

# Prevalence of ocular defects among patients visiting in an institutionalized hospital setting: A cross-sectional study

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## ABSTRACT

**Purpose:** The purpose of this study was to analyze the prevalence of ocular defect among different age groups, gender, side involved, and etiology. **Materials and Methods:** A retrospective study was conducted among referred ocular defect patients in a dental college in southern part of India over a 5 years period (2008–2012). Information regarding general identification, gender, age, affected side, and etiology was collected. The collected data were analyzed and grouped according to different age groups, gender, side involved, and etiology. **Results:** The ocular defects were more frequently observed in the young male population (66%). Trauma (46%) and pathogenic (44%) causes were the main reasons over nonspecific (8%) and congenital (2%) reasons. **Conclusion:** High prevalence of injuries and infections in young adults (mostly males) predominantly causing ocular bulb loss.

**Key words:** Cross-sectional study, maxillofacial prosthesis, ocular defect, ocular prosthesis, rehabilitation

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## INTRODUCTION

The loss of an eye has been regarded as the greatest misfortune,<sup>[1]</sup> and Indian literature showed a 2–3-fold higher incidence of tumors of the eye as one of the main reasons in children below 15 years of age.<sup>[2]</sup>

Surgical procedures in the removal of an eye are classified into three general categories: Evisceration, enucleation, and exenteration.<sup>[3]</sup> The rehabilitation of a patient, who has suffered from an ocular loss, requires a prosthesis that will provide the optimum<sup>[4,5]</sup> cosmetic and functional results. Very few literature have been

published regarding the prevalence of ocular defects related to ocular prosthesis and most of them from developed countries which may not be relevant to educate, aware our interdisciplinary professional and patients in India.

In view of the great number of patients who suffer from eyeball loss and considering the need for treatment that reestablish esthetics and psychological health, a study is needed to know the prevalence of ocular defect among different age groups, gender, side involved, and etiology.

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## MATERIALS AND METHODS

The study was conducted at the Department of Prosthodontics in a dental college in southern part of India. A retrospective cohort data of ocular defect cases which were reported and treated in the department over a 5 years period (2008–2012) were carried out. Information regarding general identification, gender, and age at which patient lost the eye or diagnosis of atrophy was made, affected side and etiology, and time lag between eye loss and rehabilitation were gathered from the clinical records of patients. Based on the side affected, the loss/atrophies were classified as left, right, or bilateral. Etiology of the eye defect was considered under following categories: (i) Congenital (from birth), (ii) traumatic, (iii) pathologic (infection, tumor, or any other pathology), or (iv) not known.

The collected data were analyzed and grouped according to different age groups, gender, side involved, and etiology.

## RESULTS

A total of 118 patients had reported to the department in the past 5 years. However, detailed data were available for only 100 patients. Two patients reported with an orbital defect were also treated in the department. However, due to insufficient number, they were not considered for the study. The evaluated data of 100 patients included in this study revealed that the ocular defects in relation to gender were more frequently observed in the male population (66%) [Figure 1].

Regarding the prevalence in relation to the side involved, it was observed that the right side was involved more (60%) when compared to the left side (40%) [Figure 2].

Patients between 21 and 40 years age group were involved the most (32%), and the patients above 80 years of age were least involved (2%) among the age groups considered. However, the patient's between 0–20 and 41–60 years age group showed almost equivalent prevalence (26% and 27%, respectively) [Figure 3].

Etiological prevalence revealed a predominance of trauma followed by the pathogenic cause (46% and 44%, respectively). However, nonspecific and congenital causes were less (8% and 2%, respectively) [Figure 4]. The time lag between eye loss and rehabilitation for majority of patients was found to be more than 10 years [Figure 5].

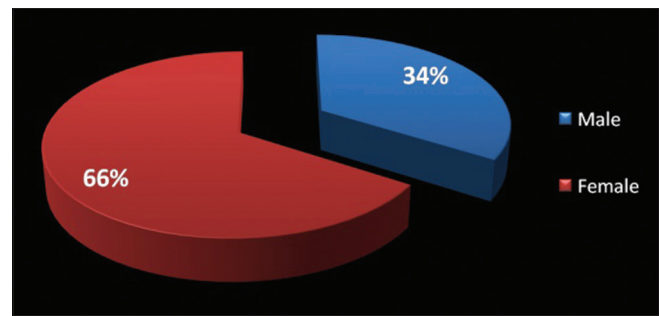


Figure 1: The prevalence of ocular defect as function of gender

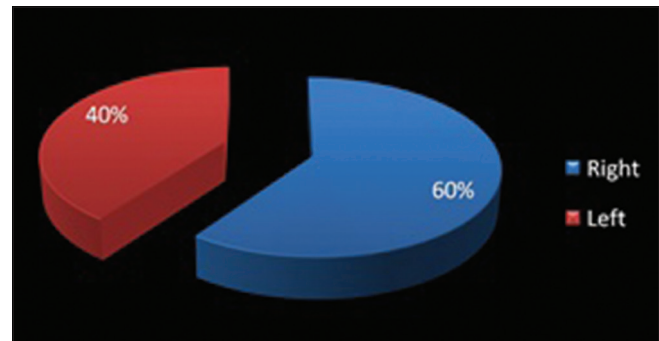


Figure 2: The prevalence of ocular defect as function of side involved

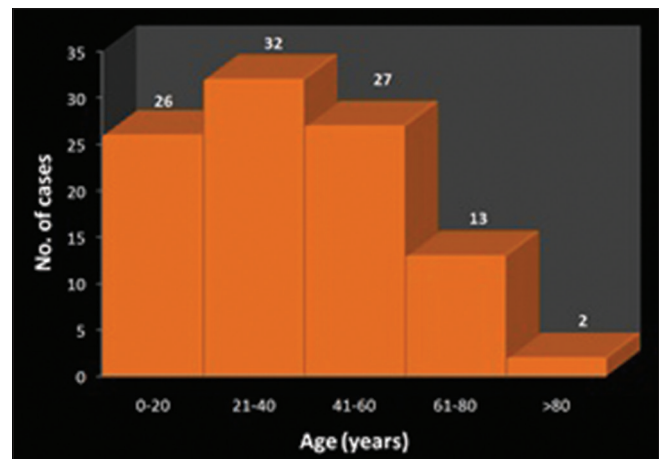


Figure 3: The prevalence of ocular defect as function of age

## DISCUSSION

The finding of the study revealed a predominance of males being affected with ocular defects, which agrees with the finding of previous investigations. Regarding the side involved, a predominance of the right side over the left side was observed. The age range revealed that 21–40 year age group was more frequently involved. The prevalence of ocular defects depending on etiology revealed the highest number of traumatic cases followed by pathologic causes. Among the loss of an eye due to pathogenic origin, infectious reasons were more.

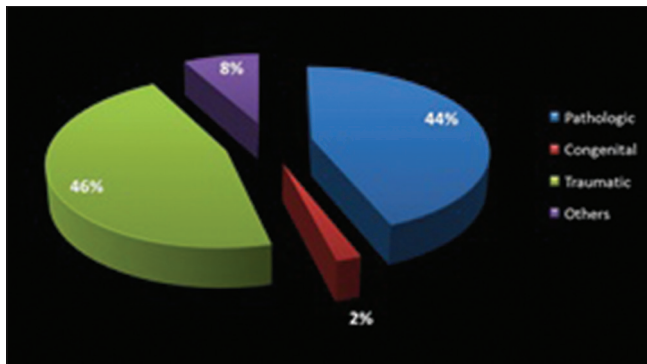


Figure 4: Etiology of ocular defect

Ocular prosthesis aims to restore facial esthetics, prevent eyelid collapse and deformity, protect the socket against injuries caused by foreign bodies, reestablish the correct route of lachrymal secretion to prevent accumulation in the cavity, and preserves muscular tone to avoid antisymmetrical alteration that might gradually occur.<sup>[6]</sup> Patient satisfaction with ocular prosthesis is relatively high.<sup>[7]</sup>

The finding of the present study revealed a predominance of males being affected with ocular defects, which agrees with the finding of previous investigations.<sup>[6,8]</sup> These results may possibly be attributed to the fact that male population is usually more exposed to situations that can lead to eyeball injury and infections caused by a lack of hygiene and polluted environment. Males are still the majority of workers in areas of physical demand and are most commonly involved in road traffic accidents and cases of aggression or urban violence.

Regarding the side involved, a predominance of the right side over the left side was observed. These findings were not in accordance with previous studies which found the left side was more involved.<sup>[6]</sup> According to those authors, the findings were not statistically significant due to which they concluded that the side involved does not seem to be an important issue to be considered in preventive and educative campaigns.

The age range revealed that 21–40 years age group was more frequently involved, followed by 0–20 and 41–60 years age group. This predominance is probably attributed to the fact that individuals at age range of 21–60 have multiple activities and are therefore more exposed to situations that can lead to ocular defects. Age group of 0–20 is more reckless and explorative in nature leading to ocular defect. Similar results were observed in previous studies.<sup>[6]</sup>

The prevalence of ocular defects depending on etiology revealed the highest number of traumatic cases followed by pathologic causes. Coas *et al.*<sup>[6]</sup> who examined 3008 patients and verified 58.77% of injuries of traumatic

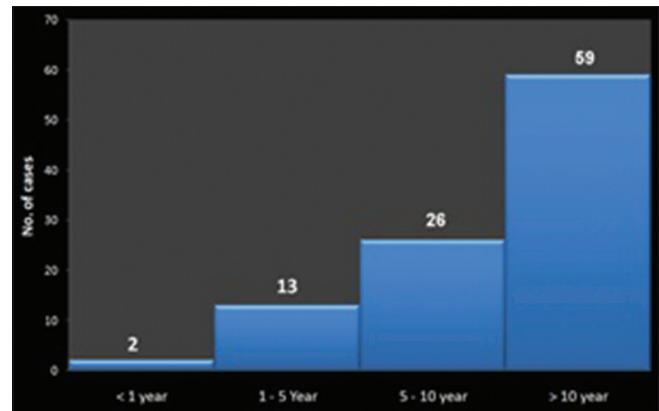


Figure 5: Time lag between loss of eye and rehabilitation

origin and 41.22% of pathogenic origin.<sup>[6]</sup> Studies conducted by other authors were also in accordance with the present study.<sup>[9]</sup> Bearing in mind these results, it is imperative to adopt some preventive measures such as wearing protective eye glasses during activities that can lead to eyeball injury. Use of reinforced glass in vehicle windshields and building constructions, in addition to regular checkup by an ophthalmologist should be emphasized. To reduce the prevalence of ocular defects as a result of road traffic accidents or occupational hazards, wearing of the protective eyewear should be made compulsory.

Among the loss of an eye due to pathogenic origin, infectious reasons were more than neoplastic or any other pathogenic event. This observation signifies the level of hygiene and negligence of health on the part of the patients. This aspect has to be considered in community educative program. The time lag between eye loss and rehabilitation for majority of patients (60%) was found to be more than 10 years. This finding is probably attributed to the fact that people from rural background have low awareness about prosthetic rehabilitation.

In the present study, two patients were reported and treated with an orbital defect. However, due to insufficient number, they were not considered for the study. In this context, it needs to be stressed that due to the difficulty in fabrication and retention of the orbital prosthesis, and the surgeon should be much more conservative in the removal of the eye so that much of the adjacent tissues are preserved. This can ensure better prosthetic rehabilitation for the patients.

## CONCLUSION

Frequent injuries and infections in young adults (mostly males) were the main reason behind ocular bulb loss, and the time lag between eye loss and rehabilitation was found to be very high.

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### Conflicts of interest

There are no conflicts of interest.

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