



ETIOLOGY OF OPHTHALMIC MEDICOLEGAL CASES PRESENTING TO TERTIARY CARE HOSPITAL.

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ABSTRACT... To study the etiology and visual acuity profile of ophthalmic medicolegal cases presenting to a tertiary care hospital. **Study Design:** Retrospective study. **Setting:** Lahore General Hospital, Lahore. **Period:** 1-3-2017 to 30-10-2018. **Materials and Methods:** This retrospective study was conducted after taking ethical approval from the institutional review board. Record of medicolegal cases presenting during the study period were studied and assessed. In this study, etiology of trauma inflicted to eye and visual acuity at presentation were analyzed in addition to the age, gender and eye distribution. Age and visual acuity were categorized into subsets for assessment. **Results:** The authors reviewed the data of 40 ophthalmic medicolegal cases presenting to the department. The medicolegal cases were common in patients aging between 21-30 years (32.5%) which predominantly involved males (65%). Right eye was involved in 40% of patients and 35% of patients had normal (6/6) visual acuity. Most common trauma inflicted to eye was by fist or blow from hand in 75% of cases. **Conclusion:** Trauma to eye in medicolegal cases is common and is frequently inflicted by fist or hand.

Key words: Corneal Abrasions, Etiology, Globe injury, Medicolegal, Ocular Trauma.

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INTRODUCTION

A case of trauma where the attending emergency doctor after obtaining pertinent history and necessary examination declares that investigation according to local law in order to declare the responsibility of trauma is mandatory, is called a medicolegal case.¹ Such cases are then referred to the causality medical officer who takes the relevant history and does the examination with the help of specialists and then gives his report to the court of law.² Ocular involvement if medicolegal cases is very common and they routinely run into the ophthalmic practice.³ In our country, Government designated doctors are responsible for the examination and treatment of medicolegal cases. In the case of tertiary care hospitals, senior registrar is designated to deal with the medicolegal cases and give his report to the court of law which helps in ascertaining the responsibility of trauma according to the law of land. The doctor who prepares the medicolegal report is like an expert witness which is helping the court of law in the given criminal case so

the medicolegal report has to be made timely, meticulously and in an unbiased manner.^{4,5}

Medicolegal cases may present at varying time intervals after the trauma is inflicted. Sometimes the patient arrives days or weeks after the given history of trauma, in which case a careful history and thorough examination is necessary to ascertain the actual and realistic estimation of injuries.⁶ This is done to rule out the fact that in some cases, patients may try to feign injuries which may mislead the doctor to a wrong conclusion.⁷ Therefore, besides history examination, evaluation of all the laboratory reports including X rays and previous medical record of the patient is mandatory.⁸ Various methods and systems have been postulated for the formulation of a system to identify and note the injuries in a medicolegal cases. Recently, a Hill Criteria has been purposed which primarily consists of three interlinked steps.⁹ In the first step, Plausibility is thought of which takes into account the biological possibility and sequence of events leading to

the presenting condition of the patient. Next is temporality in which the timing of trauma and onset of signs and symptoms is weighed in order to establish a connection between the two and lastly the possible alternate differential diagnosis is ruled out one by one thereby confirming the medicolegal cause of injury.^{9,10,11}

METHODS

Ethical approval of this retrospective study was obtained from Institutional Review Board of hospital. The record of all medicolegal cases (n=40) presenting to the department of ophthalmology during the study period were analyzed and findings noted. The first two authors have been working as Senior Registrar for the last two years, the post which also has the responsibility of medicolegal consultant to the court of law. The medicolegal cases were referred to the Ophthalmology department by causality medical officer after necessary history and documentation. The victims were accompanied by police officer to the eye clinic where the necessary history and examination was undertaken and report was issued which was received by accompanying police officer. After receiving the patient and checking all required documents, a thorough history and comprehensive eye examination was conducted by the authors before the report was issued to the casualty medical officer. The medicolegal report was written in a systematic manner to facilitate the casualty medical officer and court of law.

First part of report contained the demographic information of patient such as name, age, gender, national identity card number, medicolegal case number and hospital admission number if any. Next part of report contained the complaints of patients which also included the nature and cause of ocular injury and last part of the report contained the ocular examination findings including the visual acuity of the patient. The report was received by accompanying policeman with his signature and police station name.

All case files were kept in order with time and were studied for collection of data. During data search, Visual acuity at presentation and Nature

of inflicting agent was recorded besides the demographic data of the patients. The data was entered and analyzed using the Statistical Package for Social Sciences (SPSS).

RESULTS

Majority of the patients were male (65%) while only 35% cases were female patients. Right eye was involved in 40% of cases and left eye in 17.5% patients while 42.5% patients had involvement of both eyes. The age of patients was segregated with respect to decades between 30 and 50 years of age. 20% patients were aged less than 20 years of age while 7.5% patients were ages above 50 years of age. Medicolegal cases were most common between 21-30 years of age comprising of 32.5% cases. 22.5% cases were between 31-40 years of age and 17.5% patients were between 41-50 years of age. Table-I.

The visual acuity was measured on Snellen acuity chart. Majority of patients had no deterioration of visual acuity i.e. 6/6 in 35% cases. 25% patients had visual acuity of 6/60 or worse. Rest of the cases had visual acuity ranging from 6/9 to 6/36. Table-II.

Blow by fist or hand was the most common agent inflicting trauma to eye (75% cases). This was followed by brick (10%), firearm (5%), iron stick/rod (7.5%) and knife (2.5%). Table-III.

Parameter	N=40	Percentage
Gender		
Male	26	65%
Female	14	35%
Laterality		
Right Eye	16	40%
Left Eye	7	17.5%
Both Eyes	17	42.5%
Age		
< 20 Years	8	20%
21-30 Years	13	32.5%
1-40 Years	9	22.5%
41-50 Years	7	17.5%
>50 Years	3	7.5%

Table-I. Age, gender and laterality of patients

Visual Acuity	N=40	Percentage=100
6/6	14	35%
6/9	5	12.5%
6/12	3	7.5%
6/18	3	7.5%
6/24	3	7.5%
6/36	2	5%
6/60 or Worse	10	25%

Table-II. Visual acuity at presentation

Parameter	N=40	Percentage=100
Fist/Physical abuse	30	75%
Brick	4	10%
Firearm	2	5%
Iron Stick	3	7.5%
Knife	1	2.5%

Table-III. Nature of inflicting object

DISCUSSION

The authors present the retrospective data of medicolegal cases presenting to the ophthalmology department during a twenty month period.

Pieramici DJ and colleagues published the conclusions on behalf of "The ocular trauma classification group". They classified the ocular injuries into open globe and closed globe according to four different criteria. The criteria were type of injury, mechanism of injury, grade of injury and visual acuity at presentation. This system helped in formulating a nomenclature for ocular trauma.¹²

Mahdi NA et al studied the etiology of ocular injury in patients referred from the medicolegal centers in Iran. They studied the data of 295 patients and concluded that the most common cause of trauma to eye was direct assault comprising of (65.4%) of cases followed by trauma at work and road traffic accidents. Ocular trauma was prevalent in males (80%) and most commonly involved the eye lids.¹³

Naqvi SAH and associates studied the cause of ocular war injuries in patients presenting to army hospital. They studied two hundred and ten patients over a four year period. They concluded that "improvised explosive device" were the most

common cause of trauma to eye. Improvised explosive device caused more open globe injuries as compared to closed globe injuries and were associated with worse visual prognosis.¹⁴

Chang IT et al studied the causes of ocular trauma as a result of firearm injuries presenting to a trauma center. They retrospectively studied the data of three hundred and twenty seven patients over a period of ten years. In their study, they concluded that most common cause of firearm ocular trauma was by mortars (22%) followed by rocket (22%). The most common injury inflicted to eye was corneal abrasion and those having open globe injury had the worst visual prognosis.¹⁵

Pandita A and Merriman M studied the profile and incidence of ocular trauma in a certain region of New Zealand. During their study period, a total of 821 patients with ocular trauma were reported of which males were predominant (74%). The highest number of ocular trauma was seen in 15-20 years age group and the most frequent cause of trauma in both genders was outdoor activities.¹⁶

Soylu M and associates studied the profile of ocular trauma referred to a tertiary care center of southern turkey. They retrospectively reviewed the data of 250 cases presenting to eye causality. In their study ocular trauma commonly occurred from 0-15 years of age with male preponderance (76.8%). Their study had (72%) open globe injuries with the most common inflicting organism being the metallic object in (32.4%) cases.¹⁷

Oum BS et al have studied the etiological and clinical profile of ocular trauma presenting to a teaching hospital in Korea over a period of 6 years. They studied 1809 patients for type, location, etiology of ocular trauma and visual acuity. In this study, most of the ocular trauma was reported in third decade of life and equally involved both genders. The most common ocular involvement was corneal abrasion (85.8%) in closed globe injuries and corneal laceration (14.2%) in open globe injuries. The most common cause of ocular trauma was penetrating injury at workplace.¹⁸

Rohr JTD et al have studied the pediatric eye

trauma profile of patients presenting to eye causality of a hospital in Brazil. They noted that blunt trauma was common in pediatric age group (55.3%) and the most common causes being wood and stone. Open globe injuries required intervention and were prevalent in 7-15 years age group.¹⁹

Movahedinnejad T et al have studied the incidence and cases of ocular trauma presenting to a hospital in Iran. The study was dominated by male sample size comprising 86% of cases.

Traumatic ocular injury was most prevalent in 20-39 years age group and trauma was inflicted at work place in most instances. 72.5% patients has endured penetrating ocular injuries which commonly involved cornea (25.5%).²⁰

Tripathy K et al have published their data of ophthalmic medicolegal cases presenting to a hospital in India. They retrospectively reviewed the record of 188 patients which were referred by medicolegal department. A history of mechanical trauma was noted in 90% of patients. Majority of patients had a closed globe injury involving the pupillary axis which was inflicted in most instances by fist assault.²¹

Wasfy IA et al have retrospectively studied the clinical and etiological profile of medicolegal cases presenting to eye causality department of a hospital in Egypt. They examined the record files of 247 patients presenting during an eight year period. 90.5% of the cases were of direct assault in their study which mostly involved males (80%).²²

Absence of national data on the ophthalmic medicolegal cases was the rationale to conduct this study. The authors recommend large multicenter study to better understand the etiological and clinical profile of ophthalmic medicolegal cases.

CONCLUSION

Ophthalmic medicolegal cases are not uncommon to run into clinical practice and they are commonly caused by direct assault of fist in

our cultural setting.



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AUTHORSHIP AND CONTRIBUTION DECLARATION

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1	Arooj Amjad	Research idea conception, Examining patients, Data collection and analysis, Critical review.	
2	Muhammad Shaheer	Examining patients, Data collection, Literature review, Writing of paper draft.	
3	Zubair Saleem	Data collection, Literature review, Critical review.	