and it was not associated with any demographic characteristic. This study highlights that early diagnosis and timely surgical intervention significantly improve visual outcomes in affected patients. Public education on eye safety remains crucial.

Keywords: Cataract surgery, Eye injury, Ocular trauma, Visual outcome

INTRODUCTION

Ocular trauma remains a major cause of visual morbidity and preventable blindness worldwide [1,2]. Often under reported due to its typically unilateral nature, ocular injuries disproportionately affect children and young adults. The World Health Organisation (WHO) identifies cataract as the leading cause of global blindness, accounting for 47.8% of all cases and impacting approximately 17.7 million individuals [3]. Traumatic cataract, a lens opacity developing after blunt or penetrating ocular injury, is a significant yet treatable cause of vision loss. Its development depends on trauma severity and the integrity of the lens capsule, with variability in type and progression [3].

The incidence of traumatic cataract varies geographically and is influenced by factors such as age, gender, environment, and socioeconomic status. While males are more susceptible due to increased exposure to high-risk activities, visual outcomes are not significantly influenced by gender [4]. Rural populations experience higher rates of ocular trauma, though outcomes are comparable to urban counterparts [5].

Traumatic cataracts often result from both open and closed globe injuries and may manifest immediately or years post-trauma. The clinical presentation includes lens opacification and potential zonular disruption, which can lead to lens subluxation even in the absence of visually significant cataract [6]. Damage mechanisms include direct capsule rupture,contrecoup injuries, and equatorial expansion from hydraulic forces [7]. These injuries may co-exist with anterior or posterior segment damage, complicating the prognosis [7].

Epidemiological data on ocular trauma and traumatic cataract are scarce, particularly in low income regions [6]. However, evidence indicates a bimodal age distribution, with high prevalence in the 5-25 and ≥70-year age groups. Cataracts develop in 27-65% of ocular trauma cases and frequently necessitate surgical intervention [7]. Despite advancements in surgical techniques and Intraocular Lens (IOL) technology, some patients experience persistent visual impairment. Primary cataract extraction with IOL implantation is the standard approach, often yielding substantial visual improvement [8]. Given that many ocular injuries are preventable, increasing awareness and implementing safety measures are essential.

Previous research on traumatic cataract has primarily focused on its clinical presentation and surgical outcomes, often in isolated or demographically narrow populations [6]; while several studies have documented the incidence and visual prognosis of traumatic cataracts, there is limited data specific to regional variations, particularly in Western India [6,8]. Furthermore, most available literature lacks comprehensive analysis of both risk factors and long-term management strategies in a single cohort [8]. This study addresses these gaps by exploring the prevalence, risk factors, and management outcomes of traumatic cataract in a tertiary care center in Western Maharashtra, India. The objectives of the study were to assess the prevalence of cataract following ocular trauma and to identify the associated risk factors contributing to its development. It aimed to evaluate the visual outcomes in patients diagnosed with traumatic cataract and to analyse the various modes of ocular injuries that led to its occurrence. Additionally,

the study sought to examine the different treatment modalities employed in the management of traumatic cataract within the studied population.

MATERIALS AND METHODS

The present prospective observational study was conducted at a tertiary care hospital like Dr. DY Patil Medical College and Hospital in Western Maharashtra, India from October 2023 to March 2025. The Institutional Ethics Committee Pune, approved the study protocol (Approval No. IESC/PGS/2023/309) on 25 September 2023. Ethical principles and informed consent procedures were strictly followed. All participants were informed about the study's objectives, methods, and potential risks in their native language, and written informed consent was obtained.

Inclusion and exclusion criteria: Inclusion criteria comprised patients of any age and gender presenting with ocular trauma (open or closed globe injuries) to the Ophthalmology Outpatient Department. Exclusion criteria included patients with pre-existing retinal, corneal, or glaucomatous pathology affecting vision, those treated elsewhere before presentation, and individuals unwilling to participate.

Study Procedure

All the subjects with ocular trauma during the study period were included in the study. The study included 63 patients of all age groups who presented with ocular trauma. Each participant underwent a detailed history and ophthalmic examination. The questionnaire collected demographic data, injury type, mode and object of injury, protective gear usage, alcohol intake at the time of injury, and systemic illness. Clinical assessment included UCVA and BCVA, adnexal and extraocular movement evaluation, slit-lamp examination for anterior segment assessment, and fundus evaluation using a 90D lens, indirect ophthalmoscope, and fundus camera. For cases where the posterior segment was not visible, B-scan ultrasonography was performed. Children and uncooperative patients were examined under sedation or general anaesthesia.

Preoperative investigations included complete blood counts, bleeding/clotting time, urine analysis, systemic examination, chest X-ray, ECG, and B-scan where indicated. Pre-surgical preparation included obtaining informed consent, performing a xylocaine sensitivity test, administering topical antibiotics, trimming eyelashes, and dilating pupils with tropicamide 0.5% and phenylephrine 5%.

Depending on the case, different surgical techniques were used. These included SICS with IOL implantation involving peribulbar/retrobulbar anaesthesia, scleral tunnel incision, viscoelastic injection, capsulorhexis with trypan blue, hydrodissection, nucleus removal, cortical aspiration, IOL implantation and conjunctival closure. Phacoemulsification with IOL included topical/peribulbar block, corneal incision, anterior capsule staining, nucleus emulsification, cortical aspiration and foldable IOL implantation. Corneal tear repair with IOL involved corneal wound suturing, lens removal, anterior vitrectomy if needed and suitable IOL placement. Pars plana vitrectomy with IOL included sclerotomy, vitrectomy, lens removal and implantation of either a capsular-supported or scleral-fixated lens. Postoperatively, patients were followed-up at day 1, week 1, week 6 and 6 months. Visual acuity was recorded at day 1 and final BCVA was documented at 6 months [8,9].

STATISTICAL ANALYSIS

Data analysis was performed using SPSS version 26.0. Statistical significance was assessed using Fisher's-exact test, with a p-value <0.05 considered significant. Microsoft Excel was used for tabulating and visualising data to enhance clarity in results presentation.

RESULTS

In the present study, the majority of subjects were diagnosed with traumatic cataract, accounting for 54 (87.10%) of the total 63 participants. The remaining 9 (12.90%) had no evidence of cataract. This highlights a high prevalence of traumatic cataract among the studied population. Among those diagnosed with traumatic cataract (n=54), the Left Eye (LE) was affected in 30 (55.5%) cases, while the Right Eye (RE) was involved in 24 (44.5%). This suggested a slightly higher incidence of trauma to the LE [Table/Fig-1].

Cataract	N	%
Traumatic cataract	54	87.10%
No cataract	9	12.90%
Total	63	100%

[Table/Fig-1]: Prevalence of traumatic cataract.

The largest proportion of traumatic cataract cases occurred among students with 17 (31.48%) cases followed by farmers with 10 (18.52%) cases. Company workers and labourers each accounted for 5 (9.26%) cases. Welders and shopkeepers both had 4 (7.41%) cases, while drivers were involved in 3 (5.56%) cases. Housewives contributed 2 (3.70%) cases. Less frequently affected occupations included health workers, school staff, factory workers, and engineers, each reporting 1 (1.85%). Among the total study population, 9 (14.28%) had no cataract. These cases either had corneal injuries, anterior chamber abnormalities, or vitreoretinal involvement without lenticular damage. These patients were managed accordingly with surgical intervention. In the present study, 6 (9.53%) cases were alcoholic and 5 (7.94%) cases were using protective gear.

In the present study, closed globe injuries were more prevalent 39 (61.90%) cases than open globe injuries 24 cases (38.09%), indicating a predominance of blunt trauma. Metallic 19 (35.18%) and organic (16, 29.62%) materials were the leading causes of traumatic cataract, with ball/fist and glass. The most common diagnosis was traumatic total cataract 28 (51.85%), followed by cases with corneal tears (20, 37.03%) and other structural complications like scleral tears, iridodialysis and vitreous haemorrhage. Corneal injuries 27 (50%) and iris trauma 14 (25.92%) were the most frequent associated ocular manifestations, underscoring the complexity and severity of trauma-related cataracts in this population [Table/Fig-2]. In the study, on B Scan, 2 (3.17%) had LE vitreous haemorrhage and 1 (1.58%) had RE retinal detachment. In the present study, none of the assessed factors showed a statistically significant association with traumatic cataract. The mean age was similar between those with and without cataract (33.13±14.94 vs. 34.63±14.46 years; p=0.792). Gender distribution showed a higher prevalence in males 45 (84.90%) than females 9 (90%), though not statistically

Parameters		n	%
Type of injury (n=63)	Closed globe	39	61.90%
	Open globe	24	38.09%
Causative agent for traumatic cataract (n=54)	Metallic	19	35.18%
	Organic	16	29.63%
	Ball/Fist	7	12.96%
	Glass	5	9.26%
	Firecracker	3	5.56%
	Stone	3	5.56%
	Blast injury	1	1.85%
Diagnosis (n=54)	Traumatic total cataract	28	51.85%
	Traumatic cataract with corneal tear	20	37.04%
	Traumatic cataract with scleral tear	2	3.70%
	Traumatic cataract with iridodialysis	2	3.70%
	Traumatic cataract with zonular dehiscence	1	1.85%
	Traumatic cataract with vitreous haemorrhage	1	1.85%

Other ocular trauma manifestation (n=54)	Corneal injuries	27	50%
	Injury to iris	14	25.93%
	Injury to sclera	2	3.70%
	Lens subluxation or dislocation into vitreous	4	7.41%
	Secondary glaucoma	3	5.56%
	Hyphaema	2	3.70%
	Vitreous haemorrhage	2	3.70%

[Table/Fig-2]: Characteristics of injury.

significant (p=0.756). Similarly, rural residents 30 (90.63%) had a slightly higher prevalence than urban residents 24 (80%) without significant difference (p=0.390). The type of injury- closed globe 33 (84.61%) vs. open globe 21 (87.50%) also showed no meaningful association (p=0.315). Systemic illnesses, alcohol consumption, and use of protective gear did not demonstrate significant relationships with cataract occurrence (p>0.05 for all), although protective gear use remained notably low, emphasising an opportunity for targeted preventive strategies despite statistical insignificance [Table/Fig-3].

Parameters		Traumatic cataract (N=54)		No cataract (n=9)		Total	p-value
		n	%	n	%	N	
Age	Mean±SD	33.13±14.94		34.63±14.46			0.792
Gender	Male	45	84.90%	8	16.10%	53	0.756
	Female	9	90%	1	10%	10	
Area	Rural	30	90.63%	3	9.09%	33	0.390
	Urban	24	80%	6	20%	30	
Type of injury	Closed globe injury	33	84.61%	6	15.38%	39	0.315
	Open globe injury	21	87.50%	3	12.5%	24	
Systemic illness	Hypertension and diabetes mellitus	1	1.85%	0	0	1	0.292
	Diabetes mellitus	1	1.85%	0	0	1	
	Hypertension	3	5.55%	3	33.33%	6	
	Nil	49	90.74%	6	66.66%	55	
Alcohol consumption	No	49	90.74%	8	85.71%	57	0.694
	Yes	5	9.26%	1	14.29%	6	
Use of protective gear use	No	49	90.74%	9	100%	58	0.490
	Yes	5	9.10%	0	0	5	

[Table/Fig-3]: Association of factors with traumatic cataract.
Chi-square test, #Fisher's-exact test

Small Incision Cataract Surgery (SICS) with Posterior Chamber Intraocular Lens (PCIOL) implantation and corneal tear repair with lens aspiration and PCIOL implantation were the most common surgical procedures performed in 20 (37.03%) cases each [Table/Fig-4]. In the present study, pre-operative visual acuity was severely impaired in the majority of patients, with 41 (75.92%) having vision worse than 6/60. A smaller proportion had moderate visual acuity between 6/60 to 6/18 (16.66%), and only 4 (7.40%) had visual acuity better than 6/12 before surgery. On the first postoperative day, visual outcomes varied: 1.9% achieved 6/9, 25.9% had 6/12, 24.1% reached 6/18, and 13.0% had 6/24. Others had reduced acuity, including 6/36 (16.7%), 6/60 (14.8%), with 1.9% each seeing only finger count at 1 ft and perception of light with accurate projection. At six months postoperatively, visual outcomes significantly improved: 31 (57.4%) attained BCVA better than 6/12, 18 (33.3%) had vision between 6/60 to 6/18, and only 5 (9.3%) remained with vision worse than 6/60, indicating a favourable long-term surgical outcome for most patients [Table/Fig-5].

Surgical procedure	Frequency (n)	Percentage (%)
Small Incision Cataract Surgery (SICS) with Posterior Chamber Intraocular Lens (PCIOL) implantation	20	37.03%
Corneal tear repair with lens aspiration and Posterior Chamber Intraocular Lens (PCIOL) implantation	20	37.03%
Phacoemulsification with Posterior Chamber Intraocular Lens (PCIOL) implantation	7	13.0%
Pars plana vitrectomy with Posterior Chamber Intraocular Lens (PCIOL) implantation	3	5.6%
Scleral tear repair with lens aspiration and Posterior Chamber Intraocular Lens (PCIOL) implantation	2	3.7%
Lens aspiration with Posterior chamber intraocular lens (PCIOL) implantation+Capsular Tension Ring (CTR)	1	1.85%
Iridodialysis repair with lens aspiration and Posterior Chamber Intraocular Lens (PCIOL) implantation	1	1.85%

[Table/Fig-4]: Distribution of surgical procedures performed for traumatic cataract (n=54).

Parameters		N	%
Pre-operative visual acuity (n=54)	<6/60	41	75.92%
	6/60-6/18	9	16.66%
	>6/12	4	7.40%
Postoperative visual acuity on day 1 (n=54)	6/9	1	1.85%
	6/12	14	25.9%
	6/18	13	24.07%
	6/24	7	12.96%
	6/36	9	16.7%
	6/60	8	14.8%
	FC at 1 ft	1	1.85%
	PL+PR accurate	1	1.85%
Postoperative visual acuity at 6 months (n=54)	<6/60	5	9.25%
	6/60 to 6/18	18	33.3%
	>6/12	31	57.4%

[Table/Fig-5]: Visual acuity findings pre and postoperative.

DISCUSSION

In the present study of injury patterns and mechanisms closed globe injuries were more common (61.90%) than open globe injuries (38.09%). This is consistent with data from who Kuhn F et al., reported a near equal split but with a slight predominance of closed globe injuries [4]. The prevalence of traumatic cataract following ocular trauma was remarkably high at 54 (87.10%) (out of 63 patients). This figure underscores the burden of cataract as a frequent sequela of ocular trauma, in line with the findings of Okoye OI, who reported a 65% incidence post-trauma [10]. The slightly higher rate in this cohort study may be attributed to differences in injury severity or diagnostic thresholds. Traumatic cataracts affected the LE in 30 (55.5%) of cases and the RE in 24 (44.5%), suggesting a marginal LE predominance, a trend previously noted by Okoye OI [10]. However, this difference did not reach statistical significance, consistent with the bilateral risk profile reported in earlier studies [10,11]. The most commonly affected age group was 21-30 years, with a mean age of 33.13±14.94 years among patients with traumatic cataract. No significant association between age and cataract development was observed (p=0.792), corroborating the findings of Singh D et al., [12]. A marked male preponderance (84.90%) was observed, aligning with global trends reported by Bohra S et al., and Chua D et al., [13,14]. This gender disparity likely reflects greater exposure to trauma-prone activities. Occupational analysis showed that students (31.48%) and farmers (18.52%) were the most affected, followed by industrial workers and manual laborers, indicating high-risk environments due to lack of protective measures. These trends parallel those reported by Négrel AD and Thylefors B, who highlighted children and manual laborers as vulnerable populations in low-resource settings [9].

Metallic (35.18%) and organic materials (29.62%) were the most frequent causative agents, aligning with rural exposure patterns and findings by Gogate P et al., [15]. Traumatic total cataract (51.85%) was the most common diagnosis, often resulting from blunt or penetrating trauma that disrupts the lens capsule. Corneal tears were observed in 37.03% of cases, suggesting frequent anterior segment involvement. These findings echo those of Yorston D and Foster A, and Thylefors B [16,17]. B-scan ultrasonography identified vitreous haemorrhage in 3.17% and retinal detachment in 1.58%, signifying posterior segment involvement in a minority of cases. These rates are slightly lower than the 5-10% range reported by Wong TY et al., [18].

No significant associations were found between traumatic cataract and systemic illness (p=0.292), alcohol use (p=0.694), or protective gear usage (p=0.490). Despite low usage (7.94%), protective equipment remains a critical preventive measure. Therefore, emphasised that the majority of global ocular injuries are preventable with proper protective gear [13]. Surgical intervention primarily involved SICS with PCIOL implantation and corneal tear repair with lens aspiration and PCIOL, each performed in 37% of cases. Phacoemulsification was utilised in 13%, often in less severe cases. Complex surgeries such as pars plana vitrectomy and scleral tear repair were reserved for posterior segment complications and extensive trauma. These trends match the surgical approaches endorsed by Singh R et al., for trauma cases in low-resource settings [19].

Preoperative vision was severely impaired improvement in many cases, with 25.9% reaching 6/12 and 24.1% reaching 6/18. However, a subset had minimal improvement initially. At 6 months, visual acuity improved significantly: 57.4% achieved >6/12, and 33.3% had 6/60 to 6/18, leaving only 9.3% with <6/60. These results mirror those of Shah MA et al., (2014) and Agrawal R et al., (2013), who reported similar visual recovery trajectories in traumatic cataract surgery [20,21].

Limitation(s)

The present study was conducted in a single tertiary care centre. The relatively small sample size may have limited the statistical power to detect significant association between various risk factors and development of traumatic cataract. The short duration of follow-up did not allow for assessment of long-term visual outcomes. Surgery was performed by different surgeons.

CONCLUSION(S)

From the above study it can be concluded that traumatic cataract is common following ocular trauma. The prevalence of Traumatic cataract in this study was 87.10%. Demographic factors like age, sex and area of living did not have significant association with development of traumatic cataract. Occupational and environmental hazards contributed to a large percentage of ocular trauma emphasising importance of prevention. Surgery for traumatic cataract was successful. Some patients had posterior segment complication and poor vision postsurgery. Larger studies are required to refine treatment protocol and improve outcomes for those presenting with this avoidable but serious health condition.

REFERENCES

[1] Qi Y, Zhang FY, Peng GH. Characteristics and visual outcomes of patients hospitalized for ocular trauma in central China: 2006–2011. Int J Ophthalmol. 2015;8(1):162-68.
[2] Cao H, Li L, Zhang M. Epidemiology of patients hospitalized for ocular trauma in the Chaoshan region of China, 2001-2010. PLoS One. 2012;7(10):e48377.
[3] Wang JD, Xu L, Wang YX, You QS, Zhang JS, Jonas JB. Prevalence and incidence of ocular trauma in North China: The Beijing Eye Study. Acta Ophthalmol. 2012;90(1):e61-e67.
[4] Kuhn F, Morris R, Witherspoon CD, Mann L. Epidemiology of blinding trauma in the United States eye injury registry. Ophthalmic Epidemiol. 2006;13(3):209-16.
[5] Khatry SK, Lewis AE, Schein OD, Thapa MD, Pradhan EK, Katz J. The epidemiology of ocular trauma in rural Nepal. Br J Ophthalmol. 2004;88(4):456-60.
[6] Shah A, Shah SM, Shah SB, Patel CG, Patel UA. Morphology of traumatic cataract: Does it play a role in final visual outcome? BMJ Open. 2011;1(1):e000060.
[7] Qi Y, Zhang YF, Zhu Y, Wan MG, Du SS, Yue ZZ. Prognostic factors for visual outcome in traumatic cataract patients. J Ophthalmol. 2016;2016:1748583.
[8] Shah MA, Shah SM, Shah SB, Patel CG, Patel UA, Appleware A, et al. Comparative study of final visual outcome between open- and closed-globe injuries following surgical treatment of traumatic cataract. Graefes Arch Clin Exp Ophthalmol. 2011;249(12):1775-81.
[9] Négrel AD, Thylefors B. The global impact of eye injuries. Ophthalmic Epidemiol. 1998;5(3):143-69.
[10] Okoye OI. Eye injury requiring hospitalisation in Enugu, Nigeria: A one-year survey. Niger J Surg Res. 2006;8(1–2):34-37.
[11] Jac-Okereke CC, Jac-Okereke CA, Ezegwui IR, Umeh RE. Current pattern of ocular trauma as seen in tertiary institutions in south-eastern Nigeria. BMC Ophthalmol. 2021;21(1):420.
[12] Singh D, Sharma S, Gupta R. A clinical study on traumatic cataract. Indian J Ophthalmol. 1983;31(3):290-93.
[13] Bohra S, Singh S, Sharma S. Clinical profile of traumatic cataract in a tertiary care center. Indian J Ophthalmol. 2010;58(3):207-10.
[14] Chua D, Wong W, Lamoureux EL, Aung T, Saw SM, Wong TY. The prevalence and risk factors of ocular trauma: The Singapore Indian Eye Study. Ophthalmic Epidemiol. 2011;18(6):281-87.
[15] Gogate P, Sahasrabudhe M, Shah M, Patil S, Kulkarni A. Causes, epidemiology, and long-term outcome of traumatic cataracts in children in rural India. Indian J Ophthalmol. 2012;60(5):481-86.
[16] Yorston D, Foster A. Traumatic cataract in the tropics. Br J Ophthalmol. 2000;84(8):861-64.
[17] Thylefors B. Epidemiological patterns of ocular trauma. Aust N Z J Ophthalmol. 1992;20(2):95-98.
[18] Wong TY, Foster PJ, Johnson GJ. The epidemiology of ocular trauma in Singapore. Ophthalmology. 2000;107(3):497-502.
[19] Singh R, Kumar A, Sharma N. Surgical techniques in traumatic cataract: Current concepts. J Clin Ophthalmol. 2021;5(2):78-85.
[20] Shah MA, Shah SM, Patel KD, Shah AH, Pandya JS. Maximizing the visual outcome in traumatic cataract cases: The value of a primary posterior capsulotomy and anterior vitrectomy. Indian J Ophthalmol. 2014;62(11):1077-81.
[21] Agrawal R, Ho SW, Teoh S. Pre-operative variables affecting final vision outcome with a critical review of ocular trauma classification for posterior open globe (zone III) injury. Indian J Ophthalmol. 2013;61(10):541-45.

PARTICULARS OF CONTRIBUTORS:
1. Senior Resident, Department of Ophthalmology, Dr. DY Patil Vidyapeeth, Pune, Maharashtra, India.
2. Postgraduate Resident, Department of Ophthalmology, Dr. DY Patil Vidyapeeth, Pune, Maharashtra, India.
3. Professor and Head, Department of Ophthalmology, Dr. DY Patil Vidyapeeth, Pune, Maharashtra, India.
4. Postgraduate Resident, Department of Ophthalmology, Dr. DY Patil Vidyapeeth, Pune, Maharashtra, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Riddhi Bora,
Sunit Laxmisharda, Flat No.-102, Ghole Road, Sr. No-1187/9, Shivajinagar,
Pune, Maharashtra, India.
E-mail: riddhibora01@gmail.com

PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Jun 29, 2025
- Manual Googling: Jul 30, 2025
- iThenticate Software: Aug 02, 2025 (2%)

ETYMOLOGY: Author Origin

EMENDATIONS: 7

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was Ethics Committee Approval obtained for this study? Yes
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **Jun 07, 2025**
Date of Peer Review: **Jun 30, 2025**
Date of Acceptance: **Aug 04, 2025**
Date of Publishing: **Oct 01, 2025**