Original Research Paper

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Ophthalmology

CLINICAL PROFILE OF MEDICOLEGAL CASES IN TERTIARY EYE CARE CENTRE

Maridi Aparna*

Junior Resident, Ophthalmology, Andhra Medical College, Visakhapatnam
* Corresponding Author

ABSTRACT

AIM: To study clinical profile of medicolegal cases(MLC) in tertiary eye care centre

METHODS: In cross sectional study,61cases were grouped as per Ocular Trauma Classification Group based on Birmingham Eye Trauma Terminology

RESULTS: Out of 61MLCs,53(87%)were male,8(13%)were female. Mechanical trauma present in 55(90%) patients with injury to globe in 36(55%) patients and injury to adnexa sparing globe in 19(35%) patients.Closed globe injury(CGI)in 26pts&open globe injury(OGI)in 10pts.Most common type of injury ,zone , pupil ,grade of injury in CGI were Type A-contusion(79%),Zone I(72%),Pupil B(no RAPD)in 95%,GradeA[visual acuity (VA)≥20/40]in 68% of the eyes .most common type of injury , zone, pupil, grade of injury in OGI were Type B-penetrating(48%),Zone II(38%), Pupil B(59%),Grade D(VA 4/200-PL)(42%).Chemical injury in 6(3%)pts

CONCLUSION: Commonest form and mode of ocular injury in MLC were CGI and fist respectively. Commonest type of injury in CGI and OGI were contusion and penetrating injury.

KEYWORDS : Birmingham Eye Trauma Terminology, Closed Globe Injury

INTRODUCTION

- Medicolegal case(MLC) is defined as "a case of injury/ illness where the attending doctor, after eliciting history and examining the patient, thinks that some investigation by law enforcement agencies is essential to establish and fix responsibility for the case in accordance with the law of the land".
- Such cases are frequently encountered in ophthalmic practice. However, there no proper literature is available on the epidemiological data of MLCs in Ophthalmology.
- Hence this study helps in describing the clinical profile of MLCs attending tertiary eye care center.

AIM

- Purpose of this study was to analyze the clinical profile of medicolegal cases (MLCs) presenting to a tertiary eye care hospital.

MATERIALS AND METHODS

- **STUDY DESIGN:** HOSPITAL BASED OBSERVATIONAL **STUDY STUDY PERIOD:** AUGUST 2018 TO MAY 2019
- **STUDY SOURCE:** PATIENTS ATTENDING TO DEPARTMENT OF OPHTHALMOLOGY,GOVERNMENT REGIONAL EYE HOSPITAL, VISAKHAPATNAM
- **TOTAL MLC CASES RECORDED:** 61 CASES
- The criteria for labelling a case as MLC included are -history of assault-foul play or accidents including road traffic accidents (RTAs)
- Details of each patient were taken. Details included MLC number, patient's name, father's name, age, sex, caste, occupation, residence, name of accompanying person, date of examination, identification marks.
- Detailed history regarding the trauma, mode of injury, object causing injury is asked
- **Detailed clinical examination is done**

1. vision-Automated refraction, Subjective verification , extraocular movements are noted
2. under slit lamp examination: lids and adnexa, anterior segment-conjuctiva,cornea,sclera anterior chamber – depth and contents, pupil reactions, iris ,lens
3. fundus examination by 78D, indirect and direct ophthalmoscopy

- **Ocular trauma can be classified based on mechanism of injury into**
- **1.Non-Mechanical 2. Mechanical**

NON -MECHANICAL

- **Injuries to eye due to physical agents can result from: -**

1. Thermal
2. Chemical
3. Radiation Injuries
4. Electrical Agents

MECHANICAL

Fig. 1. BETTS. The double-framed boxes show the diagnoses that are used in clinical practice

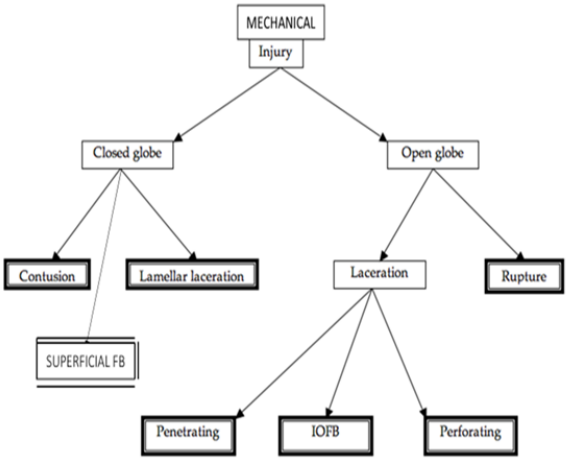


TABLE 373.8. Proposed Ocular Injury Classification Schemes

Open Globe Injury Classification
Type A. Rupture B. Penetrating C. Intraocular foreign body D. Perforating E. Mixed
Grade Visual acuity* 1. ≥20/40 2. 20/50–20/100 3. 19/100–5/200 4. 4/200 to light perception 5. No light perception†
Pupil Positive: relative afferent pupillary defect present in affected eye Negative: relative afferent pupillary defect absent in affected eye Zone I: Isolated to cornea (including the corneoscleral limbus) II: Corneoscleral limbus to a point 5 mm posterior into the sclera III: Posterior to the anterior 5 mm of sclera
Closed Globe Injury Classification *Type* A. Contusion B. Lamellar laceration C. Superficial foreign body D. Mixed
Grade Visual acuity* 1. ≥20/40 2. 20/50 to 20/100 3. 19/100 to 5/200 4. 4/200 to light perception 5. No light perception†
Pupil Positive: relative afferent pupillary defect present in affected eye Negative: relative afferent pupillary defect absent in affected eye Zone‡

I: External (limited to bulbar conjunctiva, sclera, cornea)
II: Anterior segment (involving structures in anterior segment internal to the cornea and including the posterior lens capsule; also includes pars plicata but not pars plana)
III: Posterior segment (all internal structures posterior to the posterior lens capsule)

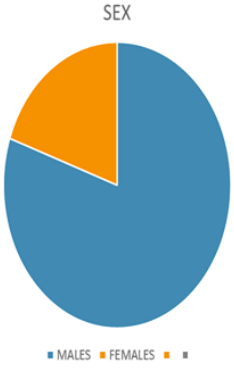
TABLE 373.7. **Proposed Ocular Trauma Terminology: Definitions of Ocular Traumatology Terms**

Term	Definition	Remarks
Eyewall (corneosclera)	Sclera and cornea.	Although technically the wall of the eye has three tunics (coats) posterior to the limbus, for clinical purposes it is more feasible to restrict the term eyewall to the rigid structures of the sclera and cornea.
Closed globe	The eyewall (corneosclera) does not have a full-thickness wound.	Caused by partial-thickness sharp force (lamellar laceration), blunt force (contusion), and superficial foreign body.
Open globe	The eyewall (corneosclera) has a full-thickness wound.	The cornea or sclera sustains through-and-through injury.
Rupture	Full-thickness wound caused by a blunt object.	The eyewall gives way under blunt force at its weakest point, which may or may not be at the impact site.
Laceration	Full-thickness corneal and/or sclera wound caused by a sharp object.	The wound (globe opening) occurs at the site of impact; pellet and BB injuries, although having significant blunt forces, are considered lacerations.
Penetrating injury	Single, full-thickness wound of the eyewall (corneosclera), usually caused by a sharp object.	No exit wound has occurred.
Intraocular foreign body injury	The retained foreign object causes a single entrance wound.	Technically a penetrating injury, but grouped separately because of different clinical implications (treatment, prognosis).
Perforating injury	Two full-thickness wounds (entrance and exit) of the eyewall (corneosclera), usually caused by a missile.	The two wounds are caused by the same agent.
Contusion	Closed globe injury resulting from a blunt object; injury can occur at the site of impact or at a distant site secondary to changes in globe configuration or momentary intraocular pressure elevation.	No full-thickness eyewall injury.
Lamellar laceration	Closed globe injury of the eyewall (corneosclera) or bulbar conjunctiva, usually caused by a sharp object; the wound occurs at the impact site.	Partial-thickness defect of bulbar conjunctiva or eyewall.
Superficial foreign body	Closed globe injury resulting from a projectile; the foreign body becomes lodged into the conjunctiva and/or eyewall (corneosclera) but does not result in a full-thickness eyewall defect.	The force of impact may be blunt, sharp, or both.

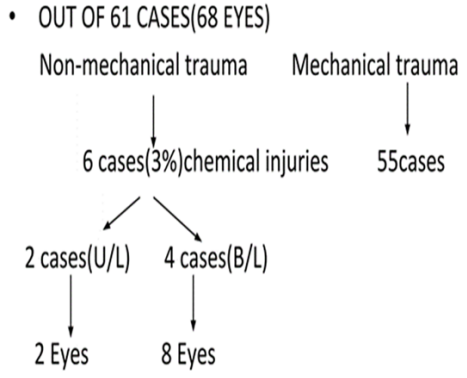
RESULTS

- Total MLC cases – 61
- Cases involving both eyes – 7
- Total eyes involved -68

OUT OF 61 CASES 53(87%)were male, 8(13%)were female
Mean age is 31.6(±12.7) yrs



53(87%) males, 8(13%)females



MECHANICAL TRAUMA

TYPE OF INJURY	NO. 0F CASES
OCULAR INJURY	36
EXTRA OCULAR INJURIES (LIDS AND ADNEXA)	19
TOTAL	55 CASES

EXTRA OCULAR INJURY CASES

EXTRA OCULAR INJURY CASES	19 CASES
LID LACERATIONS	7CASES(7 EYES)
INF. ORBITAL WALL #	1 CASE(1 EYE)
ECCHYMOSIS	11 CASES(1 CASE BILATERAL INVOLVED) 12 EYES
TOTAL EYES	20 EYES

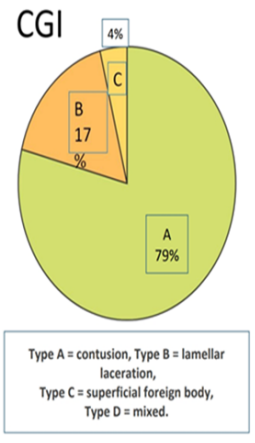
OCULAR INJURY CASES

OCULAR INJURY CASES	36 CASES	38 EYES
OPEN GLOBE	10CASES	10 EYES
CLOSED GLOBE	26 CASES(1 CASE BOTH EYES INVOLVED)	28 EYES

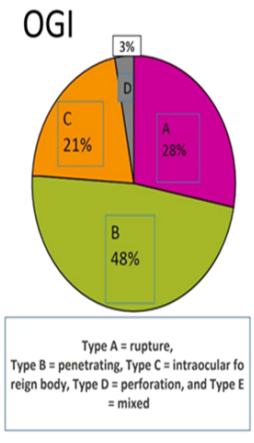
MODE OF INJURY

MODE OF INJURY	NO. OF PATIENTS
FIST	26
RTA	13
STICK	8
STONE	7
CHEMICAL	6
OTHERS	1

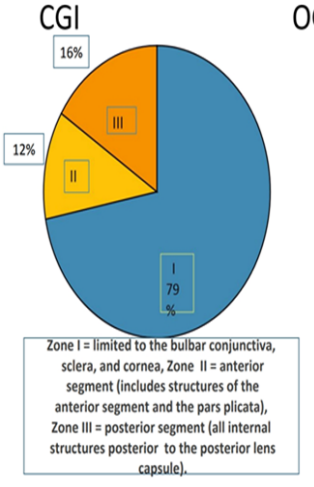
CLOSED GLOBE INJURIES (CGI)



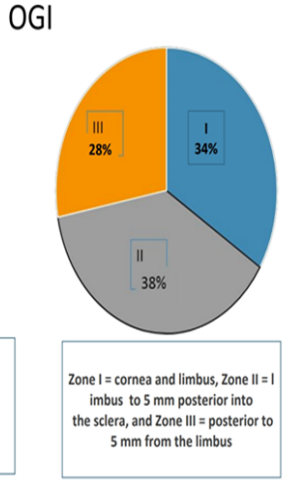
OPEN GLOBE INJURIES: (OGI)



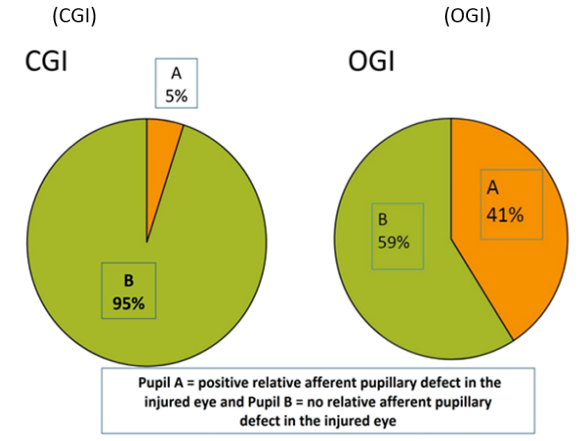
CLOSED GLOBE INJURIES (CGI)



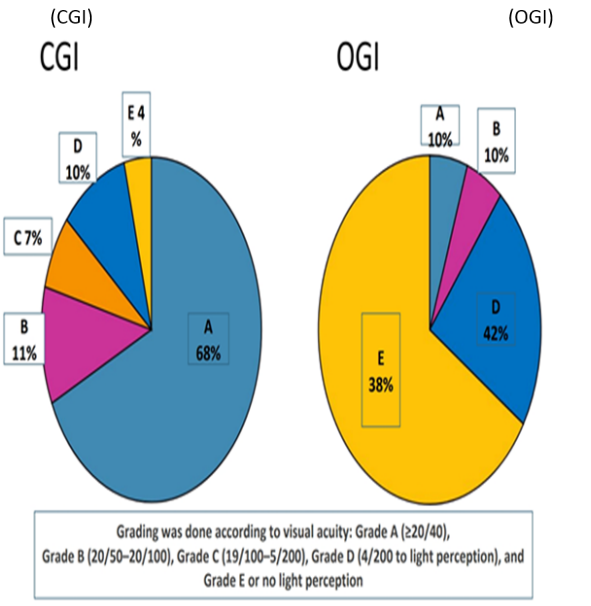
OPEN GLOBE INJURIES: (OGI)



CLOSED GLOBE INJURIES OPEN GLOBE INJURIES:



CLOSED GLOBE INJURIES OPEN GLOBE INJURIES:



DISCUSSION

- As in most previous studies on ocular trauma, we also found a high male: female ratio (6.6:1). According to the literature, approximately, 80% of those injured are males, male/female ratio in the United States Eye Injury Registry (USEIR) was 4.6:1
- Mostly, adults of third to fourth decades (62%) presented as MLC. According to the our studies, most of those injured are young with an mean age around 31.6 years. The average age in the USEIR is 33 years.
- In our series, 42% of the patients presented had trauma with fist, which was the most common mode of injury
- Most commonly, contusion(type A) injury was seen with CGI.
- The most common zone involved was Zone I (79%), usually in the form of subconjunctival hemorrhage (57%).
- Sixty-eight percent of the eyes had VA of more than 20/40, suggesting a lack of significant posterior segment trauma and the injury not causing media opacities in most CGI cases. In cases of CGI, RAPD was seen in 5%. It was due to post-traumatic optic neuropathy in all such cases.
- OGI cases presented with more severe involvement, with the most common type being penetrating (Type B) in 48% of the cases. In 66% of the cases, Zone II or III was involved.
- Eighty percent of the OGI had VA of 4/200 or worse. A significant number of eyes (10) had NLP (Grade E).
- Two patients (two eyes) had no light perception along with severely damaged distorted globes with extrusion of intraocular contents following road traffic accident
- Two other eyes had proptosis at presentation, for which a retrobulbar hemorrhage was suspected and CT scan was ordered. However, the details of the CT scan report were not available.
- In two eyes, ultrasound showed retinal detachment with suprachoroidal hemorrhage
- In 2 eyes IOFB noted
- 19 patients had only lid or orbital trauma, with no evidence of trauma to the globe.

CONCLUSION

- CGIs were the most common injuries seen in MLCs of our series.
- The most common mode of blunt trauma causing CGI was fist injury.
- In our series, most cases involved Zone I or II with a good presenting vision
- On the contrary, MLCs with OGI,penetrating injury is most common involving Zone II most frequently, of which many cases had lost the perception of light.
- A substantial number of patients had trauma to lid or orbit without any evidence of injury to the globe. Minute examination with detailed professional documentation is very important in such cases.

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