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Review of First Fifty Cases of Extra-capsular cataract Extraction with Posterior Chamber Intra-ocular Lens Implantation

Hamid Mahmood, Jehangir Durrani
Department of Ophthalmology, Shaikh Zayed Postgraduate Medical Institute, Lahore.

SUMMARY

50 patients underwent extra-capsular cataract extraction and posterior chamber lens implantation. Intra-ocular lens power was estimated and averaged out to + 21.90 diopters. Pre-operative visual acuity was light perception to finger counting in 39(78%) patients. Post-operative corrected vision was 6/6 to 6/12 in 30 (60%) patients. Complications were negligible. A significant number of patients, 9 (18%), were lost after initial followup.

INTRODUCTION

Intra-ocular lens implantation after cataract extraction is no longer a forbidden territory. It has now gained its place as a standard surgical procedure1 [2,4].

The power of intra-ocular lens to be implanted is either calculated or estimated[5,6]. The former needs expensive equipment like A-scan and keratometer not available everywhere. This study was carried out to evaluate the visual results and to investigate the practicability of the estimation method of determining the power of intraocular lens to be implanted in our patients.

MATERIAL & METHODS

We reviewed 50 cases of extra-capsular cataract extraction (ECCE) with posterior chamber intra-ocular lens implantation (IOL) at Shaikh Zayed Postgraduate Medical Institute, Lahore, between March 1987 and May 1988.

Three patients had congenital cataracts. The rest of them presented with progressive diminution of vision. Slit lamp examination was done. Intra-ocular pressures were checked. Fundus was examined by both direct and indirect ophthalmoscopy. Any co-existent diabetes mellitus was controlled on insulin. Intra-ocular lens power was determined by estimation method.

Local and retrobulbar anaesthesia of 5-10ml of 2% Xylocaine with 1:100,000 adrenaline was used, except for children in whom general anaesthesia was administered. No Healon or Miochol was used. Standard manual extra-capsular cataract extraction was done and IOL inserted under the cushion of an air bubble to avoid corneal endothelial touch. Both modified J-loop and C-loop lenses were used.

Modified J-loop lens is easier to place. After standard ECCE, the superior optic is grasped and the inferior loop inserted under the inferior iris by a gentle push. The superior loop is then released under the upper iris, with simultaneous iris retraction. C-loop lenses were inserted under cover of air bubble in a closed anterior chamber. Dialing of IOL was done after air in anterior chamber had been replaced by balanced salt solution, to let the superior loop slip behind the iris[2,5].

20 mg Genticyn and 20 mg Depomedrol were given by subconjunctival route at the conclusion of the procedure. Routine post-operative antibiotic and steroid drops were prescribed. Eyes were examined the next morning, and intra-ocular pressures checked. In case of elevation, topical and/or systemic antiglaucoma medication i.e. Betagan 0.5% eye drops and/or Tab,. Diamox 250 mg QID were prescribed. A short course of systemic NSAID or prednisolone was given as needed. The patient was discharged one or two days post-operatively.

Post-operative visits were scheduled at 1 week, 3 weeks and 6 weeks, Final correction was given at about 8 weeks after surgery.

RESULTS

Average age of patients was 64 years. There were three patients with congenital cataract who had posterior chamber lens implantation, one of them being just 9 months old.

The pre-operative visual status revealed the prevalent trend in our part of the world of delaying cataract surgery till vision is reduced to functional blindness. Seven (14%) patients had only light perception, 11 (22%) had hand motion and 21 (42%) had finger counting vision (Table-1).

Table 1: Comparison of visual Status Between Eye For Cataract Surgery And Fellow Eye

Visual Acuity	Operated eye No. of cases	%	Fellow eye No. of cases	%
Light perception	7	14	1	2
Hand motion	11	22	4	8
Finger counting	21	42	10	20
3/60	2	4	2	4
6/60	5	10	4	8
6/36	1	2	5	10
6/24	1	2	2	4
6/18	-	-	7	14
6/12	1	2	4	8
6/9	-	-	4	8
6/6	-	-	6	12
(Not recorded. 9 month child)	1	2	1	2
Total	**50**	**100**	**50**	**100**

Intra-ocular lens power was determined by estimation method. Average power of posterior chamber lens was +21.9 diopters (range + 16.00 to +23.00 diopters).

Post-operative vision showed very encouraging results (Table-2A). 11 (22%) had 6/60; another 11 (22%) 6/36 vision;19 (38%) patients had 6/6 to 6/18 vision. After final correction, 30 (60%) patients had 6/12 vision or better causes of poor and non-correctable vision with intra-ocular lens are detailed in Table-2B).

9 (18%) patients were lost to followup after 1st visit, and probably were satisfied with initial good results.

4 (8%) patients developed opacification of posterior capsule and were referred for Nd-YAG laser posterior capsulotomy, with good visual recovery.

3 patients (6%) (Table-3) had accidental rupture of posterior capsule. Anterior chamber lenses were inserted in these, following anterior virectomy. One case had irido-dialysis, which was repaired by 10/0 monofilament nylon suture. The Descemet's membrane peeling in another case was reposited by air bubble. (Table-3).

Early post-operative rise in intra-ocular pressure in 2 (4%) cases and inflammatory pseudo-membrane in 2 cases (4%) responded to medical treatment. Surgical intervention was necessary for reposition in 1 case (2%) and wound repair done in 3 cases (6%). (Table -3).

Table 2A: Comparision of Post-operative Vision With Intra-ocular Lens Only, and With Correction

visual acuity %	Visual acuity with 10L No. of cases	%	Corrected No. of cases	
Finger counting	1	2		
3/60	4	8		
6/60	11	22		
6/36	11	22		
6/24	3	6		
6/18	1	2	4	8
6/12	11	22	11	22
6/9	1	2	16	32
6/6	6	12	3	6
Not recordable	1	2		
Total	**50**	**100%**	**34**	**68**

Table 2B: Causes of Poor non-correctable vision with intra-ocular lens.

	Visual acuity with 10L No. of cases	%	Corrected visual acuity No. of cases	%
9 month (old child)			1	2
Lost to follow-up			9	18
Lens removed			1	2
Vitreous hemorrhage			1	2
Macular gliosis			1	2
Papillo-macular			1	2
hemorrhage			1	2
Follow-up less			1	2
than one month.			1	2
Total			**16**	**32%**

DISCUSSION

When the natural lens is removed, because of cataractous opacity, the aphakic eye becomes optically deficient. The optical defect is compensated for by an artificial spectacle lens in front of the eye, a contact lens on the cornea, or a lens placed inside the eye i.e. an

intra-ocular lens[3].

The aphakic spectacles have many limitations. The image size is magnified by 30%, causing diplopia in monocular aphakes who have good vision in the unoperated eye. Only the central portion of the lens is functional. Because of prismatic effect peripheral portion of field of view is unrefracted and there is a ring scotoma causing the distressing jack-in-the-box phenomenon, whereby objects suddenly appear and disappear with a shift of gaze. Contact lens is a better alternative, but needs constant care, maintenance, occasional replacement and above all manual dexterity. Intra-ocular lens is the ideal solution. It causes only 3% magnification, thus obviating the annoying diplopia, ring scotoma and peripheral field constriction of spectacle lens and unlike a contact lens, it needs no handling on the part of the patient[3].

Table 3: Operative Complications

Complications	No. of cases
Intra-operative:	
Rupture of posterior capsule.	3
Irido-dialysis.	1
Descemet's membrane peeling.	1
Early post-operative:	
Rise in intra-ocular pressure.	2
Inflamatory pseudomembrane.	2
Pupil capture.	1
J-loop lens superior loop in front of iris.	1
Early wound dehiscence. (Next day after surgery)	1
Late post-operative:	
Late wound dehiscence.	1
Persistent cystoid macular edema.	1
Traumatic vitreous hemorrhage.	1
Papillomacular bundle hemorrhage.	1

Harold Ridley inserted the first posterior chamber intra-ocular lens implant on November 25, 1949. There was excessive post-operative uveitis, corneal edema, glaucoma and dislocation of intra-ocular lens in a number of cases, resulting in abandonment of such surgery[1,3].

Anterior chamber and iris-supported lenses were designed next to be used with intracapsular cataract extraction which had already been perfected, but had their own problems, like the U.G.H. (uveitis-glaucoma-hyphaema) syndrome and late corneal endothelial decompensation, resulting in bullous keratopathy.

The pendulum has swung full circle, back to where it began from, i.e. the posterior chamber. Improved methods of extra-capsular surgery, using operating microscope, with better clearance of residual cortex and modern lens designs and manufacturing techniques have made extracapsular cataract extraction with a posterior chamber intra-ocular lens implantation the procedure of choice.

Intra-ocular lens power determination by A-scan Ultrasonography and keratometry is accurate but adds to the total expenditure of surgery. It is quite practical to determine the lens power by "estimation" method in the range of low pre-operative (+4.5 diopters) refractive errors and results are comparable to those accomplished by "calculation" method[6]. We studied the visual results obtained by IOL implantation in an environment of limited resources, namely the availability for operating microscope only.

Our visual results are encouraging. After final refraction 34 (68%) patients had 6/6 to 6/18 vision. This is comparable to that reported in a recent series[6].

The number of patients we lost after initial follow-up visit, 9 (18%), signifies the trend in our part of the world.

CONCLUSION

In conclusion the estimation method gave us comparable results. In the study by Singh & Sommer[6], they found that a standard 20-diopter intra-ocular lens for patients who have a preoperative refractive error of $\pm$ 4.5 diopters, produced results as good as after calculation of power by A-Scan biometry and keratometry.

Slowly the intra-ocular lens is becoming popular in Pakistan and fear of the unknown and conservative prejudicial barriers seem to be falling. We are happy in making a humble contribution in this revolution in ophthalmic surgery.

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The Authors:

Dr. Hamid Mahmood
Department of Ophthalmology,
Shaikh Zayed Postgraduate Medical Institute,
Lahore.

Prof. Dr. Jhangir Durrani,
Department of Ophthalmology,
Shaikh Zayed Postgraduate Medical Institute,
Lahore.

Address for Correspondence:

Prof. Dr. Jhangir Durrani,
Department of Ophthalmology,
Shaikh Zayed Postgraduate Medical Institute,
Lahore.