ABSTRACT

In developing countries the most commonly performed surgery for cataract is manual small incision cataract surgery. It is safe and effective procedure to increase the output of cataract surgical services. The study is undertaken to find out the incidence of intra operative complications and visual outcome following surgery. A total of 200 cases studied for the duration of one year. Intraoperative complications were studied and managed. Visual outcome following these complications were studied by noting the best corrected visual acuity after 6th week following surgery. In this study 5(2.5%) had posterior capsule rent, 5(2.5%) had iris prolapse/dialysis, 3(1.5%) zonular dialysis, 2(1%) had incision and tunnel related complications, 2(1%) Descemet’s detachment, capsule related complications are seen in 4(2%), others 2(1%) of cases. Following early detection and management of these complications the visual outcome was satisfactory after 6 weeks postoperatively. Best corrected visual acuity of 6/6-6/18 was achieved in 84.9% of cases. Small incision cataract surgery is effective technique for cataract, which provides early and good visual outcome. Overall the complication of small incision cataract surgery is less and the procedure is well suited.

KEYWORDS: Small Incision Cataract Surgery, Intra Operative Complications, Best Corrected Visual Acuity

INTRODUCTION

One of the important contributors to the refractive power of the eye is lens, cornea being the first. The most important disease affecting the lens is cataract and its definitive treatment for it is surgery. Cataract extraction is the most frequently performed surgery in patients over 65 years. Advances in operative equipment and micro surgical instruments have made surgery very safe and effective in restoring vision. [1]

Modern day demands a greater degree of visual perfection in every way of life. For getting quality of vision, when we think of cataract surgery, the first technique that comes to mind is
phacoemulsification. That is justified as no other surgery had such an impact on ophthalmology in the last 20 years. However it is important not to forget that there are alternative techniques to phacoemulsification which complement the surgeon's armamentarium. Moreover, these techniques have proven to be advantageous in settings, both medical and socio-economical where phacoemulsification has its distinct drawbacks.

Despite 10-12 million cataract surgeries performed globally every year, there is significant backlog of cataract cases. An estimated 4 million people become blind because of cataract every year, which is added to a backlog of 10 million operable cataracts in India, whereas only 5 million cataract surgeries are performed annually in the country. [2, 3] An effective method undertaken to increase the output of cataract surgical services in developing countries, making cataract surgery affordable to all people is the manual Small Incision Cataract Surgery. Though surgery is now safe and successful in the large majority of patients it is not without inherent problems and potential complications.

Materials and methods:
This prospective study comprised of 200 patients who underwent cataract surgery. The patients were selected by simple random sampling and were followed up for a period of 6 weeks. Patients in the age group of with visually significant cataract requiring surgery were included in the study. Patients with pediatric, traumatic, complicated cataracts and coexisting with other ocular diseases were excluded from the study.

On the day of admission thorough preoperative evaluation was done. Slit lamp biomicroscopy (Zeiss) of anterior segment with emphasis on type of cataract, grading of nucleus done. Nucleus grading was done using Lens Opacity Classification system (LOCS). [4] Apart from pupillary reaction, the size of the pupil and the readiness of its dilatation were evaluated. A standard preoperative investigation of tonometry, fundus examination after pupillary dilatation performed. In dense cataract preventing fundal examination B-Scan was done. Patency of the lacrimal passages was tested. A routine systemic examination was performed, blood pressure was checked and urine tested for sugar.

A preoperative keratometry (Baush and Laumb) and biometry (Biomedix) was done for calculation of IOL power. Cataract surgery was done under peribulbar anaesthesia. Surgery was done under operating microscope TAKAGI OM 10 ZOOM and TAKAGI OM 10.
Patients were followed up on first postoperative day and discharged. Patients were advised regular follow-up at 6\textsuperscript{th} week. Visual acuity and refraction was assessed at each visit and optical correction was given at the end of 6\textsuperscript{th} week.

**Results:**

**Figure 1: Bar chart showing decade wise gender distribution in patients undergoing cataract surgery**

![Bar chart showing decade wise gender distribution in patients undergoing cataract surgery](image)

Out of 200 cases, patients in the 61 to 70 years age group were maximum accounting for 78 cases. 39 patients were above 70 years. Mean age group being 63.4 years.

**Figure 2: Bar chart showing complications occurred during manual small incision cataract surgery**

![Bar chart showing complications occurred during manual small incision cataract surgery](image)

**Table 1: Preoperative best corrected visual acuity**

<table>
<thead>
<tr>
<th>Visual acuity</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 6/60</td>
<td>109</td>
<td>54.5</td>
</tr>
<tr>
<td>6/60-6/36</td>
<td>87</td>
<td>43.5</td>
</tr>
<tr>
<td>Better than 6/36</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100</td>
</tr>
</tbody>
</table>

Preoperative visual acuity was classified into three groups. Majority of the patients had visual acuity less than 6/60 (54.5\%) ranging from perception of light to counting finger 5 meters.
Table 2: Postoperative best corrected visual acuity (BCVA) at 6th week

<table>
<thead>
<tr>
<th>Vision</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/6-6/18</td>
<td>145</td>
<td>84.9</td>
</tr>
<tr>
<td>6/24-6/60</td>
<td>22</td>
<td>12.8</td>
</tr>
<tr>
<td>Less than 6/60</td>
<td>4</td>
<td>2.3</td>
</tr>
<tr>
<td>Total</td>
<td>171</td>
<td>100</td>
</tr>
</tbody>
</table>

Out of the 200 cases 171 (85.5%) cases came for follow up till 6th week following surgery. Out of the 171 cases 145 (84.9%) patients had BCVA of 6/6-6/18, after 6 weeks of surgery.

Discussion

In this study, intra operative complications were posterior capsule rent in 5 (2.5%), iris prolapse/dialysis in 5 (2.5%), zonular dialysis in 3 (1.5%), incision and tunnel related complications in 2 (1%), Descemet’s detachment in 2 (1%), capsule related complications in 4 (2%), others in 2 (1%) of cases. This was in agreement with Balmer A et al.,[5] Schroeder B et al.[6] and Lumme P et al. [7]

In this study BCVA was 6/18 or better in 145 (84.9%) of cases. Our study compares well with above studies. The WHO guideline is 90% (BCVA 6/18 or better), our study had fairly met the guideline.

Poor visual outcome that is BCVA less than 6/60 was seen in 4 (2.7%) cases in our study. Out of the four patients, 3 patients had intra operative complication of PC rent with vitreous loss, which was statistically significant. One patient had ocular co morbid condition. Gogate P M et al [8] reported poor outcome (post operative visual acuity less than 6/60) in 1.1%, Chirambo M C [9] reported poor visual outcome in 7.2% cases.

Conclusion

Manual Small Incision Cataract Surgery with its low complication rate has now come to be established surgical procedure for cataract surgery. It gives unconnected postoperative visual acuity of 6/18 or better in a greater proportion of patients. This technique has become very popular in India, and has similar intraoperative and postoperative complications compared with other ECCE variants. High volume surgery using appropriate techniques and standardised protocols does not compromise the outcome. The complications managed with standard surgical techniques are compatible with good visual outcome. Prospective standardised monitoring of cataract surgical outcomes with regular analysis of the causes of poor outcome is an important tool, which individual ophthalmic surgical teams can use to
improve the results of their cataract surgery. The emphasis should be on continuous internal audit over time in order to improve results, rather than on inappropriate comparison of results between centers or surgeons.

References