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POST Cataract Extraction Ptosis Following Superior Rectus Bridle Suture

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ABSTRACT

The incidences of ptosis occur in Bangladesh. Ptosis is an abnormally low position of the upper lid. However the present study has conducted to find out the influence of bridal suture and to identify the demographic factors and intraoperative surgical time in occurrence of postoperative ptosis. The study was conducted at selected different Hospitals at Chottogram District in Bangladesh. This was a randomized comparative prospective study. Total 260 patients were included and operated with small incision cataract surgery (SICS) using routine peribulbar block anesthesia by lidocaine 2% + bupivacaine(0.75%), use of wire speculum using superior conjunctival flap with superior incision. Post-operative patching of operated eye was done. Patients were randomly divided in to two groups. In group A SICS with superior rectus suture and in group B SICS without superior rectus suture with use of self-retaining wire speculum to separate the lids were used. Preoperative measurement for ptosis include MRD1, levator function test, preoperative photograph to compare it postoperatively on follow upand also recorded intra operative surgical time. Our criteria for postoperative ptosis are no ptosis or > 2mm or more drooping of upper lid as ptosis on measuring margin reflex distance (MRD1). MRD1 is a distance between upper lid margin and central corneal light reflex when patient in primary gaze position. Levator function is measured by (burke's method) lid excursion caused by LPS muscle, normal function if 15mm or more excursion, good mm or more, fair 5-7 mm and poor if 4mm or less and preoperative photograph is taken by camera when patient in primary gaze position. All the preoperative measurements and photographs were compared with postoperative measurements at 1 month, 3 month and 6 month on follow up. Statistical analysis was done using Microsoft Excel. Data were collected from primary and secondary sources. Primary data were collected from the respondents of the study area. Secondary data were collected from books, research reports, journals, annual reports, Website of Ministry of Health and family planning internet etc. The tool was prepared by keeping the objectives of the study as the framework that reflect the study variables. A pre-designed semi-structured questionnaire was developed use as data collection instrument. Prior to the interview, the purposes of data collection were explained to the respondents and verbal consent was obtained. Data were collected by face-to-face interview by the investigator. From the study it was found that chances of occurrence of postoperative ptosis is slightly on higher side in patients operated with superior rectus suture than in whom it is not used , role of demographic factors provedno any significance, but longer operative time leads to more chances of occurrence of ptosis. In spite of above factors other factors also responsible for the postoperative ptosis and majority of ptosis gradually resolve its own over a period of one year. Postoperative ptosis is one of the major lid malposition after anterior segment surgeries like cataract, so surgeons can decrease the risk of ptosis following cataract surgery by avoiding bridle suture, using small, suture less temporal incisions and reducing operative time to complete surgery if possible.

Key words: *Ptosis, Incidence, Cataract, Superior Rectus Bridle Suture, Surgery, Extraction.*

INTRODUCTION

The incidence of ptosis following ocular surgery has not been widely reported. Paris and Quickert defined postoperative ptosis following cataract extraction as 2 mm or more of drooping of the upper eyelid persisting for more than six months.' They asked 27 ophthalmologists about the frequency of this complication and derived estimates ranging from 0 to 10%, the most common estimate being 1 to 2%. In a study of patients undergoing cataract and glaucoma surgery, Alpar using the same criteria for ptosis found the incidence to be 11-4% following local anaesthesia and 1-5% following general anaesthesia. From figures reported by Kaplan et. al. the incidence following cataract extraction under local anaesthesia would appear to be 13.5%. The aetiology of postoperative ptosis is uncertain but thought to be a dehiscence or disinsertion of the levator aponeurosis during surgery. Paris and Quickert found disinsertion of the

aponeurosis in two patients with ptosis following cataract extraction. They suggested that prolonged upper lid oedema after surgery leads to disinsertion in older patients who have vulnerable aponeuroses. Aponeurotic defects may also be present in patients with involutional ptosis, some of whom have had previous orbital swelling, eyelid oedema, or blepharochalasis. The main clinical features of ptosis due to a dehiscence or disinsertion of the levator aponeurosis are a high or absent lid crease, thinning of the ptotic eyelid above the tarsal plate, good or excellent levator function,6 and deepening of the upper sulcus.

Opinion varies on the insertion of the levator aponeurosis. "' Many authors regard the upper eyelid skin crease as being formed by fibres from the muscle bundles and not into the skin. They reasoned that this would explain the high eyelid fold associated with a disinsertion of the aponeurosis. If the aponeurosis becomes disinserted or stretched, the original eyelid crease is lost and the levator retracts, pulling the orbital septum with it. The orbicularis is pulled backwards, as it is firmly bound to the orbital septum. The eyelid skin follows the orbicularis, and a new higher eyelid crease is formed as the orbital septum is pulled into the orbit. This process is enhanced if the preaponeurotic fat pad is atrophic. Postoperative ptosis has been described as a significant complication of intraocular surgery. Alpar stated that there may be a cosmetic and often functional defect, which does suggest that in some cases the ptosis may be severe. This prospective study was undertaken to investigate the incidence and severity of postoperative ptosis following cataract extraction and trabeculectomy.

OBJECTIVES OF THE STUDY

The objectives of the study are as follows:

1. To find out the influence of bridal suture.
2. To identify the demographic factors and intraoperative surgical time in occurrence of postoperative ptosis.

OPERATIONAL DEFINITION

1. Ptosis

Ptosis is an abnormally low position of the upper lid.

2. Classification of ptosis

A) Longenital Ptosis

Probably results from a failure of neurooval migration or development imperfect differentiation of the levator muscle.

- It may be unilateral or bilateral with variable severity
- Absent of upper lid crease and poor levator function.

B) Acquired ptosis

1) Neurogenic: Ptosis caused by innervation defect such as 3rd nerve paresis and Horner Syndrome.

2) Myogenic: Ptosis caused by mayopathy of levator muscle itself or impaired transmission of impulse at the neuromuscular junction.

- Myasthenia gravis
- Myotonic Dystrophy
- CPEO

3) Mechanica: Ptosis caused by gravitational effect of a mass or by scarring.

4) Traumatic

Trauma to levator muscle

Post surgical (after cataract surgery)

5) Aponeurotic: Ptosis caused by defect in levator aponeurosis.

C) Pseudo ptosis:

Ptosis caused due to surgical anophthalmus, microthalamus, and pthisis bulbi

- Contralateral lid retrsetion
- Ipsilateral hypothropia
- Brow ptosis
- Dermatochalasis

3. Clinical evaluation of ptosis

a) Age of onset
b) Family history
c) Presence of diplopia
d) Variability of ptosis
e) Symtoms of systemicproblems
f) Any contributing factors

4. Examination (Measurement)

1) Margin reflex distance

By noting the ptotic lid margin with respect to the hurschburg reflex. It is gradded as follows:

a) Mild (2mm)
b) Moderate (3mm)
c) Severe (4 mm)

2) Palpebral fissure height:

3) Levator function

Gradded as

a) Normal (15mm)
b) Good (12-14)
c) Fair (5-11 m)
d) Por (4mm or less

4) Upper lid crease

5. Associated Signs of Ptosis

1) Pupils: Examined to exclude Horner's Syndorme and pupil involving 3rd nerve palsy

2) Increased innervations:

Patients should warned the surgical correction may induce a lower position of opposite lid.

a) Fatigability
b) Ocular motility
c) Jaw winking phenomenon
d) Bells phenomenon

6. Treatment of ptosis

1) Fasanella servat operation
2) Levator resection
3) Brow (Frontalis) suspension.

METHODOLOGY OF THE STUDY

Study area: The study area was at Chottogram District in Bangladesh.

Study Design: This was a randomized comparative prospective study.

Study place: Selected different Hospitals in Chottogram District.

Inclusion and Exclusion criteria: Inclusion criteria for the study was unilateral cataract irrespective of grading of cataract and exclusion criteria were preexisting ptosis, other lid malposition, combined surgeries and traumatic cataract. Institutional Ethics Committee permission was taken before starting the study. Informed written consent was taken from each participants enrolled in the study.

Sampling methods: Total 260 patients were included and operated with small incision cataract surgery (SICS) using routine peribulbar block anesthesia by lidocaine 2% + bupivacaine(0.75%), use of wire

speculum using superior conjunctival flap with superior incision.Post-operative patching of operated eye was done. Patients were randomly divided in to two groups. In group A SICS with superior rectus suture and in group B SICS without superior rectus suture with use of self-retaining wire speculum to separate the lids were used. Preoperative measurement for ptosis include MRD1, levator function test, preoperative photograph to compare it postoperatively on follow upand also recorded intra operative surgical time. Our criteria for postoperative ptosis are no ptosis or > 2mm or more drooping of upper lid as ptosis on measuring margin reflex distance (MRD1). MRD1 is a distance between upper lid margin and central corneal light reflex when patient in primary gaze position. Levator function is measured by (burke's method) lid excursion caused by LPS muscle, normal function if 15mm or more excursion, good mm or more, fair 5-7 mm and poor if 4mm or less and preoperative photograph is taken by camera when patient in primary gaze position. All the preoperative measurements and photographs were compared with postoperative measurements at 1 month, 3 month and 6 month on follow up.

Statistical analysis: Statistical analysis was done using Microsoft Excel.

Sources of Data: Data were collected from primary and secondary sources.

Sources of Primary: Primary data were collected from the respondents of the study area.

Sources of secondary data: Secondary data were collected from books, research reports, journals, annual reports, Website of Ministry of Health and family planning internet etc.

Duration of the Study: Duration of the study 24 months.

Tool of Data Collection: The tool was prepared by keeping the objectives of the study as the framework that reflect the study variables. A pre-designed semi-structured questionnaire was developed use as data collection instrument.

Procedure of Data Collection: Prior to the interview, the purposes of data collection were explained to the respondents and verbal consent was obtained. Data were collected by face-to-face interview by the investigator.

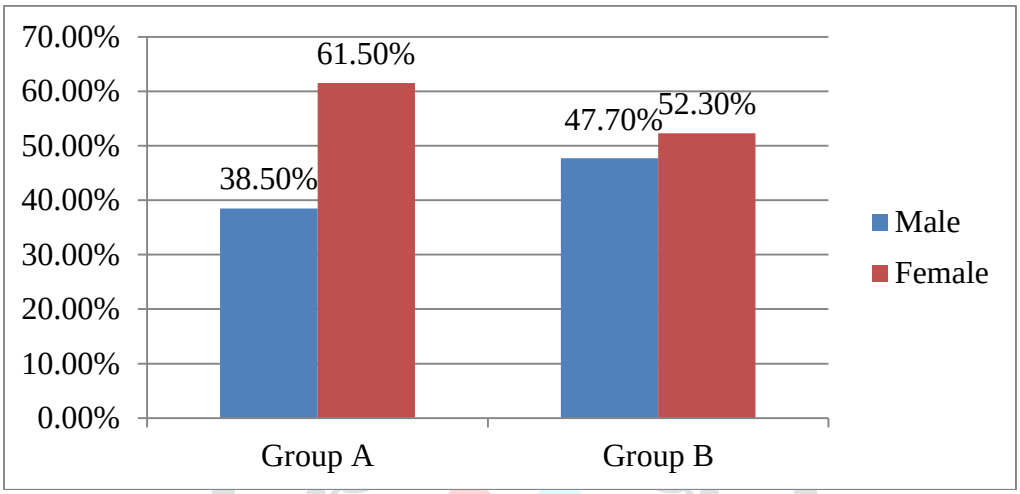
Data Processing and Analysis: All the data were checked, cleaned and edited after collection. Then those cleaned data were analyzed by computer program Statistical Package for the Social Sciences (SPSS).

RESULTS AND DISCUSSION

In this prospective study we measured the occurrence of post-operative ptosis after cataract surgery and influence of bridal suture by comparison of two different groups. Study includes 260 patients with more than 6 months follow up post operatively; Preoperative data of each patient was collected. Patients were from range of 35-75years.

Table-1: Preoperative patient's gender

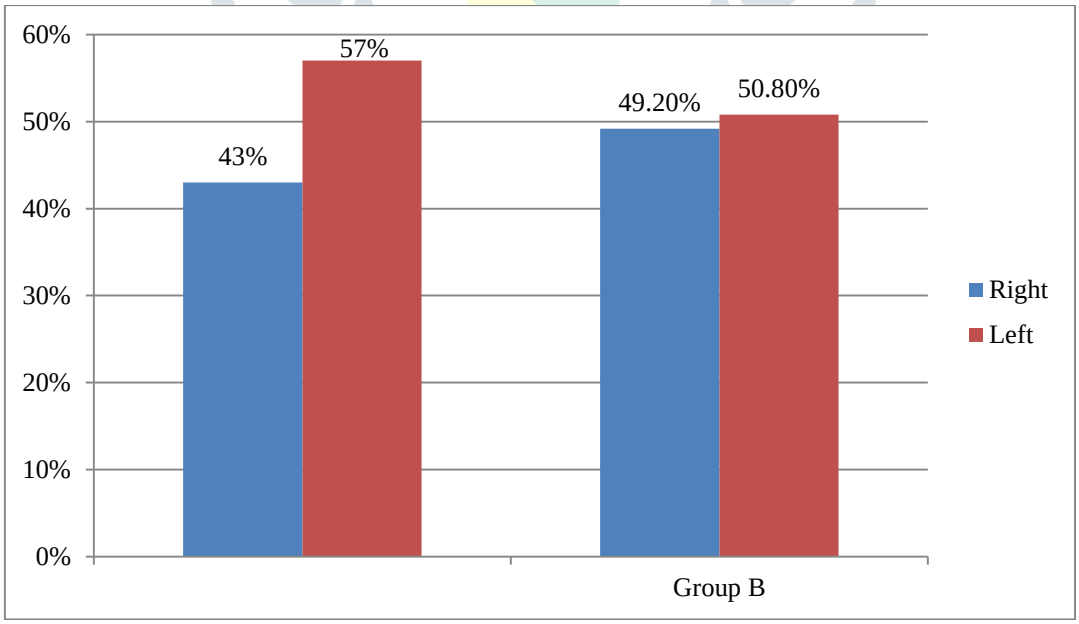
		Group A	Group B	
Gender	Male	50(38.5%)	62(47.7%)	112(43.1%)
	Female	80(61.5%)	68(52.3%)	148(56.9%)



From the result it was found that out of 260 operated eyes, 112 male and 148 female patients

Table-4.2: Preoperative patients' ptosis

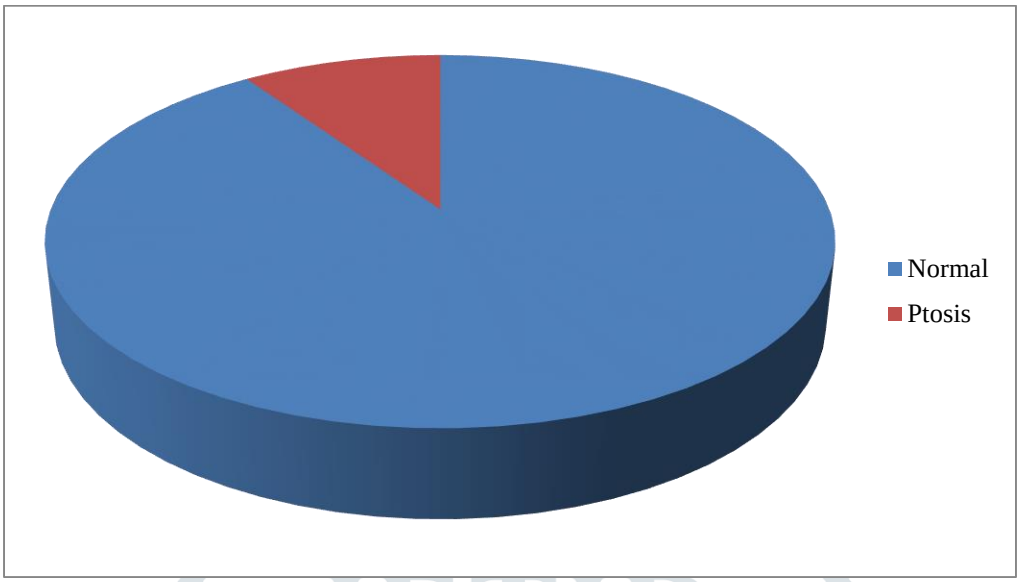
		Group A	Group B	
Side	Right	56(43%)	64(49.2%)	120(46.1%)
	Left	74(57%)	66(50.8%)	140(53.8%)



From the result it was found that out of 260 operated eyes, and 120 right eye and 140 left eyes.

Table-3: Number of Postoperative patient

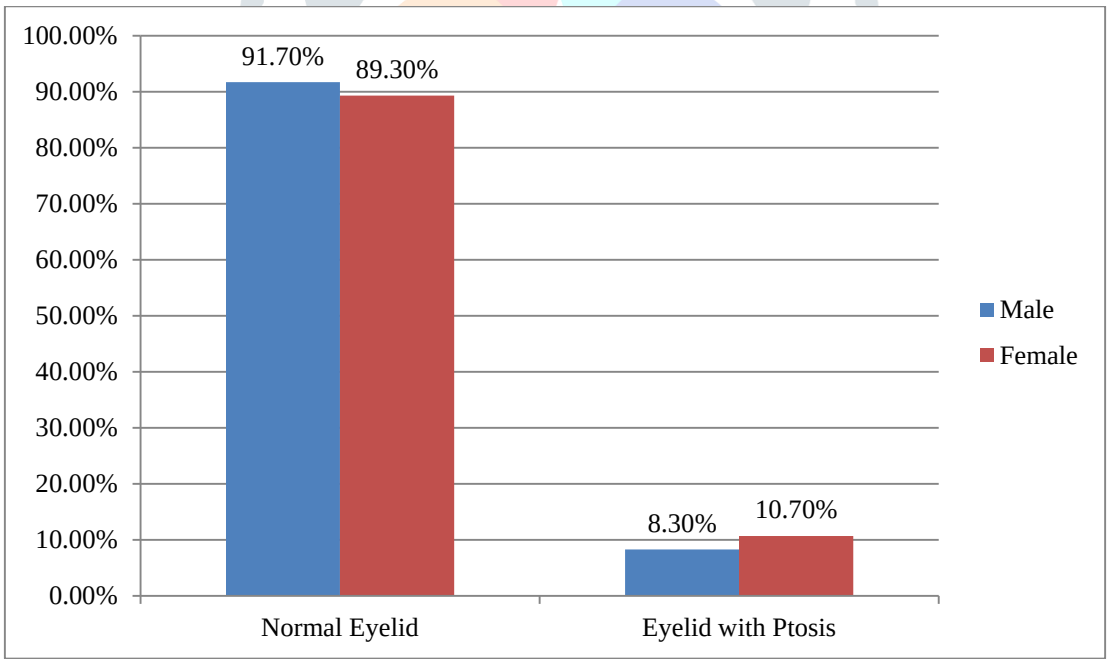
	Normal Eyelid	Eyelid with Ptosis	Total
No of patients	235	25	260



From the result it was found that out of 260 operated eyes, 235 patients were normal eyelid and 25 were eyelid with ptosis.

Table-4: Postoperative patients gender

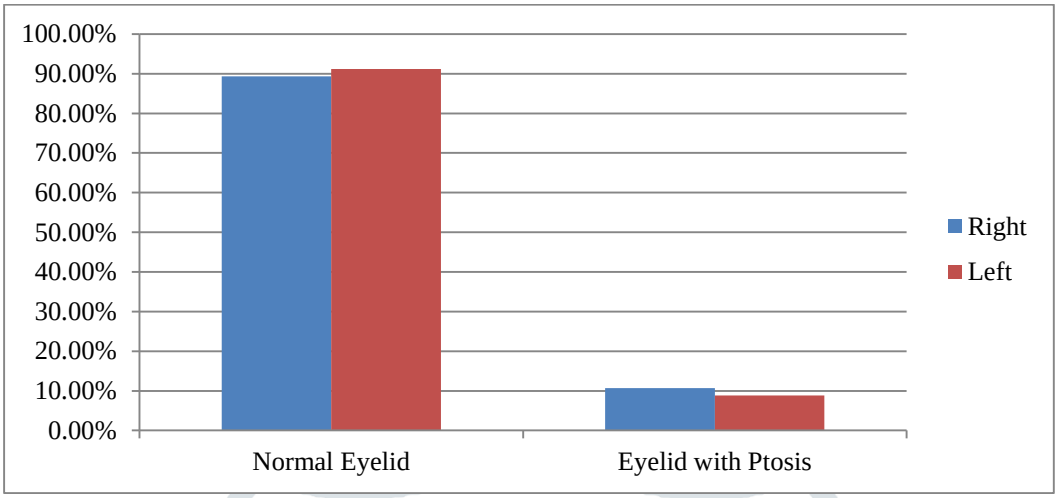
		Normal Eyelid	Eyelid with Ptosis	Total
Sex	Male	110(91.7%)	10(8.3%)	120
	Female	125(89.3%)	15(10.7%)	140



From the result it was found that out of 260 operated eyes, 120 male male and 140 were female patients. Out of 120 male patients 110 were normal eyelid and 10 were eyelid with ptosis. Out of 140 female patients 125 were normal eyelid and 15 were eyelid with ptosis.

Table-5: Postoperative patients ptosis

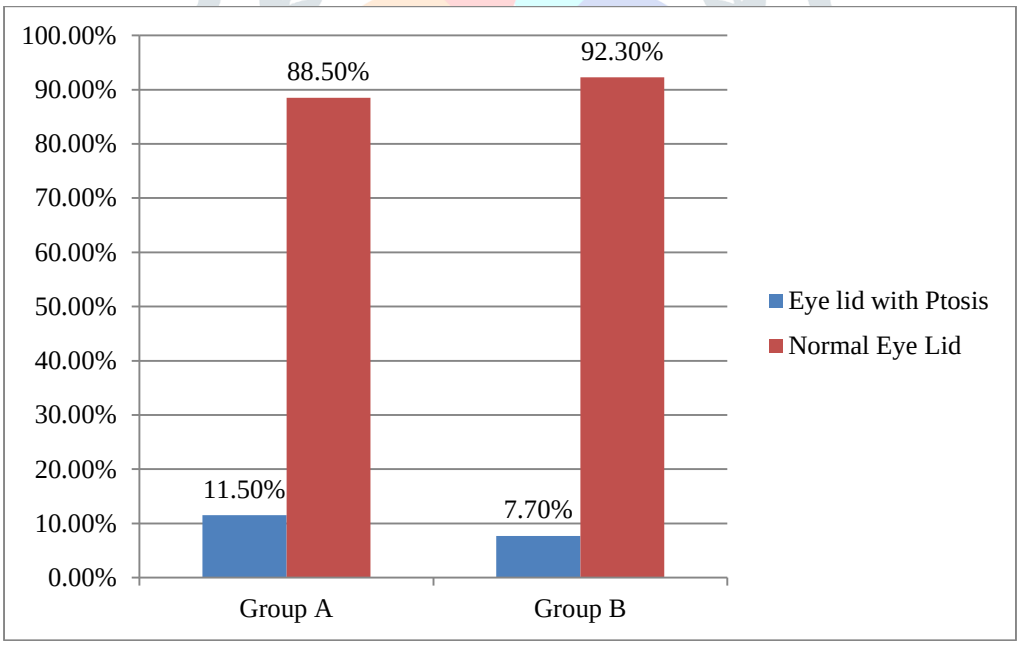
		Normal Eyelid	Eyelid with Ptosis	Total
Side	Right	100(89.3%)	12(10.7%)	112
	Left	135(91.2%)	13(8.8%)	148



From the result it was found that out of 260 operated eyes, and 112 right eye ptosis and 148 left eye ptosis. Out of 112 right eye ptosis 100 were normal eyelid and 12 were eyelid with ptosis. Out of 148 left eye ptosis 135 were normal eyelid and 13 were eyelid with ptosis.

Table-6: Incidence of ptosis after cataract surgry

	Group A	Group B	Total
Eye lid with Ptosis	15(11.5%)	10(7.7%)	25
Normal Eye Lid	115(88.5%)	120(92.3%)	235



Occurrence of ptosis was found to be 11.5% (15/130) in group A and 7.7% (10/130) in group B. It means that there was no significant difference between two groups, also in all 260 patients no measurable abnormal levator function observed and patients having significant ptosis compared with preoperative and postoperative photograph.

Intra-operative time

Intra-operative time of surgery was also noted in all enrolled patients. It was observed that shortest time is 12 min and longest time of surgery is 32 min recorded. The incidence of postoperative ptosis was more in patients having long operative time.

CONCLUSION

By our prospective study we concluded that chances of occurrence of postoperative ptosis is slightly on higher side in patients operated with superior rectus suture than in whom it is not used , role of demographic factors provedno any significance, but longer operative time leads to more chances of occurrence of ptosis. In spite of above factors other factors also responsible for the postoperative ptosis and majority of ptosis gradually resolve its own over a period of one year.

RECOMMENDATIONS

Postoperative ptosis is one of the major lid malposition after anterior segment surgeries like cataract, so surgeons can decrease the risk of ptosis following cataract surgery by avoiding bridle suture, using small, suture less temporal incisions and reducing operative time to complete surgery if possible.

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