



A REVIEW OF OCULAR EMERGENCIES OF THE YEAR 2025 IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Ocular emergencies constitute a significant cause of ocular morbidity and visual impairment worldwide. Prompt recognition and appropriate management are crucial, as delayed or improper treatment can lead to permanent visual loss with profound socio-economic implications. This study aimed to evaluate the prevalence, patterns, and management of ocular emergencies in an urban Indian population. A retrospective study was conducted using medical records of patients presenting with ocular emergencies at a tertiary care hospital between 1 January and 31 December 2025. Data regarding age, gender, laterality, presenting complaints, type of injury, diagnosis, and primary treatment were collected. Ocular trauma cases were classified according to the Birmingham Eye Trauma Terminology System into closed globe and open globe injuries. Detailed ophthalmic examinations were performed, and data were analysed using SPSS software with statistical significance set at $p < 0.05$. A total of 531 patients were included, of whom 76.27% were males. The majority belonged to the 21–30 year age group, followed by 31–40 years, highlighting a higher vulnerability among the working-age population. Unilateral involvement was predominant (86.81%). Closed globe injuries constituted the majority of ocular emergencies (82.67%), with lamellar lacerations being more common than contusions. Open globe injuries accounted for only 3.20% of cases and were mainly penetrating injuries. Among non-traumatic conditions, viral conjunctivitis was the most frequent. Nearly half of the patients (49.15%) required surgical intervention, while the remainder were managed medically. A bimodal seasonal peak was observed, with increased cases during summer and winter months. In conclusion, ocular emergencies predominantly affect young adult males and commonly present as unilateral closed globe injuries with favourable visual prognosis. Strengthening public awareness, enforcing safety measures, and ensuring early intervention can significantly reduce ocular morbidity and the healthcare burden associated with ocular emergencies.

KEYWORDS : Ocular Trauma, Emergencies, Visual Prognosis

INTRODUCTION

Ocular emergencies are one of the important causes of ocular morbidity. According to the NPCBVI (National Programme for Control of Blindness and Visual Impairment), ocular emergencies contributed to 12.7% of the total blindness burden and 15.3% of the total visual impairment burden in India in 2019–2020^[1,2]. Globally, there are approximately 1.6 million people who are blind from eye injuries, 2.3 million are bilaterally visually impaired, and 1.9 million have unilateral visual loss.^[3]

The severity of ocular injury includes a vast range of conditions, ranging from simple subconjunctival haemorrhage, lid tears, foreign body injuries to lens dislocation, chemical injuries, vitreous haemorrhage, retinal detachment, traumatic optic neuropathy, orbital fracture, and globe rupture. Initial interventions in these injuries play a major role in improving visual outcomes. Improper management can result in severe visual impairment, leading to significant socio-economic and medico-legal implications.

The present study aims to evaluate the ocular emergency prevalence in an urban Indian population.

METHODS

A clinical observational retrospective study was carried out in the outpatient department of ophthalmology clinic of our hospital. The available medical records served as data for assessing ocular emergencies. Ocular emergencies presenting in hours after routine OPD timings from 1st January 2025 to 31st December 2025 were taken into consideration. The data extracted were gender, age, presenting complaints, type

of injury, clinical diagnosis and primary treatment given. Cases of Ocular trauma were classified as per BETTS's Classification^[4] (Birmingham Eye Trauma Terminology System) into Closed globe injuries and Open globe injuries. Closed globe injuries (CGIs) were classified as a contusion or a lamellar laceration. The open globe injuries (OGIs) were classified as a rupture, penetration, intraocular foreign body-related, or perforation. Other types of emergencies were also noted.

Detailed ophthalmological examination of all patients was carried out. Snellen's chart was used to record visual acuity. Anterior segment evaluation was carried out by slit lamp biomicroscope. Fundus examination if required was done with direct and indirect ophthalmoscopy. Tonometry, X-Ray orbit and ultrasonography was done if required. Data was analysed using SPSS software and results were formulated at significance level of $P < 0.05$.

RESULTS

Out of the 531 patients included in the study, 405 patients (76.27%) were males and 126 patients (23.72%) were females. The age distribution in our study was as follows:

Table 1 Age Distribution in the Study

Age group (Years)	No of Patients	Percentage of Study Population
0-10	53	9.98%
11-20	70	13.18%
21-30	168	31.63%
31-40	119	22.41%

41-50	76	14.31%
51-60	34	6.40%
>60	11	2.07%

Maximum number of patients belonged to 21-30 years age group (31.63%) followed by 31-40 years (22.41%) and 41-50 years (14.31%). The incidence of ocular emergencies were least in the age group of patients above 60 years old (2.07%).

Based on laterality of eyes, 461 patients (86.81%) had unilateral eye involvement while 70 patients (13.18%) had bilateral eye involvement. Majority of bilateral ocular emergencies were constituted by viral conjunctivitis (31.42%) followed by contusion injuries presenting as subconjunctival haemorrhage (28.57%) and eyelid ecchymosis (21.42%).

The following table shows different types of ocular emergencies that presented to our hospital during the year of 2025:

Table 2 Ocular Emergencies

Type of Injury	No of Patients	Percentage of Study Population
Traumatic causes		
Closed globe injuries		
Contusion		
Eyelid ecchymosis	88	16.6%
Subconjunctival Haemorrhage	106	20%
Hyphaema	2	0.4%
Lamellar laceration		
Clean lacerated wound (CLW)	124	23.4%
Corneal foreign body	113	21.3%
Corneal epithelial defect	6	1.1%
Open globe injuries		
Rupture		
Penetrating		
Corneal tear	6	1.1%
Scleral tear	3	0.6%
Conjunctival tear	8	1.5%
Perforating		
IOFB		
Non traumatic causes		
Corneal ulcer	7	1.3%
Viral conjunctivitis	39	7.3%
Allergic conjunctivitis	16	3%
Chemical injury	2	0.4%
Episcleritis	1	0.2%
Firecracker injury	7	1.3%
Dog bite	3	0.6%

Closed globe injuries was the commonest presentation of ocular emergencies (439 patients- 82.67%) followed by Viral conjunctivitis (7.3%). Amongst CGI's, lamellar laceration was more common (243 patients- 45.76%) than contusion (196 patients- 36.91%). Highest number of cases of lamellar laceration were constituted by Clean lacerated eyelid wounds followed by Corneal foreign bodies. Contusion type of injuries mainly comprised of Subconjunctival haemorrhage followed by eyelid ecchymosis. Open globe injuries comprised 3.20% of ocular emergencies which comprised mainly of penetrating wounds (corneal, scleral or conjunctival tears).

The month wise distribution of ocular emergencies was also documented to look for any trends. It is as follows:

Table 3 Monthwise Distribution of Ocular Emergencies

Month	No of Patients	Percentage of Total Patients
January	34	6.40%
February	29	5.46%
March	34	6.4%
April	39	7.34%
May	58	10.92%
June	57	10.73%

Month	No of Patients	Percentage of Total Patients
July	42	7.91%
August	36	6.78%
September	42	7.91%
October	49	9.23%
November	42	7.91%
December	69	12.99%

Out of all the emergencies, 49.15% underwent surgical intervention (261 patients) while 50.85% were treated by medical management (270 patients). The patients who had some sort of surgical intervention were distributed as follows:

Table 4 Management of Ocular Emergencies

Type of emergency	No of Patients	Surgical Modality
Lamellar laceration		
Clean lacerated wound	124	Tear repair
Corneal foreign body	113	Foreign body removal
Penetrating trauma		
Corneal tear	6	Tear repair
Scleral tear	3	Tear repair
Conjunctival tear	8	Tear repair
Dog bite	3	Stay sutures with Anti rabies immunoglobulin
Firecracker injury	4	As per injury

DISCUSSION

The sex distribution in the study suggests that males (76.27%) have higher preponderance to present with ocular emergencies compared to females (23.72%). This may be due to their higher chances of being involved in outdoor activities, as a source of their livelihood. Apart from that males are frequently involved in road traffic accidents and factory place incidents. Sahu et al. [5] showed a higher prevalence of ocular trauma among males, with a male to female ratio of 4.5:1. This is also consistent with a study by Mukhopadhyay et al [1] who found that males (55.9%) were more affected than females (44.1%), which resembles many other researches [6-9].

As maximum number of patients presenting in the age groups of 21-30 years (31.63%) and 31-40 years (22.41%) in our study, it can be said that adults in their prime age are more susceptible to ocular emergencies due to their daily activities, profession, adventurous nature and fearless attitude. Patients above 60 years old are least susceptible to injury due to their retired lifestyle and lack of activity.

A study by Sahu et al. [5] and Mohanty et al. [10] reported that the 21-30 year old age group was the most affected by ocular trauma, which aligns with our study population. Pham et al. [11] and Patel et al., [12] who also reported a peak incidence of ocular trauma in the working-age population. The higher incidence of ocular injuries among the young and productive age group has long-lasting effects on their productivity and imposes a significant economic burden on both the affected individuals' families and societies [3].

Majority of the patients in our study had unilateral eye emergency (86.81%) rather than bilateral emergencies (13.18%). This was similar to Maurya et al. [3] that reported 91.5% and Sahu et al. [5] who reported 81.6% unilateral eye involvement respectively.

The month wise distribution of ocular emergencies bowed a bimodal peak, once during the winter month of December and once during the summer months of May and June. Maurya et al. [3] also showed that cases are particularly concentrated in summer (43.5%) than rainy (31.6%) and winter (24.9%) season, depicting its seasonal trend in occurrence which can be attributed to school holidays and outdoor activities in summers.

In our study, Closed globe injuries was the commonest

presentation (82.67%). In the study by Maurya et al.^[9], blunt injuries predominate (56%) and only 17% of injuries were caused by sharp objects. In our research, amongst CGI's, lamellar laceration was more common (45.76%) than contusion (36.91%). Highest number of cases of lamellar laceration were constituted by Clean lacerated eyelid wounds (23.4%) followed by Corneal foreign bodies (21.3%). This may be due to lack of emergency- attending eye clinics in our district and higher incidence of road traffic accident victims and medico legal cases reporting to our hospital. The CLW suturing is done promptly and gives better cosmetic and physiological prognosis. Foreign bodies are removed immediately by slit lamp examination and patient is treated with appropriate antibiotics and lubricant eye drops.

Contusion type of injuries mainly comprised of Subconjunctival haemorrhage (20%) followed by eyelid ecchymosis (16.6%). All the cases of blunt trauma are treated appropriately and subjected to X-ray orbit or CT Brain scan depending on the history of head trauma or Ear/ Nose/ Throat bleeds.

Open globe injuries comprised 3.20% of ocular emergencies which comprised mainly of penetrating wounds. Corneal, scleral or conjunctival tears are thoroughly examined on slit lamp, followed by ocular ultrasonography if required, thorough preoperative work up and sutured in the operation theatre by a skilled ophthalmologist. Early tear repairs have shown a favourable outcome compared to patients presenting late after the trauma. Few patients who need to be operated under General Anaesthesia are operated after being deemed fit for the same.

The majority of patients in the study by Sahu et al.^[5] experienced CGIs, accounting for 87.7% of cases, while OGIs were observed in 12.2% of patients. Our findings are harmonious with studies by Park et al.^[13] and Kinderan et al.^[14] that reported more CGIs than OGIs in their subjects of ocular injuries. However, Choovuthayakorn et al.,^[15] in their study on the Thai population, reported a marginally higher proportion of OGIs than CGIs (48.6% vs. 43.8%) and observed that contusions and lamellar lacerations were the most common injury patterns in their subjects with CGIs.

Viral conjunctivitis (7.3%) cases present maximum in the months of May to December due to higher causes of viral cough/ cold during those months, higher transmissibility and being confined to the house due to rough weather. Allergic conjunctivitis (3%) also showed high incidence during the monsoon season due to pollen and dust dispersion. Firecracker injuries (1.3%) present mainly during the festival of Diwali in our country.

The leading causes of ocular trauma in study by Mukhopadhyay et al. also were trauma (32.8%), infection/ inflammation (34.5%), glaucoma (24.7%), and others (8%). The high frequency of trauma-related ocular injuries may be attributed to the various sources of mechanical, chemical or thermal injury that can affect the eye, such as road traffic accidents, sports activities, occupational hazards, domestic violence, animal attacks and environmental factors^[1]. Akgun et al.^[6], Pham et al.^[11] and Patel et al.^[12] also showed similar findings of highest reports of ocular trauma among all ocular emergencies.

49.15% patients of our study underwent surgical intervention while 50.85% were treated by medically. Maurya et al.^[9] treated 50% of patients medically, 40% underwent ocular surgery while rest 10% required multidisciplinary surgery.

CONCLUSION

Unilateral, closed globe injuries in males are the most frequently observed presentation of ocular emergencies.

Visual acuity is usually unimpaired in these injuries therefore giving it a favourable visual prognosis.

Ocular trauma being a major aetiology for blindness, safety measures, use of protective equipment and public awareness can markedly reduce occupational hazards. Road safety awareness is necessary to reduce the occurrence of accidents. An upgrade in awareness regarding ocular injuries can decrease or prevent its community incidence.

Early intervention and awareness towards ocular injuries can reduce the healthcare burden of ocular emergencies. Further studies with a larger sample size and longer follow up period are required for a better estimate.

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