

RESEARCH ARTICLE

Clinical profile of medico-legal cases in ophthalmology

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ABSTRACT

Introduction: Ophthalmologists play an important role in the management and fixing of legal responsibility in ocular medicolegal cases (MLCs).

Objective: To describe the clinical profile of ocular medico-legal cases attending the ophthalmic unit at a tertiary care hospital in north India

Methods: Medical records of of ocular MLC from November 2015 to May 2018 were considered. The injuries were categorised as adnexal and globe injuries. The clinical profile was recorded in the clinical record forms and analyzed accordingly.

Results: Hundred and fifty six patients were enrolled in the study of which 88 % (137) were male. The mean age was 31.4 years. The most common mode of injury was assault with fist in 55% (86) of cases. Adnexal injuries were the most common n= 72 (46 %). Lid /periorbital contusion and subconjunctival hemorrhage were the most common presentations among adnexal and globe injuries respectively. Open globe injury occurred in 5% (8), of which all had poor prognosis. Malingering was present in 3 % (4). All presented with profound and sudden loss of vision with bleeding from the eye and 12 % (18) of patients had related preexisting ocular morbidity with the present injury.

Conclusion: Fist injury was the most common cause of trauma to the eye. A substantial number of patients who had adnexal injuries or subconjunctival hemorrhage had good vision, contrary to open globe injuries which resulted in very poor vision.

Recommendation: Medicolegal cases require meticulous eye examination along with clear and concise documentation. It is important to always correlate reduced vision with signs of recent injury and be aware of malingering.

Keywords: Medico-legal case, ophthalmic MLC, ocular trauma

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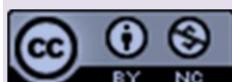
Article History

Received: 07.10.2020

Received in revised form: 26.01.2021

Accepted: 03.02.2021

Available online: 20.05.2021



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INTRODUCTION

A medico-legal case (MLC) has been defined as an inflicted injury or disease process where the treating doctor establishes the diagnosis by a thorough history, clinical examination, and investigations and determines responsibility according to the law of the land ¹.

Many cases of ocular trauma or illnesses are currently being registered as MLC (medico-legal cases) and present to an ophthalmologist for optimal management and to determine liability as per law. An ophthalmologist's role is to confirm the etiology,

assess the depth of injury, grade the type of injury, and establish the severity of the disability.

OBJECTIVE

To describe the clinical profile of ocular medico-legal cases attending the ophthalmic unit at a tertiary care hospital in north India

MATERIAL AND METHOD

The present study was conducted at a tertiary care ophthalmic center in north India. This was a hospital-based retrospective study. The Institutional Ethics committee approved the study protocol. The medical records of patients registered as ophthalmic MLC from November 2015 to May 2018 were considered. The criteria for labeling a case as a MLC included a history of assault, foul play, or accident (including road traffic accidents), patient's/patient's legal guardian's request to register as MLC and the medical officer's opinion. Clinical findings were recorded in the predesigned proforma and descriptive analysis was done on Epidata software.

The standard protocol for eye examination was adopted at the time of the medico-legal examination. Vision assessment on Snellen's chart, torchlight and slit lamp assisted ocular examination along with dilated fundus examination was done in all cases.

The cases were grouped as adnexal (extraocular involving orbit and lid) and globe injuries. Globe injuries include closed and open globe injuries. A full-thickness wound of the sclera and cornea was defined as "open globe injury (OGI)." "Closed globe injury (CGI)" was defined as one in which no full-thickness wound of the sclera and cornea was present.

Injuries were categorized for medicolegal purposes.

RESULTS

Hundred and fifty six patients were identified as ocular MLC. Eighty eight percent (137) were male. The age ranged from 3-85 years with a Mean \pm SD of 31.4 ± 12.8 years. Of this, only 10% (16) were less than 18 years and 5%(7) patients had bilateral eye involvement. The most common mode of injury was assault with fist in 55% (86) of cases, followed by road traffic accident in 12% (19), wooden stick injury in 11% (17) and metal rod injury in 6% (9) of patients. Five percent of patients were injured with a sharp object like an axe (n=2), spade (n=2), ballpoint pen, scissors, screwdriver and pointed part of an umbrella. Firearm injuries were seen in 3%, while 8% of injuries were caused by miscellaneous objects such as stones, bricks, belts, utensils, chains, shoes, heavy boxes, nuts and bolts. (Figure 1)

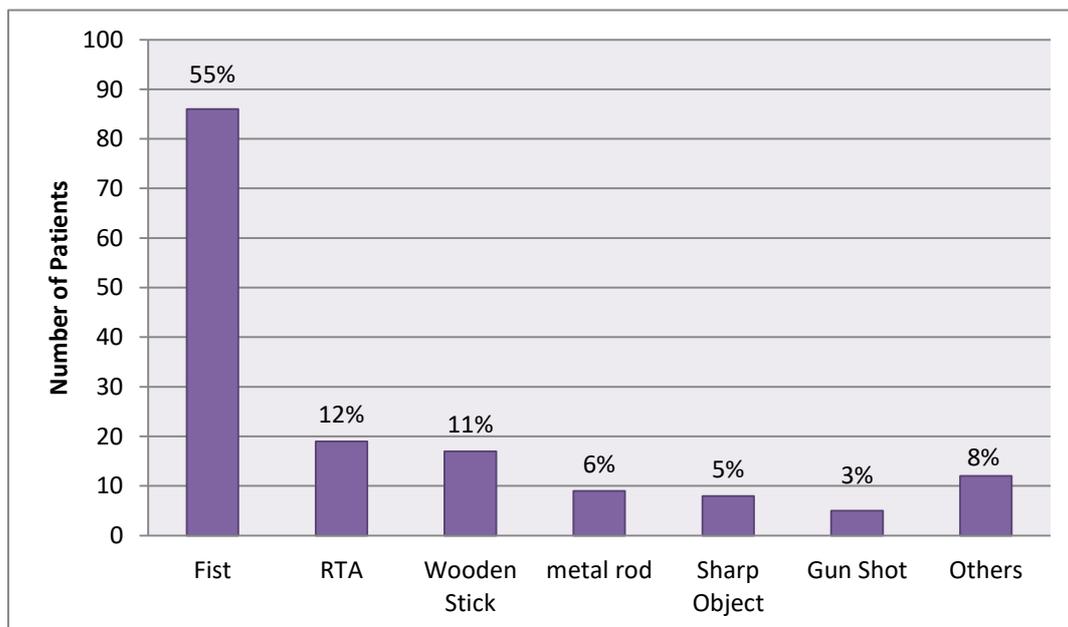


Fig. 1: Mode of Trauma

Workplace injuries accounted for 6 % (9) of cases where four injuries occurred due to mishap involving machinery (chain, grinding machine, nut bolt, strap belt in a rolling machine) and five were due to assault at the workplace.

About 30 % (46) and 65 % (101) of cases were recorded from home and outside, respectively. In 68%(106) of cases, assailants were known to the patient and in 14% (22) of cases, there was either no assailant or the injury was unintentional (workplace or RTA).

Adnexal injuries were most common, 46% (72), while globe injuries were present in 30% (46) of cases. Adnexal and globe combined injuries accounted for about 24% (38) of cases. In the present study, the visual acuity of patients was 6/12 or better in 69% (106), 6/60 - <6/12 in 18% (27) and <6/60 in 13% (20). For all patients with open globe injuries, 6%(8) had poor vision (ranging from counting fingers to no perception of light). In 3 patients, vision could not be assessed because of severe head injury. Pain 90% (141), redness 65 % (102), decreased vision 35% (54) and swelling 26% (40) were the major presenting symptoms. Among closed globe injuries, subconjunctival hemorrhage present in 33% (52) was the most common presenting sign. The relative afferent pupillary defect was present in all patients with open globe injury and seven patients with closed globe injury.

Among those with open globe injury one had globe rupture, one had corneoscleral tear involving pupillary area, three had corneal tear involving pupillary area, and three had scleral tear. The common ocular presentations following trauma are shown in Table 1.

Table 1: Common traumatic presentations in ocular medico-legal cases

Presentation	% (no.)
Adnexal contusion	45(70)
Subconjunctival hemorrhage	33(52)
Adnexal laceration	18(28)
Traumatic uveitis	05(8)
Hyphaema	05(8)
Traumatic mydriasis	05(7)
Globe penetration	05(7)
Corneal abrasion or foreign body	03(4)
Vitreous hemorrhage	03(4)
Retinal and choroidal hemorrhage	03(4)
Traumatic cataract	02(3)
Macular hole	01(1)
Traumatic optic neuropathy	01(1)
Globe rupture	1%(1)

Among 54 patients who presented with decreased visual acuity due to recent mechanical injury, malingering was present in 3% (4) of patients. In 12% (18), pre-existing ocular morbidity was responsible for decreased vision rather than the recent injury. The typical symptom among malingerers was bleeding from the eye associated with vision loss. Their reported vision ranged from counting fingers close to face(CFCF) to no perception of light (NO PL). Table 2 shows the description of pre-existing ocular morbidity, which was claimed to be caused by a recent assault.

Table 2: Frequency of Pre-existing ocular morbidity

Ocular Morbidity	% (no.)
Refractive error	6(9)
Anisometropic amblyopia	1(2)
Phthisis	1(2)
High myopia	1(1)
Cataract	1(2)
Optic atrophy	1(1)
Old Retinal detachment	1(1)

DISCUSSION

The present study highlighted the patient's clinical profile and ocular presentation in medico-legal cases presenting to the ophthalmic unit at a tertiary care hospital in north India. The most common mode of injury in the present study was assault with fist. Adnexal injuries were most common, followed by globe injury and combined injuries, respectively. Lid /periorbital contusion and subconjunctival hemorrhage were the most common presentation among adnexal and globe injuries, respectively.

The present study highlighted the importance of meticulous eye examination to rule out malingering and to differentiate pre-existing ocular morbidity from recent injury. It also highlighted that, at times, the final report could not be given immediately, as the patient may require additional investigations and observation to report the definitive diagnosis.

Similar to previous studies on ocular trauma, the present study has also shown male dominance with a male to female ratio of 7:1⁵⁻⁷. According to previous studies, a majority of injured patients were young, with an average age of around 30 years^{6,7}. In the present study, patient age ranged from 3-85 years with a Mean \pm SD age of 31.4 \pm 12.8 years. In previous studies, the fist has been reported as the most common mode of trauma^{6,7}.

In the present study too, the most common cause of trauma among medico-legal cases is fist injury (55%), followed by RTA (12%). Road traffic accidents were the 2nd most common mode of injury and had severe threat to life. Adnexal /extraocular injuries form a major group of injuries. Among adnexal injuries, contusion (45%) and adnexal laceration (18%) were the most common presentations. If severe, they can lead to facial disfigurement or functional impairment, leaving a considerable impact on patients' social, personal and psychological wellbeing.

Among the injuries involving the globe, subconjunctival hemorrhage was present in 33% of patients and was the most common presentation, followed by traumatic uveitis and hyphaema, which was present in 5% of patients each.

Nearly 84% of patients had vision 6/12 or better, similar to previous study^{6,7}, depicting adnexal and subconjunctival hemorrhage as the most common injury.

Posterior segment involvement in the form of vitreous, choroidal and retinal hemorrhage, traumatic macular hole and traumatic optic neuropathy were documented.

In the present study, a patient with a superficial foreign body developed a central corneal ulcer, leading to decreased vision; similarly, a macular hole was noticed once the vitreous hemorrhage was resolved in one patient. Therefore, a definitive opinion should not be given immediately, patient should be kept under observation with relevant investigations as the visual disability changes till the final outcome. In specific scenarios, though the visual acuity returns to normal following treatment, there is always a risk of severe future complications. Like in the case of traumatic cataract, visual acuity may return to normal following cataract extraction with intraocular lens implantation. However, there is loss of accommodation in young patients and the surgery is also not always free of complications. Similarly, in vitreous hemorrhage and hyphaema, visual acuity may return to normal. However, there is a future risk of complications such as secondary glaucoma, proliferative vitreoretinopathy changes and retinal detachment. Hence despite favourable vision following treatment, such types of injuries are graded as grievous considering the risk associated.

In the present study, in a majority of medico legal cases, the assailant is known. These injuries may be inflicted as a result of revenge, social conflicts, or for

financial reasons. Patients complain of decreased vision after recent injury for unfair advantage. This study has also witnessed malingering in 4 patients. All presented with complaints of bleeding from the eye followed by a sudden diminution of vision ranging from counting fingers close to face to no perception of light. On evaluation, these patients were found to have haemorrhage from the conjunctiva or lid. It has been noted that patients attempt to take advantage of such situations by complaining of sudden diminution of vision. This study also documented that around 12% of patients stated pre-existing morbidity as recent injury.

The ophthalmologist should have a comprehensive understanding of the legal aspects involved in these cases and perform a meticulous examination and note all relevant findings objectively along with important negative signs. Any evidence of malingering and signs which differentiate pre-existing illness from the recent injury should be documented appropriately. In some situations the patients insistence has led the ophthalmologists to perform electrophysiological tests to rule out blindness.

Illustrating the wound diagrammatically with the measurements, determining VA (visual acuity), IOP (Intraocular pressure) and pupillary reaction are essential features of documentation. Such reports must be kept concise and comprehensible, with the doctor's signature and saved for future references. The records should be kept for three years or until the judgement has been given by court⁷.

CONCLUSION

Assault by fist is the most common cause of trauma to the eye. A substantial number of patients who had adnexal injuries or subconjunctival hemorrhage had good vision, contrary to open globe injuries, where vision was poor.

RECOMMENDATION

Medico-legal cases require meticulous eye examination along with clear, concise and accurate documentation. It is necessary to correlate reduced vision with signs of recent injury to rule out malingering, pre-existing ocular morbidity and foul play by patients.

ETHICAL ISSUES

None

CONFLICTS OF INTEREST

The authors have no conflicts of interests to disclose.

AUTHOR CONTRIBUTIONS

PG: Concept, Design, Data collection, Manuscript preparation, Interpretation; **AS:** Concept, Manuscript review, Literature review; **KR:** Concept, Manuscript review, Literature review.

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