



Study of the Sociodemographic profile of the patients presenting with ocular surface foreign bodies in rural settings

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Abstract

Background: An ocular surface foreign body or superficial foreign body is the most common and preventable form of eye trauma, causing a significant discomfort and if not properly managed may lead further to permanent visual impairment.

Purpose: To study the socio-demographic determinants in patients with ocular surface foreign bodies, common type of foreign bodies, their common locations of impaction in the eye and the suggested preventable measures in the patients prone to exposure.

Materials and Methods: This cross sectional study was conducted in the Ophthalmology department of Pt. JLNGMC Chamba, H.P, India, from January 2018 to August 2018. Age and gender were recorded for all patients. Detailed slit lamp examination was performed. Location of the foreign body was noted. Foreign bodies were removed with the help of forceps or 26 gauge needle depending upon their level of impaction. All the necessary data of the patient were collected and entered into MS Excel (Microsoft Corporation, Redmond, WA, USA) to review in the form of percentages and proportions.

Results: A total of 300 patients presenting with ocular surface foreign bodies were included in the study. Males were seen to be at 2.3 times more risk of exposure to foreign bodies than females. A large proportion of patients (n=205) were either illiterates (n=57, 19%) or were qualified upto primary school (n=148, 49.33%) only. People residing in rural areas (72%) were about 2.6 times more prone to get exposed to foreign bodies than the semi-urban population. In our study, the most common location of foreign body in the eye was Cornea (47.67%), followed by Subtarsal area (23.67%) and palpebral conjunctiva (13.33%). The most common type of foreign body encountered in our study group was of Wooden matter/Vegetative nature (n=129, 43%), followed by dust particles (24.3%) and metallic foreign bodies (19%).

Conclusion: People should be made aware about the use of appropriate eye protective devices at their respective work places.

Keywords: Ocular surface foreign bodies, Ocular injuries, Protective eye wear devices.

Introduction

Ocular trauma is the leading cause of unilateral loss of vision¹ and is a considerable cause of

visual impairment and utilization of ophthalmic service resources throughout the world². Ocular surface foreign body or superficial foreign body is

the most common³ and preventable form of eye trauma⁴, causing a significant discomfort and if not properly managed may lead further to permanent visual impairment. This type of injuries can be seen in a variety of settings for example at home, while playing, at work or as a result of accident or assault⁵. Ocular surface foreign bodies are usually small in size, are particles of iron, dust, insect wings, straw of vegetable matter, animal or human hair and threads of cotton or could be plastic⁶. In most of the cases ocular surface foreign bodies are found on cornea and palpebral conjunctival surfaces. They may also be found in fornices, sub tarsal space and caruncle. The chief complaints of patients presenting with ocular surface foreign bodies are pain, foreign body sensation, watering and redness. In cases neglected, left untreated or not properly managed can lead to erosion of underlying surface, establishment of infection, spread of infection leading to infective keratitis, conjunctivitis and endophthalmitis⁷. Some may enter at high speed missile impact (eg: grinding, hammering or blow by wind) and can cause corneal opacity, rust ring or even cause scarring on the visual axis and secondary infections and can cause severe visual impairment.^{[8],[9]}

People related to specific professions are prone to get injured from certain sort of ocular surface foreign bodies, since most of the ocular injuries occur during occupational and work related setting. Identification of the type of foreign bodies and their location of impaction into the eye will help in creating awareness and use of appropriate eye protective devices by people at their work places. Our study was done to find the causes and socio-demographic determinants of patients with ocular surface foreign bodies in a rural setting of hilly region.

Materials and Methods

This cross sectional study was conducted in the Ophthalmology department of Pt. JLN GMC Chamba, H.P, India. Duration of the study was from January 2018 to August 2018.

Inclusion Criteria- All the patients aged 10 years and above presenting in eye OPD of the institute or referred from peripheral hospitals, with ocular surface foreign body were included in the study.

Exclusion Criteria- 1. Ocular injuries without involvement of ocular surface.

2. Patients of age < 10 years.

A verbal consent in their local language was obtained from all patients who were included in the study. As per ICMR and CDSCO guidelines for good clinical practice, all principles of bioethics were followed. A total of 300 patients presenting with ocular surface foreign bodies were included in the study. Age, gender, laterality and work engagement at the time of foreign body fall were recorded for all patients. Fluorescein dye was instilled in the eye to outline the location of foreign body. Slit lamp examination was performed for all patients and location and aetiology of the foreign body was noted. Topical anaesthesia was given by instilling 4% lignocaine hydrochloride drops. Superficial foreign bodies were removed with the help of corneal forceps and impacted foreign bodies were removed with the help of sterile 26 gauge needle. Topical antibiotic drops were instilled into the eye after foreign body removal. The patients were prescribed with topical antibiotics and lubricant eye drops and were followed for 1-2 weeks depending on the regression of symptoms and signs.

All the necessary data of the patient were collected and entered into MS Excel (Microsoft Corporation, Redmond, WA, USA) to review in the form of percentages and proportions

Results

Table 1 Showing the socio-demographic determinants of the patients with ocular surface foreign bodies

Variable	Frequency	Percentage
Age		
10-20	26	8.67
21-30	49	16.33
31-40	103	34.33
41-50	64	21.33
51-60	37	12.33
>60	21	7.00
Gender		
Male	209	69.67
Female	91	30.33
Education Status		
Illiterate	57	19.00
Primary school	148	49.33
High school	61	20.33
>Graduate	34	11.33
Residential status		
Rural	216	72.00
Semi-urban	84	28.00
Occupation		
Students	39	13
Construction workers	93	31
Agricultural	97	32.33
Drivers	23	7.67
Domestic	27	9
Others	21	7

Table 2 Distribution of patients according to place of exposure

Place of injury/exposure to foreign body	Frequency	Percentage
Outdoors (workplace/streets/roads/playground etc.)	215	71.67
Home	85	28.33

Table 3 Distribution of patients according to location of the foreign body

Distribution according to location of foreign body	Frequency	Percentage
Corneal	143	47.67
Palpebral conjunctival	40	13.33
Upper lid(subtarsal)	71	23.67
Inferior fornix	28	9.33
Superior fornix	11	3.67
Caruncle	7	2.33

Table 4 Distribution according to the type of foreign body

Type of foreign body(material)	Frequency	Percentage
Metallic	57	19.00
Dust	73	24.33
Wooden/ Vegetative matter	129	43.00
Glass	5	1.67
Insect	21	7.00
Others	15	5.00

Table 5 Distribution of patients according to the time of presentation in the OPD after foreign body exposure

Time of presentation	Frequency	Percentage
Same day	113	37.67
1-2days	109	36.33
3-7 days	67	22.33
1-2 weeks	8	2.67
>2 weeks	3	1.00

Discussion

A total of 300 patients were included in this study. As shown in Tab.1, Patients with age ranging from 10 -70 years were included in the study. Mean age of the patients included was 38.33 ± 40.09 years. Males were seen to be at 2.3 times more risk of exposure to foreign bodies than females. The total no. of Males were 209 (69.67%) and females were 91 (30.33%). Jahangir Tehmina et al¹⁰. and co-authors reported mean age of 28.6 ± 17.6 years and male to female ratio 3:1. The mean age in the study conducted by Muhammad Luqman Ali Bahoo¹¹ was 38.58 ± 21.49 years, with Male to female ratio of 2.5:1. The male preponderance might be due to the indulgence of males in occupational activities, sports, driving, motorcycle riding etc. Males also tend to spend more time outdoors as compared to the females. Most of the persons riding a bike and cycle do not practise helmets and eye wear to guard them from foreign bodies.

The age group most commonly seen to be exposed to foreign bodies is the group 31-40 years ($n=103$, 34.33%) followed by 41-50 years ($n=64$, 21.33%), while the least no. of patients exposed to foreign bodies were recorded to be in the age group >60 years ($n=21$, 7%). Reports of Guerra Garcia RA et al¹² and Subba reddy¹³ also indicate mean ages ranging from 29 to 35 years.

A large proportion of patients ($n=205$) were either illiterates ($n=57$, 19%) or were qualified upto primary school ($n=148$, 49.33%) only. The least no. of foreign bodies were recorded in patients involved in desk jobs, i.e the groups involving the high school pass outs ($n=61$, 20.33%) and the people with qualifications up to graduate level and above ($n=34$, 11.33%). Our study results here were well in concordance with Ariturk N¹⁴.

People residing in rural areas (72%) were about 2.6 times more prone to get exposed to foreign bodies than the semi-urban population (28%) of the area. (ref. Tab.1), this was in concordance with a study conducted in past⁵. Our study was conducted in a rural and semi urban area where most of the population is involved in agriculture,

cattle grazing and fields works ($n=97$, 32.33%). Due to the difficult hilly terrain of the region and low educational status these are the chief occupational activities of the population under study. The agricultural workers mostly get injured by vegetative matter. The second most common occupation exposed to Ocular surface foreign bodies was construction workers (laborers, masons, welders, plumbers etc.) not using any type of protective eye wear ($n=93$, 31%) which includes metal, dust, stone, cement or paint particles. In the study of Jahangir Tehmina et al¹⁰. over 3/4 of the injuries were preventable by protective devices. Hence, people involved in constructional work, farm activities and bike riders must wear protective eye wear for their own safety.

The data acquired about the place of exposure to foreign bodies reveals that the maximum no. patients got exposed to foreign body when they were outdoors (workplaces, driving/riding/, playgrounds/streets etc.), $n=215$, 71.67%, as compared to when they were in their homes. This is consistent with the study done Kaimbo et al¹⁵.

In our study, the most common location of foreign body in the eye was Cornea^{[13],[16]} (47.67%), followed by subtarsal⁸ area (23.67%) and palpebral conjunctiva (13.33%). Caruncle (2.3%) as the location of foreign bodies was seen in least no. of cases. Tab.3, shows the distribution of foreign bodies according to their location in the eye.

The most common type of foreign body encountered in our study group was of Wooden matter/Vegetative nature ($n=129$, 43%), followed by dust particles (24.3%) and metallic foreign bodies (19%). Most of the patients got ocular surface foreign body injury when they were busy in farming related activities¹⁷. Insect/insect parts were another commonly encountered type, comprising of 7% in total. Tab.4, shows the distribution of foreign bodies according to aetiology.

The elapsed time between foreign body exposure and presentation was most commonly, same day in 37.67% patients followed by 1-2 days in

36.33% patients. The delay in presentation could be due to the difficult terrain of the region and unawareness among the general population. It was noted that in low income status group, the delay period was much longer than in high income group. A total of 67 patients (22.3%) sought for medical help after passage of 2nd day. A total of 11 patients visited the OPD after a week.

Our study was limited to the rural and semi-urban setting, this could be a limitation of our study.

Conclusion

People from rural background who are involved in outdoor activities are more prone to be exposed to ocular surface foreign bodies. Patient's level of education, Age and Socio-economic status also plays important role in prevention from exposure to foreign bodies, as well as timely management in case it occurs. People who are prone to come in contact with ocular foreign bodies must be identified and should be made aware about using protective eye wear, in an attempt to reduce the burden of preventable blindness on the patient as well as the society.

Acknowledgements: Nil

Conflicts of Interest: None declared

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