Eye lid trauma and their management

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Abstract

Purpose: To study the various mode and site of lid injuries and to evaluate the results of immediate surgery, delayed surgery, and surgery on infected cases.

Method: This is the prospective study conducted in ophthalmology department of MLN Medical College. We included all the patients with fresh lid injuries as well as old mismanaged cases. After complete evaluation adequate treatment was given.

Result: Total 91 patients of lid trauma were included in study. 19 – 35 years were the most common age of presentation, male was more affected than females. Penetrating injury was found to be the most common mode constitute about 35.3%. Upper and lower lids were involved in 75% of cases. 7.9% patients were have wound infection. Post-operative outcome was better in fresh cases as compare to old and complicated cases.

Conclusion: There is rapid rise in the incidence of ocular injuries due to increase urbanisation. Adequate and timely treatment can improve the functional and cosmetic outcome.

Keywords: Lid trauma, Canalicular laceration, Eyelid laceration

Introduction

Eyes are the very important and delicate structure of human body. Therefore nature gives the full protection by eyelids and bony orbit. Eyelids are the first bull work against the various external injuries to which the eyes are constantly exposed. Road traffic accidents, blasts, falls etc. are the major causes resulting in injuries to eye lids. If repair is performed immediately according to the principal of lid reconstruction, dysfunction and deformity can be avoided. Improper repair of traumatised eyelids results in facial disfigurement and greater insult to eyelids itself.

Aims

The present study was conducted to evaluate the

1. Various modes and sites of lid injuries
2. To observe and manage the iatrogenic abnormalities secondary to lid trauma
3. To evaluate the results of immediate surgery, delayed surgery and surgery on infected cases

Materials and Methods

The present study was conducted in ophthalmology department of M.L.N. Medical College after approval of institute ethical committee. All the patients with fresh lid injury as well as old mismanaged casas were included in the study, who presented in OPD of ophthalmology department.

A detail history and through evaluation were done. Time of injury, mode of injury and site of trauma were noted. For iatrogenic abnormalities, time elapsed since surgery and place of surgery was noted. General and complete systemic examination was done to rule out other associate ocular injuries and systemic disease. Local examination was done to exclude injury to the eyeball. Detail lid and adnexa examination was done. Vision, location of injury (upper lid, lower lid, medial canthus lateral canthus, and canalicular injuries) were noted. Site, size and extent of laceration, involvement of lid margins were noted. Presence of contamination, infection were observe. Complete slit-lamp examination and fundus examination were done for both eyes.

Relevant investigation like X-ray, CT-Scan, MRI, OCT and USG were carried out.

Preoperative and postoperative photograph were taken. Postoperative deformities were assessed and treated accordingly. Iatrogenic deformities were treated properly and cosmetic and functional rehabilitations was tried to the best.

Different method and technique were used for management of lid trauma and iatrogenic abnormalities according to the type of injury. Simple eye lid lacerations were managed by simple single layer primary suturing, full thickness lacerations and marginal lacerations were repaired by closure of tarsocojunctival layer, muscle layer and skin suturing. Extensive laceration with tissue loss were managed according to amount of tissue loss by Cutler Beard technique or Hughes reconstruction. Canthal and canalicular tear were managed by canthoplasty or canaliculoplasty with or without stent. Lid notching were managed by figure of eight intermarginal suture. Extensive vertical laceration were managed by Wheeler 'Halving repair. Post traumatic iatrogenic lid abnormality like cicatricial ectropion were managed by Z plasty, V-Y plasty and skin grafting. Traumatic Ptosis were managed accordingly depends on site of trauma either muscle or aponeurosis or nerve injury.

Result were assessed by functional improvement and cosmetic appearance. Functional improvement were graded as good, fair and poor depends upon lid

closure and mobility. Cosmetic appearance were graded as good, fair and poor on the basis of presence of unsightly scar, size, shape, texture and deformity.

Results

The present prospective study of twelve month duration was carried out on 304 patients of ocular trauma presented in ophthalmology department of M.L.N. Medical College. Among the 304 patients, 91 patients were diagnose as lid trauma either singly (60 case) or associated with other ocular injuries (31cases). So the incidence of lid trauma in our study was 29.9%.

Out of 91 cases of lid trauma, primary repair was done on 61 cases and secondary repair and secondary repair was done in 30 cases. 6 cases were lost follow-up. Thus total 85 cases were included in study.

Majority of our patients (44.7%) belong to young adult age group (19-35 yrs) followed by school going children (25.9%), adolescent (10.6%) and preschool children (5.9%). Highest incidence recorded in young adult due to greater outdoor activities and mobilisation seen in this age group.

Majority of patients were of male in our study as M: F= 3.7:1 due to increased outdoor activities and greater exposure to mechanised world seen in male gender.

Penetrating injuries were found to be the most common mode of trauma in our study (35.3%) followed by road side accidents (22.4%), blunt trauma (21.1%), burns(12.9%) and blast & fire cracker injury in (8.2%).

Upper lid and lower lid are involved in more than 75% of cases but beside these medial canthal (6.6%), lateral canthal (5.2%) and canalicular injuries (12.3%) were also recorded.

In cases of upper canalicular lacerations, no surgical interventions was done as it rarely give rise to symptoms. For lower canalicular injuries, stent or marsupialisation technique of repair was used. Result were almost same with slight predominance of marsupialisation over stents.

Among the 76 patients of lid laceration 4% cases were of skin deep lacerations, 44.7% had partial thickness laceration and 51.3% had full thickness laceration. Lid margins were intact in 61.8% of cases and involved in 38.2% of cases. Marginal lacerations includes the cases of medial canthal injury, lateral canthal injury, canalicular injury and lid coloboma.

Six out of 76 cases (7.9%) were having wound infection. Most of them reported after 48 hours. In most of the cases primary suturing was done. Only 66.6% of cases have good result in comparison to 92.3% cases of without infection.

Cicatricial ectropion was the most common post traumatic complication followed by lagophthalmos, lid coloboma, lid notching cictricial entropion and ptosis. In our study 53.1% cases were of cicatricial ectropion, out of which 11 cases were due to improper repair while 6 cases were of post burn.

The results were definitely better in fresh cases in comparison with those associated with some complication either due to trauma or due to improper repair.

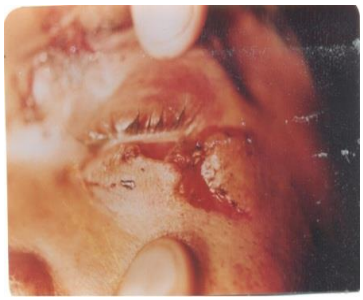

Fig. 1: Lower canalicular and lateral canthus injury with lid coloboma

Fig. 2: Follow-up after 6 week

Fig. 3: Abrasions and lacerations LUL

Fig. 4: Laceration stitched & enucleation done

Fig. 5: Sutured LLL Laceration with stent

Table 1: Incidence of lid trauma

Cases of Ocular Trauma	Cases of Lid Trauma		
	Not associated with other ocular Injury	Associated with other ocular injury	Total
304	60(19.7%)	31(10.2%)	91(29.9%)

Table 2: Age-wise distribution of cases

Age group in years	Cases (85)	Percentages
0-5 preschool	5	5.9%
6-12 school going	22	25.9%
13-18 adolescent	9	10.6%
19-35 young adult	38	44.7%
36-50 adult	10	11.7%
>50 senile	1	1.2%

Table 3: Mode of Trauma

Mode of Trauma	No.	Percentages
Penetrating	30	35.32%
Blunt	18	21.12%
Road side accidents	19	22.4%
Burns	11	12.9%
Blast and fire Cracker	7	8.2%

Table 4: Site of laceration

Site	Cases	Percentages
Upper lid	33	43.4%
Lower lid	25	32.9%
Medial canthus	5	6.6%
Lateral canthus	4	5.2%
Upper canalicular	2	2.6%
Lower canalicular	7	9.3%

Table 5: Lower canalicular injury

Management	Cases	Result		
		Good	Fair	Poor
Stent	3	2(66.6%)		1(33.3%)
Marsupialisation	4	3(75.0%)		1(25%)

Table 6: Extent of lid laceration

Extent	Cases	Percentages
Skin deep	3	4.0%
Partial thickness	34	44.7%
Full thickness	39	51.3%

Table 7: Infected cases- incidences and result

Infection	Cases	Results		
		Good	Fair	Poor
Present	6	4 (66.6%)	1(16.7%)	1 (16.7%)
Absent	70	65(92.3%)	5 (7.7%)	

Table 8: Incidence of complicated cases

Cicatricial Ectropion	17	53.1%
Lagophthalmos	5	15.6%
Coloboma lid	4	12.5%
Lid notching	3	9.4%
Cicatricial entropion	2	6.3%
Ptosis	1	3.2%
Total	32	100%

Discussion

There has been a rapid rise in the incidence of ocular injuries because of rapid industrialization, high speed traffic and increased urbanisation. Incidence of lid involvement in ocular trauma has vaguely been reported by different authors. However our study shows 29.9% of lid involvement which is corresponds to the study of Saini, Jain & Soni et al who found that 34.2% of lid involvement in ocular trauma.

In our study majority of patients (44.7%) were belong to 19 -35 year of age group probably because it constitute young adult population who involve in outdoor activities. Similar trend were reported by Eagling and Saini Lambah, Eagling, Jain et al reported that there is male gender preponderance in lid trauma because of greater outdoor activity. Similar trend seen in our study as male female ratio was 3.7:1.

In our study penetrating injury was found to be the most common mode of trauma 35.3% followed by road traffic accidents 22.4% blunt trauma 21.1% burns 12.9%. Jain & Saini found that blunt trauma was the commonest mode of ocular trauma. Our study is coincide with the study of Grove et al who found that penetrating injury is the commonest mode of ocular trauma.

In our study canalicular injuries constitute the 12.35 of ocular trauma. Many author found the similar incidence Garrow describe the incidence of 18% Iisar of 6% and Saini of 8.3%.

Collins strongly recommended marsupialisation as treatment of choice for canalicular injury. While Griffth reported 62% success with stent for canalicular injury. In our study we found that both the technique has similar result with slight predominance of marsupialisation over stents.

In our study most common associated ocular injury was globe perforation and corneoscleral perforation which constitute about 50% of cases. The result was coinciding with the study of Saini et al. We found uveal prolapse in 62.5% of cases which is similar to study of Krishnan et al who reported 78.03% uveal prolapse in case of penetrating injury.

In our study we found 7.9% patients were having wound infection, got poor result as compare to nil in cases of without infection. Results are similar to Duke et al who found that poor result in presence of infection.

Conclusion

Eyelid trauma constitute about 29.9% among all ocular injuries with involvement of lacrimal apparatus especially the inferior canaliculus. Adequate timely treatment can improve the functional and cosmetic results. Overall results of early surgery on fresh and uncomplicated cases were much more rewarding than those in complicated and delayed cases.

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