

STUDY OF TRAUMATIC CATARACT DUE TO MAXILLOFACIAL INJURIES

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Abstract

Background: Traumatic cataracts occur secondary to blunt or penetrating ocular trauma. The severity of these ocular injuries can vary from a simple subconjunctival hematoma to globe perforation or even an optic nerve lesion. Maxillofacial injuries show an associated ocular injury, leading to significant functional and cosmetic defects. The symptoms of maxillofacial trauma include changes in feeling over the face, missing teeth, double vision, difficulty in breathing through the nose due to swelling and bleeding, uneven face, swollen eyelids, numbness of upper lip or cheek, decreased eye movement, blurry vision etc. The characteristics of the eye injuries sustained were related to the aetiology of the fracture, the type of fracture, and the sex and age of each patient. **Materials and Methods:** The study was conducted in the ophthalmology department at the Government Medical College in Jagdalpur, Bastar district, Chhattisgarh, From January 2022 to June 2022. Informed consent form was taken from all the participants included in this study. The information was gathered from ophthalmologist related to Patients with dental injuries. **Result:** Total number of traumatic cataract patients was 30. Out of 30 patients, 18 are males and 12 are females. Most of the patients were in the age group of 40 – 45 years. Out of 18 male patients, 4 were with blurred vision, 10 are of increased difficulty with vision at night and 4 patients had sensitivity to light. 5 male and 4 female patients are with zygomatic bone fracture. 7 male and 3 female patients with maxillary bone fracture and 6 males and 5 females are with infraorbital bone fracture. **Conclusion:** It is recommended that all facial injuries, especially those that occur above the mouth, necessitate a thorough eye examination that includes a determination of the visual acuity of each type.

INTRODUCTION

The face trauma is frequently coupled with ocular damage. The severity of injuries to and around the eye varies. Any facial trauma calls for a thorough ocular examination, particularly above the level of the mouth, along with an assessment of each eye's visual acuity. Some ocular injuries could be immediately noticeable. However, unless they are deliberately searched after, additional potentially blinding issues are readily missed. Blindness can arise from inadequate treatment, with all of the social and medical-legal ramifications that entails. The initial tests might be the only ones that allow the doctor to see damage to certain structures, such the retina and optic nerve, before they are later

covered up by more bleeding and cataract development.^[1]

Maxillofacial surgeons are crucial members of emergency department teams. A maxillofacial surgeon can arrange the final treatment of facial fractures by requesting an early ophthalmological consultation or referral in the event that an ocular lesion causes partial or whole loss of vision. The ROA includes visual acuity, red and brightness saturation, and double vision testing in addition to inspection.^[2]

Particularly in poor nations like our own, head injuries are a leading cause of mortality and severe impairments in trauma patients. Disability in brain injury patients is typically defined by a confluence of cognitive and physical flaws. One of the systems affected by traumatic brain injury is the visual

system. Due to the eye's close proximity to the head and the neuronal connections that exist between the eye and the brain, the eye is commonly involved in head trauma. Despite the protection provided to the eyes by their location in the orbit, head impacts sometimes result in eye damage. The involvement of the eyes in head injuries can result from direct or indirect trauma. Many hypotheses have been put forth.^[3]

In trauma victims, head injuries frequently result in fatalities and severe impairments. A mix of physical and cognitive abnormalities often characterizes the disability following moderate to severe injury¹. One of the systems affected by traumatic brain injury is the visual system (TBI). Due to the eye's close proximity to the head and the neuronal connections that exist between the eye and the brain, the eye is commonly involved in head trauma. There are many ideas as to how traumatic brain damage affects the eye. Damage to the visual pathway, visual cortex, and/or other vision-related brain regions may occur in penetrating brain injury. Displacement, stretching, and shearing forces are present in closed-head or non-penetrating injuries.^[4]

Ocular illness can significantly reduce a person's quality of life. Even minor vision loss brought on by ocular disease seems to have the same negative effects on quality of life as a more severe medical condition, like diabetes. According to Brown et al., the reduction in quality of life is caused by patients' concern over a probable loss of vision in the future. Therefore, whether or not there are other, more severe co morbidities, the benefit from intervention and treatment of ocular disease has the potential to improve a patient's total QOL.^[5]

MATERIALS AND METHODS

From January 2022 to June 2022, the study was carried out at the Government Medical College in Jagdalpur, Bastar district, Chhattisgarh, Department of Ophthalmology. For patients with complex eye disease problems, it offers expert care. The facility offers 24-hour emergency ophthalmology care for all kinds of eye injuries.

The institutional ethics committee gave its approval before to the study. A pro forma was completed, containing specific demographic data such name, age, sex, employment, and address. An

ophthalmologist checked all of the patients with confirmed maxillofacial fractures for any related ocular injuries. The following information was gathered from each ophthalmology consultation: patients with dental injuries (subluxation, luxation, and avulsion), A general examination was conducted after taking the history.

Inclusion Criteria

- All the patients of ocular injury admitted who have developed a traumatic cataract.
- Patients who gave consent and were cooperative were included in the study.

Exclusion Criteria

- Patients of traumatic cataract due to a retained intraocular foreign body, electric shock, and radiation.
- Patient not willing for surgery.

Statistical Analysis

Statistical analysis for this study was done by using statistical software SPSS version 16.

RESULTS

[Table 1] shows age and sex distribution of study subjects. Total number of traumatic cataract patients was 30. Out of 30 patients, 18 are males and 12 are females. In 30 – 40 years of age group 6 male and 4 female patients were there. In 40 – 45 years of age group 8 male patients and 6 females patients were present and above 45 years of age, total number of patients were 6, out of 6 patients, 4 were males and 2 were female cataract patients were present. Most of the patients were in the age group of 40 – 45 years.

[Table 2] shows cataract findings. Out of 18 male patients, 4 were with blurred vision, 10 are of increased difficulty with vision at night and 4 patients had sensitivity to light.

Out of 12 female patients, 3 were with blurred vision, 4 are of increased difficulty with vision at night and 5 patients had sensitivity to light.

[Table 3] shows fracture bone at maxillofacial region. 5 male and 4 female patients are with zygomatic bone fracture. 7 male and 3 female patients with maxillary bone fracture and 6 males and 5 females are with infraorbital bone fracture.

Table 1: Age and Sex Distribution of Traumatic Cataract Patients

Age	Sex	Males	Females
30 -40 years	10	06	04
40 – 45 years	14	08	06
Above 45 years	06	04	02
Total	30	18	12

Table 2: cataract findings in traumatic cataract patients

Cataract findings	Males	Females
Blurred vision	04	03
Increased difficulty with vision at night	10	04
Sensitivity to light	04	05
Total	18	12

Table 3: fracture bone at maxillofacial region

Fracture areas	Males	Females
Zygomatic bone fracture	05	04
Maxillary bone fracture	07	03
Infra orbital bone fracture	06	05
Total	18	12

DISCUSSION

According to reports, 60% of AIDS patients with ocular abnormalities show signs of an infectious underlying condition, and this number rises to 90% in necropsies. Cytomegalovirus retinitis and retinal microvasculopathies are the most prevalent eye conditions in people with AIDS [44]. Specifically, viral diseases that are resurfacing and evolving pose a serious threat to global public health. Among them, dengue fever, chikungunya virus, Ebola virus, enterovirus, Hantavirus, Henipavirus, influenza virus A (H1N1), Japanese encephalitis, Kyasanur forest disease, rickettsioses, Rift Valley fever, and West Nile fever may cause various ocular pathologies, including chorioretinitis, vitreoretinitis, retinal vas the spirochaete carried by ticks' causes the illness known as Lyme neuroborreliosis.^[6]

Many patients who suffered mid-facial fractures also had damage to their visual systems. Our findings are analogous to those of Holt and Holt, who examined the nature of eye injuries in a similar patient population. Inadequate ophthalmology training among casualty officers, maxillofacial and plastic surgeons, which frequently treat such wounds, may prevent potentially sight-threatening ophthalmic pathology from being diagnosed. When eye diseases like glaucoma and retinal detachment are caught early enough, it may be possible to save a patient's sight. However, it is crucial to thoroughly analyze and document all pathology, whether it is curable or not, in order to support any subsequent insurance or legal claims.^[7]

In fact, injuries to the orbital bone and its associated structures are frequently found in young and middle-aged males in the 20 to 40-year age range. The high risk of traffic accidents may be the cause of the high incidence of orbital trauma among young and middle-aged people. Timely intervention might prevent complications such retro-bulbar hemorrhage, white-eye trap-door phenomena, orbital apex syndrome, hemorrhage, infections, nonunion, melanin, paresthesia, malocclusion, diplopia, enophthalmos, epiphora, and even blindness.^[8]

Post-traumatic abnormalities, such as those in the zygomatic complex, the nasoethmoid region, and the internal orbit, were recreated by Hammer and Prein. 31 patients with severe post-traumatic orbital abnormalities underwent surgery. They used craniofacial techniques to carry out 61 surgical procedures. Exophthalmoses were listed as the most common abnormality. According to age, sex, anatomical pattern, associated maxillofacial and non

maxillofacial trauma, and causes of injuries, Ellis et al. looked at 2067 occurrences of zygomatico-orbital fractures over a 10-year period. The leading cause of trauma was motorcycle accidents, followed by car accidents in which the victim did not utilize a seat belt.^[9]

Rumelt and Rehany discuss some very important questions related to the timing of the removal of a traumatic cataract and implantation of an intraocular lens (IOL); they also touch upon the technique of cataract removal. According to the database of the world's largest collection of serious eye injuries with over 17,000 cases (United States Eye Injury Registry [USEIR], the surveillance arm of the American Society of Ocular Trauma), almost half of serious injuries involve lens damage.^[10]

CONCLUSION

Traumatic cataracts in underdeveloped nations like India result in considerable vision impairment, emotional distress, and financial burden. To stop the loss of vision in situations of traumatic cataract, a deeper understanding of these injuries is necessary. It is recommended that all facial injuries, especially those that occur above the mouth, necessitate a thorough eye examination that includes a determination of the visual acuity of each type. A referral to an ophthalmologist is necessary for all patients with decreased visual acuity and those who have complex facial fractures since they are likely to have experienced ocular injury.

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