

Workplace Related Ocular Foreign Bodies: A Retrospective Data

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ABSTRACT

Purpose: To determine the occupational eye injuries reporting to a tertiary eye care hospital.

Methods: A retrospective review was performed for the patients diagnosed with ocular foreign bodies between the period of January 2018- December 2019. The inclusion criteria included subjects with a diagnosis of corneal foreign body reporting the hospital during the study period. Subjects with incomplete ocular assessments, other mode of foreign bodies were excluded

Results: Corneal foreign body accounts for 303 (72.3%) subjects. Among 419 cases, 68.9% (n=289) were occupational related eye injuries, of which corneal foreign body presentation was seen in 80.6% (n=233) subjects. Majority of the subjects had an adequate visual acuity (81.3%) and unioocular involvement (98.96%).

Conclusion: Workplace related hazard can have a secondary impact on vision, thus a health education in terms of preventive measures among every recognized and unrecognized sector individuals would be helpful to overcome this problem.

Keywords: Workplace, foreign bodies, hazards

INTRODUCTION

The interaction between an individual's health and the environment at workplace is attributed with both positive and negative effects. The hazards at workplace are a source which can potentially alter an individual's health, damage to the environment or an amalgamation of these.¹ Hence it becomes essential to identify, assess, eliminate and control those hazards as a critical part of Occupational Health and Safety.² Occupational eye injuries accounts for

around 20% of the entire ocular traumas.^{3,4} Of these, corneal foreign bodies are by far the most common conditions reported leading to various symptoms such as ocular discomfort, pain, redness, irritation and disturbance in vision.^{5,6} The most common source leading to such sequelae includes injuries by flying particles of metals or non-metallic substances.⁷ Since most of the ocular injuries at workplace are preventable by adopting health promotional activities and utilization of personal protective equipments (PPE) for the well being of an individual, therefore it becomes essential for every organized and non-organized sectors to adopt such preventive measures. This study therefore aims at understanding the etiologic factors and level of awareness of using PPE among patient's presenting with corneal foreign body.

METHODS

The study was conducted at a tertiary eye care hospital of Jorhat district of Assam, India. The study was approved by Institutional review board and adhered to the tenets of Declaration of Helsinki. A retrospective review was performed for the patients diagnosed with ocular foreign bodies between the period of January 2018- December 2019. The clinical data of the subjects were extracted using the electronic medical records of the hospital. The inclusion criteria included subjects with a diagnosis of corneal foreign body reporting the hospital during the study period. Subjects with incomplete ocular assessments, other mode of foreign bodies were excluded.

RESULTS

The mean±SD age of the subjects was 32±9 years. Out of 419 subjects, 360 (85.9%) were male. Corneal foreign body accounts for 303 (72.3%) subjects (Table 1). Among 419 cases, 68.9% (n=289) were occupational related eye injuries, of which corneal foreign body presentation was seen in 80.6% (n=233) subjects. Majority of the subjects had an adequate visual acuity (81.3%) and unioocular involvement (98.96%) (Table 2).

Table 1: Frequency of different types of ocular foreign bodies among the subjects

Types	Frequency (n)	Percentage (%)
Foreign body Cornea	303	72.3
Foreign body conjunctiva	103	24.6
Foreign body eyelid	7	1.7
Foreign body others	6	1.4

Table 2: Visual and workplace profile of the subjects

Visual acuity	Frequency (percentage)
6/9 -6/6	235 (81.3%)
6/18-6/12	48 (16.6%)
<6/18	6 (2.07%)
Ocular involvement	
Unioocular	286 (98.96%)
Binocular	3 (1.03%)
Pre existing ocular conditions	
Cataract	7 (2.42%)
Uncorrected refractive errors	33 (11.41%)
Retinal issues	2 (0.69%)
Type of foreign body	
Superficial	253 (87.5%)
Deep	36 (12.45%)
Activity at the time of injury	
Welding	135 (46.71%)
Grinding	89 (30.79%)
Working in dusty environment	30 (10.38%)
Machinery works	12 (4.15%)
Others	23 (7.95%)
Usage of PPE at the time of injury	
Yes	79 (27.33%)
No	145 (50.17%)
No documentation of PPE history	65 (22.49%)

DISCUSSION

Occupational related ocular foreign bodies are one of the most commonly seen conditions in eye care practice. This study demonstrated the characteristic features of the subjects presented with ocular foreign bodies in a tertiary eye care center of Assam. In accordance with the previous existing literature⁸, this study showed that majority of the subjects was male (85.9%) and a mean age of 32 years. This study also found that 68.9% were workplace related injury and corneal foreign body being the

most common finding. This finding was consistent with the study conducted by Charu et.al. where the corneal foreign body was found to be present in 69% occupational related injuries.⁹

One notable factor seen in this study was that 87.5% of the foreign bodies were superficial in nature thus reflecting their good visual acuity status of around 6/9-6/6 in the affected eye. In contrast to this, a study by Charu et.al.⁹ found 45% of the occupational injuries were superficial and the rest being deep in nature. The variation could be possibly because of more numbers of unrecognized occupational sectors being prevalent than the recognized one in the study location. Whereas subjects with lesser visual acuity can be attributed by the fact of pre-existing ocular co-morbidities such as uncorrected refractive errors, cataract and retinal issues. The pre-existing anomalies were detected in the previous records of the subjects and self-reported at the time of injury.

Since most of the injuries at workplace can be prevented by various using PPE, thus it becomes very essential for an individual to encompass that awareness. Most of the subjects were found to be engaged with activities such as welding, grinding and machinery works and 50% among them reported no usage of PPE at the time of injury. This finding is in conjunction with the study results by S Ganesh et al. which aimed at assessing the awareness of utilization of safety measures at workplace found a poor awareness in terms of safety measures among the welders.¹⁰ They have also highlighted that it could be possibly due to lack of institutional training, low income and work experience and lack of education leading to poor awareness among the individuals. Since the present study is retrospective in nature and did not have adequate information on the subject's education level or years of experience, it can be hypothesized that the similar reasons can be a source leading to such scenarios.

CONCLUSION

Ocular foreign bodies can be a consequence of various workplace related hazards. An adequate knowledge of workplace safety, periodic screening of the workers at workplace and providing/renewal of the safety measures would provide a better ocular health of the individuals.

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