

COMPLICATION AND VISUAL OUTCOME OF SMALL INCISION CATARACT SURGERY IN REACH IN CAMP CASES

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ABSTRACT

BACKGROUND

Cataract is the principal cause of blindness in India accounting for 62.6%. This problem can be tackled, and the backlog of cataract blind can be reduced by large scale cataract operations in reach in camps at Base Hospital approach for good visual outcome with lesser complications.

MATERIALS AND METHODS

In this retrospective study, 2400 cataract patients with vision less than 6/60 underwent uncomplicated sutureless small incision cataract surgery with intraocular lens implantation. Postoperative complication and visual acuity was recorded.

RESULTS

The most common operative complications were Descemet detachment (0.75%), posterior capsule rent with IOL implant (0.58%) and premature entry (0.25%). Immediate postoperative complications were mainly corneal oedema (1.16%), severe iritis (1.5%) and hyphema (0.5%). Late postoperative complications were iritis (0.69%), persistent corneal oedema (0.43%) and papillary capture (0.17%). Majority (48.71%) had visual acuity 6/9 on first followup in 45th day followed by visual acuity of 6/12 on 38.44% of cases. 71.23% of cases had astigmatism below -1.5 D cylinder at 90 degrees.

CONCLUSION

The overall vision-threatening complications after cataract surgery in the Base Hospital are low. Our study reflects the efficacy of Base Hospital approach in terms of visual and surgical outcome as an important aspect from the public health point of view, which can help in clearing the cataract backlog in developing countries like India.

KEYWORDS

Small Incision Cataract Surgery, Visual Acuity, Intraocular Lens, Astigmatism.

HOW TO CITE THIS ARTICLE: Behera RK, Mahapatro S, Subudhi BNR, et al. Complication and visual outcome of small incision cataract surgery in reach in camp cases. *J. Evid. Based Med. Healthc.* 2018; 5(4), 363-366. DOI: 10.18410/jebmh/2018/73

BACKGROUND

Cataract is the leading cause of avoidable blindness worldwide accounting for nearly half (47.8%) of all cases of blindness where vision less than 3 meters in the better eye. It was estimated that 314 million people were visually impaired.^{1,2} Fortunately, cataract blindness is reversible and is accessible to surgical management with almost 6/6 vision in most of the cases. In order to clear the backlogs of cataract and the added number in each case, the popular government of our country has adopted the camp approach to clear up the backlog and the reach out camp approach is replaced by the current concept of reach in camps in well-

Financial or Other, Competing Interest: None.

Submission 25-12-2017, Peer Review 30-12-2017,

Acceptance 12-01-2018, Published 22-01-2018.

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DOI: 10.18410/jebmh/2018/73

equipped Base Hospitals and Medical Colleges where operation is undertaken in aseptic environment by expert hands and with deployment of modern gadgets.

Cataract surgery is a procedure that removes the cloudy lens from the eye.³ Out of three procedures available for cataract surgery, nowadays the most modern phacoemulsification is not available in many setups. The extracapsular cataract extraction with IOL has a longer postoperative convalescence period and moderate-to-high astigmatism. The suture used is costly and in mass scale, a lot of expenses have to be incurred. Moreover, it consumes more time in suturing the incision.

To overcome the problem related to the two small incision cataract surgery provides the best solution. It does not require suture. Researchers have demonstrated advantages of small incision cataract surgery including less-induced astigmatism, rapid stabilisation of wound and faster visual rehabilitation.³ Therefore, the result is comparable to instrumental PHACO. Therefore, all the reach in camps are treated by small incision cataract surgery these days.



Aims and Objectives- To study the profile of complications and visual acuity in the reach in eye camp patients undergoing small incision cataract surgery in the Base Hospital.

MATERIALS AND METHODS

In a retrospective study, 2400 cataract patients, i.e. male 1280 and female 1120 with vision less than 6/60 underwent uncomplicated sutureless SICS with 6 to 6.5 mm PMMA lens implantation by a single experienced surgeon. Postoperatively, patients were treated with antibiotic and steroid combination or separate eye drops for six to eight weeks in tapering doses. Patients asked for follow up at 2, 7, 30 and 45 days. Oral antibiotic ciprofloxacin and pain killer is given bid doses for 5 days. Spectacle was prescribed thereafter after retinoscopy. The study was undertaken within a period from 2015 December to 2017 February.

Inclusion and Exclusion Criteria

This study has included the patients given concern for cataract surgery by small incision cataract surgery procedure performed by experienced surgeon. The study excluded patients who had complicated cataract, traumatic cataract, combined procedure, secondary IOL implantation and other comorbidities, which may affect visual outcome.

Ophthalmic Examination- At first, the complete medical history taken for hypertension, asthma, diabetic mellitus, any form of heart disease and other systemic diseases and checked for periocular septic foci. Detailed demographic information, preoperative visual acuity assessment and anterior segment evaluation using slit-lamp biomicroscopy, intraocular pressure measurement by Goldmann applanation tonometer and biometry. Fundus examination by 90D, direct ophthalmoscopy and indirect ophthalmoscopy were done before surgery.



Figure 1. Camp Photograph

Figure showing preoperative eye checkup by Dr. Rajendra Ku Behera and Dr. Radhakanta Bhoi by torchlight in Base Hospital during screening in M.K.C.G. Medical College.

Technique- After preoperative evaluation and routine preparation, patient underwent small incision cataract surgery with posterior chamber IOL in the capsular bag was implanted under peribulbar or retrobulbar anaesthesia after limbal base conjunctival 6 mm width and 8 mm flap preparation was done. Then, 5.5 mm sclera groove is

fashioned by razor blade 2 mm behind the limbus in frown, straight or smile manner by considering keratometry reading. A scleral tunnel is fashioned with a 2.8 mm bevelled up crescent blade in the usual manner. The incision extends approximately 2-2.5 mm into the cornea.^{4,5,6,7,8} Anterior chamber was entered with keratome of 3.2 mm. Viscoelastic was inserted through same wound and either can-opener capsulotomy or CCC was done and tunnel is extended by 5.2 extended blade. Nucleus was prolapsed into anterior chamber by dialer in tumbling method, thereafter extraction was done by viscoexpression or sandwich technique by vectis and dialer. Cortex was aspirated by Simcoe cannula and IOL was inserted into the posterior chamber. Suturing was done in weak tunnel by a single vertical 10.0 nylon suture. PC rent was managed with anterior vitreous cutter and IOL was implanted if capsular support was there. In case of black cataract nuclear sclerosis, the tunnel is extended or modified. Then, wound is closed after subconjunctival injection of dexamethasone and gentamycin 1 cc regular postoperative follow up was done in 7, 15, 45 days. Out of 2400 patients, 2320 patients came for last visit, 80 were dropped out.⁹

RESULTS

All total 2400 patients underwent SICS technique with posterior chamber IOL implantation under local anaesthesia by experienced surgeon. The age of the patients between 10 to 90 years and male 1280 (53.4%) and female 1120 (46.6%) in number and age distribution given Table 1.

Age distribution of 2400 cases is given in Table 1.

Prevalence of cataract more in the age group of 51 and above was 80%.

Age Group	Number of Cases	Percentage
10-20	6	0.25
21-30	17	0.70
31-40	40	1.68
41-50	240	10.00
51-60	663	27.62
61-70	879	36.62
71-80	495	20.63
81-90	60	2.05

Table 1. Age Distribution of 2400 Cases is Given

Sl. No.	Complications	Number of Cases	Percentage
1.	Button holing	2	0.08
2.	Premature entry	6	0.25
3.	PC rent with IOL implant	14	0.58
4.	PC rent with VL with no IOL	5	0.24
5.	Zonular dialysis	6	0.25
6.	Iridodialysis with repair	2	0.08
7.	Descemet detachment	18	0.75
	Total=2400	53	2.23

Table 2. Showing Intraoperative Complications

Out of 2.23% intraoperative complications in 2400 cases, 0.58% has PC rent with vitreous loss with IOL insertion and 0.24% has no IOL insertion, 0.25% has zonular dialysis and 0.75% had partial Descemet detachment managed by air tamponade.

Sl. No.	Complication	Number of Cases	Percentage
1.	Severe iritis	36	1.5
2.	Corneal oedema	28	1.16
3.	Hyphema	12	0.5
4.	Pupillary capture	4	0.16
5.	Vitritis	4	0.16
6.	Endophthalmitis	3	0.13
Total=2400		87	3.61

Table 3. Showing (within 7 Days) Postoperative Complications in 2400 Cases Having Undergone SICS

Immediate postoperative complications were 3.61% of cases, out of which 1.5 severe iritis, corneal oedema 1.16%, 0.5% hyphema, papillary capture and vitritis each 0.16% and 0.13% endophthalmitis was treated with topical and intravitreal antibiotic and was discharged.

Sl. No.	Complications	Number of Cases	Percentage
1.	Iritis	16	0.69
2.	Persistent corneal oedema	10	0.43
3.	Pupillary capture	4	0.17
4.	Vitritis	4	0.17
Total=2320		34	1.46

Table 4. Postoperative Complication Detected on 45th Day in 2320 Cases

Out of 2320 cases as Table 4 seen on last follow up, 0.69 cases had iritis, 0.43% persistent corneal oedema, 0.17% papillary capture and vitritis. Persistent corneal oedema were followed up to 3 months and had a visual improvement between 6/18 and 6/36.

Corrected	Number of Cases	Percentage
6/6	104	4.48
6/9	1130	48.71
6/12	892	38.84
6/18	182	7.84
6/24	40	1.72
6/36	20	0.86
6/60	16	0.68
FCCF	7	0.30
HM	5	0.21
NPL	5	0.21

Table 5. Showing Corrected VA at 45th Postoperative Day

Sl. No.	Complications	Number of Cases
1.	Persistent corneal oedema	16
2.	Resolving vitritis	20
3.	Vitritis	4
4.	ARDMS	17
5.	Myopic degeneration	13
6.	Glaucomatous optic atrophy	5
7.	Endophthalmitis	1

Table 6. Showing Cases of Loss of Vision <6/24 at First Follow Up Visit

Sl. No.	Astigmatism	Number of Cases	Percentage
1.	No astigmatism	210	9.05
2.	-0.5D CYL at 90 degrees	324	13.97
3.	-1D CYL at 90 degrees	631	27.19
4.	-1.5D CYL at 90 degrees	488	21.03
5.	-2d cyl at 90 degrees	387	16.68
6.	-2.5d cyl at 90 degrees	183	7.88
7.	-3d cyl at 90 degrees	26	1.12
8.	+0.5d cyl at 90 degrees	22	0.94
9.	+2d cyl at 90 degrees	30	1.20
10.	-2.5d cyl at 135 degrees	15	0.64
11.	-3.5d cyl at 15 degrees	4	0.17

Table 7. Showing Distribution of Postoperative Astigmatism on 45th Postoperative Day (2320 Cases)

91.63% of cases are found to have corrected visual acuity better than 6/12. Causes of loss of vision <6/24 are listed in Table 6. Out of 75 cases, 43 cases have visual loss due to surgical reasons. Astigmatism as calculated by refraction on 45th postoperative day shown in Table 7. Out of 2320 cases, 71.23% of cases had astigmatism below -1.5D cyl at 90 degrees.

DISCUSSION

Sutureless small incision cataract surgery is safe, well-controlled and rapid technique with adequate surgical experience. SICS is a technique, which can be done in almost any type of cataract. Low cost, high volume and quality surgery can be done within 4-5 minutes for each case. About 10 to 12 cases in an hour or 80-90 cases in a day, which is not possible in high expenditure instrumental phaco. Surgical technique for cataract surgery is growing faster, but in developing countries, this procedure is considered as procedure of choice.

Earlier studies of Sudhakar et al who reported a visual acuity of 6/12 or better in 80.7% cases and Venkatesh et al, Rabindra and Rekha and Kapoor et al observed and reported a visual acuity of 6/12 or better in 80.7% and 6/18 or better in 80.7% cases and 79.9% eyes obtained 6/18 or better, respectively.^{10,11,12,13}

One major intraoperative complication was posterior capsular rent with vitreous loss in 0.82% of cases and then partial Descemet’s detachment was 0.75%.

In the immediate postoperative period, we had minimal amount of complication of 3.61% of 2400 cases. Three cases of endophthalmitis was treated with topical and intravitreal antibiotics, patients gained vision 6/18 in 45 days follow up. Corrected VA on 45th day follow up was 6/12 or better in 91.63% of cases and astigmatism was <1.5D cyl at 90

degrees in 71.23% of cases. These result is nearly similar to other studies.

CONCLUSION

The overall vision-threatening complications after cataract surgery in the Base Hospital are low. Our study reflects the efficacy of Base Hospital approach in terms of visual and surgical outcome as an important aspect from the public health point of view, which can help in clearing the cataract backlog in developing countries like India.

REFERENCES

- [1] Resnikoff S, Pascolini D, Etyaale D, et al. Global data on visual impairment in the year 2002. *Bull World Health Organ* 2004;82(11):844-851.
- [2] Resnikoff S, Pascolini D, Mariotti SP, et al. Global magnitude of visual impairment caused by uncorrected refractive errors in 2002. *Bull World Health Organ* 2008;86(1):63-70.
- [3] Gogate PM, Deshpande M, Warmald RP, et al. Extra capsular cataract surgery compared with manual small incision cataract in community eye care setting in western India: a randomized controlled trial. *Br J Ophthalmol* 2003;87(6):667-672.
- [4] Gogate PM, Kulkarni SR, Krishnaiah S, et al. Safety and efficacy of phacoemulsification compared with manual small-incision cataract surgery by a randomized controlled clinical trial: six-week results. *Ophthalmology* 2005;112(5):869-874.
- [5] Natchiar G. Manual small incision cataract surgery: an alternative technique to instrumental phacoemulsification. 2nd edn. Madurai: Aravind Eye Hospital and Postgraduate Institute of Ophthalmology 2004:17-47.
- [6] Maloney WF, Shapiro DR. Universal small incision for cataract surgery. *J Cataract Refract Surgery* 1991;17 Suppl 1:702-705.
- [7] Subudhi BNR. Small incision cataract surgery and its visual outcome. *Orissa Journal of Ophthalmology* 2004;1(30):68-70.
- [8] Kanas PG. Phacosection (SM): manual small incision cataract surgery. Albany, NY: International Ophthalmology Seminars 1994:1-158.
- [9] Thomas R, Kuriakose T, George R. Towards achieving small-incision cataract surgery 99.8% of the time. *Indian J Ophthalmol* 2000;48(2):145-151.
- [10] Sudhakar J, Ravindran RD, Natchiar G. Analysis of complication in 1000 cases of posterior chamber intra ocular lens implantation. *Indian J Ophthalmology* 1989;37(2):78-79.
- [11] Venkatesh R, Muralikrishnan R, Balent LC, et al. Outcomes of high volume cataract surgeries in developing country. *Br J Ophthalmol* 2005;89(9):1079-1083.
- [12] Ravindra MS Rekha G. Rural eye camp versus base hospital camp. *Indian Ophthalmol* 1996;44:303-304.
- [13] Kapoor H, Chatterjee A, Daniel R, et al. Evaluation of visual outcome of cataract surgery in an Indian eye camp. *Br J Ophthalmol* 1999;83(3):343-346.