

Study of Primary Anterior Chamber Intraocular Lens Implantation in Senile Cataract Patients at Rural Set up

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ABSTRACT

Introduction: When posterior capsular rent (PCR) occurs during cataract extraction, surgeon has to consider primary or secondary anterior chamber intraocular lens (ACIOL) or scleral fixated IOL (SFIOL). We considered primary ACIOL with the use of single piece Polymethyl - Methacrylate Posterior Chamber Intraocular Lens (PMMA – PCIOL) in stock to avoid aphakic (No IOL) vision in rural patients, who may lose follow up for secondary IOL.

Material and Method: In this hospital based observational longitudinal 2 years study (September 2007 to August 2009) 20 patients were studied after their written consent in local language and institutional IEC permission. We studied the intraoperative events in ACIOL implantation with PCIOL model, its management, early postoperative complications and 3 months postoperative visual outcome at rural hospital.

Results: There were 10 (50%) male patients. 8 (40%) patients were in the range of 50-60 year age group. 8 (40%) underwent conventional Extra Capsular Cataract Extraction (ECCE) and 12 (60%) had Small Incision Cataract Surgery (SICS) technique. 15 (75%) patients showed vitreous disturbance with PC rent and remaining had only PC rent without vitreous disturbance. 3 months postoperatively, all 20 patients had clear corneas without Anterior Chamber (AC) reaction. 2 patients (10%) needed YAG laser iridotomy for raised intraocular pressure (IOP) due to partial Peripheral Button Hole Iridectomies (PBIs), 7(35%) patients had oval pupil, 2 (10%) had cystoid macular edema (CME), 10 (50%) patients had Best Corrected Visual Acuity (BCVA) >6/18 and 19 (95%) got BCVA >6/60.

Conclusion: Prognosis of various ACIOL models must be depending on severity of ocular tissue handling mainly presence or absence of vitreous disturbance and its proper and timely management.

Keywords: ACIOL implantation, PC rent management, Complications of ACIOL.

rior chamber IOL (ACIOL) or scleral fixated IOL (SFIOL). Old models of ACIOL has given many disasters postoperatively including uveitis-glaucoma-hyphema (UGH) syndrome and retinal detachment (RD) due to their defective designs.¹ Newer ACIOLs give better results to some extent. However even these lenses may need explanation due to their complications.² Many times these newer ACIOLs may not be in stock to go for primary ACIOL implantation. Though sporadic, we have seen patients with PCIOL implanted in AC with quiet eyes for years (6-12 years). So we considered primary ACIOL with the use of single piece PMMA - PCIOL in stock to avoid aphakic vision in rural patients, who may lose follow up for secondary IOL. Aim of the study was to study the visual outcome and immediate postoperative complications of primary ACIOL with the use of routine single piece PMMA PCIOL at rural hospital.

MATERIAL AND METHOD

This descriptive, observational, longitudinal hospital based study was carried out in 20 patients of Posterior Capsular Rent undergoing primary ACIOL with PCIOL model at rural hospital for 2 years i.e. September 2007 to August 2009 which was approved by the Institutional Ethical committee and written informed consent was obtained prior to the study from all patients. All willing patients above 50 yrs with advanced senile cataract having visual acuity <5 meter, with preoperative normal anterior and posterior segments and normal biometric readings, operated for cataract surgery with both conventional ECCE and SICS techniques having unfortunate intraoperative PC rent at Rural Hospital were included. We excluded patients having other anterior or posterior segment problems and also hypertensive, diabetic and non willing patients.

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INTRODUCTION

During cataract extraction with any technique like conventional Extracapsular extraction (ECCE) or small incision cataract surgery (SICS) when unfortunate posterior capsular rent (PCR) with or without vitreous disturbance occur, surgeon has to consider primary or secondary IOL either ante-

Methodology

We recorded patients' preoperative history, slit lamp examination, intraoperative PC rent management steps in both conventional ECCE and SICS techniques for primary ACIOL implantation with PCIOL model. After PC rent, pressure on eyeball was removed, started I/V 20% Mannitol drip (1.5gm/kg), pupil was constricted with intracameral pilocarpine and air was injected in AC. After measuring white to white on table routine PMMA single piece PCIOL with 2 diopter less power than calculated IOL power was implanted in AC, maintaining round pupil under viscoelastic in patients with only PC rent without vitreous disturbance.

In patients with vitreous disturbance, open sky vitrectomy followed by IOL implantation under viscoelastic followed by, 2 peripheral buttonhole iridectomies (PBI) and suturing with 10-0 nylon was carried out in conventional ECCE, while in SICS technique after IOL implantation under viscoelastic, first the incision was extended on both sides of the tunnel followed by 2 PBIs. Then the AC was formed with air and saline and the extended side incisions were sutured with 10-0 nylon suture and well covered with conjunctiva. We used injection of subconjunctival antibiotic-steroid combination and eye path with bandage for 24 hours. Post operatively short term systemic and long term topical antibiotic and steroid were given in tapering dose. All patients being rural, we treated them for 7 indoor days.

Parameters studied

Daily slit lamp examination of wound, sutures, cornea, AC depth, position of ACIOL, shape and size of the pupil, pa-

tency of 2 PBIs, intraocular pressure (IOP) on Non Contact Tonometer (NCT), ophthalmoscopy and visual acuity (VA) with Snellen's chart were recorded. Same follow up records made on 90th day.

RESULTS

There were 10 (50%) males. Maximum patients (40%) were in the range of 50-60 year age group (Table 1). Out of all 20 study cases who underwent primary ACIOL, 8 (40%) underwent conventional ECCE and 12(60%) had SICS technique. In 75% patients (15 cases) showed vitreous disturbance with PC rent, while in 25 % (5 cases) there was only small PC rent without vitreous disturbance. On first POD all patients had good wound approximation with in situ sutures. Thirteen patients had clear corneas on 1st POD, 5 patients cleared at 1 month and all 20 patients had clear corneas after postoperative 3 months. In 4 patients there was mild AC reaction on 1st POD. However it cleared after 3 months postoperatively. In 2 patients (10%) who had partial PBIs, we noticed raised IOP which was treated successfully with YAG- laser iridotomy. In all patients ACIOL was in situ, however 7 patients had oval pupil. Fundus showed clear media around postoperative 3 months in all patients, out of which 2 had (CME) cystoid macular edema and 2 had ARMD (age related macular degeneration) (Table 2). and (Photos-1, 2, 3) Three months postoperatively, 50% patients had BCVA >6/18, 70% had >6/24, and 95% got BCVA >6/60 (Table 3).

DISCUSSION

After extra capsular cataract extraction by any technique, intraoperative posterior capsular rent with or without vitreous disturbance can occur. This is treated with either primary or secondary ACIOL or SFIOL or iris fixated IOL implantation.^{2,3}

Old models of ACIOL are now obsolete due to their post operative complications.^{4,5,6} Newer ACIOLs like Kelman Multiflex give better results to some extent. However even these

Age	Male	Female	
50-60	2	6	8(40%)
61-70	4	2	6(30%)
71-80	2	2	4(20%)
>80	2	0	2(10%)
Total	10(50%)	10(50%)	20(100%)

Table-1: Showing age and sex distribution of the 20 study cases

	1 ST POD	7 TH POD	30 TH POD	90 TH POD
WOUND	Opposed	Opposed	Opposed	Opposed
SUTURES	In situ	In situ	In situ	In situ
CORNEA	Clear-7 Hazy-13 Mild-6 Mod- 5 Severe-2	clear-13 hazy-7 Mild-5 Mod-2	clear-18 hazy-2 Mild-2	clear-all
AC DEPTH	N-18 Irregular 2Requierd YAG PBI	N-All	N-All	N-All
AC REACTION	NO-4	NO-14	NO-16	NO- All
IOP-NCT	N-18 High-2 Post YAG- N	N-ALL	N-ALL	N-All
ACIOL	In situ all	In situ all	In situ all	In situ all
	1ST POD	7TH POD	30TH POD	90TH POD
PUPIL	Round-13 Oval-7	Round-13 Oval-7	Round-13 Oval-7	Round-13 Oval-7
FUNDUS	Clear-7	Clear-13	Clear-18	Clear-20 ARMD-2, & CME-2, NF-16.

Table-2: Showing postoperative slit lamp examination of 20 study cases.

Visual acuity	% of cases
>6/18	50%
>6/24	70%
>6/36	85%
>6/60	95%
CF 4-5 meter	100%

Table-3: Showing 3 months postop BCVA in 20 study cases in %

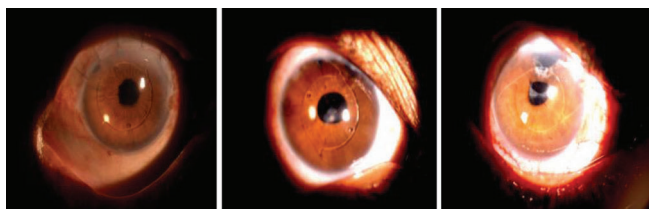


Figure-1: Postoperative Photos 1, 2, 3 showing ACIOL in AC with quiet eye and clear cornea.

lenses may need explantation due to either their inverted placement or other complications and may need penetrating keratoplasty due to corneal decompensation.⁷

Thus nothing is standard till date as far ACIOL model is considered.⁸ Many times these IOLs may not be in stock as routine single piece PMMA PCIOLs. In rural area, patients' loose follow ups for secondary IOL and may prefer aphakic vision even without spectacles. Most important point is that though sporadic cases, we have seen such PCIOLs in AC and happy patients with good vision and quiet eyes for years (6-12 years). So we considered primary ACIOL with the use of single piece PMMA PCIOL to avoid aphakic vision in patients, who may lose follow up for secondary IOL.

We have not found any similar study in the literature till date and so not having any similar direct references. We are presenting the Photographs and BCVA records.

In our study no patient had UGH (uveitis, glaucoma, hyphema) syndrome or RD (retinal detachment) or IOL explantation. Success rate in our study may be due to patient selection criteria, minimal surgical intervention, use of viscoelastic material, flexibility of haptics, proper placement of correct sized IOL, use of required IOL power in AC, 2PBIs, indoor patient for 7 days with daily slit lamp examination which allowed proper and timely postoperative intervention like non contact tonometry (NCT), YAG iridotomy and use of systemic steroids.

Hennig A et al, has shown high volume ICCE with ACIOL study complications even with newer ACIOL as 1-10% CME after Subclinical uveitis, 1-7.8% corneal decompensation, 0-15% Glaucoma, 0-4% Retinal detachment and 0.2% Endophthalmitis.⁹ Newer ACIOLs like Kelman Multiflex also had complications like upside down syndrome and may need explantation.¹⁰ Every first thought or procedure is an experiment and many surgeons might have done or at least seen such PCIOLs in AC and happy patients with good vision and quiet eye for years. According to Allen Foster "It is not so much the car (IOL) that causes the accident, as the driver (surgeon)".¹¹

Surgical variation done for good, sometimes helplessly but with good intention and hope, with known previous good results by others, though undocumented and not presented was the 'drive' for this study.

With this article we are sharing the good post operative results in our rural set up without giving any take home message. However one may suggest IOL making companies to consider this type of ACIOL model with better design.

CONCLUSIONS

Prognosis of various ACIOL models must be depending on severity of ocular tissue handling mainly presence or absence of vitreous disturbance and its proper and timely management.

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