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ORIGINAL ARTICLE

CLINICAL CHARACTERISTICS, CAUSALITY, AND EVALUATION OF EYE LID LACERATION SURGERY IN KARIADI GENERAL HOSPITAL, SEMARANG

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ABSTRACT

Introduction and Objective: *Eyelid lacerations appear to be understudied in terms of adequate epidemiological research among all injury sites. The aim of this study was to assess the etiological characteristics, and evaluation of eyelid laceration surgery in Kariadi General Hospital.*

Method: *In a observational analytic study with retrospective design, 89 cases of isolated traumatic eyelid laceration were consecutively studied and its epidemiology, etiology and the surgery were evaluated. All patients who underwent lid surgery between March 2021 and March 2023 were included. The data is analyzed to determine the features and the connection between the resulting frequency and the variables that were collected.*

Result: *This study enrolled 89 patients with 66 (74.2%) males and 23 (25.8%) females. The largest age group in this study was 16–50 years old, with 53 patients (59.6%). With respect to the regio of laceration, medial laceration regio was reported in 69 patients (77.5%), central laceration regio was reported in 8 patients (9%), and lateral laceration regio was reported in 12 patients (13.5%). Based on the grade, 68 patients (76.5%) had full-thickness lacerations, and 21 patients (23.6%) had lamellar lacerations.*

Conclusion: *Male tend to have a higher incidence rate than female. The highest age range is among adolescents and young adults.*

Keyword: *Eyelid laceration, eye surgery, epidemiology*

INTRODUCTION

Numerous traumatic events have the potential to injure the orbital and periorbital regions, which can cause problems by extending beyond the site of direct lesions to the interior of the head and face. The interest and focus on study areas related to eye trauma have significantly increased during the past few years. Despite the substantial study that has been done to uncover more efficient preventive and appropriate care, there is still opportunity to improve the etiology, demographics, causes, and clinical aspects of eye lid laceration surgery.

Even though ocular trauma is highly significant to the medical community, there is rarely agreement on the epidemiological aspects of this incidence, particularly when it occurs outside of affluent nations. Recognizing that this is one of the easily treatable health problems that affect people all over the world, it is crucial to deal with this problem to lessen its effects on the socioeconomics of the neighborhood.

Eyelid lacerations appear to be understudied in terms of adequate epidemiological research among all injury sites. It is feasible to enhance the public health policy in this area by developing a better preventative strategy with a complete understanding of the causes of eye lid lacerations. In order to help with the development of a preventive strategy to potentially reduce the prevalence of such trauma-related incidents in high-risk patients by implementing a number of safety precautions at work places, the goal of this case review was to identify the subjects who were more likely to experience eyelid laceration and to determine its etiological causes.

METHODS

The data in the study came from patients who underwent eyelid laceration surgery from March 2021 to March 2023 at Kariadi General Hospital (one of the most referred eye hospitals in Central Java, a province in Indonesia).

As one of the most referred and excellent ophthalmologic care centers in the province, Kariadi General Hospital is affiliated with Diponegoro University Medical Faculty, located at the center of a highly prevalent area for traumatic eye injuries with high capability to manage the patients either in a clinical or emergency setting by outpatient and inpatient visits by the most experienced Ophthalmologists in the province.

The data collected included gender, age, time for surgery, cause of laceration, laceration region, grading, length of evaluation, and length of stay.

Analyses were conducted using SPSS statistics. Results were presented as frequencies. To prove significant outcomes, Chi-Square Test was used for establishing significant association between variables.

RESULTS

Table 1. Patient Characteristics

Variable	Frequency	%
Sex		
Male	66	74,2
Female	23	25,8
Age		
< 2 y.o	4	4,5
2 – 6 v	6	6,7
7 – 10 y.o	4	4,5
11 – 15 y.o	5	5,6
16 – 50 y.o	53	59,6
>50 y.o	17	19,1
Time to Take Surgery		
<24 hours	49	55,1

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24 – 48 hours	13	14,6
>48 hours	27	30,3
Cause of Trauma		
Sharp Trauma	14	15,7
Blunt Trauma	75	84,3
Trauma Scene		
Home	26	29,2
Motor Vehicle Accident	40	44,9
Falling	4	4,5
Work Place	19	21,3
Eyelids		
Right upper	29	32,6
Right lower	37	41,6
Left upper	11	12,4
Left lower	12	13,5
Laceration's Regio		
Medial	69	77,5
Central	8	9,0
Lateral	12	13,5
Grade		
Fullthickness	68	76,4
Lamellar	21	23,6
Length of Evaluation		
1 day	39	43,8
2-3 days	29	32,6
>3 days	21	23,6
Length of Stay		
<4 days	34	38,2
4-10 days	50	56,2
>10 days	5	5,6

This study enrolled 89 patients with 66 (74.2%) males and 23 (25.8%) females. The largest age group in this study was 16–50 years old, with 53 patients (59.6%).

Considering the characteristics of the lacerations, the right eye and upper eyelid were involved in 29 cases (32.6%), the left eye and upper eyelid were affected in 11 patients (12.4%), the right eye and lower eyelid were reported in 37 cases (41.6%), and the left eye and lower eyelid were affected in 12 patients (13.5%). With respect to the regio of laceration, medial laceration regio was reported in 69 patients (77.5%), central laceration regio was reported in 8 patients (9%), and lateral laceration regio was reported in 12 patients (13.5%). Based on the grade, 68 patients (76.5%) had full-thickness lacerations, and 21 patients (23.6%) had lamellar lacerations.

In terms of laceration causality, 75 patients (84.7%) reported the object causing ocular trauma to be blunt, while 14 (15.7%) cases described the object as being sharp like broken glass. In the trauma scene data, 26 (29.2%) cases occurred at home, 40 (44.9%) cases occurred in motor vehicle accidents, 4 (4.5%) cases of falls occurred, and 19 (21.3%) cases occurred in the

workplace. The time required for patients from arrival to surgery was 49 patients (55.1%) who underwent surgery within 24 hours, 13 patients (14.6%) within 24-48 hours, and 27 patients (30.3%) within >48 hours. Regarding the length of time it took patients to be evaluated after surgery, 39 patients (43.8%) were allowed to go home after 1 day of evaluation, 29 patients (32.6%) after 2-3 days, and 21 patients (23.8%) were allowed to go home after more than 3 day. For the length of stay, 34 patients (38.2%) were treated less than 4 days, 50 patients (56.2%) were treated for 4–10 days, and 5 patients (5.6%) were treated for more than 10 days.

Table 2. Correlation of variables

Variable	Eyelids				p
	Right Upper	Right Lower	Left Upper	Left Lower	
Sex					
Male	19 (28,8)	26 (39,4)	10 (15,2)	11 (16,7)	0,175
Female	10 (43,5)	11 (47,8)	1 (4,3)	1 (4,3)	

Variable	Laceration's Regio			p
	Medial	Central	Lateral	
Cause of Trauma				
Sharp Trauma	14 (100)	0 (0)	0 (0)	0,090
Blunt Trauma	55 (73,3)	8 (10,7)	12 (16)	

Variable	Grade		p
	Fullthickness	Lamellar	
Cause of Trauma			
Sharp Trauma	10 (71,4)	4 (28,6)	0,430
Blunt Trauma	58 (77,3)	17 (22,7)	
Laceration's Regio			
Medial	56 (81,1)	13 (18,8)	0,009
Central	7 (82,5)	1 (12,5)	
Lateral	5 (41,6)	7 (58,3)	
Length of Evaluation			
1 day	31 (45,5)	8 (38)	0,048
2-3 days	25 (36,7)	4 (19)	
>3 days	12 (17,6)	9 (42,9)	

Variable	Length of Stay			p
	<4 days	4-10 days	>10 days	
Grade				
Fullthickness	27 (39,7)	38 (55,8)	3 (4,4)	0,631
Lamellar	7 (33,3)	12 (57,1)	2 (9,5)	
Time to Take Surgery				
<24 hours	22 (44,9)	25 (51)	2 (4,1)	0,139
24 – 48 hours	2 (15,4)	11 (84,6)	0 (0)	
>48 hours	10 (37)	14 (51,9)	3 (11,1)	
Cause of Trauma				
Sharp Trauma	6 (42,9)	8 (57,1)	0 (0)	0,597
Blunt Trauma	28 (37,3)	42 (56)	5 (6,7)	

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From these characteristic data, a Chi Square Test analysis was carried out on several variables, so that a significant relationship was obtained between grade and laceration region ($p = 0.009$), as well as grading and length of evaluation ($p = 0.048$).

DISCUSSION

The purpose of this study was to determine the characteristics of cases of palpebral lacerations that were operated on at Kariadi General Hospital and then to find out whether there was a significant relationship between the variables.

Most studies have addressed the capability of sharp objects penetrate the eye lids and the probable damage it would afflict on the cornea. But since there are no reports describing the impact of eyelid laceration on the social and economical health status, it is worth mentioning this matter in a more concise manner.

The results showed a greater prevalence of eyelid lacerations in male patients (74.2%), most of whom worked in factories, workshops, or had many activities at home. However, the results appear to be different from the findings of industrialized countries with various social and cultural backgrounds. Similar to the data, the majority of male injuries in the world have been reported throughout history. This may be because men tend to work in jobs that carry a higher level of risk, and they also engage in risky behavior such as driving without proper protection and engaging in physically demanding sports. Men do not have the concept of safety and caution at work. However, the shift in the role of women outdoors and the shift in predisposition to hazardous situations and related injuries requires study.

Most patients who underwent surgery are of active age (16–50 years old in our society). This is completely consistent with past findings that showed ocular damage to be more common in kids, young adults, and men and even to occur more frequently in unskilled occupations.

For more than ten years, children, adolescents, and young adults have continued to be a high-risk demographic. The American Academy of Pediatrics and the American Academy of Ophthalmology released a policy statement in 2004 that encouraged the use of protective eyewear in sports where there was a risk of eye injury. The majority of sport-related eye injuries were reported by young athletes who played basketball and baseball.

In contrast to earlier studies' findings, which indicated that only the workplace was frequent site of trauma, the study's findings showed that the road, the home, and the workplace were the three locations where accidents happened most frequently. This could be the result of disregarding or disobeying traffic laws.

Thus, it is advised to government authorities to create stricter traffic laws and greater awareness campaigns. Use of safety eyewear can lessen workplace trauma.

CONCLUSION

From the data obtained, it is known that men tend to have a higher incidence rate than women. The highest age range is among adolescents and young adults. Then the highest trauma incidents occurred on the road, followed at home and at work. There is a significant relationship between the laceration grade and the laceration region, as well as between the laceration grade and the length of evaluation. However, so far, there has been no supporting data from previous studies.

REFERENCES

1. Bert F, Ouahes O, Lambert-Zechovsky N. Brain abscess due to Bacillus macerans following a penetrating periorbital injury. J Clin Microbiol 1995 Jul;33(7):1950-1953.
2. Cillino S, Casuccio A, Di Pace F, Pillitteri F, Cillino G. A five-year retrospective study of the epidemiological characteristics and visual outcomes of patients hospitalized for ocular trauma in a Mediterranean area. BMC Ophthalmol 2008;8:6.
3. Whitcher JP, Srinivasan M, Upadhyay MP. Corneal blindness: a global perspective. Bull World Health Organ 2001;79(3):214-221.
4. Tielsch J. Frequency and consequences of ocular trauma: a population perspective. Ophthalmol Clinics North Am. 1995; (8):559-67.
5. Négrel AD, Thylefors B. The global impact of eye injuries. Ophthalmic Epidemiol 1998 Sep;5(3):143-169.
6. Tabatabaei A, Kasaei A, Nikdel M, Shoar S, Esmaeili S, Mafi M, Moradi M, Mansouri M, Eshraghi B, Tabatabaei Z. Clinical characteristics and causality of eye lid laceration in iran. Oman Med J. 2013; 28:97-101.
7. Wong TY, Klein BE, Klein R. The prevalence and 5-year incidence of ocular trauma. The Beaver Dam Eye Study. Ophthalmology 2000; 107:2196- 2202.
8. McCarty CA, Fu CL, Taylor HR. Epidemiology of ocular trauma in Australia. Ophthalmology 1999; 106:1847-52.
9. Patel V, Pakravan P, Mehra D, Watane A, Yannuzzi NA, Sridhar J. Trends in Sports-Related Ocular Trauma in United States Emergency Departments from 2010 to 2019: Multi-Center Cross-Sectional Study. Semin Ophthalmol. 2022. https://doi.org/ 10.1080/08820538.2022.2107400 27. Luo H, Shrestha S, Zhang X, Saaddine J, Zeng X, Reeder T. Trends in eye injuries and associated medical costs among children in the United States, 2002–2014. Ophthalmic Epidemiol. 2018;25(4): 280–7.
10. American Academy of Pediatrics Committee on Sports Medicine and Fitness. Protective eyewear for young athletes. Pediatrics. 2004;113(3):619–22.
11. Iftikhar M, Latif A, Farid UZ, Usmani B, Canner JK, Shah SMA. Changes in the incidence of eye trauma hospitalizations in the United States from 2001 through 2014. JAMA Ophthalmol. 2019;137(1): 48–5