Outcomes and favourable prognostic factors in patients of phacomorphic and phacolytic glaucoma managed by manual small-incision cataract surgery: A retrospective study

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Purpose: To evaluate the outcomes and identify favorable prognostic factors in patients of phacomorphic (PMG) and phacolytic glaucoma (PLG) managed by manual small-incision cataract surgery (MSICS). Methods: The medical records of patients with PMG/PLG who had undergone MSICS in a tertiary eye hospital between September 2014 and August 2018 were retrospectively reviewed. Regression analyses were conducted to identify the predictors associated with intraoperative or postoperative complications and a favorable final outcome at 1 month, namely, a best-corrected visual acuity (BCVₜ) of 6/18 or better and an intraocular pressure (IOP) of <21 mm Hg. Results: The records of 209 patients with PMG and 279 patients with PLG were eligible for the review. The mean preoperative IOP for PMG and PLG were 43.15 ± 12.9 and 40.05 ± 12.0 mm Hg, respectively (P = 0.006). A younger age (<60 years) was associated with a lower risk of severe postoperative inflammation in both PMG and PLG (OR = 0.45 (0.21–0.99); P = 0.047 and OR = 0.44 (0.23–0.83); P = 0.011, respectively). There was no significant difference in the final mean logMAR BCVₜ (P = 0.21) and IOP (P = 0.36) in the two groups. The likelihood of a final IOP of <21 mm Hg was significant for symptoms less than a week (OR = 3.52 (1.2–10.2); P = 0.02) in PMG and for absence of vitreous disturbance (OR = 35.0 (3.8–325.7); P = 0.002) in PLG. A BCVₜ of 6/18 or better was strongly associated with symptoms for less than a week (OR = 1.58 (1.0–2.4); P = 0.043) and absence of vitreous disturbance (OR = 23.53 (5.1–108.0); P < 0.001). Conclusion: Early diagnosis and management can translate to good outcomes in PMG and PLG.

Key words: Manual small-incision cataract surgery, phacolytic glaucoma, phacomorphic glaucoma

Secondary glaucoma due to neglected cataracts, namely phacomorphic and phacolytic glaucoma, are important entities in developing countries resulting in a significant visual morbidity.[1] The management of such a secondary glaucoma is essentially centered around cataract extraction with/without a guarded filtration procedure, but this is inherently more difficult than a planned surgery because of the coexistent tissue inflammation and compromised media clarity.[2,3] This retrospective study was designed to report the results and identify prognostic factors associated with favorable visual and intraocular pressure (IOP) outcomes in patients with phacomorphic/phacolytic glaucoma managed by a manual small-incision cataract surgery (MSICS).

Methods

This was a retrospective, observational study that adhered to the tenets of the Declaration of Helsinki. An ethical committee clearance was obtained before undertaking a review of medical records (AEH, TVL-IEC/R/CS/2021/002). The medical records of all patients who had been diagnosed with phacomorphic or phacolytic glaucoma in a tertiary eye hospital between September 2014 to August 2018 and had undergone a MSICS with/without implantation of an intraocular lens (IOL) were reviewed. Patients who had missed the 1-month post-surgical follow-up visit at the base hospital were excluded. Considering that a best-corrected visual acuity of 6/18 or better is obtained in 16% of cases of lens-induced glaucoma after a cataract extraction, a minimum sample size of 207 in each group was required assuming 5% precision and 95% confidence interval.[4,5] This sample size was...
calculated using the statistical formulae provided by Johnston et al.\(^8\) for retrospective chart reviews.

The diagnosis of phacomorphic glaucoma was based on the subjective symptoms of sudden-onset pain and redness along with the objective signs of corneal edema, a shallow anterior chamber, and an intumescent cataract with an IOP of >21 mm Hg.\(^7\) A diagnosis of phacolytic glaucoma was made when there was pain and redness in the presence of corneal edema; a deep anterior chamber with cells, flare, lens proteins, and/or hyper-refrangent iridescent particles; a hypermature cataract; and a macroscopically intact anterior lens capsule with an IOP of >21 mm Hg.\(^8,9\)

All records were evaluated for the completeness of data entry, and records with missing data were excluded. The final diagnoses on the medical records were critically reviewed at the time of inclusion, and all patients with suspected post-traumatic lens subluxation/dislocation, documented macroscopic defects in the anterior capsule, and suspected granulomatous inflammation were excluded.

After inclusion, the following preoperative data were retrieved from the medical records: demographics, symptoms and their documented duration, visual acuity, slit-lamp findings in both the eyes, and IOP. The surgical records of patients who underwent MSICS were reviewed for the presence or absence of an implant, the nature of the implant, if any (single-piece polymethyl methacrylate posterior chamber IOL [PMMA PCIOL], 3-piece PMMA PCIOL or iris-claw lens), and intraoperative complications in the affected eye. The postoperative complications, graded according to the Oxford Cataract Treatment and Evaluation Team (OCTET) classification, were also recorded.\(^10,11\)

The visit to the base hospital at 30 days postoperatively was considered as the final end-point in this study. The data retrieved from this visit were uncorrected and best-corrected visual acuity, refractive error in spherical equivalents, IOP, and the posterior segment findings.

The recorded Snellen’s visual acuity was converted to logMAR for the ease of statistical analysis. The following logMAR values were used for visual acuities which could not be mathematically converted to logMAR: finger counting close to face = 1.7 logMAR, hand movement = 2.0 logMAR, light perception = 2.3 logMAR, and no light perception = 3.0 logMAR.\(^12\) In all cases, both preoperatively and postoperatively, the IOP was recorded using a Goldmann applanation tonometer (AT 900; Haag Streit International, Koeniz, Switzerland).

Statistical analysis was performed using STATA 14.0 (StataCorp, Texas, USA). Continuous variables were summarized as mean and standard deviation, whereas categorical variables were summarized as frequency and percentage. A \(\chi^2\) test/Fisher’s exact test (based on Cochran’s rule) and the two-sample proportion test were used to compare categorical variables.\(^13\) The independent \(t\) test was used to compare continuous variables. Firth logistic regression was performed to identify the association between preoperative variables (age, gender, duration of symptoms, and baseline IOP) and intraoperative complications. Multi-variable logistic regression analysis (LRA) was done to find factors predisposing to significant complications (OCTET grade 2 or more) on the first postoperative day. Univariate LRA was performed to investigate for preoperative factors predisposing to aphakia. Univariate LRAs were also done to identify factors that were associated with a best-corrected visual acuity of 6/18 or better and an IOP of <21 mm Hg with/without anti-glaucoma medications (AGM) at 1 month after surgery. \(P < 0.05\) was considered statistically significant.

**Results**

A total of 525 patients were diagnosed with lens-induced glaucoma in the recruitment window. Out of these, eight patients had missing entries, and 29 patients did not turn up for the final follow-up visit at the base hospital. The remaining 488 patients were eligible for inclusion. None of the patients underwent a combined cataract extraction with a glaucoma-filteration surgery. Table 1 summarizes the demographic parameters of the included subjects. The fellow eye of one patient in the phacolytic group was phthisical. Out of the rest, 79.9% (n = 389) of the fellow eyes had a visual acuity of 6/18 or better.

After MSICS, a 3-piece PMMA PCIOL was implanted in a majority of cases \(n = 443\) (90.8%); 20 in the capsular bag and 423 in the ciliary sulcus. Additionally, a capsule tension ring was required in six cases (1.2%). The frequencies of the other

### Table 1: Demographics of the participants

|                       | Phacomorphic | Phacolytic | Overall | \(P\)   |
|-----------------------|--------------|------------|---------|---------|
| **Total**             | 209          | 279        | 488     |         |
| **Age (years)**       | 66.66±10.1   | 64.88±9.5  | 65.64±9.8| 0.047\(^\dagger\) |
| **Gender**            |              |            |         | <0.001\(^\dagger\) |
| Male                  | 59 (28.2)    | 125 (44.8) | 184 (37.7)|         |
| Female                | 150 (71.8)   | 154 (55.2) | 304 (62.3)|         |
| **IOP (mmHg) (*)**    | 43.15±12.9   | 40.05±12.0 | 41.37±12.5| 0.006\(^\dagger\) |
| **Fellow eye**        |              |            |         | <0.001\(^\dagger\) |
| Clear lens            | 14 (6.7)     | 2 (0.7)    | 16 (3.3) |         |
| Immature cataract     | 105 (50.2)   | 47 (16.9)  | 152 (31.2)|         |
| Mature cataract       | 2 (1.0)      | 2 (0.7)    | 4 (0.8)  |         |
| Pseudophakia          | 86 (41.1)    | 225 (80.9) | 311 (63.9)|         |
| Aphakia               | 2 (1.0)      | 2 (0.7)    | 4 (0.8)  |         |

\(^\dagger\)Expressed as Mean±Standard deviation; \(^\dagger\)Expressed as frequency (percentage); \(^\dagger\)two-sample \(t\) test; \(^\dagger\)Fisher’s exact test. IOP=Preoperative intraocular pressure.
implants were as follows: single piece PMMA PCIOL (n = 10; 2.0%; all in-the-bag) and iris-claw IOL (n = 10; 2.0%; retropupillary fixation). No implant was placed in 25 (5.1%) cases. Among the preoperative variables evaluated, female gender [OR = 0.38 (0.17–0.87); P = 0.022] was found to have a significantly lower risk of aphakia. There was no statistically significant difference in the requirement and the type of implant after MSICS in the two groups (P = 0.447).

The intraoperative and the postoperative complications in the study subjects are summarized in Tables 2 and 3, respectively. None of the subjects suffered from anesthesia-related complications. The LRAs revealed no association between preoperative variables and intraoperative complications in phacoemulsiﬁcation. However, in phacoemulsiﬁcation glaucoma, there was a statistically significant lower risk of whole bag removal in the case of female patients [OR = 0.26 (0.09–0.76); P = 0.013].

In both the groups, a younger age (<60 years) was associated with a signiﬁcantly lower risk of severe intraocular ﬂammation (fibrinous uveitis/hypopyon) on the ﬁrst postoperative day [OR = 0.45 (0.21–0.99); P = 0.047 for phacoemulsiﬁcation glaucoma and OR = 0.44 (0.23–0.83); P = 0.011 for phacoemulsiﬁcation glaucoma]. Moreover, in patients with phacoemulsiﬁcation glaucoma, age <60 years was also associated with a lower risk of a signiﬁcant IOP spike on the ﬁrst postoperative day characterized by microcystic corneal edema (OCTET 2 or more) [OR = 0.25 (0.12–0.54); P < 0.001].

At the ﬁnal follow-up visit, the mean best-corrected logMAR visual acuity for phacomorphic and phacolytic glaucoma was 0.46 ± 0.65 and 0.39 ± 0.53, respectively (P = 0.21), with the overall mean being 0.42 ± 0.58. A visual acuity of 6/18 or better was achieved in 72.7% (n = 152) subjects with phacomorphic glaucoma and 73.1% (n = 204) subjects with phacolytic glaucoma (P = 0.92). A visual acuity worse than 3/60 was seen in 6.7% (n = 14) cases of phacomorphic glaucoma and 4.7% (n = 13) cases of phacolytic glaucoma (P = 0.44). Poor media clarity due to persistent corneal and vitreous haze precluded the fundus view in eight of these cases. In the remainder, the causes for a poor visual recovery were disc pallor (n = 16) and retinal vein occlusion (n = 3).

The mean spherical equivalent at the ﬁnal visit was −0.47 ± 1.2 D in phacomorphic glaucoma and −0.22 ± 1.6 D in phacolytic glaucoma (P = 0.07). The spherical equivalent in the operated eye was within ±1.0 D of emmetropia in 80.9% (n = 157) cases of phacomorphic glaucoma and 86.1% (n = 230) cases of phacolytic glaucoma (P = 0.13). Cases that were aphakic at 1-month postoperatively (n = 27; 25 failure to implant and 2 IOL drops) were excluded from the analyses involving spherical equivalents.

The mean IOP at 1-month postoperatively was 15.89 ± 8.2 mm Hg for phacomorphic glaucoma and 16.92 ± 8.2 mm Hg for phacolytic glaucoma (P = 0.36). An IOP of <21 mm Hg was achieved in 85.1% (n = 178) cases of phacomorphic glaucoma and 83.3% (n = 233) cases of phacolytic glaucoma (P = 0.72).

Tables 4 and 5 summarize the results of the univariate logistic regression analyses conducted to identify the factors responsible for a visual acuity of 6/18 or better and an IOP of <21 mm Hg with/without AGMs 1 month after MSICS for lens-induced glaucoma. As phacomorphic and phacolytic glaucoma are forms of secondary glaucoma that have different mechanisms for IOP elevation, separate regression analysis for IOP control was performed for each group.

### Table 2: Intraoperative complications

|                  | Phacomorphic* | Phacolytic* | Overall* | P  |
|------------------|--------------|-------------|----------|----|
| Whole bag removal| 15 (7.2)     | 14 (5.0)    | 29 (5.9) | 0.309|
| Zonular dialysis | 3 (1.4)      | 21 (7.5)    | 24 (4.9) | 0.002|
| DMD              | 2 (1.0)      | 1 (0.4)     | 3 (0.6)  | 0.417|
| PCR              | 5 (2.4)      | 11 (3.9)    | 16 (3.3) | 0.356|
| Nucleus drop     | Nil          | 1 (0.4)     | 1 (0.2)  | 0.360|
| IOL drop         | 1 (0.5)      | 2 (0.4)     | 4 (0.869)|

*Data represented as frequency (percentage); †Two-sample proportion test.
DMD=Descemet’s membrane detachment; PCR=Posterior capsular rupture; IOL=Intraocular lens

### Table 3: Postoperative complications on day 1 as per OCTET classification

|                  | OCTET | Phacomorphic* | Phacolytic* | P  |
|------------------|-------|--------------|-------------|----|
| Corneal edema >15 DM folds | 2     | 25 (11.96)   | 24 (8.60)   | 0.222|
| Corneal edema <15 DM folds | 1     | 110 (52.63)  | 136 (48.75) | 0.396|
| Microcystic edema | 2     | 33 (15.79)   | 86 (30.82)  | 0.0001|
| Corneal epithelial defect | 1     | Nil          | 3 (1.07)    | 0.134|
| Shallow AC       | 3     | 3 (1.44)     | 2 (0.72)    | 0.435|
| Mild iritis      | 1     | 95 (45.45)   | 114 (40.86) | 0.311|
| Fibrinous uveitis| 2     | 70 (33.49)   | 99 (35.48)  | 0.647|
| Hyphaema         | 2     | 1 (0.48)     | Nil         | 0.247|
| Hypopyon         | 3     | 1 (0.48)     | 1 (0.36)    | 0.838|
| Dislocated implant| 3    | 1 (0.48)    | 1 (0.36)    | 0.838|
| Vitreous in AC‡  | 1     | 6 (2.87)     | 7 (2.51)    | 0.807|
| Vain occlusion   | 3     | 2 (0.96)     | 5 (1.79)    | 0.445|
| Vitreous opacities| 1     | 1 (0.48)    | 2 (0.72)    | 0.738|

*Expressed as frequency (percentage); †Two-sample proportion test; ‡Vitreous in the anterior chamber not touching the cornea. DM=Descemet’s membrane
### Table 4: Factors associated with IOP <21 mm Hg 1 month postoperatively by using the unadjusted logistic model

| Factor                          | Odds Ratio (95% CI) | P     |
|---------------------------------|---------------------|-------|
| **Phacomorphic glaucoma**       |                     |       |
| Age <60 years                   | 4.16 (0.5-33.2)     | 0.179 |
| Female gender                   | 1.56 (0.5-4.5)      | 0.408 |
| Duration* <1 week               | 3.52 (1.2-10.2)     | 0.020 |
| Baseline IOP <40 mm Hg          | 1.42 (0.5-4.3)      | 0.543 |
| Absence of vitreous disturbance | 4.18 (0.6-27.1)     | 0.134 |
| **Phacolytic glaucoma**         |                     |       |
| Age <60 years                   | 6.30 (0.8-50.1)     | 0.082 |
| Female gender                   | 1.68 (0.6-4.8)      | 0.333 |
| Duration* <1 week               | 2.17 (0.8-6.2)      | 0.149 |
| Baseline IOP <40 mm Hg          | 1.96 (0.6-6.5)      | 0.272 |
| Absence of vitreous disturbance | 35.0 (3.8-325.7)    | 0.002 |

IOP=Intraocular pressure; CI=Confidence interval; *Duration of acute symptoms

### Table 5: Factors associated with a visual acuity of 6/18 and better, one month postoperatively by using the unadjusted logistic model

| Factor                          | Odds Ratio (95% CI) | P     |
|---------------------------------|---------------------|-------|
| Age <60 years                   | 1.63 (0.9-2.9)      | 0.093 |
| Female gender                   | 1.05 (0.7-1.6)      | 0.832 |
| Duration* <1 week               | 1.58 (1.0-2.4)      | 0.043 |
| Baseline IOP <40 mm Hg          | 1.57 (0.98-2.5)     | 0.058 |
| Absence of vitreous disturbance | 23.53 (5.1-108.0)   | <0.001|

IOP=Intraocular pressure; CI=Confidence interval; *Duration of acute symptoms

### Discussion

This retrospective study reports the demographics, outcomes, and prognostic factors associated with a better outcome of lens-induced glaucoma cases treated by MSICS in a tertiary eye hospital over a 4-year period. During this period, 82,205 patients underwent cataract surgery in the hospital and 525 patients were diagnosed with phacomorphic/phacolytic glaucoma. Thus, the incidence of lens-induced glaucomas in our study was 0.64%. This is lower than other reports where the incidence has varied from 0.7% to 2.4%.[4-5,7]

There was a female preponderance in both phacomorphic and phacolytic cohorts, but the proportion of women was significantly greater in the phacomorphic group (P < 0.001). This corroborates with the findings of other authors who concluded that women are at a greater risk for developing lens-induced secondary angle-closure glaucoma.[17-19,14-16] However, women outnumbered men in both forms of glaucoma, which could not have been due to an anatomical factor as the mechanisms of development of the two forms of glaucoma are different. Socioeconomic factors might have been contributory. In the age of woman empowerment, this significant disparity highlights the need to look into the health-seeking behavior, with women probably not accessing care so readily.[12-16] Although these discrepancies may also arise simply because of a greater prevalence of cataract in women across the globe,[17-19] in our study, we found that 70.7% (n = 130) of fellow eyes of male subjects were pseudophakic compared to only 59.5% (n = 181) of those of females (P = 0.02). This reiterates a gender disparity in health-seeking behavior, with women probably having to delay their cataract surgery.

The overall intraoperative complication rate in our study was 15.4% (n = 75), the most common being those involving the zonule-bag complex (10.9%; n = 53). Although there was no significant difference in the overall incidence of complications involving the zonule-bag complex (whole bag removal + zonular dialysis) in the two groups (P = 0.17), Firth regression analysis revealed a 74% lower risk of whole bag removal in females (P = 0.013) with phacomorphic glaucoma. Moreover, a univariate LRA revealed a 62% lower risk of aphakia in females overall (P = 0.022). Similar gender-related differences have been reported by contemporary authors.[20-23] The exact reason for this disparity is unknown, but the weakness of the capsule-zonular apparatus may be a manifestation of a long-forgotten occult ocular trauma.[23]

There was no statistically significant difference in the proportion of various complications in the immediate postoperative period in the two groups except for the presence of severe microcystic corneal epithelial edema requiring anti-glaucoma medications (phacomorphic group = 15.79%, phacolytic group = 30.82%; P = 0.0001). This is perhaps an expression of the difference in the mechanism of development of glaucoma. While a phacomorphic glaucoma is essentially a pupillary-block-mediated secondary angle closure, a phacolytic glaucoma is a trabecular form of secondary open-angle glaucoma.[24,25] Relief of the pupillary block should therefore cause a lowering of IOP in a phacomorphic glaucoma unless there has been prolonged irido-trabiclar contact leading to the formation of extensive synaehial angle closure.[1] In contrast, the IOP in phacolytic glaucoma is likely to be high even after cataract extraction until the trabecular function is restored and the violent inflammatory reaction subsides.[25]

A lower risk of severe postoperative inflammation was noted with younger age (<60 years) in both groups. We believe that this is a manifestation of immuno-senescence. Research has shown that there is a direct relationship between advancing age and increased macrophage/lymphocyte activation, which results in a preexisting subclinical inflammatory state.[26,27] This pro-inflammatory state is further promoted by higher levels of coagulation factors, homocysteine, reactive oxygen species, stress hormones, lipoprotein (a), interleukin-6 (IL-6), acute phase reactants, and other pro-inflammatory cytokines in the elderly.[28] In such a setting, any inciting factor (such as surgery) is likely to result in a more severe inflammation. IL-6 is believed to be the most important humoral factor among all the above. An IL-6 assay in all our patients preoperatively would have perhaps enabled us to conclusively prove this theory.

A significant IOP elevation on the first postoperative day was more common in older patients (>60 years) with phacolytic glaucoma (P < 0.001). Although in contemporary literature, age has not been proven to be a predictor variable in the development of an IOP spike on the first postoperative day, a combination of a pro-inflammatory state both due to age as well as due to the mechanism of glaucoma was probably responsible for this finding in our participants.[29]
The accuracy of preoperative biometry can be assessed by calculating the proportion of patients achieving a spherical equivalent within ±1.00 D at 1 month postoperatively. In most studies, the accepted range for this varies from 72% to 97% with a mean of 84.5%,[10,20–31] In this study, this was achieved in 83.9% (n = 387) cases with no statistically significant difference between the two groups (P = 0.13). Therefore, primary IOL implantation should always be contemplated in cases of lens-induced glaucoma for optical rehabilitation after cataract extraction.

The mean postoperative IOP in our cohort of patients in the final follow-up was 16.4 ± 8.2 mm Hg with no statistically significant difference between the two groups (P = 0.36). This corresponds to the findings of Braganza et al.[3] who compared the outcomes of MSICS with or without a guarded filtration surgery for phacolytic glaucoma. In the final follow-up visit at 1 month, 84.2% (n = 411) of our subjects were free from AGM use. In contemporary literature, 95%–100% of the patients with lens-induced glaucoma have been found to achieve an IOP of <21 mm Hg at the final follow-up of 3–6 months without the need for AGMs.[2,3,15,30] A longer follow-up of our cohorts would perhaps have yielded a similar result.

Acute symptoms for less than a week [OR = 3.52 (1.2–10.2); P = 0.02] were associated with a greater likelihood of IOP <21 mm Hg in phacomorphic glaucoma cases in the final visit. This corresponds to the findings of Angra et al.[1] who concluded that a longer duration of symptoms in these cases is associated with an extensive synaechial angle closure and are therefore candidates for a filtration surgery for IOP control.

The absence of intraoperative vitreous loss was strongly associated with an IOP <21 mm Hg at the final follow-up in phacolytic glaucoma [OR = 35.0 (3.8–325.7); P = 0.002]. A review article on the long-term outcomes of posterior capsular rupture has pointed out that secondary glaucoma following vitreous loss may occur due to pupillary block, trabecular blockage by vitreous, retained nuclear/cortical fragments, inflammatory cells, and pigment dispersion due to excessive intraocular manipulation.[33] In the setting of a phacolytic glaucoma where there is an immense preexisting intraocular inflammation, an added inciting factor in the form of vitreous loss or retained lens matter is likely to further increase the risk of an elevated IOP. There is anecdotal evidence in contemporary literature that even in phacolytic glaucoma, the duration of symptoms for less than a week is associated with favorable IOP outcomes.[2] However, in our regression analysis, we found no statistically significant association between a lower duration of acute symptoms (for less than a week) and a final favorable IOP outcome (P = 0.149).

Acute symptoms for less than a week [OR = 1.58 (1.0–2.4); P = 0.043] and the absence of vitreous loss [OR = 23.53 (5.1–108.0); P < 0.001] were statistically associated with a visual acuity of 6/18 or better at the final post-operative visit. A longer duration of symptoms is likely to be associated with prolonged intraocular inflammation, greater endothelial cell loss, and more edematous corneas, which might have taken longer to clear. Contemporary authors have also noted a strong association between a short duration of symptoms and a good postoperative visual recovery in lens-induced glaucoma.[3,12,15] Vitreous loss as a factor contributing to a poorer postoperative visual recovery has not been specifically studied in lens-induced glaucoma. However, in any cataract surgery, vitreous loss is associated with an increased risk of corneal decompensation, cystoid macular edema, and retinal detachment.[33] Therefore, intraoperative vitreous loss is likely to place a patient at an increased risk of poorer visual recovery compared to those who have undergone an uncomplicated cataract surgery even in a lens-induced glaucoma.[34,35]

This study suffers from the inherent weaknesses of a retrospective analysis. The gonioscopic findings of the fellow eye could not be retrieved from the medical records. A gonioscopy of the fellow eye is of paramount importance in distinguishing a primary angle-closure glaucoma from a phacomorphic glaucoma, and ideally, if the fellow eye has closed angles in gonioscopy, the patient should not be classified as one of pure phacomorphic glaucoma.[36] Moreover, this was not a single-surgeon study and reflects the average outcomes of a group of surgeons in a training hospital with varying amounts of experience in handling such cases. Finally, the reason for the delay in surgery of the study eye could not be determined because of the study design.

**Conclusion**

This retrospective review gives an insight into the surgical and visual outcomes and prognostic factors for a good recovery after the management of phacomorphic and phacolytic glaucoma. This study points out the fairly good biometric accuracy in these cases and makes a strong argument in favor of primary implantation of an IOL. The female preponderance and the fact that an early presentation was associated with a good visual outcome in this study indicates the need for programs targeted at motivating women to seek timely treatment for cataract alongside their male counterparts for a healthy populace.

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**Conflicts of interest**

There are no conflicts of interest.

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