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Original article

Anterior segment findings in cases of road traffic accidents in tertiary care hospital

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Abstract:

Introduction: This study provides a comprehensive analysis of ocular trauma resulting from road traffic accidents over a two-year period, emphasizing demographics, injury characteristics, and visual outcomes at Pravara Institute of Medical Sciences.

Methodology: This study, conducted at the Pravara Institute of Medical Sciences over a two-year period from October 2019 to September 2021, aimed to comprehensively analyze ocular trauma resulting from road traffic accidents (RTAs). A total of 175 patients were evaluated within the casualty, surgery, and ophthalmology departments.

Results: The study revealed a higher incidence of ocular trauma in males (58%) compared to females (42%), with the age group of 21-30 years being the most commonly affected (30.28%). The majority of patients (98.28%) presented to the hospital within 24 hours of the RTA, emphasizing the promptness of medical intervention. Closed globe injuries (92%) were predominant, with subconjunctival hemorrhage being the most common anterior segment finding. Visual acuity assessment showed that 53.71% of patients had acuity greater than 6/12.

Conclusion: The study underscores the need for educating individuals on traffic rules and safety measures to mitigate ocular injuries in RTAs. It also highlights the importance of timely medical intervention for better visual outcomes.

Keywords: Ocular trauma, Road traffic accidents, Closed globe injuries, Visual acuity, Safety measures.

Introduction

Road traffic accidents (RTA) are common occurrences every day. Eye injuries, often resulting in some visual loss, create enormous costs both to the victim and to society. There is great need for more active interest in the prevention of eye injuries. It is necessary to accumulate relevant data of damage caused by road traffic accidents (RTA). This two-year study, from October 2019 until March 2021, reports the ocular trauma in 175 patients who suffered from trauma due to road traffic accidents. Ocular trauma is one of the major causes of preventable blindness & visual impairment. Trauma to eye remains a leading cause of visual morbidity and blindness constituting approx. 75%of ocular emergencies presenting to the hospital [1]. Worldwide, every year there are approximately 1.6 million people blinded from ocular injuries, and approximately 2.3million people with bilateral low vision resulting from eye injuries [2].With 15 million yearly cases worldwide, ocular trauma is the third most common ophthalmic indication for hospitalization and one of the most common cause of mono ocular blindness in India.[3] The ocular trauma can cause severe and permanent visual impairment owing to delicate and complex structure of the eye.[4.5] Clear road signs and markings and guiding traffic and drivers using fluorescent signs clearly visible during darkness are a helpful measure to prevent RTAs.[6,7]The damage caused due to ocular injuries because of road traffic accident may require conservative treatment or a careful intricate surgical management. They may resolve without any complications or end with loss of visual function partially or completely in affected eye.

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Material and methods

The study took place within the departments of casualty, surgery, and ophthalmology in Pravara institute of medical sciences , Loni.The study was structured as a descriptive cross-sectional analysis. The research spanned a period of two years, from October 2019 to September 2021. These individuals underwent a comprehensive assessment encompassing the exploration of causative factors, clinical characteristics, and the visual outcomes following suitable management. A thorough history was gathered from either the patients or their relatives. Injuries were classified as closed globe or open globe. Each patient underwent evaluation based on a structured proforma. The eye was meticulously examined using a torchlight, slit lamp, direct and indirect ophthalmoscope. Radiological investigations like X-ray skull/orbit, CT scan, MRI as per need. Necessary treatment was provided. Relevant statistical tests were employed for the analysis. Visual acuity for both eyes was documented. Subsequent follow-ups involved careful recording of visual acuity along with a complete examination.

Results

Table 1: **Gender wise distribution of cases**

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Male		**Female**	
No.	**Percentage**	**No.**	**Percentage**
101	58%	74	42%

Out of 175 patients, 101 (58%) were male and 74 (42%) were female

Table 2: Age wise distribution

Age	**Total No.**	**Percentage**
10-20	8	4.57%
21-30	51	29.14%
31-40	48	27.42%
41-50	31	17.71%
51-60	25	14.28%
61-70	11	6.28%
>71	1	0.57%

The highest incidence of trauma was seen in age group of 21-30 years that is 53 cases (30.28%) followed by 47 cases (26.85%) in 31-40 years age group

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Table 3:Time interval between place of Ocular injury due to RTA and arrival to hospital in cases of ocular trauma due to road traffic injury.

Time Interval	Total no. Of Pts.	Percentage(%)
<1 Day	172	98.28%
>1 Day	3	1.71%

Out of 175 patients 172 (98.28%) reported to the hospital in interval less than 1 day. 3 patients (1.71%) presented after 1 day to the hospital.

Table 4: Type Of Injury:

Type	Subtype	Total	Percentage
Closed Globe Injury N=161	Contusion	89	50.85%
	Lamellar Laceration	69	39.42%
	Superficial foreign Body	3	1.71%
	Mixed	0	0%
Open Globe Injury N=14	Rupture	3	1.14%
	Penetrating	5	2.85%
	IOFB	6	3.42%
	Perforating	0	0%
	Mixed	0	0%

Closed globe injuries (92%) were more common in our study than open globe injuries (8%).
Table 5: Visual acuity in cases of ocular trauma due to RTA:

Visual Acuity	Total	Percentage(%)
>6/12	94	53.71%
6/24-6/18	46	26.28%
Fc 1m-6/24	12	6.85%
Projection of light – finger counting 1 meter	7	4%
No projection of light	4	2.28%
Could not be assessed	12	6.85%

Most of the patients had visual acuity of >6/12 94 (53.71%) patients ,46 patients(26.28%) had visual acuity between 6/24-6/18. Visual acuity of finger counting 1m to 6/24 was seen in 12 patients (6.85%). Projection of light – finger counting 1 meter was seen in 7 patients (4%) , no projection of light was seen in 4 patients (2.28%) . In few cases visual acuity assessment was not possible i.e. in 12 (6.85%) as these were either semiconscious or unconscious or not cooperative.

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Discussion:

Out of total 175 patients evaluated during the study males were affected more than females. The commonest age group having ocular trauma due to road traffic accident appeared to be between 21-30 years of age. Time interval between place of accident where injury occurred and arrival to hospital in cases of ocular trauma due to road traffic injury was less than 24 hrs in majority of the cases.

In the present study lid ecchymosis in 73 (41.71%) patients were the most common finding, followed by CLW in 65 (37.14%) and ptosis was seen in 2 (1.14%) cases. In this study subconjunctival haemorrhage was most commonly present in 83 (47.42%) cases, conjunctival chemosis was present in 30 (17.14%) cases, foreign body on conjunctiva was present in 11 (6.28%) cases followed by tear in 10 (5.71%)cases. No abnormality was observed in 54 (30.85%) cases. On examination of the cornea it was observed that patients having corneal tear was 16 (9.14%) cases, corneal abrasion was seen in 10 (5.71%) cases, exposure keratitis and foreign body on cornea was seen in 4 (2.28%) cases each respectively. No abnormality was seen in 143 (81.71%). Anterior chamber was examined and was found to be normal in 163 (93.14%) cases, it was shallow in 8 (4.57%) cases and hyphema was present in 3 (1.71%) cases. Iris was examined and found to be normal in 161(92%) cases, iridodialysis was present in 5 (2.85%) cases , iris prolapsed was seen in 6 (3.42%) cases. Iris details were not appreciated in 3 (1.71%) cases due to full chamber hyphema.

Conclusion

Closed globe injuries were predominantly noted as compared to open globe injuries. Subconjuctival haemorrhage was the commonest anterior segment finding followed by Ecchymosis. Visual acuity was better preserved in Road traffic accident patients who had sustained anterior segment injury with a majority of patients having a visual acuity of >6/12 In our study it was observed that majority of the patients who suffered from ocular injuries were not using any safety measures .Hence it is necessary to educate individuals about the traffic rules and safety measures and strict adherence should be ensured to avoid road traffic accidents.

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