



DEMOGRAPHIC AND CLINICAL PROFILE OF CORNEAL DISEASE PATTERN IN CHILDREN ATTENDED MEDICAL COLLEGE HOSPITAL IN RURAL WEST BENGAL, INDIA.

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ABSTRACT **Purpose:** To describe the demographic and clinical profile of corneal disease pattern in children aged 5 years to 16 years attended medical college hospital in rural west Bengal.

Materials and Methods: This was a hospital based cross sectional study conducted over a period of 24 months from June 2017 – June 2019. Data collected included demographic profile, initial vision, corneal injuries, vision at last follow-up.

Results: Total 155 of aged 5-16 years children were included in this study. Mean age were 11.11±3.28 years. Male child 101(65.16%) were most common. M:F ratio was 1.87:1. Major religion was Muslim 84(54.19%). Unilateral ocular involvement was the commonest finding, 144(92.9%). School dropped out was, 65(41.94%). Mean time of hospital presentation was 48±hours. Ocular trauma was most common, 69 cases (44.52%). Corneal pathology was unilateral in 144(92.9%) of cases. The most frequent anatomical lesions was traumatic scar (44.52%). Initial visual acuity was better than 6/60 in 91(58.71).

Conclusion: corneal blindness in paediatric age is trauma and can be avoidable.

KEYWORDS : Paediatric age, Corneal pathology, blindness

INTRODUCTION

Childhood blindness is a most important public health problem globally.¹ WHO has projected that there are 1.4 million blind children in the world, of which two third lives in the developing nations.² The loss of sight causes enormous human suffering for the affected individuals and their families, also represents a public health, social and economic problem for countries, especially the developing one. Corneal diseases are one of the major causes of blindness after cataract and glaucoma. In India, it is assessed that there are nearly 6.8 million people who have vision less than 6/60 in at least one eye due to corneal diseases; of these about a million have bilateral involvement. Nearly 25000-30000 new cases of corneal blindness are being added annually. The worst aspect of the problem is that the onset of corneal blindness in a large number of cases starts before the age of six years thus impeding the development of the child and impacting their education, future job opportunities and quality of life.³ The burden of corneal disease in our country is reflected by the fact that 90% of the global cases of ocular trauma and corneal ulceration leading to corneal blindness occur in developing countries.⁴ The major causes of blindness in children widely varied from region to region. The available data suggests that corneal scarring is the most important cause of avoidable blindness, followed by cataract and ROP worldwide.⁵ In under developed and developing countries corneal scarring as a result of acquired diseases is the most important cause of severe visual impairment and blindness.⁶ This study was undertaken to make out the pattern of corneal diseases in paediatric age group (Age 5years-16years) in rural setup tertiary care centre.

MATERIALS AND METHODS

This was a hospital based cross sectional study conducted over a period of 24 months in the department of Ophthalmology Burdwan Medical College, Burdwan, West Bengal, India, from June 2017 – June 2019. All paediatric patients aged 5 years – 16 years presented with corneal diseases were included in this study. An informed written consent was taken from the legal guardian of each patient. History was taking from the children as well as from guardian.

The diagnosis was made on basis of detailed ocular examination and relevant investigations wherever needed. Visual acuity assessment was done Snellen's distant visual acuity drum and recorded accordingly. Anterior segment evaluation was carried out with the help of torch light and slit lamp.

A detailed and careful fundal examination was done using direct ophthalmoscope, binocular indirect ophthalmoscope with +20 D lens and also with slit lamp using +90D lens. Intraocular pressure (IOP) was measured in cases requiring IOP evaluation with applanation tonometer. At the time of presentation photographic documentation

was done in all possible cases. Relevant investigations and the necessary management were done. A proforma was used to record detail information and ocular findings at the time of presentation. The data was analyzed using windows 10.

RESULTS

Total 155 of aged 5-16 years children were included in this study. Mean age of study patients were 11.11±3.28 years. Male child 101(65.16%) were most common than female child, 54(34.84%), M:F ratio was 1.87:1. Muslim 84(54.19%) was major religion found in this study. Unilateral ocular involvement was the commonest finding, 144(92.9%). Another most important observation was school dropped out, 65(41.94%) and socio-economic status of this study children were coming from below poverty line [BPL], 101(65.16%). Mean time of hospital presentation was 48±hours. Predisposing factors included ocular trauma in 69 cases (44.52%); followed by ocular surface infection, 55(53.48%), allergic in 13 cases (8.38%); congenital cases was 6(3.87%), systemic disease found in 4(2.58%) cases.

Corneal pathology was unilateral in 144(92.9%) of cases, and bilateral in 11(7.1%). The most frequent anatomical lesions were scars of traumatic origin (44.52%). The most common etiologies of corneal pathologies were trauma followed by infection. (Table-2). The diagnosis of corneal infection was clinical.

Initial visual acuity was available in all cases. Out of which 91(58.71) cases had better than 6/60 vision. Follow-up data was available only in 59 cases (38.06%) at the end of 2 month, Table 3.

Table-1: Demographic profile of the study populations: n=155.

Demographic profile		Numbers and %
Sex	Male	101(65.16%)
	Female	54(34.84%)
Religion	Hindu	55(35.48%)
	Muslim	84(54.19%)
	Christian	16(10.33%)
Laterality	Bilateral	11(7.1%)
	Unilateral	144(92.9%)
Education	Pre school	25(16.13%)
	School	35(22.58%)
	Dropped out	65(41.94%)
	No school	30(19.35%)

Socio-economic status	BPL	101(65.16%)
	APL	54(34.84%)
Age distribution	5-10 years	64(41.29%)
	11-16 years	91(58.71%)
Mean age of study patients: 11.11±3.28 in years		
Mean time of presentation: 48±30 hours.		

Table-2: Predisposing factors of corneal diseases: n=155

Predisposing factors of corneal disease	Number and %
Traumatic corneal ulcer/ scar	69(44.52%)
Infective	55(53.48%)
Immuno-allergic	13(8.38%)
Congenital	6(3.87%)
Dystrophic/ectasia	5(3.23%)
Systemic	4(2.58%)
Chemical	1(0.65%)
Unknown	2(1.29%)
Total	155(100%)

Table-3: Extent of visual loss at presentation and after 2 month follow up.

Visual acuity	No of cases at presentation, n=155	No of cases at 2 month follow up, n=59 (38.06%)
Better than 6/60	91(58.71%)	22(37.29%)
6/60-2/60	48(30.96%)	23(38.98%)
1/60-HM	9(5.81%)	9(15.26%)
PL+, PR+	6(3.87%)	4(6.77%)
No PL	1(0.65%)	1(1.7%)
Total	155(100%)	59(100%)

HM=Hand movement, PL=perception of light, PR=projection of ray.

DISCUSSION:

In our day to day practice we found a varied spectrum of corneal diseases in all the age groups, but not much of work has focused upon the corneal diseases pattern in paediatric age group in our region. Hence, this study was started to identify the pattern of corneal diseases in paediatric age group in our region. From this study we found that a significantly greater proportion of male children were affected by corneal pathologies than female children. Srinivas C reported a similar finding in his study in Indian children.⁷ Trauma was the leading etiologic factor for corneal pathologies and this can be explained as, boys are usually more pumper aggressively in outdoor game than girls which predispose them to injury. Bella LA et al. in their study also reported that ocular trauma was the leading cause of corneal pathology in children followed by infection⁸, which is slightly defer with our study and this deference can be explained by geographical variations. In infective ulcerative keratitis trauma has been identified as a notorious risk factor besides direct traumatic corneal injury.⁹⁻¹¹ Mean time of hospital presentation was 48±30 hours. In a study from Nigeria, Ashaye AO¹² reported out only 23.4% children were seen in hospital within the first 24 hours. Late presentation was due to seeking treatment from local Quacks and traditional eye care. Another most shocking discoveries, medicine was taken from local medicine shop with out prescription of Ophthalmologist. This leads to poor outcomes. In this study Congenital diseases involving the cornea were uncommon only 3.87%, Bella LA⁸ reported a similar finding from Cameroon, but no case was reported by Srinivas C⁷ in south Indian children, whereas Onabolu et al reported a prevalence congenital diseases involving the cornea about 16.9% in cases from The Gambia.¹³

Considering visual acuity after 2 month follow-up, only 59 (38.06%) cases were followed up and suffered from visual impairment and blindness, while Onabolu Roo et al¹³ and Bella LA et al⁸ reported that 45% and 50% of children with corneal diseases suffered from blindness due to trauma and congenital diseases respectively.

Limitation of the study: less sample size and lost of patients to follow-up is the main limitation of the study. Further study need to be conducted for better outcome.

CONCLUSION:

All the parents, local health care providers, local political leader, school teachers should be educated regarding prevention of ocular injury as most cases are traumatic and can be avoidable.

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