Abstract

Aim: To highlight various prophylactic intra and post operative measures to reduce the complications.

Methods: Cataract surgery was conducted on 100 patients at Basaveshwara Teaching and General Hospital, Gulbarga. Patients were randomly divided into two groups. Group A of 50 patients were subjected to ECCE with PCIOL and group B of 50 patients to SICS with PCIOL.

Results: On the first post operative day 5 cases of corneal edema (10%) developed in SICS and 4 cases (8%) in ECCE. Striate keratitis developed in 4 cases of SICS (8%) and 3 ECCE (6%). Nearly 62% patients in SICS accepted cylinder between 0.25 - 0.75 D while 52% cases in ECCE group in this category.

Conclusion: Corneal complication like striate keratopathy (8%) and corneal edema (10%) were transient and resolved by 1 week in SICS group. Post operative astigmatism of less than 1D was seen in 62% in MSICS group. Thus advances in cataract surgery have reduced the incidence of corneal complication and helped in early visual rehabilitation and minimization of post operative astigmatism by careful selection of incision type and location for MSICS.
Introduction

Aim of cataract surgery is, no longer restricted just to visual restoration, but is now considered to be a refractive surgery i.e., to achieve state of emmetropia.

Because of these changing trends regarding results of cataract surgery, the surgical technique has revolutionized rapidly from intracapsular cataract extraction to extracapsular cataract extraction, from sutured surgery to suture less cataract extraction to most advanced technique of phacoemulsification.

Recent advances in cataract surgery have reduced the incidence of corneal complications, however this new technology has also led to various new complications like mechanical or toxic injury to endothelium, epithelial toxicity, stripped descemets membrane, sterile corneal ulcer etc., careful attention to detail during cataract surgery and in the post operative period can prevent most serious corneal complications[1].

Preservation of corneal endothelial function continues to be a major goal as cataract surgery continues to evolve. Recent studies have been undertaken to determine the effect of incision location and size on endothelial cell loss.

Although improvements in surgical technique have lead to a decreased incidence of DM detachment, epithelial and fibrous down growth, early reorganization and intervention are imperative. The concept of surgically induced astigmatism had added an entirely unique dimension to cataract surgery with emphasis focused more on refractive aspects of surgery in present era.

The Objectives of present study is to highlight the various prophylactic intra-operative and post-operative measures to be taken to reduce the complications.

Materials and Methods

This is a prospective study carried out at Basaveshwar teaching and General Hospital, Gulbarga from Jan. 2007 to May 2009.

In this study 100 cataract patients were included, patients were randomly divided into two groups. Group A of 50 patients were subjected to extra capsular extraction with PCIOL. Group B of 50 patients were subjected to small incision cataract surgery with PCIOL.

All patients had senile cataract without obvious ocular co-morbidity like corneal opacity, glaucoma, previous uveitis, pseudo exfoliation or obvious retinal pathology. Diabetic and hypertensive patients were excluded from study.

Each case was examined with detailed history regarding their complaints, the onset and duration of complaints. Preliminary examination with torch and loupe was done.
Pre-operative visual acuity was determined. Detailed slit lamp examination and fundus examination was done. IOP measurement using Schiotz tonometer and syringing to test potency of lacrimal passages was done in all cases IOL power was calculated by keratometer and A scan. Suture material used was 10.0 nylon.

All the surgeries were performed under microscope with use of visco-elastics under peribulbar anesthesia. Surgeries performed were either extracapsualr cataract extraction or small incision cataract surgery with posterior chamber intra ocular lens implantation. Post operatively oral antibiotic, analgesics, systemic steroids (when required) and topical antibiotic steroids were given 8 times/day.

Patients were followed up on first post operative day and were discharged on the third post operative day. Patients were regularly followed up at 1 week, 6 weeks and 3 months, visual acuity was assessed and correction was given at the end of 6 weeks.

**OBSERVATIONS**

Of the 100 eyes operated 53 had surgery in the RE and 47 had surgery in the LE. There were 61 males and 30 females in the study. Surgery was done on 48 mature cataract and 52 immature cataract. On the first postoperative day 5 cases of corneal oedema (10%) developed in SICS and 4 cases (8%) in ECCE. Striate Keratitis developed in 4 SICS cases (8%) and 3 ECCE (6%). Nearly 62% patients in SICS accepted cylinder between 0.25 - 0.75D while 52% cases in ECCE group are in this category.

Corneal complications were seen in 16 cases (16%) cases on the first post operative day. Striate keratitis was seen in SICS with PCIOL in 4 cases (8%) and in ECCE with PCIOL in 3 cases (6%), corneal edema was seen in SICS with PCIOL in 5 cases (10%) and in ECCE with PCIOL in 4 cases (8%). An astigmatism of ≤ to 0.75 has been induced in early 62% patients by SICS and nearly 52% patients who underwent ECCE.

**TABLE - 1: Immediate Post Operative Corneal Complication (Fist Post Operative Day)**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Corneal complications</th>
<th>SICS PCIOL</th>
<th>ECCE PCIOL</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Striate keratitis</td>
<td>4</td>
<td>3</td>
<td>8%</td>
</tr>
<tr>
<td>2.</td>
<td>Corneal oedema</td>
<td>5</td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>9</strong></td>
<td><strong>7</strong></td>
<td><strong>18%</strong></td>
</tr>
</tbody>
</table>
Table 2: Estimated Induced Astigmatism

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Astigmatism</th>
<th>SICS (n = 50)</th>
<th>ECCE (n = 50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0 to 0.75</td>
<td>31 (62%)</td>
<td>26 (52%)</td>
</tr>
<tr>
<td>2.</td>
<td>1.0 to 1.5</td>
<td>13 (26%)</td>
<td>14 (28%)</td>
</tr>
<tr>
<td>3.</td>
<td>1.75 to 2.5</td>
<td>03 (6%)</td>
<td>07 (14%)</td>
</tr>
<tr>
<td>4.</td>
<td>2.50 and above</td>
<td>0.3 (6%)</td>
<td>03 (6%)</td>
</tr>
</tbody>
</table>

Discussion

Senile cataracts constitute a significant volume of cataract surgical load in developing countries like India. Currently satisfactory results have been published with respect to phaco-emulsification in senile cataract. In developing nation like India, where cataract back log is still a socio-economic problem, procedures like phacoemulsification remain an expensive modality of management and majority of the population find it difficult to afford it. MSICS promises safety of this procedure in white cataracts, enhanced by the adjunctive use of trypan blue dye.

Recent advances in cataract surgery have reduced the incidence of corneal complications. Review of the current literature reveals a trend toward early visual rehabilitation and minimization of post operative astigmatism by careful selection of incision type and location for small incision cataract surgery.

The incidence of corneal edema and striate keratopathy was seen in maximum with manual SICS compared to ECCE.

Reason here beings:

1) Retained viscoelastic in AC in many cases.
2) Increased maneuvering in AC in expressing hard nucleus after bringing into AC.

Corneal oedema and striate keratitis resolved within 8 days with medical treatment. These were with study conducted by Sudhakar J. et al.3 They found mild transient striate keratitis in nearly all cases that cleared up within 3 days.
This study results comparable with national survey study and Sudhakar J. et al. A higher induced astigmatism of more than 2.5D was noted in a few cases of ECCE and this could be due to, cornea flattens over any incision. Thus ECCE results in post operative against rule astigmatism (ATR).

SICS induces less amount of astigmatism as compared to ECCE as it minimizes the high pre existing against the rule astigmatism, thereby improving the visual outcome. Also stabilization of astigmatism is achieved by the end of second day.

SICS will be having better wound strength because of self sealing tunnel. Good visual outcome will be added by its location away from limbus and absence of sutures, thereby producing lesser distortion of central corneal curvature.

**Conclusions**

1) Post operative astigmatism less than ID in MSICS with IOL (62%) in comparison with ECCE - IOL where it is only in (52%).

2) Minimal incision size is used in manual SICS about 5 - 6 mm where as in ECCE surgeries it is 9 mm or more.

3) Manual SICS is a technique can be done in almost in any type of cataract.

4) This technique is independent of hardness of nucleus.

5) No suture induced F. B. sensation.

6) Lowered incidence of hypotony.

7) Lowered incidence of intra operative and post operative complications when compared to conventional surgery.

8) Minimal invasiveness and less traumatic

9) Good cosmetic effect.

10) Rapid post operative visual rehabilitation

11) Cost effective

12) Average time of surgery for manual SICS is 8-10 min compared to ECCE where it is 20 min.

**References**


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