# **Original Research Article**

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# Ocular morbidities in pediatric outpatient population at a tertiary care ophthalmic centre: a descriptive study

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#### **ABSTRACT**

**Background:** Ocular problems in children are unique and different from adults, because of their inability to express their problems and potential to develop amblyopia. Screening at the level of schools cover school age going children only while congenital and infantile disorder can cause significant morbidity if remain untreated. Hence the present study was conducted to determine the pattern of Ocular morbidities in children uptil 15 years of age.

Methods: It is a hospital based retrospective study. Outpatient department (OPD) records of all new patients aged 15 years and younger were reviewed. The age at presentation, sex and clinical diagnosis were recorded from OPD records. Data was recorded and analyzed.

Results: Total of 480 children was enrolled with ocular problems. Majority belong to 11-15 years of age group. Conjunctival morbidity was most commonly encountered in 146 (30.41%) children followed by refractive error 82 (17.07%) and lid problems in 81 (16.87%) patients. Ocular trauma constitutes 54 (11.25%) children of the total.

Conclusions: In view of high prevalence of Conjunctival and refractory errors in pediatrics population, there is a need of health counseling of parents regarding ocular hygiene, protection and regular refraction of children to identify the ocular morbidity at the earliest and prevent the long term complications.

Keywords: Children, Ocular morbidities, Refractory error

## INTRODUCTION

Early years of life are most important in determining physical, intellectual, behavioural development and quality of life for a child. Any ocular morbidity which originates in childhood and if gone undetected, may result in severe ocular disabilities or even blindness. Eye diseases in children are important causes of hospital visit, medical consultation and require prompt management. Ocular problems in children are unique and different from adults, not only due to their inability to express their problems, but also because of the potential to develop amblyopia. Although most ocular morbidities are due to carelessness and ignorance, they cause impairment of vision or even blindness. Childhood blindness is second

only to cataract in terms of "blind years". 1 About 30% of blind population of India lose their eyesight before the age of 20 years and many of them are under 5 when they become blind.<sup>2</sup> Hence strategies to manage pediatric ophthalmic disorders must be initiated as early as possible, with interventions at all the three levels of primary, secondary and tertiary eye care centers. School screening program under national program for prevention of blindness cover the children of school age group only while congenital diseases and infantile disorder can cause significant morbidity if remain untreated .Only a few hospital-based studies are available on childhood ocular morbidity. Hence, the present study was conducted with the objective to determine the pattern of ocular morbidity in children upto 15 years of age, presenting to the

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outpatient department (OPD) of ophthalmology in the tertiary care hospital in North India.

#### **METHODS**

This is a hospital based retrospective study. Outpatient department (OPD) records of all new patients aged 15 years and younger, who presented to the outpatient department of Ophthalmology in a tertiary care hospital in North India from November 2017 to February 2018, were reviewed. The age at presentation, sex and clinical diagnosis were recorded from OPD records. All patients underwent visual acuity and refraction as per the unit outpatient protocol. Refraction under cycloplegia was performed as and when required. Anterior segment examination was done with torch and slit lamp. Posterior segment examination was performed after dilating the pupil using direct and indirect ophthalmoscope.

The clinical diagnosis was grouped as appropriate diseases. Patients were grouped by age into four groups (0-1 years, 2-5 years, 6-10 years, 11-15 years).

The data was recorded and analyzed using SPSS software version 25.

#### **RESULTS**

Total 480 children were enrolled in study with ocular problems, with their age ranging between one week and 15 years. Of them, 274 (57%) were male and 206 (43%) were female, having male: female ratio of 1.33:1. Majority of children belong to 11-15 years of age group constituting 41.25% of children followed by the 6-10 years age group 26.66%, 2-5 years 17.70% and 0-1 yrs 14.3% (Table 1).

Table 1: Distribution of ocular morbidity in pediatric population (n=480).

Morbidity		Age groups			Total	%age
	0-1	2-5	6-15	11-15		
Refractive error	-	05	20	28	53# (82)*	11.04#% (17.07)*
orbit	-	1	2	2	5	1.04%
squint	-	3	4	2	9	1.87%
amblyopia	-	-	2	4	6	1.25%
Lid	-	17	21	43	81	16.87%
Lacrimal drainage system	31	10	6	14	61	12.7%
Conjunctiva	28	20	33	65	146	30.41%
Cornea and sclera	4	10	12	10	36	7.5%
lens	03	7	5	1	16	3.3%
uvea	0	0	2	-	2	0.41%
Vitreous and retina	01	01	2	2	6	1.25%
Optic nerve/neroophthal	-	01	3	1	5	1.04%
Ocular/lid trauma	02	10	16	26	54	11.25%
Total	69,14.3%	85,17.70%	128,26.66%	198,41.25%	480	

<sup>\*</sup>Total patients diagnosed with refractive error, #total patients of refractive error presented with decreased vision.

Conjunctival morbity was most commonly (conjunctivitis, subconjunctival hemorrhages, episcleritis, xerosis etc) encountered in 146 (30.41%) children followed by refractive error 82 (17.07%), lid 81 (16.87%), lacrimal drainage system (12.7%), cornea and sclera 36 (7.5%), lens 16 (3.3%) and posterior segment (retina and optic nerve disease) in 11 (2.29%) patients.

Among patients with refractive error 53 (11.04%) presented only with decreased vision while 29 (6%)patient were found to have refractive error though presented for some other problem constituting a total of 82 (17.07%) children. Among patients with conjunctiva involvement majority 91 (62.32%) had allergic conjunctivitis while 33 (22.6%) had infective conjunctivitis.

Table 2: Distribution of the study subjects with ocular trauma (n= 54).

Pattern of ocular trauma	Number (%)
Blunt trauma	26 (48.18%)
Lid tear	10 (18.5%)
Open globe	6 (11.11%)
Thermal injury	1 (1.85%)
Chemical injury	1 (1.85%)
Corneal foreign body	7 (12.96%)
Corneal abrasions	3 (5.5%)

Ocular trauma was present in 54 (11.25%) children. Among the children with ocular trauma, contusion injury was found to be the most common, comprising of 48.18%

of ocular trauma. Overall ocular trauma has been increased from lower to higher age group. Among 26 contusions, there were 3 cases of traumatic hyphema. Injuries other than contusion were lid injury (10, 18.5%), corneal and conjuctival foreign body (7, 12.96%), open globe injury (6, 11.11%), thermal injury (1, 1.85%) and chemical injury (1, 1.85%) and corneal abrasion (3, 5.5%) (Table 2).

#### **DISCUSSION**

In the present study, conjuctival involvement is the most common disorder (30.41%) with allergic conjunctivitis constituting 62.32% of all conjuctival involvement. It remained the most common cause of ocular morbidity with prevalence of 18.9% (n=91). Prevalence ranging from 3-17.5% of allergic conjunctivitis has been reported by various other studies. Although allergic conjunctivitis rarely lead to blindness, it is an important cause of ocular discomfort, hospital visit and school absenteeism in children. Poor ocular hygeine, dusty and polluted environment may lead to development of chronic allergic conjunctivitis.

In the present study refractive errors were the second most common cause of ocular morbidity with prevalence of 17.07%. Various studies have quoted variation in the prevalence of refractive error (12 to 31%).<sup>5</sup> There is higher prevalence in refractive errors among older age group. This may be due to better detection of visual impairment by them, suggesting lack of awareness among parents to recognize visual problem earlier. Higher prevalence of refractive error (21-25%) has been reported in school going children from India in Shimla, as well as from study done by Goswami et al from India.<sup>6,7</sup> However, some studies has quoted lower prevalence of refractive errors (4.7–14.3%).<sup>1,8-9</sup> The incidence of refractive error might have been underestimated in our study as it was a hospital based study.

Lid is the third most common cause of ocular morbidity with prevalence of 16.87%. Similarly, higher prevalence (14.5%) was noted in study by Prajapati P et al due to lower socio economic status. <sup>10</sup> The possible causes of lid abnormalities in study population could be more outdoor activity as age increases, and low literacy level of parents regarding ocular hygiene and health education.

Ocular trauma constituted 11.25% of childhood morbidity in present study. Globally, the frequency of ocular trauma is also high. Globally, the major cause of ocular trauma in children includes unsupervised play and use of dangerous objects which can be avoided by taking proper safety measures and precautions by parents.

In present study prevalence of ocular motility disorders (squint) is 1.87 %, which is similar to prevalence of other studied. Lacrimal drainage system involve congenital and acquired nasolacrimal duct obstruction which constituted 12.7% of ocular morbidity. Congenital

nasolacrimal duct obstruction is the most common cause of ocular morbidity in infants which can be treated by proper lacrimal sac massage, followed by conjunctivitis which can be prevented by maintaining proper hygiene. Lens (cataract) constitute 3.3% of ocular morbidity and require urgent treatment in the initial years of life.

#### **CONCLUSION**

In conclusion, the present study suggests that allergic conjunctivitis, refractive errors, infections of conjunctiva, cornea, lid, adnexa and ocular trauma are important causes of childhood ocular morbidity, and however most of them are avoidable. Visual impairment due to refractive errors is an important public health problem and if left untreated, it impairs academic, social and behavioral development of children. There is need of school eye screening programs, routine refraction of the children and provision of the spectacles at low cost. Health counselling regarding ocular hygiene and protection among parents can reduce ocular morbidity due to eye injuries and infection.

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Institutional Ethics Committee

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