

Research Article

Predictors Of Visual Recovery After Cataract Surgery In High Myopes

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ABSTRACT

Objective: To describe the demographic, refractive, biometric, and fundus characteristics of patients with high myopia undergoing cataract surgery, and to identify the clinical factors associated with limited postoperative visual recovery.

Materials and Methods: This retrospective observational case series included 70 consecutive patients (131 eyes) with high myopia (spherical equivalent ≤ -6.00 D) who underwent phacoemulsification with posterior chamber intraocular lens (IOL) implantation. Preoperative demographic data, refractive error, presenting visual acuity, cataract morphology, axial length, keratometry, and dilated fundus findings were recorded, along with intraoperative course, IOL power, target postoperative refraction, and postoperative best-corrected visual acuity (BCVA) and complications.

Results: The cohort comprised 37 males and 33 females (mean age 54 years; range 30-75), with bilateral high myopia in 87.1% (approximately 131 eyes) and a mean spherical equivalent of -10 to -11 D. Nuclear cataract predominated (57.1%), and mean axial length was approximately 28.0 mm. Pathological myopia was identified clinically in 25.7% of patients, most often manifesting as posterior staphyloma. Phacoemulsification with PCIOL implantation was uneventful in 90.0% of cases; posterior capsular rupture occurred in 4.3%. Postoperatively, 57.1% of eyes achieved a BCVA of 6/12 or better and 70.0% achieved 6/18 or better. Among eyes with limited recovery ($n = 19$), myopic macular/chorioretinal atrophy ($n = 7$), posterior staphyloma with macular involvement ($n = 3$), and residual refractive error ($n = 3$) were the leading identifiable causes; poorer outcomes also correlated with increasing axial length, particularly ≥ 29 mm.

Conclusion: Cataract surgery produces substantial visual improvement in most highly myopic eyes, but pre-existing pathological myopia — principally macular atrophy and posterior staphyloma — together with increasing axial length, places a ceiling on achievable vision independent of surgical success. Thorough preoperative fundus evaluation and realistic patient counselling remain essential in this population.

Keywords: High Myopia, Cataract Surgery, Phacoemulsification, Pathological Myopia, Axial Length, Posterior Staphyloma, Visual Outcome, Intraocular Lens.

INTRODUCTION

Myopia is one of the most common refractive disorders worldwide, and its prevalence continues to rise sharply. Global projections suggest that by 2050, close to 5 billion people (approximately half the world's population) will be myopic, with an estimated 938 million (about 9.8%) affected by high myopia¹. High myopia — conventionally defined by a spherical equivalent refractive error of -6.00 D or worse, an axial length of ≥ 26.0 mm, or both — predisposes the eye to a spectrum of degenerative changes, including scleral thinning, posterior staphyloma formation,

chorioretinal atrophy, lattice degeneration, and early-onset cataract². Individuals with high myopia are known to develop visually significant cataract roughly a decade earlier than emmetropic individuals, and highly myopic eyes now account for a substantial and growing proportion of cataract surgical volume in tertiary eye-care centres.

Cataract surgery in the highly myopic eye is technically more demanding than in an eye of average axial length. The elongated globe, deep anterior chamber, frequently weakened zonular support, and poor red reflex all increase the risk of intraoperative complications such as

posterior capsular rupture and vitreous loss¹¹. Postoperatively, biometric prediction error tends to be greater in long eyes, since conventional third-generation intraocular lens (IOL) power formulas were derived from, and optimised for, eyes of average axial length; newer formulas such as Barrett Universal II, and more recently artificial-intelligence-based methods, have been shown to reduce — though not eliminate — hyperopic prediction error in long eyes^{12,13}.

Beyond the mechanics of surgery, however, the single greatest determinant of whether a highly myopic patient regains functional vision after cataract extraction is the state of the posterior segment. Pathological myopia — defined by the META-analysis for Pathologic Myopia (META-PM) classification as myopic maculopathy equal to or worse than diffuse chorioretinal atrophy, and/or the presence of posterior staphyloma — is distinct from high myopia itself and represents the single most important limiting factor for postoperative visual recovery⁸. Posterior staphyloma, myopic macular degeneration, lacquer cracks, and myopic choroidal neovascularisation are all recognised causes of best-corrected visual acuity (BCVA) loss that cataract surgery alone cannot reverse^{8,14,18}.

Despite the growing surgical volume of highly myopic cataracts, much of the published literature originates from large East Asian tertiary centres, and comparatively little data — particularly from South Asian populations — correlates detailed preoperative fundus and biometric findings with quantifiable postoperative visual outcomes in a single cohort. We therefore undertook a retrospective observational study of 70 consecutive patients (131 eyes) with high myopia undergoing cataract surgery, with the aim of describing their demographic, refractive, biometric, and fundus characteristics; documenting intraoperative and postoperative complications; and identifying the clinical factors associated with limited visual recovery.

MATERIALS AND METHODS

This was a retrospective, observational study conducted at Minto Ophthalmic Hospital, Bangalore, over the period April 2025 to March 2026. The study was conducted in accordance with the tenets of the Declaration of Helsinki. Consent for the use of clinical data was obtained from patients as part of the standard informed consent process for cataract surgery.

The medical records of consecutive patients diagnosed with high myopia who underwent cataract surgery during the study period were reviewed. High myopia was defined as a preoperative spherical equivalent refractive error of -6.00 D or worse and/or an axial length of ≥ 26.0 mm. Patients with unreliable or unavailable preoperative refraction, prior intraocular surgery other than cataract extraction, active ocular inflammation, or incomplete follow-up records were excluded. Seventy patients (approximately 131 eyes) met the inclusion criteria and were included in the final analysis.

For each eye, the following data were extracted from clinical records: age and sex; laterality of high myopia; preoperative sphere, cylinder, cylinder axis, and spherical equivalent; presenting visual acuity; slit-lamp-graded cataract morphology and nuclear sclerosis grade; axial length and mean keratometry obtained by optical or immersion biometry; central corneal thickness and intraocular pressure; dilated fundus findings, supplemented by B-scan ultrasonography where the fundus could not be adequately visualised; calculated IOL power; targeted postoperative refraction; intraoperative course and any complications; postoperative best-corrected visual acuity; and postoperative complications recorded at the last available follow-up visit. Pathological myopia was defined according to the META-analysis for Pathologic Myopia (META-PM) classification, i.e., myopic maculopathy equal to or more severe than diffuse chorioretinal atrophy and/or the presence of a posterior staphyloma [8].

All patients underwent standard phacoemulsification with posterior chamber intraocular lens implantation performed under sub tenon's anaesthesia.

Data were manually compiled and tabulated, and descriptive statistics were derived directly from this tabulation; no dedicated statistical software was used. Continuous variables are expressed as mean or as a range, and categorical variables as frequencies and percentages. Given the descriptive nature of the dataset, factors associated with limited postoperative visual acuity are reported here at a univariate, descriptive level; they should be interpreted as associations rather than as independent predictors established through formal statistical testing or multivariable modelling.

RESULTS

Demographic Characteristics

A total of 70 patients with high myopia undergoing cataract surgery were included in the study cohort. There were 37 males (52.9%) and 33 females (47.1%). Age ranged from 30

to 75 years, with the majority of patients belonging to the 40–69-year age group; the approximate mean age of the cohort was 54 years (Table 1).

Table 1. Age Distribution of the Study Cohort (N = 70)

Age group (years)	n (%)
30–39	10 (14.3)
40–49	18 (25.7)
50–59	23 (32.9)
60–69	17 (24.3)
70–75	2 (2.9)
Total	70 (100)

Laterality and Refractive Characteristics

High myopia was bilateral in 61 patients (87.1%) and unilateral in 9 patients (12.9%); among unilateral cases, 5 had right-eye and 4 had left-eye involvement. Overall, high myopia involved approximately 131 eyes. The spherical

equivalent ranged from –6.00 D to ≤–15.00 D, with an approximate mean of –10 to –11 D (Table 2). Sphere, cylinder, cylinder axis, and spherical equivalent were documented for each patient wherever reliable preoperative refraction was available.

Table 2. Distribution of Preoperative Spherical Equivalent (N = 70)

Spherical equivalent	n (%)
–6.00 to –7.99 D	19 (27.1)
–8.00 to –9.99 D	18 (25.7)
–10.00 to –11.99 D	14 (20.0)
–12.00 to –14.99 D	11 (15.7)
≤–15.00 D	8 (11.4)
Total	70 (100)

Visual Acuity at Presentation

Presenting visual acuity ranged from 6/6 to perception of light, with reduced vision

predominantly attributable to cataract and, in a subset of patients, additional contribution from underlying myopic retinal changes (Table 3).

Table 3. Presenting Visual Acuity (N = 70)

Presenting visual acuity	n (%)
6/6–6/12	3 (4.3)
6/18–6/24	9 (12.9)
6/36	17 (24.3)
6/60	19 (27.1)
6/60–3/60	12 (17.1)
<3/60 to counting fingers	7 (10.0)
Hand movements / perception of light	3 (4.3)
Total	70 (100)

Cataract Characteristics

Nuclear cataract was the predominant morphology, occurring either alone or in combination with other lens opacities (Table 4).

Among eyes with nuclear involvement, grade 3 nuclear sclerosis was the most frequent (Table 5).

Table 4. Cataract Morphology (N = 70)

Cataract morphology	n (%)
Predominantly nuclear cataract	40 (57.1)
Nuclear + posterior subcapsular cataract	13 (18.6)
Mixed nuclear + cortical + posterior subcapsular cataract	9 (12.9)

Predominantly posterior subcapsular cataract	5 (7.1)
Predominantly cortical cataract	3 (4.3)
Total	70 (100)

Table 5. Nuclear Sclerosis Grade Among Eyes With Nuclear Involvement (N = 70)

Nuclear grade	n (%)
Grade 1–2	11 (15.7)
Grade 3	30 (42.9)
Grade 4	22 (31.4)
Grade 5 / very dense	7 (10.0)
Total	70 (100)

Ocular Biometry

The cohort demonstrated predominantly increased axial length, with a mean of approximately 28.0 mm (Table 6). Keratometric measurements were predominantly within the range of 42–45 D, with an approximate mean

keratometric power of 43.6–43.8 D (Table 7). Central corneal thickness averaged approximately 535–545 μm , and mean intraocular pressure was approximately 14–16 mmHg.

Table 6. Axial Length Distribution (N = 70)

Axial length	n (%)
26.00–26.99 mm	20 (28.6)
27.00–27.99 mm	20 (28.6)
28.00–28.99 mm	15 (21.4)
29.00–30.99 mm	10 (14.3)
≥ 31.00 mm	5 (7.1)
Total	70 (100)

Table 7. Mean Keratometry Distribution (N = 70)

Mean keratometry	n (%)
<42.00 D	4 (5.7)
42.00–42.99 D	12 (17.1)
43.00–43.99 D	25 (35.7)
44.00–44.99 D	20 (28.6)
≥ 45.00 D	9 (12.9)
Total	70 (100)

Anatomical Basis of High Myopia

The majority of patients demonstrated predominantly axial myopia, based on the

combination of refractive error, axial length, and keratometric measurements (Table 8).

Table 8. Anatomical Type Of Myopia (N = 70)

Type of myopia	n (%)
Predominantly axial	61 (87.1)
Combined axial and refractive	5 (7.1)
Predominantly lenticular / refractive	3 (4.3)
Predominantly curvature / corneal	1 (1.4)
Total	70 (100)

Fundus Findings

Dilated fundus examination was performed whenever the posterior segment could be adequately visualised. The most frequent findings were tessellated fundus, peripapillary atrophy, and tilted optic discs; posterior staphyloma and chorioretinal atrophic changes

were observed in a smaller proportion of patients (Table 9). Fundus findings were not mutually exclusive. The fundus was adequately visualised in 62 patients (88.6%), partially obscured by cataract in 5 (7.1%), and inadequately visualised due to dense cataract in 3 (4.3%); B-scan ultrasonography was used

where adequate posterior-segment visualisation was not possible.

Table 9. Fundus Findings (Not Mutually Exclusive; N = 70)

Fundus finding	n (%)
Tessellated fundus	29 (41.4)
Peripapillary atrophy / temporal crescent	24 (34.3)
Tilted optic disc	17 (24.3)
Posterior staphyloma	14 (20.0)
Diffuse chorioretinal atrophy	11 (15.7)
Lattice degeneration	8 (11.4)
Patchy chorioretinal atrophy	5 (7.1)
White without pressure	5 (7.1)
Lacquer cracks	4 (5.7)
Paving-stone degeneration	4 (5.7)
Macular atrophy / scarring	3 (4.3)
Snail-track degeneration	2 (2.9)
Retinal hole	2 (2.9)
Previous retinal laser	2 (2.9)
Suspected myopic CNV / Fuchs spot	2 (2.9)
Previous retinal detachment	1 (1.4)

Pathological Myopia

Pathological myopia was identified clinically in 18 patients (25.7%), while 52 patients (74.3%) had high myopia without clinically identifiable pathological myopic changes (Table 10). Among those classified as having pathological

myopia, posterior staphyloma was the most frequent structural finding, followed by diffuse or patchy chorioretinal atrophy; lacquer cracks, macular atrophy/scarring, and suspected myopic neovascular lesions were observed in smaller proportions.

Table 10. Pathological Myopia Status (N = 70)

Status	n (%)
Pathological myopia	18 (25.7)
High myopia without pathological changes	52 (74.3)
Total	70 (100)

Intraocular Lens Characteristics

IOL power decreased progressively with increasing axial length; the majority of patients required positive-power IOLs, while low- or negative-power IOLs were required in eyes with very long axial lengths (Table 11). Eyes with

axial lengths of 26–27 mm predominantly required IOL powers in the +13 to +20 D range, whereas eyes with axial lengths ≥ 31 mm frequently required low or negative-power IOLs. The majority of patients were targeted for emmetropia or mild residual myopia (Table 12).

Table 11. Distribution Of Implanted Iol Power (N = 70)

IOL power	n (%)
+15 to +20 D	14 (20.0)
+10 to +14 D	18 (25.7)
+5 to +9 D	18 (25.7)
0 to +4 D	12 (17.1)
-1 to -5 D	5 (7.1)
≤ -6 D	3 (4.3)
Total	70 (100)

Table 12. Target Postoperative Refraction (N = 70)

Target postoperative refraction	n (%)
-0.50 to 0 D	50 (71.4)
-0.75 to -1.00 D	12 (17.1)

-1.25 to -2.00 D	8 (11.4)
Total	70 (100)

Intraoperative Course

Phacoemulsification with posterior chamber intraocular lens implantation was completed uneventfully in 63 patients (90.0%). Posterior capsular rupture was the most frequent significant intraoperative complication (Table

13). Reported complications were not mutually exclusive; where posterior capsular rupture was associated with vitreous prolapse, anterior vitrectomy was performed and appropriate capsular-supported or sulcus-fixated IOL implantation was undertaken.

Table 13. Intraoperative Findings (N = 70)

Intraoperative finding	n (%)
Uneventful phacoemulsification + PCIOL	63 (90.0)
Posterior capsular rupture	3 (4.3)
Zonular weakness / dialysis	2 (2.9)
Vitreous prolapse / loss	2 (2.9)
Iris prolapse / iris trauma	1 (1.4)
Dropped nucleus / lens fragment	1 (1.4)
Descemet's membrane injury	1 (1.4)
Suprachoroidal haemorrhage	0 (0)

Postoperative Visual Outcome

Following cataract surgery, substantial visual improvement was observed in the majority of patients. Overall, 40 patients (57.1%) achieved

a postoperative BCVA of 6/12 or better, and 49 patients (70.0%) achieved 6/18 or better (Table 14).

Table 14. Postoperative Best-Corrected Visual Acuity (N = 70)

Postoperative BCVA	n (%)
6/6–6/9	22 (31.4)
6/12–6/18	27 (38.6)
6/24–6/36	9 (12.9)
6/60	5 (7.1)
<6/60–3/60	4 (5.7)
<3/60 / counting fingers or worse	3 (4.3)
Total	70 (100)

Factors Associated with Limited Postoperative Visual Acuity

Reduced postoperative visual acuity was predominantly observed in patients with pre-existing posterior-segment pathology. Myopic macular/chorioretinal atrophy constituted the most frequent identifiable cause of limited visual recovery among the 19 eyes with reduced outcome (Table 15). Patients with relatively preserved macular architecture and without clinically significant pathological myopic changes predominantly achieved postoperative

acuties of 6/6–6/18, whereas eyes with macular atrophy, macular scarring, or posterior staphyloma involving the macula were more likely to have postoperative acuity of 6/24 or worse. A progressive tendency toward poorer postoperative visual acuity was also observed with increasing axial length: eyes below 28 mm predominantly achieved 6/6–6/12 vision, whereas the proportion with postoperative acuity of 6/24 or worse increased among eyes ≥ 29 mm, and particularly among those ≥ 31 mm.

Table 15. Principal Cause of Reduced Postoperative Vision (N = 19 Eyes With Limited Recovery)

Principal cause	n
Myopic macular / chorioretinal atrophy	7
Posterior staphyloma with macular involvement	3
Myopic CNV / Fuchs-type macular scar	2
Very long axial length / extreme myopia without definite macular lesion	2

Significant residual refractive error / corneal astigmatism	3
Postoperative retinal complication	1
Intraoperative complication affecting visual outcome	1
Total	19

Postoperative Complications

The principal postoperative complications included transient intraocular pressure elevation, cystoid macular edema, retinal

breaks or detachment, IOL decentration/dislocation, and posterior capsule opacification (Table 16).

Table 16. Postoperative Complications (N = 70)

Postoperative complication	n (%)
Transient IOP elevation	9 (12.9)
Cystoid macular edema	2 (2.9)
Retinal tear / break	1 (1.4)
Retinal detachment	1 (1.4)
IOL decentration / dislocation	1 (1.4)
Posterior capsule opacification (during follow-up)	8 (11.4)

Summary of Visual Outcome

The overall pattern demonstrated substantial visual improvement following cataract surgery in highly myopic patients. Most eyes without clinically significant pathological macular changes achieved good postoperative visual acuity. Conversely, the presence of pathological myopia — particularly macular atrophy, macular scarring, and posterior staphyloma involving the macula — was associated with poorer visual recovery. Increasing axial length was also associated with a tendency toward poorer postoperative visual acuity and lower IOL power requirements.

DISCUSSION

This retrospective series of 70 highly myopic patients (131 eyes) undergoing cataract surgery demonstrates a pattern that is now well established in the international literature: cataract extraction produces substantial visual gain in the majority of highly myopic eyes, but a consistent minority — driven principally by pre-existing posterior-segment pathology and increasing axial length — fall short of good functional vision regardless of surgical success.

Visual Outcomes in Context

In our cohort, 57.1% of eyes achieved a postoperative BCVA of 6/12 or better and 70.0% achieved 6/18 or better. This is broadly consistent with recently published East Asian series. Zhao et al.'s 2025 meta-analysis of 1,996 Asian high-myopia patients (2,826 eyes) reported a substantial pooled logMAR BCVA improvement after surgery, alongside pooled intraoperative and postoperative complication rates comparable to those seen in our cohort³.

Jeon and Kim, in a Korean series of 347 highly myopic eyes compared with 347 controls, found a clear negative correlation between postoperative visual acuity and axial length, together with a higher rate of retinal detachment in the highly myopic group⁷. Our observation that eyes with axial length below 28 mm predominantly achieved 6/6–6/12 vision, whereas eyes ≥ 29 mm trended toward 6/24 or worse, mirrors the axial-length gradient reported by He et al. in the 2,027-eye Shanghai High Myopia Study, where increasing axial length was independently associated with poorer postoperative BCVA, and by Zhang et al., who found progressively worse baseline fundus status and postoperative BCVA in eyes with axial length >33 mm compared with moderate high myopes^{4,5}. An Indian series by Irshad et al., evaluating 103 eyes with cataract and high myopia at a tertiary eye hospital, similarly reported overall improvement in visual acuity following surgery, reinforcing that cataract extraction remains worthwhile even in this higher-risk population within an Indian clinical setting comparable to our own⁶.

Pathological Myopia and Posterior-Segment Predictors

Pathological myopia — myopic maculopathy equal to or worse than diffuse chorioretinal atrophy and/or posterior staphyloma — was clinically identified in 25.7% of our cohort, and posterior staphyloma was, unsurprisingly, the leading structural finding among these eyes. This proportion sits within the range described in the pathological myopia literature: the International Myopia Institute's (IMI) report on pathological myopia notes that posterior

staphyloma prevalence rises steeply with age and axial length, and a large Singapore population-based study by Zheng et al. found posterior staphyloma present in a substantial minority of highly myopic adults, again correlating strongly with age and axial length^{8,18}. Our observation that macular or chorioretinal atrophy, posterior staphyloma with macular involvement, and myopic choroidal neovascularisation together accounted for the majority of eyes with limited postoperative recovery is concordant with international series identifying myopic maculopathy as the dominant, and largely unmodifiable, ceiling on visual outcome in pathological myopia^{8,14,18}. Wu et al. further demonstrated that even the sub-type of posterior staphyloma matters: eyes with wide macular staphyloma had significantly worse postoperative BCVA and a greater hyperopic refractive surprise than eyes with narrow macular or other staphyloma types¹⁴. Our dataset did not stratify staphyloma by subtype, and doing so — ideally with wide-field imaging or OCT — represents a natural next step for this cohort.

Intraoperative and Biometric Considerations

Our intraoperative complication profile — a 90.0% uneventful phacoemulsification rate, with posterior capsular rupture in 4.3% of eyes — sits at the higher end of, but is broadly consistent with, published high-myopia series. The Asian meta-analysis by Zhao et al. pooled an intraoperative posterior capsular rupture incidence of approximately 2.0%, while older single-centre series by Trpin and Pahor and by Zare et al. both identified high myopia, alongside older age, dense cataract, and reduced zonular support, as a risk factor for capsular rupture and vitreous loss^{3,11,16}. This is mechanistically plausible: the long, thin sclera and weakened zonular apparatus of the highly myopic eye reduce the margin for error during phacoemulsification and capsulorhexis, a point emphasised in a recent review by Elhusseiny and Salim, who also noted that the chop technique and thorough anterior capsular polishing are recommended to minimise zonular stress and reduce the subsequent risk of capsular contraction syndrome². On the refractive side, our target of emmetropia or mild residual myopia (achieved as an aim in over 70% of eyes, targeting -0.50 to 0 D) reflects standard practice; however, IOL power prediction in long eyes remains imperfect.

Multiple comparative studies have shown that the Barrett Universal II formula, and more recently artificial-intelligence-based and machine-learning-derived formulas, outperform third-generation formulas such as SRK/T in minimising hyperopic prediction error in eyes with axial length beyond 26 mm^{12,13}. Our dataset did not record the specific formula used for each eye, which represents a limitation discussed further below.

Comparison with Extreme-Axial-Length Data

Interestingly, our cohort's IOL power distribution — ranging from $+15$ to $+20$ D in the shortest eyes down to ≤ -6 D in a small subset of patients — parallels findings from extreme-axial-length series. Lam et al., studying outcomes of cataract surgery in extreme high axial myopia, and Li et al., reporting on 110 eyes with extremely high axial myopia managed with zero- or negative-power IOLs, both found that despite the biometric challenge, the majority of extremely long eyes still achieved meaningful visual improvement, with preoperative BCVA, age, and posterior-segment status — rather than IOL power category itself — driving the final outcome^{15,17}. This supports our own finding that IOL power category was not, in itself, a marker of poor prognosis; rather, it was the underlying macular pathology and axial-length gradient that predicted outcome.

Postoperative Complications

Posterior capsule opacification developed in 11.4% of our patients during follow-up, a figure consistent with the pooled 12.1% reported in the recent Asian meta-analysis³. He et al.'s dedicated long-term study of posterior capsular opacification in 673 highly myopic eyes found that axial length itself was an independent risk factor for clinically significant opacification, with extreme myopia (axial length ≥ 28 mm) further increasing this risk — a pattern that, given that 21.4% of our cohort's eyes measured ≥ 28 mm, might be expected to become more prominent with longer follow-up than we report here⁹.

Emerging Directions

Emerging approaches — including trifocal IOL and capsular tension ring implantation in axial high myopia, machine-learning-derived IOL formulas, and artificial-intelligence-assisted preoperative decision support for surgical planning — point toward a future in which both the refractive and posterior-segment risks of high-myopia cataract surgery may be more

accurately anticipated before the patient ever reaches the operating table^{13,16,19}.

Strengths and Limitations

The principal strength of this study lies in the granularity of preoperative biometric and fundus data recorded for a well-characterised cohort of highly myopic surgical candidates, and in linking these findings to explicit, eye-level causes of limited postoperative recovery rather than reporting only mean acuity change. However, several limitations must be acknowledged. First, the retrospective, single-arm design precludes causal inference; the factors associated with limited vision described here are drawn from a descriptive analysis of a small subgroup ($n = 19$) rather than a multivariable regression model, and should be interpreted as hypothesis-generating associations rather than as statistically validated independent predictors. Second, follow-up duration was not standardised across all outcome measures, and complications such as posterior capsule opacification or late retinal events may be under-ascertained in patients with shorter follow-up. Third, the specific IOL power formula used, surgeon experience level, and structured OCT-based (rather than purely clinical) staging of myopic maculopathy were not captured in this dataset, all of which are recognised to influence outcome. Future prospective work incorporating multivariable regression modelling, standardised follow-up intervals, and OCT-based maculopathy grading would allow the descriptive associations identified in this cohort to be tested formally as independent predictors of visual recovery.

CONCLUSION

Cataract surgery remains a highly effective intervention in patients with high myopia, restoring functional vision in the majority of eyes even in the presence of long axial length and dense cataract. In this cohort, 70.0% of eyes achieved a postoperative BCVA of 6/18 or better. However, approximately one in four patients had clinically identifiable pathological myopia, and eyes with macular atrophy, posterior staphyloma involving the macula, or very long axial length (≥ 29 mm, and particularly ≥ 31 mm) were disproportionately represented among those with limited visual recovery. These findings reinforce the importance of detailed preoperative fundus evaluation — supplemented by B-scan ultrasonography or optical coherence tomography where the view is obscured — and

of realistic preoperative counselling regarding the ceiling that pre-existing posterior-segment disease places on achievable vision, independent of surgical success. Larger, prospective, multivariable studies are needed to formally validate axial length, staphyloma subtype, and macular status as independent predictors of visual recovery in this population.

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