

# Surgical Outcomes of Phacoemulsification at A Tertiary Care Eye Hospital

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## Abstract:

**Objectives:** To evaluate the visual outcomes of phacoemulsification surgery at a tertiary care eye hospital.

**Methodology:** A retrospective clinical study was done in Al-Shifa Trust Eye Hospital Rawalpindi. A total of 3075 eyes were included that underwent phacoemulsification. Patients of >40 years with follow up visit were included. The best corrected visual acuity was noted before and after 06 weeks of phacoemulsification and categorized according to World Health Organization criteria (Good, Moderate and Poor). Data was analyzed by SPSS 22.0 version.

**Results:** Total 3075 eyes are included in the study, out of which males are 1816 (59.1%), and 1259 (40.9%) females, total right eyes were 1895 (61.6%) and left 1180 (38.4%). Only those patients are included who fulfilled the follow up criteria. The preoperative BCVA was poor in 1839 (59.8%), moderate in 801 (26%), and good in 435 (14.1%). The postoperative BCVA at 6 weeks was good in 2467 (80.2%), moderate in 449 (14.6%), and poor in 159 (5.2%).

**Conclusion:** The visual outcome of phacoemulsification by calculating vision post operatively is a good tool for maintaining high quality surgical performance. Proper follow up of patients can save patients from postoperative complications. An audit may benefit by refining surgical skills. *Al-Shifa Journal of Ophthalmology 2024; 20(2): 75-79. © Al-Shifa Trust Eye Hospital, Rawalpindi, Pakistan.*

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## Introduction:

The estimated visual impairment worldwide is present in about 285 million people, out of which 246 have low vision and 36 million are blind, amongst them cataract is accountable for half of it.<sup>1</sup> In developing countries about 90% of visually impaired people live, of which 82% are >50 years old which is 19 % of world's population.<sup>2</sup> The prevalence of cataract in developing countries is about 50% while it is 5% of total blindness in developed countries. The cataract is responsible for bilateral blindness in 1.75% of Pakistan's population.<sup>3,4</sup> Cataract surgery is most commonly performed surgical procedure throughout world nowadays, because of the upgraded procedures and instrumentation with good visual outcomes.<sup>5</sup> There are different surgical procedures for cataract extraction, but phacoemulsification is most commonly performed nowadays. The

cataract surgery is considered successful when the patient is satisfied with the improvement in visual acuity. Hence expected vision should be as much closer as acquired vision.<sup>6,7</sup>

The clinical audit is a useful device to survey the services given by health professionals and rectify the mistakes for better results in the future. The recommended post-operative visual outcome by the WHO following cataract surgery should be good i.e.: 6/6-6/18 in 80% of cases.

### **Materials and Methods:**

The retrospective clinical data of phacoemulsification from Jan 2022 to Dec 2022 reviewed in Alshifa trust eye hospital Rawalpindi. This study had Ethical Review Board approval (ERC-12/AST-23) and adhered to the Declaration of Helsinki. Patients aged >40 years old with cataract and who were advised postoperative follow-ups were included. Eyes with traumatic cataract, previous trabeculectomy, diabetic retinopathy and other visual debilitating retinal pathologies were excluded. The Uncorrected visual acuity and best corrected visual acuity on Snellen's chart before and after surgery

were noted along with slit lamp ocular exam up to 6 weeks postoperatively. Keratometry (K1 and K2), and Amplitude-Scan was done for biometry of IOL power using SRKT-II formula. Standard phacoemulsification techniques were used, postoperative review at 1 day, 1 week, and 6 weeks was done. SPSS version 22.0 is used for data analysis. The data was presented in the form of mean and frequency for quantitative and continuous variables. The categorization of visual acuity before and after surgery was done by using the WHO guidelines: Good outcome = 6/6-6/18; Borderline= <6/18 - 6/60 and Poor= <6/60.

### **Results:**

Total 3075 eyes are included in the study out of them males are 1816 (59.1%), and 1259 (40.9%) females (Table-I & II), total right eyes were 1895 (61.6%) and left 1180 (38.4%). Only those patients are included who fulfilled the follow up criteria. The preoperative BCVA was poor in 1839 (59.8%), moderate in 801 (26%), and good in 435 (14.1%). The postoperative BCVA at 6 weeks was good in 2467 (80.2%), moderate in 449 (14.6%), and poor in 159 (5.2%).

**Table 1: Shows Gender of Subjects and Eyes**

	Frequency	Percent
MALE	1816	59.1
FEMALE	1259	40.9
RIGHT EYE	1895	61.6
LEFT EYE	1180	38.4

Table 2: Shows Vision Of Subjects Before and after Surgery

VA= Visual Acuity ( Before surgery)

BCVA= Best Corrected Visual Acuity

VA	Frequency	Percent
6/12-6/18 (good)	435	14.1
<6/18- 6/60 (Moderate)	801	26
<6/60 (Poor)	1839	59.8
BCVA after 06 weeks of surgery		
6/6-6/18 (Good)	2467	80.2
<6/18-6/60 (Moderate)	449	14.6
<6/60 (Poor)	159	5.2

### Discussion:

The cataract surgery is not solely to treat blindness, but it has evolved to be the refractive surgery for aiming to achieve highest quality of refractive and visual results along with patient satisfaction.<sup>8,9</sup> In 1998 World Health Organization in a workshop named “Outcome in prevention of blindness programs suggested to evaluate cataract surgical outcome in terms of visual acuity assessed with best corrected visual acuity. This suggests the cause of poor outcome after cataract surgery, which could be due to early or late post-operative complications, refractive errors, and preexisting eye disease. By evaluating the cause of poor results this is how the ophthalmologists can address and improve surgical outcome.<sup>10</sup> We have tried to evaluate the postoperative surgical outcomes after phacoemulsification in our study in the subjects who underwent cataract surgery at tertiary care teaching hospital, Rawalpindi. As ASTEH (Al Shifa Trust Eye Hospital) is a teaching hospital hence the surgeries were done by both highly qualified surgeons and the trainees.

It is estimated that comparative to temporal incisions, the superior limbal incisions induce greater corneal astigmatism and against the rule astigmatism.<sup>11-15</sup> In our study we could not calculate the amount of post-surgical astigmatism.

The clinical audit helps to evaluate necessary facts, e.g.: time duration, equipment used, and surgical steps.<sup>16-19</sup> hence for improvement of surgical results, audit and re-audit is required.<sup>19,20</sup>

Mavranakas et al estimated 8.2 % an overall complication rate with 5.3% in MSICS and 10.2% in ECCE.<sup>20</sup> While in our study we could not calculate the percentage of posterior capsular rent and intraoperative complications.

In our setup the major route for anesthesia is peribulbar, while topical anesthesia is preferred by senior surgeons, while reverse is noted in NEON and PORT studies in which topical anesthesia was major route and rarely peribulbar blocks were done.<sup>19,20</sup> The clinical audit helps to focus on necessary facts that are neglected during surgery like time taken during surgery, steps of surgery and instruments used, hence its recommended to audit and re-

audit for improvement of the quality of surgical outcome.<sup>21-25</sup>

Post operative visual acuity of 3075 (100%) eyes was recorded. After Phacoemulsification surgery, 2467 (80.2%) eyes had good VA compared with pre-operative measurements. There have been 449(14.6%) eyes of patients with moderate VA according to WHO criteria, while 159(5.2%) eyes had poor VA.

In our study we could not include the patients who lost follow up. We could not calculate the surgically induced astigmatism, postoperative retinal detachment, and vitreous loss. The visual acuity was checked on Snellen chart instead of log Mar which is reliable and standard method. Phacoemulsification was done by multiple surgeons and residents.

### **Conclusion:**

The visual outcome of phacoemulsification done in our hospital showed good results. Proper follow up of patients can save patients from postoperative complications. An audit may benefit by refining surgical skills.

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