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Original Article

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Visual Outcome in Axial Myopes Following Cataract Surgery

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ABSTRACT

Objective: To evaluate visual outcome following cataract surgery in axial myopes.
Methodology: In this prospective study 49 patients with axial myopia i.e, axial length >25mm were included. 49 eyes underwent lens extraction with Posterior chamber intraocular lens implantion (Small incision cataract surgery and phacoemulsification). Complete ophthalmic examination with slit lamp examination fundus examination were performed preoperatively. B scan was done in patients whose fundus had no glow to rule out posterior staphyloma. Biometry calculation was performed using SRK/T formula. Postoperatively visual outcome in terms of snellen's acuity was performed.
Results: The mean age of patient operated was about 52. The study included 9 patients with nuclear cataract, 9 with mature cataracts, 10 with brown cataract and 21 with posterior sub capsular cataract which was common type of cataract. 71% subjects had 6/6 vision post cataract surgery. Intraoperatively no significant complications were noted.
Conclusion: Satisfactory snellen's visual acuity was achieved in in patients with axial myopes following cataract surgery. And also both visual and refractive problems in patients with cataracts and high myopia is solved.

Key Words: *Myopia , Visual Outcome , Cataract Surgery, Axial length.*

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INTRODUCTION

High myopia and cataracts are major causes of blindness worldwide [1]. Axial myopia is defined as axial length more than or equal to 25 mm. High myopia refers to more than or equal to axial length of 26.5 mm [2]. Pathological myopia refers to an axial length of 32.5 mm or more [2].

Cataract surgery is significantly more challenging in myopic eyes than in eyes with normal axial lengths (ALs), as it is associated with unpredictable refractive errors and perioperative complications [3, 4].

Praveen et al. [5] reported that high myopia was a powerful risk factor for the development of cataracts in young patients. Several studies have reported that nuclear cataracts and posterior sub capsular cataracts (PSC) are more common than cortical-type cataracts in patients with high myopia. Cross sectional data from the Blue Mountains Eye Study revealed a strong association between high myopia and nuclear cataracts and PSC [6], and the Beaver Dam Eye Study showed an association with high myopia and the incidence of cataract surgery [7].

Vincenz (Wincenty) Fukala, was a pioneer in systematically extracting the clear crystalline lens in young patients with high myopia, which is named after him' Fukala's operation'. He demonstrated the benefit to this group of increased visual acuity which enabled them to work and ophthalmologists gradually began to carry out surgery in high myopes worldwide [8]. The late complication of retinal detachment, which was not understood until years later, eventually led surgeons to abandon the procedure until the recent improvements in both lenticular and retinal surgery techniques that led to better prognosis.

As cataracts occur at younger age and need cataract surgery significantly earlier in myopia patients they have higher expectations for postoperative visual function [9, 10 & 11]. The purpose of this study is to evaluate visual outcome following cataract surgery in axial myopes.

MATERIALS AND METHODS

This is prospective study including 49 patients with axial myopia i.e, axial length >25mm were included .All patients underwent lens extraction with PCIOL implantion (SICS and phacoemulsification). This study followed the tenets of the

Declaration of Helsinki, and approval was obtained from the Ethics Committee of our hospital. At the time of the surgery, all patients were fully informed about the details and possible risks of the surgical procedure. Informed consent was signed by all patients before surgery

For the present analysis, eyes with a history of surgery for retinal detachment or a history of trauma, as well as glaucoma, retinal disease, keratitis and other eye diseases that seriously affect postoperative vision is excluded

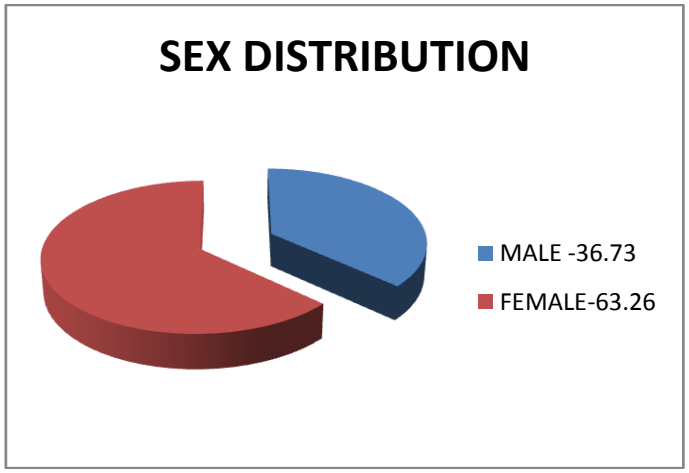
Complete ophthalmic examination with slit lamp examination fundus examination were performed preoperatively .B scan was done in patients whose fundus had no glow to rule out posterior staphyloma and surgery was performed under guarded visual prognosis. In cases with peripheral retinal degeneration prophylactic laser was done. Biometry calculation was performed using SRK/T formula. Postoperatively visual outcome in terms of snellen's acuity was performed. Retinal changes in patients with whom fundus could not be visualized pre operatively were looked for in follow up.

No significant perioperative complications such as globe perforation, shallow anterior chamber, secondary glaucoma, peaking of the pupil, decenteredIOL, and retinal detachment were noted. Mild corneal edema or striate keratopathy were noted in few patients

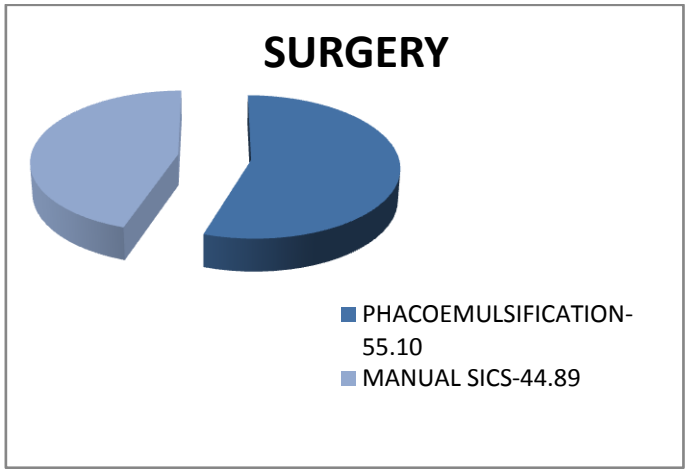
RESULTS

In this prospective study 49 patients with axial myopia i.e, axial length >25mm were included.

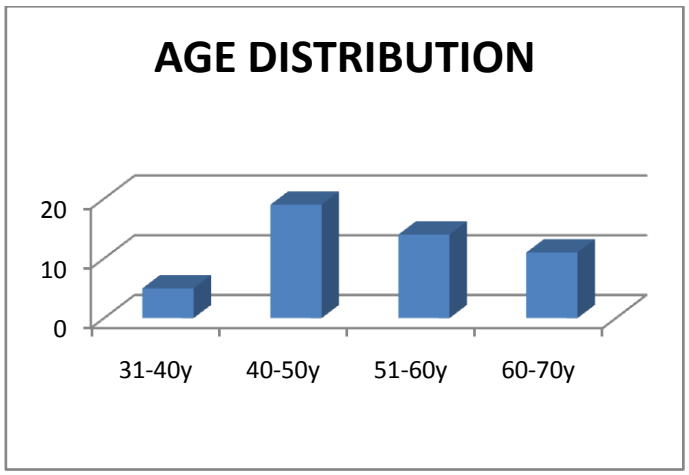
MALE	18
FEMALE	31



PHACOEMULSIFICATION	27
MANUAL SICS	22



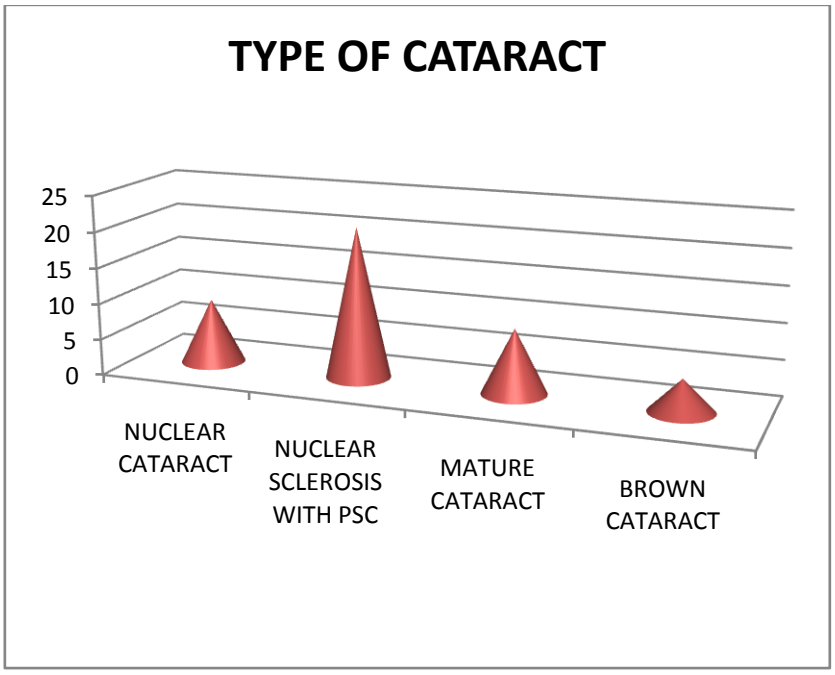
Age in years	No of patients
31-40	5
41-50	19
51-60	14
61-70	11



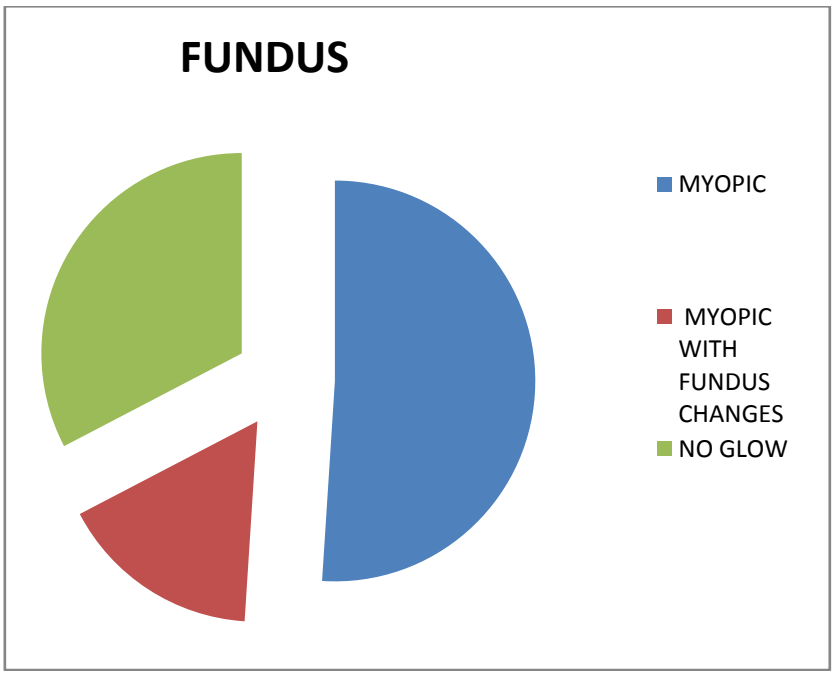
The mean age of patient operated was about 52.

In most of them nuclear sclerosis and posterior subcapsular cataract was common type of cataract.

Type of cataract	No of patients
Nuclear cataract	9
NS+PSC	21
Matura cataract	9
Brown cataract	10

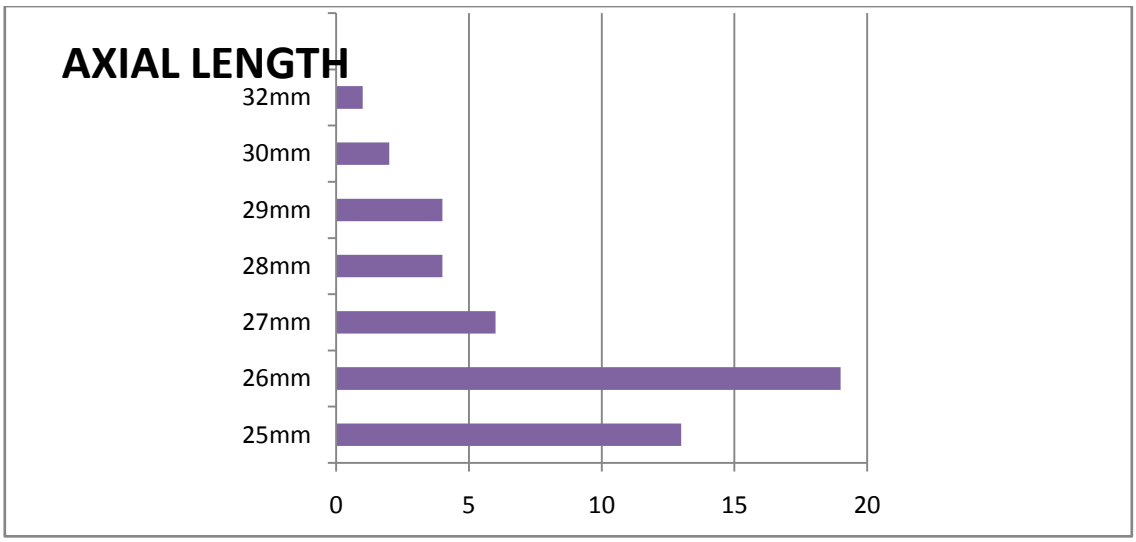


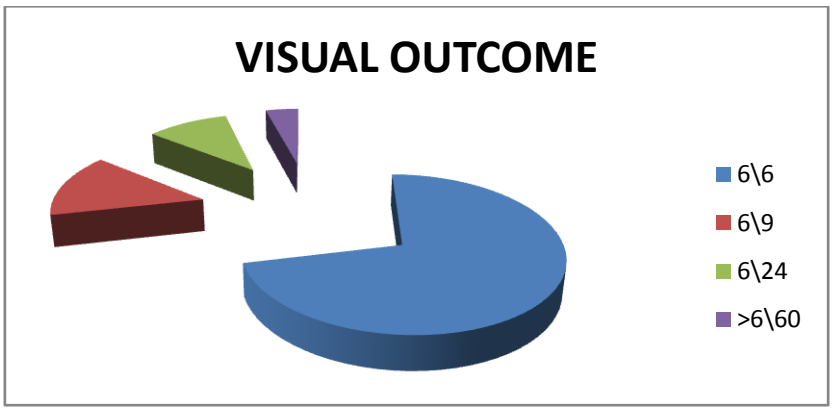
MYOPIC	MYOPIC WITH FUNDUS CHANGES	NO GLOW
25	8	16



Vision AL	6\6	6\9	6\24	>6\60
25mm	13			
26mm	18	1		
27mm	4		2	
28mm		3		1
29mm		3	1	
30mm			2	
31mm				1
Percentage%	71	14	10	5

AL	NO OF PATIENTS
25mm	13
26mm	19
27mm	6
28mm	4
29mm	4
30mm	2
31mm	1
TOTAL	48





71% subjects had 6/6 vision post cataract surgery. Low vision was attributed to fundus changes like vitreous degeneration and chorioretinal degenerations. Intraoperativelyno significant complications were noted

DISCUSSION

Cataract surgery confers a greater benefit in axial myopia patients. This should be attributed to cataract surgery solving both visual and refractive problems in patients with cataracts and high myopia [12].

Our results show that cataract surgery yielded good visual outcomes in most cases with high myopia. A total of 71% of patients achieved postoperative BCVA 6\6 and 14% of patients gained 6\9 vision and so on, which was consistent with previous studies [13, 14]

Although there is controversy about PSC development in highly myopic patients, we identified an association between PSC and axial myopia.

As expected, a more severe the retinal state results in a worse visual outcome. In eyes with mild myopic changes, for example, a tigroid appearance, the visual prognosis is not different from that of the control group. The highly myopic patients may also have myopic macular degeneration, epiretinal membrane, or other significant changes. These may limit the postoperative vision achieved. Cataract surgery in myopic eyes becomes challenging due to the increased depth of the anterior chamber, floppy and large capsular bag, and zonular weakness in some cases [15].

Highly myopic cataract patients should undergo careful dilated fundus examinations for retinal tears and glaucoma, which frequently accompany high myopia In the present study, In addition, pre-existing maculopathy or posterior staphyloma and preoperative VA were considered the principal risk factors associated with failure to achieve satisfactory early postoperative BCVA.

In 2002, Ku et al. reviewed 125 eyes with an axial length of 26 mm or longer undergoing cataract surgery ,They found younger age and shorter axial length were associated with better postoperative visual acuity [16] Axial length and visual outcome showed a negative correlation

The use of small incision phacoemulsification techniques has been reported to achieve better visual outcome, a lower rate of retinal complications and a more stable wound in highly myopic eye [17-21] In this study, comparison of the two methods of surgery revealed that phacoemulsification group had less postoperative astigmatism than with SICS.

On the other hand, serious complications rarely occurred either during or after surgery. The results showed that cataract extraction and posterior chamber zero or negativepowerIOL implantation was an efficacious and safe procedure for extremely high axial myopes

CONCLUSION

In conclusion, the present study evaluated the effect of cataract surgery on axial myopia and we found that most of patients achieved an improvement in visual impairment after cataract surgery. This study gives an idea for surgeons based on the expectation of the benefit of undergoing cataract surgery in axial myopia patients to develop therapeutic scenarios.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil

Conflicts of interest
There are no conflicts of interest.

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