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PHACOEMULSIFICATION RESULTING IN POSTERIOR CAPSULAR RUPTURE; A MOST COMMON COMPLICATION

Abstract: *OBJECTIVE:* This study done to determine most common complication of phacoemulsification that is rupture of posterior capsule of lens.

Study Design: it is a retrospective study.

Duration of study: In this study data was taken of previous 7 months from January 2018 to July 2018.

Setting: Study was conducted in Mayo Hospital Lahore Ophthalmology Ward Pakistan.

Patients and Methods: Total 75 cases were studied. These cases were admitted in the ward on opd bases. A Proforma was designed for documenting all data related to the patient. Proper written consent was taken from in charge of the ward for conducting this study. Data was collected from previous record of the ward. After operation all cases in study group were retained in the ward for 2-4 days. These cases were called for follow-up after one week and complications were evaluated in them. Results were calculated in the form of frequencies and data was analyzed using Microsoft office and SPSS version 2007. Data was expressed in the form of tables and graphs.

Results: There were 180 cases which underwent phacoemulsification during given period of study on elective basis. These cases were admitted and prepared for surgery after taking anesthesia fitness etc. Complete data of these cases was collected from previous record of the ward. Their operation noted and all investigations, indication of surgery and all investigations and procedure notes were seen. Out of these 180 cases 75(32%) cases developed complications related to the procedure. Posterior capsular rupture was reported in these cases due to different reasons. Most common cause of this complication was heated phacoemulsification tip in 30 cases. In 15 patients rotation of nucleus was its cause. Out of these 62 cases 6(9.7%) cases got capsular rupture during lens implantation, in 11(17.7%) cases trauma by simco cannula, in 8(12.9%) cases capsular rupture occurred during dialing of intra ocular lens. Trauma by chopper tip occurred in 3(4.8%) cases. It was seen that most common cause of lens rupture was heated phacoemulsification tip followed by rotation of nucleus second most common cause.

Conclusion: During phacoemulsification we should take care throughout the procedure as capsular rupture may happen in any stage of the procedure. Osmotic balance of lens and surrounding environment is most important. Heated tip of phacoemulsification is the major cause of rupture of lens.

Key words: phacoemulsification, lens rupture, posterior capsular rupture.

Language: English

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INTRODUCTION

Phacoemulsification is a very common procedure performed for cataract in Pakistan. Cataract is very common in old age. It is formed due to senile changes. Metabolic factors are commonly responsible for this condition. Cataract is a most common ophthalmic problem among the people of Pakistan.¹ Majority of cases belongs to old age. In old age metabolic changes causes opacity of lens forming cataract. Other causes include diabetes mellitus, infection etc. Young age people are least likely to acquire this problem unless in congenital acquired cataract. In this problem patient complains of gradual decrease in vision with the passage of time and on examination we see opacity in lens milky white in colour. Procedure of choice for cataract is phacoemulsification.² It is best procedure with best outcome but like other procedures this technique has its few complications. Most common complication related to this procedure is rupture of posterior wall of lens capsule which occurs during the procedure. It may happen in any stage of the procedure. Most common cause was heated tip of phacoemulsification which damages the capsule. Majority of cases belong to old age.³ In old age metabolic changes causes opacity of lens forming cataract. Other causes include diabetes mellitus, infection etc. So as age advances cataract incidence increases. In old age complications related to operation are also much common. Out of these 190 cases 28 patients were having co-morbidities such as diabetes mellitus, hypertension, congestive heart failure, CKD and angina pectoris making these cases a high risk group. Out of these 190 cases 62(32%) cases developed complications related to the procedure. Posterior capsular rupture was reported in these cases due to different reasons. We should be very careful in the whole procedure regarding posterior wall of capsule. Many surgeons do this complication commonly which leads to failure of the procedure causing financial and psychological burden on the patient. Our purpose is to decrease complication rate related to this procedure. Many studies have been done previously on this topic but little data is available from Pakistan.

Patients and Methods

This is a retrospective study in which previous data of six months collected from the ophthalmology ward. Study was done in a tertiary care hospital. Total 62 cases were studied. These cases were admitted in the ward on opd bases. A Proforma was designed for documenting all data related to the patient. Proper written consent was taken from in charge of the ward for conducting this study. Data was collected from previous record of the ward. Only those cases were included in the study having complete data mentioned in the record rest of the

cases with incomplete data were excluded from the study. These patients were admitted for phacoemulsification and complications were reported. Follow up of these cases was made for observing post operative outcome. Causes of capsular rupture included trauma by chopper, dialing of intra ocular lens and implantation of intra ocular lens. Usually age of patients in this study was above 50 years. There were 22 cases with age 35-45 years, 42 cases with 46-55 years age, 63 cases having age 56-65 years, 54 cases with 66-75 years age and 19 cases were above 75 years. So as age advances cataract incidence increases. In old age complications related to operation are also much common. Most common cause was heated tip of phacoemulsification which damages the capsule. Results were calculated in the form of frequencies and data was analyzed using Microsoft office and SPSS version 2007. Data was expressed in the form of tables and graphs.

Results

There were 190 cases which underwent phacoemulsification during given period of study on elective basis. These cases were admitted and prepared for surgery after taking anesthesia fitness etc. Complete data of these cases was collected from previous record of the ward. Their operation noted and all investigations, indication of surgery and all investigations and procedure notes were seen. Out of these 190 cases 62(32%) cases developed complications related to the procedure. Posterior capsular rupture was reported in these cases due to different reasons. Most common cause of this complication was heated phacoemulsification tip in 25 cases. There were 180 cases which underwent phacoemulsification during given period of study on elective basis. These cases were admitted and prepared for surgery after taking anesthesia fitness etc. Complete data of these cases was collected from previous record of the ward. Their operation noted and all investigations, indication of surgery and all investigations and procedure notes were seen. Out of these 180 cases 75(32%) cases developed complications related to the procedure. Posterior capsular rupture was reported in these cases due to different reasons. Most common cause of this complication was heated phacoemulsification tip in 30 cases. In 15 patients rotation of nucleus was its cause. Out of these 62 cases 6(9.7%) cases got capsular rupture during lens implantation, in 11(17.7%) cases trauma by simco cannula, in 8(12.9%) cases capsular rupture occurred during dialing of intra ocular lens. Trauma by chopper tip occurred in 3(4.8%) cases. It was seen that most common cause of lens rupture was heated phacoemulsification tip followed by rotation of nucleus second most common cause.

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Graph-2. Complication rate among the cases of study group.

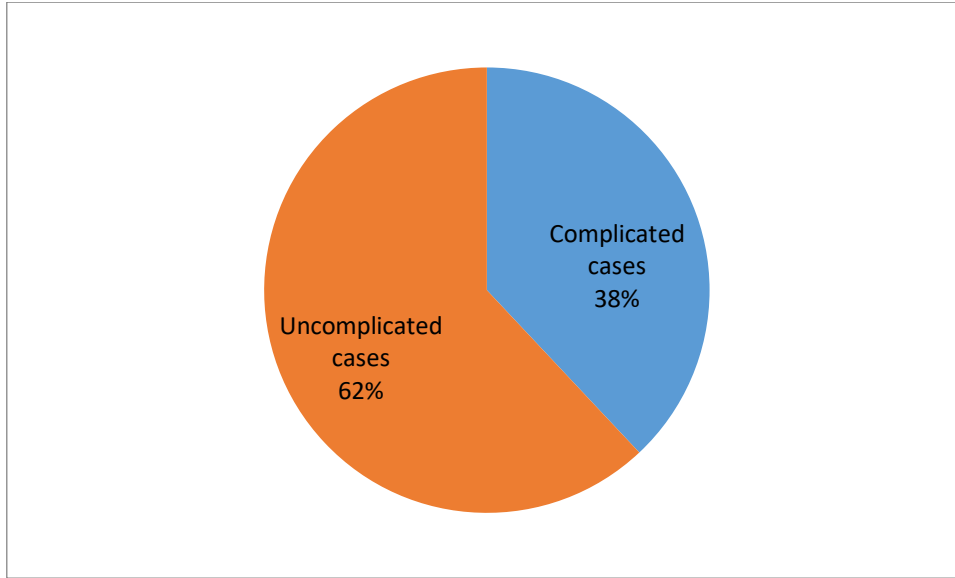


Table 1.

Reason of capsular rupture	Number of patients	(%)
Hot tip of phacoemulsification	30	40
Simco cannula causing trauma	15	20
Rotation nucleus	10	13.3
Tip of chopper causing damage	04	5.3
Intra ocular lens dialing	09	12
Lens implantation	07	9.3
Total	75	100

DISCUSSION

Phacoemulsification is a procedure of choice for cataract surgery but it is associated with a most common complication of rupture of posterior capsular wall.⁵ Expert surgeons can avoid this complication to much extent. In this study 32% cases got this complication and rest of the cases were operated normally. In these complicated cases there were different reasons of capsular rupture. This is a retrospective study in which previous data of six months collected from the ophthalmology ward. Study was done in a tertiary care hospital. Total 62 cases were studied. These cases were admitted in the ward on opd bases. A Proforma was designed for

documenting all data related to the patient. Proper written consent was taken from in charge of the ward for conducting this study.⁶ Data was collected from previous record of the ward. Only those cases were included in the study having complete data mentioned in the record rest of the cases with incomplete data were excluded from the study. These cases were admitted and prepared for surgery after taking anesthesia fitness etc. Complete data of these cases was collected from previous record of the ward. Their operation noted and all investigations, indication of surgery and all investigations and procedure notes were seen. Out of these 180cases 75(32%) cases developed complications related to

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morbidities such as diabetes mellitus, hypertension, congestive heart failure, CKD and angina pectoris making these cases a high risk group. Results were calculated in the form of frequencies and data was analyzed using Microsoft office and SPSS version 2007. Data was expressed in the form of tables and graphs. In various studies the rate of complication was 7-9%. According to a study done by Cruz et al 9.9% cases suffered from this complication. Another study done by Junejo and Khan reported 4.5% rate of this complication. A study done by Henning et al reported incidence of 4% in those surgeries which were done under supervision of experienced surgeons and incidence was 15% in other unsupervised surgeries.¹⁰

Conclusion

Phacoemulsification is a very commonly used procedure in our hospitals. Posterior capsular rupture is a very common complication of this procedure. Enhancing skills of surgery and supervision of senior surgeons can reduce the incidence of this complication to much extent.

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