One-Year Outcomes of Phacoemulsification Combined with Bent Ab Interno Needle Goniectomy in Patients with Mild-to-Moderate Pseudoexfoliative Glaucoma and Cataract

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ABSTRACT

Purpose: To evaluate the one-year efficacy and safety of phacoemulsification combined with Bent Ab Interno Needle Goniectomy (Phaco-BANG) in patients with mild-to-moderate pseudoexfoliative glaucoma (XFG) and coexisting cataract.

Methods: This retrospective study included eyes with XFG undergoing combined Phaco-BANG. Preoperative and postoperative intraocular pressure (IOP), number of antiglaucoma medications, visual acuity, surgical success, and complications were analyzed. Complete success was defined as IOP ≤21 mmHg with ≥20% reduction without medication, and qualified success as the same IOP target with or without medication. Mean IOP and medication changes were compared using paired statistical tests, and Kaplan–Meier analysis was used to estimate survival probability.

Results: Thirty-eight eyes of 38 patients were included. Mean preoperative IOP decreased from 33.6 ± 4.1 mmHg to 17.0 ± 3.9 mmHg at 12 months (49% reduction, $p < 0.001$). The mean number of medications reduced from 3.1 ± 0.4 to 0.4 ± 0.8 ($p < 0.001$). Complete and qualified success rates were 71.1% and 97.4%, respectively, at 12 months. Transient hyphema occurred in 13 eyes (34.2%), resolving spontaneously, while early IOP spike occurred in 2 eyes (5.3%) and hypotony secondary to cyclodialysis cleft in 1 eye (2.6%); no sight-threatening complications were observed.

Conclusion: Phaco-BANG provides a safe, cost-effective, and implant-free minimally invasive glaucoma surgery achieving substantial IOP and medication reduction in XFG. The results compare favorably with other combined phaco-MIGS techniques, suggesting Phaco-BANG as a valuable alternative for resource-limited settings.

Key words: Bent Ab Interno Needle Goniectomy; cataract surgery; minimally invasive glaucoma surgery; phacoemulsification; pseudoexfoliation glaucoma

INTRODUCTION

Pseudoexfoliation glaucoma (XFG) represents the most common form of secondary open-angle glaucoma, arising from abnormal extracellular fibrillar material deposition within anterior segment structures, particularly the trabecular meshwork. This accumulation leads to increased outflow resistance, elevated intraocular pressure (IOP), and more rapid disease progression compared to primary open-angle glaucoma (POAG).[1] XFG typically presents with higher IOP peaks, wider diurnal fluctuations, and poorer response to medical therapy, often necessitating surgical intervention at an earlier stage.[2] In addition, these patients frequently exhibit coexistent cataract due to shared age-related and oxidative stress mechanisms, highlighting the need for an effective combined surgical approach.

Conventional filtering surgeries such as trabeculectomy or drainage devices provide substantial IOP reduction but

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are associated with bleb-related complications, hypotony, and prolonged postoperative care.[3] The increasing demand for safer, tissue-preserving alternatives has led to the emergence of minimally invasive glaucoma surgeries (MIGS), which enhance aqueous outflow through physiologic pathways while minimizing surgical trauma. Trabecular-based MIGS, including gonioscopy-assisted transluminal trabeculotomy (GATT), Kahook Dual Blade (KDB), and Bent Ab Interno Needle Goniectomy (BANG), target Schlemm's canal directly, aiming to reduce IOP effectively without disturbing conjunctival integrity.[4]

BANG offers a simple, cost-effective, and implant-free modification of ab-interno goniectomy that can be easily combined with cataract surgery to achieve synergistic IOP reduction and visual rehabilitation.[5] Recent studies have demonstrated that Phaco + BANG provides significant short-term IOP and medication reduction with a favorable safety profile in primary open-angle glaucoma (POAG).[6,7] However, there is no study focusing specifically on pseudoexfoliative eyes undergoing Phaco + BANG. The present study therefore aims to evaluate the 12-month efficacy and safety of phacoemulsification combined with BANG in patients with mild-to-moderate XFG and cataract, addressing an important evidence gap in this high-risk population.

METHODS

This study adhered to the principles outlined in the Declaration of Helsinki and was conducted with approval from the Ahi Evran University, local ethics committee (Approval no:2025-04/43). All participants provided informed consent before enrollment, and their rights and confidentiality were safeguarded throughout the study. Ethical clearance was obtained in accordance with national and international guidelines for human research, ensuring compliance with regulations on patient safety, data protection, and surgical intervention protocols.

Patient Population

This retrospective study included patients diagnosed with XFG and visually significant cataract who underwent PHACO+BANG between January 2023 and July 2024 at Ahi Evran University, Kırşehir Training and Research Hospital. Patients were recruited from a tertiary ophthalmology center based on predefined inclusion and exclusion criteria. Eligible participants were required to be 40 years or older with a confirmed diagnosis of XFG based on clinical examination and gonioscopy, demonstrating open angles with trabecular meshwork visibility of at least 180°. Only patients with IOP of 18 mmHg or higher, despite maximum tolerated medical therapy, and best-corrected visual acuity (BCVA) of 20/40 or worse due to visually significant cataract were included. To ensure uniform follow-up, only patients with a minimum postoperative follow-up period of 6 months were included in the final analysis.

Patients with any other form of secondary glaucoma, including uveitic, neovascular, or steroid-induced glaucoma, were excluded. Those with primary or secondary angle-closure glaucoma, characterized by anterior synechiae or a history of acute angle closure, were not considered. Advanced glaucoma cases requiring filtering surgery, defined as IOP exceeding 40 mmHg or severe glaucomatous optic neuropathy, were also excluded. Additional exclusion criteria included a history of ocular trauma, retinal pathology, or previous intraocular surgery other than uncomplicated cataract surgery in the fellow eye. Patients with severe corneal opacity or endothelial dysfunction that could interfere with gonioscopic visualization and surgical outcomes were also not eligible.

Surgical Technique

All procedures were performed by a single glaucoma surgeon (A.Y.U) under Sub-Tenon anaesthesia. The eye was prepared using a standard sterile ophthalmic protocol, and a wire speculum was placed for adequate exposure. Phacoemulsification was performed first using a quick chop technique to ensure efficient nuclear fragmentation with minimal zonular stress, given the increased fragility of the zonules in pseudoexfoliative eyes. Careful cortical cleanup was completed, and a posterior chamber intraocular lens was implanted within the capsular bag. Immediately following lens implantation, additional cohesive ophthalmic viscosurgical device (OVD) was injected into the anterior chamber to provide space and enhance visualization of the nasal trabecular meshwork for the subsequent goniectomy.

For the BANG, the patient's head was tilted slightly away from the surgeon, and the operating microscope was adjusted toward the surgeon to optimize the view of the nasal angle. A gonioprism was placed on the cornea to

allow direct gonioscopic visualization of the trabecular meshwork. A 26-gauge hypodermic needle was modified by bending the distal tip at a 90-degree angle, ensuring that the bevel faced upward for controlled tissue engagement. The needle was introduced through the main corneal incision and advanced toward the nasal angle. Using a steady hand and controlled motion, the trabecular meshwork was punctured, and approximately 30–40° of tissue was excised along Schlemm's canal in both directions from the initial entry point. The needle was carefully maneuvered to ensure smooth and even removal, minimizing trauma to surrounding tissues. The OVD was then thoroughly evacuated from the anterior chamber using a balanced salt solution through irrigation and aspiration.

At the conclusion of the surgery, intracameral cefuroxime was administered. The corneal incisions were hydrated and checked for watertight closure. Postoperative management included a tapering regimen of topical corticosteroids, antibiotics, and IOP-lowering medications as required.

Main Outcome Measures

The primary outcome measure of this study was the change in IOP from baseline to the final follow-up visit after PHACO+BANG. IOP was measured using Goldmann applanation tonometry in the morning hours (between 08:00 and 10:00 AM) at each follow-up visit to minimize the effects of diurnal variation. The percentage of IOP reduction was calculated relative to preoperative values. Surgical success was categorized as complete success, defined as achieving an IOP of ≤21 mmHg with at least a 20% reduction from baseline without the need for IOP-lowering medication, and qualified success, defined as achieving the same IOP criteria with or without IOP-lowering medication.

Secondary outcome measures included the reduction in the number of glaucoma medications, assessed at each visit. Best-corrected visual acuity (BCVA) was measured using Snellen charts and converted to logMAR units, with assessments conducted preoperatively and postoperatively at each follow-up visit. Structural changes were evaluated using optical coherence tomography (OCT), including cup-to-disc ratio and retinal nerve fiber layer (RNFL) thickness, when visualization was possible.

Surgical safety and efficacy were assessed by monitoring the incidence of intraoperative and postoperative complications, including hyphema, transient IOP spikes (>10 mmHg from baseline), corneal edema, and anterior chamber inflammation.

All assessments were conducted at standardized postoperative intervals: week 1, month 1, month 3, and month 6, ensuring a minimum of six months of follow-up to evaluate the long-term efficacy and safety of the combined procedure.

Statistical Analysis

All statistical analyses were performed using SPSS 22.0 version (IBM Corp., Armonk, NY, USA). The normality of continuous variables was assessed using the Shapiro–Wilk test. Continuous data were expressed as mean ± standard deviation, while categorical data as numbers and percentages. No a priori sample size calculation was performed because of the retrospective design of the study. All eligible consecutive eyes with pseudoexfoliative glaucoma and cataract that underwent Phaco-BANG during the study period and met the inclusion criteria were included in the analysis. To assess preoperative and postoperative changes in IOP, BCVA, and the number of glaucoma medications, the paired t-test was applied. Descriptive statistics were used to summarize postoperative complications, including hyphema, IOP spikes, and corneal edema. A Kaplan–Meier survival analysis was conducted to determine the proportion of patients maintaining surgical success over time. A p-value of <0.05 was considered statistically significant for all analyses.

RESULTS

A total of 38 eyes from 38 patients with XFG and visually significant cataract underwent PHACO+BANG, with a mean age of 66.2 ± 9.6 years and a mean follow-up of 11.8 ± 3.8 months (**Table 1**). The mean baseline BCVA was 0.88 ± 0.31 logMAR, and patients were using an average of 2.9 ± 0.9 glaucoma medications. Baseline structural assessment revealed a mean cup-to-disc ratio of 0.51 ± 0.23 and mean RNFL thickness of 77.2 ± 15.7 µm in measurable eyes.

BCVA improved significantly from 0.88 ± 0.31 to 0.24 ± 0.16 logMAR at the final visit ($p < 0.001$). The mean preoperative IOP of 33.6 ± 4.1 mmHg decreased markedly

following surgery, reaching 17.0 ± 3.9 mmHg at the final visit ($p < 0.001$), representing a 49.4% reduction. Time-dependent analysis showed the most prominent early decline (Preop: 33.6 ± 4.1; Day 1: 24.5 ± 7.2; Month 1: 19.2 ± 4.8), with stable values thereafter (Month 3: 18.6 ± 4.3; Month 6: 17.6 ± 4.1; Month 12: 17.0 ± 3.9), as demonstrated in the IOP trend graph (**Figure 1**). Of the 38 included eyes, 31 eyes completed the 12-month follow-up, while 7 eyes had shorter follow-up and were censored at their last available visit. Kaplan–Meier analysis showed a complete success rate of 71.1% and a qualified success rate of 97.4% at the final follow-up (**Figure 2**), based on predefined pressure criteria.

The mean number of glaucoma medications significantly decreased from 3.1 ± 0.4 preoperatively to 0.4 ± 0.8 at the final visit ($p < 0.001$), and 71.1% of eyes required no medication postoperatively. One patient required a secondary intervention, undergoing gonioscopy-assisted transluminal trabeculotomy at month 9 due to inadequate IOP control. Among eyes with available structural measurements, the mean cup-to-disc ratio changed from 0.51 ± 0.23 at baseline to 0.55 ± 0.27 at the final visit, which was not statistically significant ($p = 0.297$). Similarly, mean RNFL thickness changed from 77.2 ± 15.7 µm to 73.5 ± 15.7 µm, without a statistically significant difference ($p = 0.183$). These findings suggest no statistically significant structural progression during the follow-up period. Transient hyphema occurred in 13 eyes (34.2%), early IOP spike in 2 eyes (5.3%), and hypotony due to cyclodialysis cleft in 1 eye (2.6%), all resolving without additional surgical intervention. No case of persistent hypotony, endothelial decompensation, or iridodialysis was observed (**Table 2**).

Table 1. *Baseline demographical and clinical characteristics of patients*

	Patients undergone PHACO+BANG
Number of patients	38
Mean age (SD), yrs	66.2±9.6
Range, yrs	50-88
Female (n, %)	16 (41.0%)
Mean follow-up time (months) (SD)	11.8±3.8
Mean baseline IOP (mmHg)	33.6 ± 4.1
Mean baseline BCVA (LogMAR)	0.88±0.31
Mean baseline number of medications	3.1±0.4
Mean baseline c/d ratio (n: 23, where visible)	0.51±0.23
Mean baseline RNFL thickness (microns) (n:16, where measurable)	77.2±15.7

BANG, bent needle ab-interno goniectomy; **BCVA**, best-corrected visual acuity; **IOP**, intraocular pressure; **PHACO**, phacoemulsification; **SD**, standard deviation.

Table 2. *Clinical outcomes of Phaco+BANG surgery in patient with coexisting glaucoma and cataract*

Mean preoperative IOP (mmHg)	33.6±4.1 (28 – 42)
Mean number of preoperative medications	3.1±0.4 (3 – 4)
Final IOP (mmHg)	17±3.9 (9 – 23)
Final BCVA (Log MAR)	0.24 ± 0.16
Mean number of final medications	0.4±0.8
Complete surgical success	71.1%
Qualified surgical success	97.4%
Mean final cup to disc ratio	0.55±0.27
Mean final RNFL thickness (microns)	73.5±15.7
Complications	
Transient Hyphema	13 (34.2%)
Hypotonia secondary to cyclodialysis cleft	1 (2.6%)
Early IOP spike	2 (5.3%)
Iridodialysis	-

IOP, intraocular pressure; **RNFL**, retinal nerve fiber layer

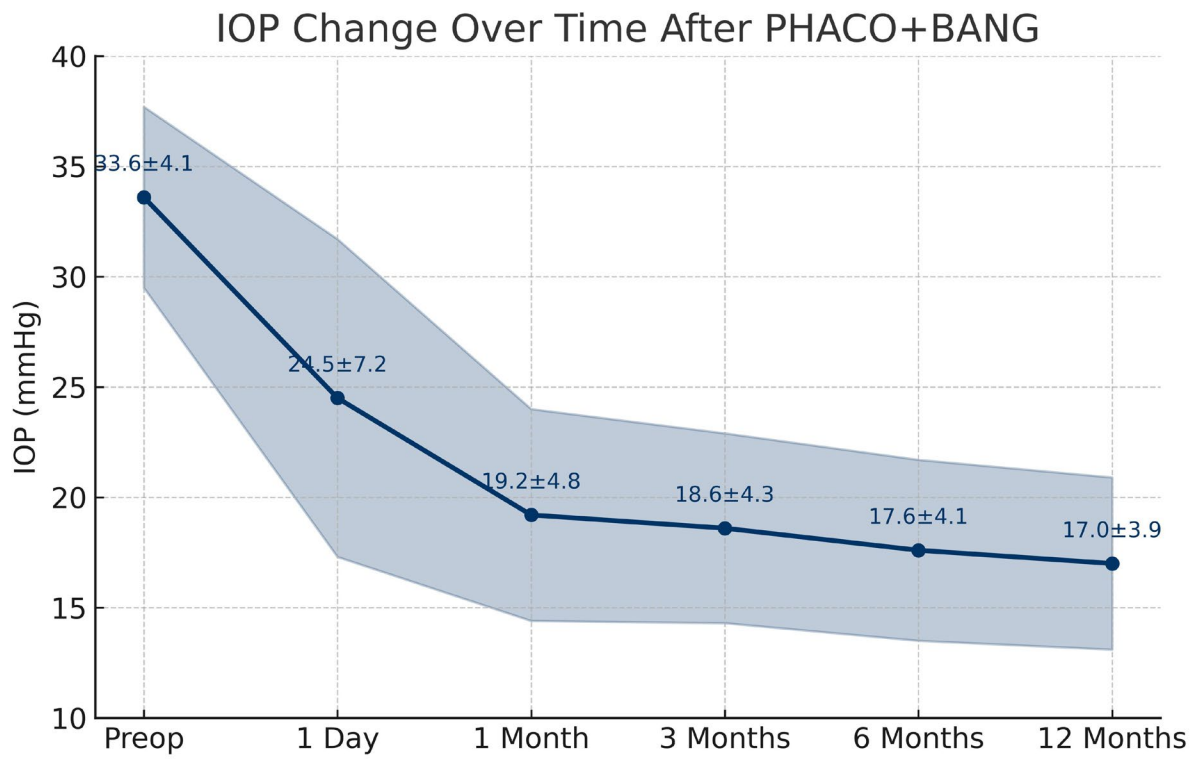

Figure 1. *Mean intraocular pressure (IOP) change over time after Phaco-BANG. Line plot showing the mean IOP and standard deviation at each follow-up visit (Preoperative, 1 day, 1, 3, 6, and 12 months). IOP decreased significantly from 33.6 ± 4.1 mmHg preoperatively to 17.0 ± 3.9 mmHg at 12 months ($p < 0.001$), representing an overall 49% reduction. Shaded areas indicate standard deviation.*

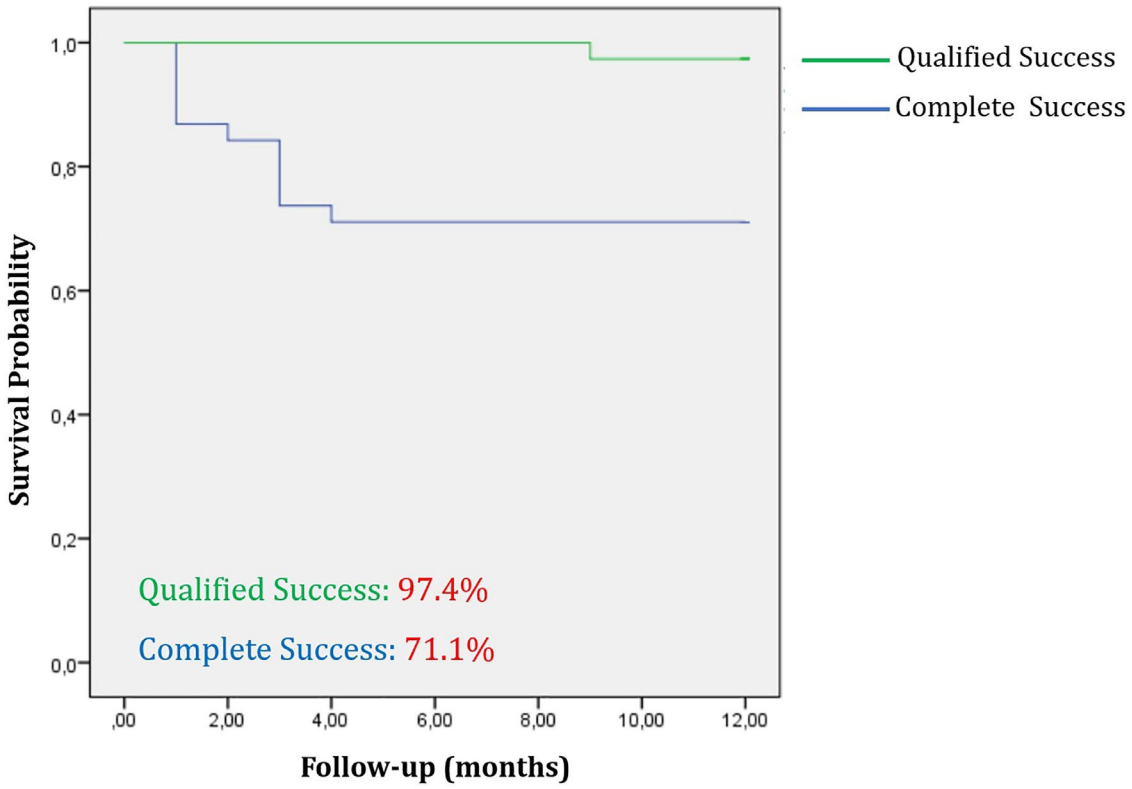

Figure 2. *Kaplan–Meier survival analysis of surgical success after Phaco-BANG. Cumulative probability of success over 12 months based on complete and qualified success criteria. At 12 months, complete success was 71.1%, and qualified success was 97.4%.*

DISCUSSION

In the present study, Phaco-BANG achieved a marked and sustained IOP reduction over a 12-month period in eyes with mild-to-moderate XFG and cataract. The mean IOP decreased by nearly 50%, from 33.6 mmHg preoperatively to 17.0 mmHg at one year, accompanied by a significant reduction in the number of glaucoma medications from an average of 3.1 to 0.4. Complete surgical success was achieved in 71% of eyes, while qualified success was maintained in 97%. These outcomes indicate that a limited ab-interno excision of the trabecular meshwork, when performed concurrently with cataract extraction, can provide substantial IOP control without the need for filtering surgery. Visual acuity improved significantly in parallel, confirming that the combined procedure not only controls pressure but also effectively restores visual function. The low rate of transient complications—mainly mild hyphema and short-lived IOP spikes—further supports the short-term safety and clinical feasibility of this minimally invasive approach in the pseudoexfoliative population.

Looking at the Phaco-GATT outcomes, Bozkurt et al.[8] evaluated Phaco-GATT in 108 eyes with POAG and XFG and reported a mean IOP reduction of 32% (26.7 → 15.8 mmHg) at 12 months, with 83.8% surgical success, while Yozgat and Şabaner[9] observed a 55.6% IOP reduction and 94.7% qualified success at two years after Phaco-GATT surgery. On the other hand, Üçgül et al.[10] compared stand-alone GATT and BANG, finding an IOP reduction of 51.9% vs 43.7% and 88% vs 61% complete success in POAG.

Two previous studies investigated Phaco-BANG in POAG patients, reporting slightly lower efficacy than observed in our pseudoexfoliative cohort. Kaushik et al.[7] found a 37% IOP reduction (23.1→14.6 mmHg) with 68% complete and 90% qualified success, whereas Bukke et al.[6] reported a 31.8% decrease (17.6→12.0 mmHg) and 87.5% success at 12 months. In comparison, our study achieved a 49% IOP reduction and 71% complete success, indicating that Phaco-BANG may exert a stronger pressure-lowering effect in XFG than in POAG, likely due to more efficient

mechanical removal of exfoliative material obstructing the trabecular meshwork.

Excisional goniotomy devices have shown slightly lower pressure-lowering capacity. Köylü et al. evaluated the efficacy of phacoemulsification with Kahook dual blade in eyes with POAG and XFG, reporting a 59% IOP reduction and 74% success in the POAG group versus a 69% reduction and 84% success in the XFG group at 12 months, indicating that XFG eyes exhibited a more pronounced IOP response to excisional goniotomy —a pattern similar to our findings, supporting greater responsiveness of XFG eyes to trabecular excision. Furthermore, Widder et al.[11] using Phaco-Trabectome, reported a 37.2% IOP decrease (25.0→15.7 mmHg) and 67% complete success over one year in XFG. Previous studies evaluated Phaco-iStent implantation and reported modest but consistent pressure-lowering effects, with mean IOP reductions of approximately 20–40% (from 22–24 mmHg to 14–17 mmHg) and medication use reduced by 60–75% at 12–36 months, emphasizing the excellent safety profile of the combined procedure, although the magnitude of IOP reduction remained lower than that typically achieved with trabeculotomy- or excision-based MIGS techniques.[12-14]

This study adds unique value to the current MIGS literature by providing one of the first dedicated analyses of Phaco-BANG outcomes specifically in XFG, a subgroup often underrepresented in previous ab interno trabeculotomy research. While prior reports have primarily focused on POAG, our results demonstrate that Phaco-BANG achieves greater IOP reduction and surgical success in XFG, highlighting its particular effectiveness in eyes with trabecular obstruction by exfoliative material. Moreover, by combining a simple, implant-free, and cost-efficient technique with cataract surgery, this study addresses a gap in accessible MIGS options for resource-limited settings. Collectively, it expands the clinical evidence base for BANG as a viable, affordable alternative to device-based MIGS, especially for patients with XFG. The implant-free and low-cost nature of Phaco-BANG may be particularly relevant in developing countries and resource-limited healthcare systems, where access to device-based MIGS procedures can be limited by cost and availability.

This study has several limitations. First, because of its retrospective real-world design, preoperative medication washout was not performed; therefore, baseline IOP reflects medicated IOP rather than untreated IOP. Second, diurnal IOP fluctuation was not assessed, and IOP measurements were obtained during routine morning clinic visits. As pseudoexfoliative glaucoma may be associated with higher IOP peaks and greater diurnal fluctuation, future prospective studies incorporating medication washout where ethically feasible and diurnal IOP monitoring would provide more comprehensive evaluation of the pressure-lowering effect of Phaco-BANG. Finally, surgical outcomes were assessed by a single experienced surgeon, which, while ensuring procedural consistency, may restrict generalizability to different surgical settings or operator skill levels. Longer-term prospective studies with larger cohorts and follow-up beyond 24 months are needed to determine the durability of IOP reduction, medication reduction, and surgical success after Phaco-BANG in pseudoexfoliative glaucoma.

In conclusion, Phaco-BANG provides a safe, effective, and affordable option for managing XFG with coexisting cataract, achieving IOP and success outcomes comparable to more complex MIGS procedures. Its simplicity and implant-free design make it a particularly valuable alternative in settings where cost and accessibility are major considerations.

Competing interests

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Compliance with Ethical Standards

Ahi Evran University Local Ethics Committee approved the study (Approval No:2025-04/43).

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Authors' contributions

RKU, and AAO designed and conducted the study. AYU performed all surgeries. AYU comprehensively reviewed the study. All authors read and approved the final manuscript.

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REFERENCES

1. Ritch R, Schlotzer-Schrehardt U, Konstas AG. Why is glaucoma associated with exfoliation syndrome? *Prog Retin Eye Res*. May 2003;22(3):253-75. doi:10.1016/s1350-9462(02)00014-9
2. Rao A. Exfoliation syndrome and exfoliation glaucoma: Current perspectives and clinical paradigms. *Indian J Ophthalmol*. Jul 1 2024;72(7):938-944. doi:10.4103/IJO.IJO_2653_23
3. Gedde SJ, Vinod K, Prum BE, Jr., Primary Tube Versus Trabeculectomy Study G. Results from the Primary Tube Versus Trabeculectomy Study and translation to clinical practice. *Curr Opin Ophthalmol*. Mar 1 2023;34(2):129-137. doi:10.1097/ICU.0000000000000928
4. Aktas Z, Dorairaj S, Sayed M, et al. Ab Interno Goniotomy/Goniectomy Techniques. *Turk J Ophthalmol*. Jun 25 2025;55(3):159-170. doi:10.4274/tjo.galenos.2025.29345
5. Shute T, Green W, Liu J, Sheybani A. An Alternate Technique for Goniotomy: Description of Procedure and Preliminary Results. *J Ophthalmic Vis Res*. Apr-Jun 2022;17(2):170-175. doi:10.18502/jovr.v17i2.10787
6. Bukke AN, Midha N, Mahalingam K, et al. Outcomes of bent ab interno needle goniectomy with phacoemulsification in moderate to severe primary open angle glaucoma. *Indian J Ophthalmol*. Sep 1 2024;72(9):1280-1284. doi:10.4103/IJO.IJO_1072_24
7. Kaushik S, Singh AK, Thattaruthody F, et al. One-year outcomes of Bent ab-interno needle goniectomy with phacoemulsification in primary glaucoma. *Indian J Ophthalmol*. Aug 1 2025;73(8):1190-1195. doi:10.4103/IJO.IJO_2622_24
8. Bozkurt E, Yenihayat F, Olgun A, Yazici AT, Sahbaz I. The efficacy of gonioscopy-assisted transluminal trabeculectomy combined with phacoemulsification. *Int Ophthalmol*. Jan 2021;41(1):35-43. doi:10.1007/s10792-020-01550-x
9. Yozgat Z, Sabaner MC. The Two-Year Outcomes of Phacoemulsification Combined with GATT Versus Standalone GATT in Open-Angle Glaucoma: A Comparative Study. *Diagnostics (Basel)*. Feb 24 2025;15(5)doi:10.3390/diagnostics15050542
10. Ucgul AY, Kilic Ucgul R, Aktas Z. Gonioscopy-Assisted Transluminal Trabeculotomy versus Bent Ab Interno Needle Goniectomy in Patients with Open-Angle Glaucoma. *Turk J Ophthalmol*. Jun 25 2025;55(3):141-147. doi:10.4274/tjo.galenos.2025.44773
11. Widder RA, Jordan JF, Kuhnrich P, Luebke J, Roessler GF, Anton A. The effect of additional trabecular aspiration to phacoemulsification and trabectome as a triple procedure in pseudoexfoliation glaucoma: a case-matched study. *Int Ophthalmol*. Dec 2018;38(6):2341-2347. doi:10.1007/s10792-017-0732-y
12. Khan M, Saheb H, Neelakantan A, et al. Efficacy and safety of combined cataract surgery with 2 trabecular microbypass stents versus ab interno trabeculotomy. *J Cataract Refract Surg*. Aug 2015;41(8):1716-24. doi:10.1016/j.jcrs.2014.12.061
13. Neuhann TH. Trabecular micro-bypass stent implantation during small-incision cataract surgery for open-angle glaucoma or ocular hypertension: Long-term results. *J Cataract Refract Surg*. Dec 2015;41(12):2664-71. doi:10.1016/j.jcrs.2015.06.032
14. Spiegel D, Wetzel W, Neuhann T, et al. Coexistent primary open-angle glaucoma and cataract: interim analysis of a trabecular micro-bypass stent and concurrent cataract surgery. *Eur J Ophthalmol*. May-Jun 2009;19(3):393-9. doi:10.1177/112067210901900311