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Original Research Article

A cross sectional study for evaluation of intraoperative and postoperative posterior segment complications of cataract surgery**Pooja Sharma***, Ashok Kumar Bairwa, Atula Yadav and Dhan Singh Meena*Department of Ophthalmology, R.N.T. Medical College, Udaipur, Rajasthan, India*

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R.N.T. Medical College, Udaipur, Rajasthan, India***Article History:****Received:** 02/05/2017**Revised:** 19/05/2017**Accepted:** 19/05/2017**DOI:** <https://doi.org/10.7439/ijbr.v8i5.4138>**Abstract****Introduction:** There is always some risk of complications during or immediately after cataract surgery so regular collection of data helps to identify high-risk patients and to confirm that they are being managed appropriately. Monitoring of cataract surgical outcomes is associated with a reduction in the incidence of surgical complications.**Materials and methods:** After obtaining ethics committee clearance, this cross-sectional, observational study was conducted in 500 patients having visually significant cataract those underwent planned extracapsular cataract extraction by phacoemulsification with PCIOL implantation method to evaluate the posterior segment complications of cataract surgery between October 2015 and September 2016.**Results and discussion:** Complications evaluated were cystoid macular edema, nucleus drop, expulsive and delayed suprachoroidal hemorrhage, infectious post-operative endophthalmitis, retinal detachment following cataract extraction and any other complication which involving posterior segment of eye. Out of 500 patients, 6 had postoperative complications in the form of CME (1.2%). No incidence of any other posterior segment complications occurred in present study.**Conclusion:** Cataract surgery is a safe procedure with a high patient satisfaction rate. The occurrence of pseudophakic cystoid macular edema after cataract surgery is a well known complication. As in our study CME incidence was 1.2%.**Keywords:** Cataract, Phacoemulsification, Cystoid Macular Edema.**1. Introduction**

Cataract is a progressive disease, and is the leading cause of blindness worldwide. The World Health Organization (WHO) estimated that there are 314 million people with visual impairment of whom 269 million have low vision and 45 million are blind. Cataracts are responsible for 39.1% of blindness (including refractive error) and 47.8% of total blindness (excluding refractive error). Globally, it accounts for 17.7 million blind people. However, the distribution of this problem is grossly uneven in developed and developing countries with 90% of blindness in developing countries.[7,8]

With refinement of cataract surgery techniques, outcome of surgery become predictable and visual

restoration is almost a certainty. Cataract surgery with phacoemulsification is one of the most successful surgical procedures performed, and its popularity is due to decreased operating time and a shorter postoperative healing period.

However, even the most experienced and skilled surgeon will eventually be faced with some complications. It is incumbent upon the anterior segment surgeon to anticipate and recognize predisposing factors and if complications occur, take remedial measures to minimize the damage.

It is important to collect data in order to identify patients at risk and to monitor their management before and after surgery. Even where the incidence of complications is

low, regular collection of data helps to identify high-risk patients and to confirm that they are being managed appropriately. Monitoring of cataract surgical outcomes is associated with a reduction in the incidence of surgical complications.

2. Material and methods

2.1 Ethics

Procedures followed were in accordance with the ethical standards of the institutional committee on human experimentation and with the Helsinki Declaration of 1975, as revised in 2000. Approval of Institutional Review Board was obtained. Informed consents from adult research participants were obtained for participating in the trial. Confidentiality was maintained regarding participants.

2.2 Study design

This prospective, cross-sectional, observational study was conducted in patients having visually significant cataract that presented to or were referred to ophthalmology outdoor at ophthalmology Department, at MBGH, Udaipur [Rajasthan] and underwent planned extracapsular cataract extraction by phacoemulsification with PCIOL. implantation. method to evaluate the posterior segment complications of cataract surgery between October 2015 and September 2016.

A total of 500 eyes of 500 patients undergoing cataract surgery by phacoemulsification with PCIOL implantation were included.

A written informed consent with regards to participation in the study was taken from the patients after providing them with a thorough explanation.

3. Results

The study enrolled 500 participants.

Table 1: Age V/s Postoperative complications

Age (years)	No complications		CME	
	No.	%	No.	%
21-30	4	0.8	0	0
31-40	15	3.0	0	0
41-50	37	7.4	0	0
51-60	103	20.6	1	0.2
61-70	206	41.2	3	0.6
71-80	114	22.8	2	0.4
81-100	15	30.0	0	0
Total	494	98.8	6	1.2

Following conclusions were made from table 1:

1. Most complications (5 out of 6) occurred in individuals of >60 years of age.
- 2.No complications occurred in patients of <50 years of age.

Table 2: Age V/s Intraoperative complications

Age (years)	No complications	
	No.	%
21-30	4	0.8
31-40	15	3.0
41-50	37	7.4
51-60	104	20.8
61-70	209	41.8
71-80	116	23.2
81-100	15	3.0
Total	500	100

When intraoperative complications were compared with age, no incidence of nucleus drop and suprachoroidal hemorrhage was seen in our study.

Table 3: Gender V/s Postoperative complications

Gender	No complications		CME	
	No.	%	No.	%
Male	244	48.8	2	0.4
Female	250	50.0	4	0.8
Total	494	98.8	6	1.2

From the table 3 following findings are concluded:

1. 2 out of 6 complications were seen in males (0.4%).
2. Rest 4 complications were seen in females (0.8%).

Table 4: Gender V/s Intraoperative complications

Gender	No complications	
	No.	%
Male	246	49.2
Female	254	50.8
Total	500	100

When intraoperative complications were compared with gender, no incidence of nucleus drop and suprachoroidal hemorrhage was seen in our study.

Table 5: Cataract type V/s Postoperative complications

Cataract type	No complications		CME	
	No.	%	No.	%
Cortical	30	6.0	0	0
HMSC & MSC	84	16.8	0	0
Nuclear	321	64.2	6	1.2
PSC	59	11.8	0	0
Total	494	98.8	6	1.2

Table showing all complications were seen with nuclear type of cataract.

Table 6: Cataract type V/s Intraoperative complications

Cataract type	No complications	
	No.	%
Cortical	30	6.0
HMSC & MSC	84	16.8
Nuclear	327	65.4
PSC	59	11.8
Total	500	100

When intraoperative complications were compared with cataract type, no incidence of nucleus drop and suprachoroidal hemorrhage was seen in our study.

4. Discussion

In this study we reported the incidence of posterior segment complications of cataract surgery intraoperatively and postoperatively.

The data collected included: visual acuity, intraocular pressure, degree of anterior and posterior segments inflammation.

500 patients completed the study. Most of patients were in age group of 60 to 80 years. The number of male patients= 49.2% & female patients =50.8%. Who underwent phacoemulsification was almost equal in number. Maximum number of patients belongs to nuclear cataract which was 65.4%.

Complications are an integral part of every surgical procedure however diligently it may be planned.

No incidence of nucleus drop occurred in present study. Its incidence among various phaco studies was 0.17% (Muhtaseb M) [6] and 0.8% (Tohlan Gogi) [9].

No incidence of endophthalmitis occurred in present study. Its incidence was 0.4% by Gogate M [4] in clear corneal incision

6 cases of CME were observed in this study out of 500 patients, which was 1.2%. Pseudophakic cystoid macular edema (PCME) is the most common complication of cataract surgery, leading in some cases to a decrease in vision. Because of the heterogeneity of definitions and diagnostic criteria, its incidence has been reported to be between 1% and 30%, with, however, an incidence of 1%–2% of clinically significant PCME in patients with no risk factors. Incidence of clinical significant CME 0.1% to 2.35%. [10]

No case of retinal detachment was observed in this study. Javitt *et al* (1991), in a study of 57,105 cases 66 years or older found the cumulative risk to be 0.81% 3 years after cataract surgery. [5]

In a 25-year study period Erie *et al* (2006), found the incidence of RD in a group of 10,256 cataract surgeries to increase in a nearly linear manner showing cumulative probabilities of RD of 0.27%, 0.71%, 1.23%, 1.58%, and 1.79% 1, 5, 10, 15, and 20 years after cataract surgery, respectively. [2]

No case of suprachoroidal hemorrhage was observed in this study. The incidence of 0.04% is in phacoemulsification (Davison [1] 0.06%, Eriksson *et al* [3]

0.03%). These authors demonstrated a lower incidence of SCH in phacoemulsification compared with ECCE.

5. Conclusion

Cataract surgery is a safe procedure with a high patient satisfaction rate. The occurrence of pseudophakic cystoid macular edema after cataract surgery is a well known complication. As in our study CME incidence was 1.2%.

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