



“STUDY ON EVALUATION OF CORNEAL INJURIES IN A TERTIARY CARE HOSPITAL”

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ABSTRACT

BACKGROUND: The cornea, as the most anterior structure of the eye, is exposed to various hazards ranging from airborne debris to blunt trauma of sufficient force to disrupt the globe itself. As a result, corneal injury may assume multiple forms and clinical presentations. **OBJECTIVES:** To evaluate different types of corneal injuries and to evaluate the visual acuity in these subjects. **METHODOLOGY:** A hospital-based cross-sectional study was conducted at Shri Balaji Institute of Medical Sciences, Mowa, Raipur from January 2021 to May 2021 in patients suffering from corneal injuries who attended Out Patient Department, Ophthalmology. A total of 100 patients were included. Inclusion criteria includes: Patients presenting with ocular history of corneal injury due to trauma in the age group of 20-50 years both males and females. corneal abrasion was the most common corneal injury, followed by corneal foreign body, chemical injuries, lacerating injuries, radiation trauma, blunt injuries and sting injuries. Out of 23% chemical injuries 72% had Alkali injuries and 28% had acid injuries. **DISCUSSION AND CONCLUSION:** In most of the cases of corneal injuries are preventable. It appears that early treatment can restore good vision and use of eye protective glass while working will be the preventive measure, and use of antibiotics drops after injury will be the proper method of treatment.

KEYWORDS : corneal injury, corneal abrasion, trauma, chemical injuries, lacerating injuries.

INTRODUCTION:

The cornea, as the most anterior structure of the eye, is exposed to various hazards ranging from airborne debris to blunt trauma of sufficient force to disrupt the globe itself. As a result, corneal injury may assume multiple forms and clinical presentations. Because the cornea is also the major refracting surface of the eye, minor changes in its contour result in significant visual problems.¹

Blindness is a major public health problem in most developing countries. Corneal opacification, as a cause of blindness, is second only to cataract in magnitude.² One of the most important preventable and avoidable causes of corneal blindness is corneal injuries. Ocular trauma and corneal ulceration are serious public health problems that are occurring in epidemic proportions.³ Corneal opacification often leads to unilateral blindness, as exemplified by trauma, which is the leading cause of unilateral blindness in the world with a prevalence of 2%.⁴ The most frequent causes of corneal blindness in at least one eye included keratitis during childhood (36.7%), trauma (28.6%), and keratitis during adulthood (17.7%). Nearly 95% of all corneal blindness was avoidable.⁵ Corneal and corneoscleral perforation and subsequent scarring due to ocular trauma may result in a variable amount of blindness.⁶ Corneal abrasions (removal of part or all the corneal epithelium) are one of the most common ophthalmic injuries.⁷ Second to corneal abrasions, corneal foreign bodies are the most common form of ophthalmic trauma.⁸

OBJECTIVES OF THE STUDY:

To evaluate different types of corneal injuries and to evaluate the visual acuity in these subjects.

METHODOLOGY:

A hospital-based cross-sectional study was conducted at Shri Balaji Institute of Medical Sciences, Mowa, Raipur from January 2021 to May 2021 in patients suffering from corneal injuries who attended Out Patient Department, Ophthalmology. A total of 100 patients were included. Inclusion criteria includes: Patients presenting with ocular history of corneal injury due to trauma in the age group of 20-50 years both males and females. We excluded the patients who did not give consent, ocular trauma without corneal involvement, patients with blind eye, Patients with history of previous corneal surgeries, Patients with head injuries in coma and Surgically induced corneal injuries.

Each patient was subjected to a detailed history taking followed by detailed ocular examination as per proforma. Patients were advised to get admitted to the hospital for observation and better follow up. If not, they were advised to attend follow up in OPD without fail.

A detailed history and the aetiology of the injury were noted, recording of visual acuity using Snellen's chart for the patients of ocular trauma was done. Examination of anterior segment was done in detail with special emphasis on corneal involvement with the help of a slit lamp

biomicroscope after instilling topical anaesthetising drop proparacaine 0.5% and the pattern of corneal injury were noted in detail and the management was according to the type of injuries. Fluorescein staining was done to note the layers of the cornea involved in the injury. Fundus examination was done. Routine investigations CBC, RBS, Urine sugar, albumin and microscopy was done and routine microbiological investigations which include Gram's stain, 10% KOH preparation were done. The sample for microbiological investigations was obtained by corneal scrapping. The cornea was anaesthetised using 0.5% proparacaine solution and scrapping was done using sterile No. 15 Bard Parker blade from the margins of the corneal ulcer and the samples were sent for fungal culture.

RESULTS

In our study, we included a total of 100 subjects, out of 100, 42 were females and 58 were males. The mean age and SD of these subjects were 33.2 ± 24.4 years.

Table 1: Shows types of corneal injuries in these Subjects

Type of Injury	Number of Subjects	Percentage
Corneal Abrasion	29	29%
Corneal foreign body injuries	28	28%
Chemical Injuries	23	23%
Lacerating Injuries	9	9%
Radiation trauma	4	4%
Blunt Injuries	4	4%
Sting Injuries	3	3%

It is evident from the table 1 that corneal abrasion was the most common corneal injury, followed by corneal foreign body, chemical injuries, lacerating injuries, radiation trauma, blunt injuries and sting injuries. Out of 23% chemical injuries 72% had Alkali injuries and 28% had acid injuries.

Out of 100 subjects 90% of them presented within the first 24 hours, 8% within 24-48 hours and 2% after 48 hours after sustaining injuries. 60% patients had only epithelial injuries, 24% had injuries extending till the anterior stroma, 12% injuries reaching mid stroma and Descemet's membrane and only 4% patients had perforating corneal injuries.

Table 2: Shows visual outcome in these Subjects

Type of Injury	Number of Subjects	Percentage
Normal Vision	80	80%
Low vision	14	14%
Blindness	6	6%

It is evident from the above table that the visual outcome showed 80% cases with normal vision, 14% had low vision and 6% had blindness. The visual outcome of patients with corneal injuries encroaching pupillary area showed 75% patients with normal vision, 20.6% with low vision and 4.4% patients with blindness. The visual acuity at presentation showed 8% cases with perception of light, projection of rays and finger counting at 3 meters. 62% with vision 6/18 or worse and

30% with visual acuity better than 6/18 shows the visual outcome at the fourth month after shows the visual outcome in various types of corneal injuries.

DISCUSSION AND CONCLUSION

Amongst the 100 cases of corneal injuries study the most common age group affected was between 28 and 44 years followed by <28 years, 41-65 years and >65 yrs. This coincides with Rapti's study also in terms of gender of the patients, males were more affected than females. In other similar studies males were exposed in outdoor activity and they were preferred for early treatment, so the study showed more lesions in male (59%) than female (41%). Regarding the types of injuries, corneal abrasions were the cause of 10% of new patient visits to the ophthalmic emergency room in an English series. In a study of corneal abrasions in Bhaktapur (Nepal) evaluating sequential corneal ulceration, the annual incidence of corneal abrasions was estimated at 789/100,000. Second to corneal abrasions, corneal foreign bodies were the most common form of ophthalmic trauma. In a recent study in northern Sweden, the incidence of eye injuries was estimated to be 8.1 per 1000 population, with corneal foreign bodies comprising 40% of these. Banerjee, in a similar study, found that of 25,000 new patients seen in an emergency room in England over a 6-month period, 472(1.8%) were patients who Banerjee, in a similar study, found that of 25,000 new patients seen in an emergency room in England over a 6-month period, 472(1.8%) were patients who had ocular foreign bodies that occurred at work. Most of the patients had foreign body injury at work places like grinding factory, iron factory and other factories surrounding our hospital.¹³

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