

# TRAUMA OF THE EYES IN MEDICO LEGAL CASES PRESENTED AT A TERTIARY CARE HOSPITAL

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## ABSTRACT

**Background:** Ophthalmic injuries in medicolegal cases are rarely studied and reported. These cases are usually encountered in medicolegal practices. **Objectives:** The aim of the study was to elaborate the ophthalmic medicolegal cases presented in Sh. Zayed Medical College / Hospital, Rahim yar khan, with emphasis on the incidence, type of assault / weapon used and to determine the types of wounds according to Qisas and Diyat ordinance Pakistan. **Design:** Descriptive study. **Place and duration of Study:** Total 120 cases were included who were presented in three years (from Aug.2008 to Aug.2011) in Emergency Department of SZMC Rahim yar khan. Out of which 110, cases were referred to Department of Ophthalmology Sh. Zayed Hospital Rahim yar khan by Causality Medical Officers, and 10 patients (12.5%) were re-examined by constituting Medical Board by the order of the courts for expert opinion. **Material and Methods:** 120 cases of ophthalmic injuries presented for medico legal opinion in Sh. Zayed Medical College / Hospital, Rahim yar khan, during this period. These were grouped according to age, sex, weapons of infliction, mode, and the gravity of vision loss, which was classified according to; total loss of vision or percentage of vision lost. Nature of loss of vision whether reversible on treatment or not was determined. Types of wounds according to Qisas and Diyat Ordinance were also determined. Help of X-Rays, CT-Scan and Ultrasound (B-Scan) was taken where required. **Results:** Out of 120 persons, only 12 were female (10%) and remaining (90 %) were male. The age group most commonly involved was 21- 40 years (54.1 %), 06 patients (05%) had self inflicted type of injury around the eye. Blunt weapons / assault (60%) were the predominant mode of infliction. Injuries have been categorized according to Qisas & Diyat Ordinance; Shajjah-e Khafifah were 72 (60 %), Shajjah-e-Mudihah were 24 (20 %), patients with corneal ulcer / abrasion leading to permanent scar were 20 (16.7 %) and they were categorized as Itlaf-e-Salahiet-Udw. Those patients who were undergone surgical intervention and had lost their both eye balls were categorized as Itlaf-e-Udw and were only 04 (3.3%). **Conclusion:** In our study, only two patients gave proper subjective vision, other patients were malingering for their vision loss, so objective method of vision assessment must be applied. Self inflicted type of injury around the eye to get benefit must be kept in mind that was not vision depriving, only type of wound was modified. Eye Surgeons and the medico legal officers should be very vigilant to make Medico legal reports.

**Key words:** medicolegal cases, ophthalmic injuries, visual loss

## INTRODUCTION

Ophthalmic injuries in medicolegal cases (MLC) in Pakistan is perhaps rarely studied and reported. These types of injuries are usually encountered in medicolegal practice and the Causality medical officers (CMOs) remained in great difficulty in testifying these accurately. There are various methodologies which are involved in the infliction of these injuries like homicidal, accidental and rarely self inflicted. Multiple weapons / modes of assault by which ophthalmic injuries are going to be inflicted, are seen in MLCs. A blunt impact to the eyes as in fisting may cause bruising of the eyelids, injuries to cornea, iris or lens, bleeding into the vitreous or anterior chamber, detachment of the retina and occasionally a traumatic cataract.<sup>1</sup>

Contusion of the face may result in extensive spreading of the blood, and periorbital hematomas are common. Fractures of the nose can also result in hematomas at these sites.<sup>2</sup> Blood spreads in the lax tissues more easily as can happen in area around the eye and lips. Blood collected at the site of the impact may move along the tissue line of least resistance under the influence of gravity changing both its shape and site as happens in production of “Black Eye” following a bruise of the forehead and scalp.<sup>3</sup> A simple fall on to the face on a flat surface does not usually cause a Black Eye, as the prominences of the eyebrow, cheekbone and nose prevent damage to the orbit.<sup>4</sup> Punching consists of blows with the clenched fist and is usually directed at the upper part of the body of the victim. Bruising and abrasions are the most common result, but lacerations may occur over bony prominences such as eyebrow or cheeks. On the face, Black Eyes (periorbital hematomas) are common, though the doctors must always be on guard to differentiate these from a fractured base of skull.<sup>5</sup> When punched directly in the midface, battered persons often develop bilateral, periorbital contusions. These contusions are also caused by certain nasal surgeries and as a sequela to basilar

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skull fractures. In such type of violence the conjunctival patachiae can also be seen.<sup>6</sup> Explosions, automobile accidents, industrial accidents and warfare may cause injuries to cornea, lens, detachment of the retina and cataract. Sharp objects may cause penetrating and lacerated wounds of the eye. A strong blunt force may cause even the rupture of the entire globe.<sup>2</sup>

All ophthalmic injuries in MLCs are referred to Eye Surgeon by Medicolegal officers for expert opinion regarding type of wound and the level of vision loss. The consultant may be asked by the hospital for re-examination of patient before the medical board, or the courts to examine victims of assault and other claimants and to give evidence in the form of "Expert Opinion". Some times victims are seen several weeks or months after the assault. In these cases it is imperative to ask for and to read carefully the initial medicolegal report issued by the casualty medical officer who first saw the case, as well as the other hospital papers, x-ray films and diagnostic images.

Like other parts of the world, crimes are said to be common in Pakistan and the injuries to the eyes are again a serious problem which needs a very careful and descriptive medicolegal exploration. An approach to cause, mode, manner and type of (ophthalmic) injuries in victimization of persons provides important insight into the cumulative effects of violence in a particular society.<sup>7</sup> In this study epidemiological and medicolegal aspects and to determine the outcome of trauma of the eyes, reported at Sh. Zayed Medical college Rahim Yar Khan are studied.

## MATERIAL AND METHODS

Total 4200 cases were presented for medico legal opinion in Sh. Zayed Medical College / Hospital, Rahim yar khan during three years (August-2008 to August-2011), out of which 120 cases were of ophthalmic injuries. These patients were referred to Eye department for expert opinion accompanied by the Police constable. Name, age and sex were noted. Identity of the patients was matched to ID Marks sent by the Medicolegal Officer / Identity Cards of patients. These were grouped according to age, sex, mode and weapons of infliction. Visual Acuity of all patients was checked for each eye by using Snellen's chart and later confirmed objectively by thorough

examination of eyes. Slit lamp examination was used to see details of Lids, conjunctiva, cornea, Lens, Iris and pupils. Fundus examination was done by dilating both pupils and Direct Ophthalmoscope, Indirect Ophthalmoscope and Fundus Lenses were used for this purpose. Diagnostic tools like X-Rays, Ultrasonography (B-Scan) and CT-Scan were used for further help where needed. The gravity of vision loss was classified according to; total loss of vision or percentage of vision lost. Nature of loss of vision whether reversible on treatment or not was determined. Cause of loss of vision was categorized as corneal, lenticular or vitreoretinal or combined. Data entry and analysis were done using the Statistical Package for the Social Sciences (SPSS.10).

## RESULTS

In this study, 120 cases of trauma of eye were studied. Out of 120 persons, only 12 were female (10%) and remaining (90 %) were male.

The age group most commonly involved was 21- 40 years (54.1%). Youngest person in this study was three months old male child who assaulted by his step mother. Oldest person was 95 year male who was hit on his right eye by fist who got Black eye and sub-conjunctival hemorrhage. (Table I)

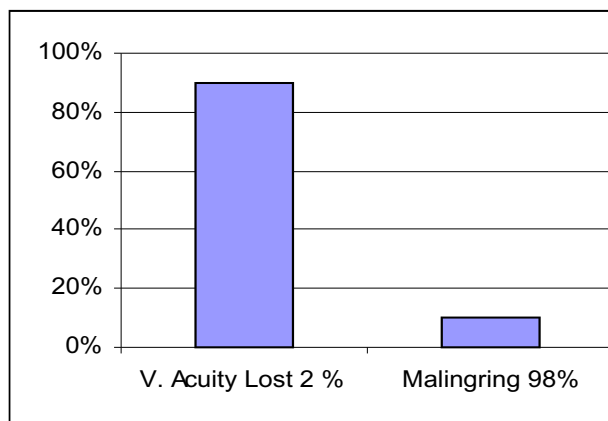
**Table :I The age distribution of the injured persons.**

Age in Years	Number of Patients	%Age
0 -20	08	6.6
21 - 40	65	54.1
41 - 60	35	29.1
61 - 80	11	9.1
81 - 100	01	0.8

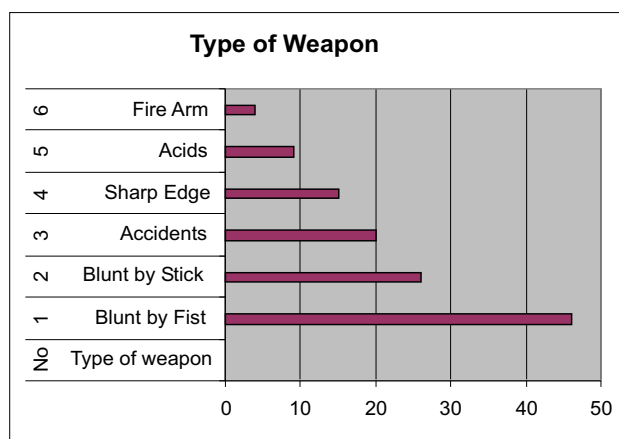
Visual Acuity was claimed to be lost in all cases except two. We found difference in subjective and objective visual acuity, by which malingering was found in 98.3% MLC cases. (Figure I)

Blunt weapons / assault were present in 72 cases (60%) and were the predominant mode of infliction. Injuries caused by sharp edge weapons were 15 (12.5%), by acids were 09 (7.5%), by Road Side Accident were 20 (16.7%) and by Fire arms were 04 (3.3%) (Figure II)

**Figure I:** The distribution regarding visual acuity in eye injuries.



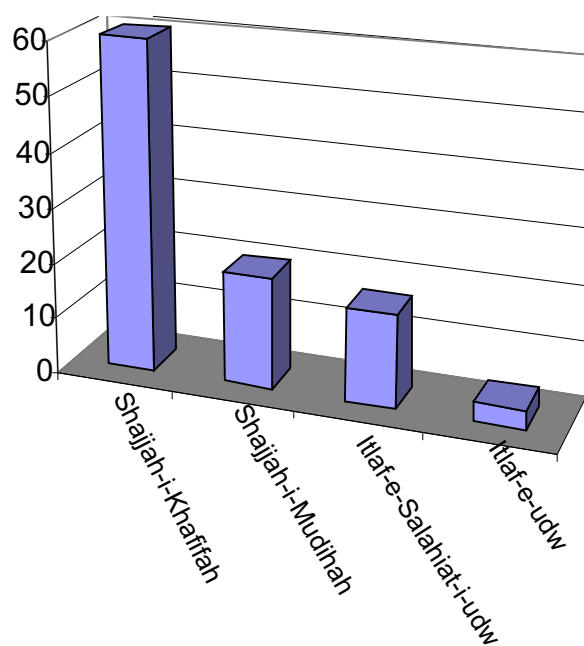
**Figure II:** The weaponry pattern and methodology adopted in eye injuries.



Injuries have been categorized according to Qisas & Diyat Ordinance, Shajjah-e Khafifah were 72 (60 %) who had no loss of vision and were discharged on the same day and had no surgical intervention.

Shajjah-e-Mudihah were in 24 (20 %) patients who had corneal ulcer and their vision loss was reversible, as well as bone exposed. Patients who had undergone surgical intervention and had permanent loss of vision like corneal repair, lensectomy, and vitrectomy were 20 (16.7 %) and they were categorized as Itlaf-e-Salahiet-Udw. Patients who had got both eye balls lost were only 04 (3.3%). (Figure III)

**Figure III:** Types of eye injuries according to Qisas & Diyat ordinance



### DISCUSSION

Eye injuries are common and require prompt evaluation and treatment to minimize the risk of loss of sight. These injuries may be obvious (as with penetrating trauma), but also can be more difficult to detect, especially in the unresponsive patient having multiple injuries. All injured patients require physical and visual examinations as part of their early management.<sup>8</sup> Examination of the eyes can be vital in forensic investigations, as in the case of non-accidental injuries, where examination of the eyes and optic nerves is required to demonstrate the characteristic distribution of hemorrhages and focal areas of retinal detachment. Road traffic and other accidental deaths may be related to poor vision, and assessment of ocular pathology may help in the understanding of the cause of the accident.<sup>9</sup> This study indicated the factor of male preponderance which was 90% in this area. This is because of the fact that this society is male dominant and the females are usually confined to their homes and get a lesser chance to go out of their places and hence they are less exposed to trauma. Our study showed the maximum eye injuries in the age group of 21-40 years, which is the era of maximum emotional instability and extrovert behaviour.

A serious setback was noted in subjective Visual Acuity; 98.3% patients were malingering even 95

years old person give wrong Visual Acuity. Prompt consultation with an ophthalmologist is strongly recommended in all cases of periorbital or ocular trauma irrespective of how minor an injury may appear, documentation of visual acuity is the first step in evaluating any patient with possible ocular trauma.<sup>8</sup> Blunt weapons, 60% exceeded than all tools of assault, use of fist was 38.3% and stick was 21.7% in blunt injuries. Blunt injuries cause minimal vision loss, mostly Shajjah-e-Khafifah type of wound is seen in such cases. Injuries caused by sharp edge weapons were 15 (12.5%). Injuries caused by acids were 09 (7.5%). In manual strangulation, the face appears congested. In 89% of cases, there are ptechia of the sclera and conjunctivae as well as of the skin around the eyes and sometimes the cheeks.<sup>10</sup> Ocular lesions may include retinal hemorrhages, anterior chamber hemorrhages, luxation of the lens and retinal detachment in one or both eyes. Ophthalmoscopic assessment is mandatory in all cases, failure to recognize eye injury may lead to permanent loss or impairment of sight.<sup>11</sup> Our study depicts that the multiple ocular injuries in medicolegal cases were of Shujah-i-Khafifah. Sharp edge weapons caused lid injuries, corneal abrasions, perforations and were of both types, Shujah-i-Khafifah and Itlaf-i-Salahyat-i-Udw. Cases of acid burn were 09 (7.5%). Both men lost their eyes by acids; one person lost both eyes and the other lost one eye leading to lost of eye ball (Itlaf-e-Udw). Female got more injuries by acids than males but they did not lost their eyeballs. Their faces were disfigured (Itlaf-i-Salahyat-i-Udw). Acids burn in females in Pakistan had turned hot cake of media in our country. Different NGOs has put this problem on their top of agenda for funding from abroad that is why such cases turn leading stories of media. Four (3.33%) person lost their eyes by firearm injuries. In one case both eyes were blind even after vitrectomy. This person had got gunshot injury by carbine pellets. In another case whole one eye was injured and globe was disorganized and eye was enucleated to save other eye from sympathetic ophthalmitis. All cases of gunshot wound were of Itlaf-e-Udw. Such cases were dangerous to life as well. 72 (60%) patients which had no significant loss of vision were given topical treatment and were discharged on antibiotics / antifungal and cycloplegics eye drops, depending on the type and

nature of injury. Patients who had significant loss of vision were 48; they were treated according to the layers of eye ball involvement. Refractive eye surgery technique, for correcting the corneal abnormalities at the root of refraction-related vision problems myopia, hyperopia, and astigmatism was used. All of these surgical techniques involve reshaping the cornea so that (in the ideal case) eye-glasses or contact lenses are no longer necessary for bringing images into focus at the retina.<sup>12</sup>

## CONCLUSION

Responsibility and vigilance of Ophthalmologist is more important than Medicolegal Officer in these injuries because most of the patients were found malingering on subjective Visual Acuity. Few persons modify their type of wound to get 'Benefit' from court. Although in our study such modifications were not vision depriving but they enhance responsibility of Ophthalmologist. Real fact finding, detailed explanations, clear-cut and detailed medicolegal report must be given so that court may decide in a better way.

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