

## 1. Pattern of Common Eye diseases in children of 0-5 years: A hospital based study in Bokaro, Jharkhand

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### **Abstract**

**Purpose:** To assess the pattern of common eye diseases in children of 0-15 years of age attending an outpatient Eye Department, Bokaro General Hospital (Ophthalmology Department) Jharkhand.

**Material and Methods:** A modified WHO eye examination proforma in respect of each child was filled in for the recording of personal history, examination results and treatment required. The pattern of eye diseases affecting the children of Bokaro causing blindness and visual impairment according to age and sex was assessed.

**Results:** All total of 520 children of which 57.1% were male and 42.9 % female were examined during the one-year period. Squint (17.7%) was the most common ocular morbidity followed by bacterial conjunctivitis (14.8%), Vernal Catarrh (12.1%), trauma (9.6%), blepharitis (7.9%), vitamin A deficiency (7.5%), lid problems 7.5% (chalazion, sty), Corneal ulcers and Corneal opacity accounted for 9.4%, nasolacrimal duct block 3.7%, trachoma 2.3%, and Cataract 1.4%. Out of 520, 334 children in the age group 7-15 i.e. 64.2% were examined for refractive errors and 56.8 % found to be visually impaired. Others causes were less than 1%.

**Conclusion:** The distributions of male and female children were similar in different age groups. The number of eye disease was highest in children age group 7-15 i.e. 64% followed by age group 1-6, i.e. 27.5% and children less than 1 year were 8.3%.

**Keywords:** Eye diseases, Children, Conjunctivitis, vitamin A deficiency, Cataract

### **Introduction**

Current population of India is 1.3 billion. It is estimated that 40% of the population is below 16 years of age. The prevalence of blindness in children in INDIA is estimated to be about 10 per 10,000

children, which means there are about 60,000 blind children (1). A further 100,000 to 180,000 children are estimated to have low vision. The high incidences of consanguineous marriages together with maternal infections and environmental factors are responsible for the significant proportion of congenital/developmental abnormalities in these children. Other causes of childhood blindness include nutritional factors and trauma (2) In poor countries of the world corneal scarring due to vitamin A deficiency, ophthalmia neonatorum (3), trachoma and use of harmful traditional practices (TP) predominates (4). Increasingly, refractive errors is being recognized as an important cause of visual impairment in both children and adults, the type and magnitude of refractive errors clearly changes with advancing age and also appears to be changing overtime, with recent cohort having higher prevalence than earlier one .Visual acuity is the most appropriate screening test to identify individual with visual impairment due to uncorrected refractive errors. (5)

### **Material and Methods**

This is a hospital-based study; and cross sectional in terms of time and orientation and descriptive in methodological design. All children 0-15 years attending Eye Department at Bokaro General Hospital, Jharkhand is included in study. The survey thus commenced on 1st July and extended to 30th November i.e. 153 days. Logistics and ethical considerations were discussed before the start of the study with the Head of the ophthalmology department and they extended full cooperation and the required equipment during the entire survey period.

Against the estimated 540 children, a total of 520 children were examined. The subjects were children in the age group 0-15 attending outpatient in Eye Department of Bokaro General Hospital, Jharkhand. On an average 12 children attended the said OPD daily from 8a.m to 1p.m and 4:30 to 6:30pm daily. All children examined were found to have single ocular problems while a few children had more than one ocular problem.

During the study, a detailed history of each child, father's occupation, immunization, was asked. Children of 0-3 years were examined with a magnifying loop. The visual acuity of all children from age group 0-6 years was excluded, due to time limitation and technique. All children of age group 7-15 were examined on slit lamp and visual acuity checked with illiterate Snellen E chart directly and with pinhole. Children who showed improvement with pinhole then refraction is done and those who did not showed improvement with pinhole they were tested with direct and indirect ophthalmoscopy,

to exclude any pathology. On anatomical basis the disorders were divided into the diseases affecting the lid, whole globe, cornea, lens, uvea, retina, optic nerve.

## Result

A total of children 520 of which 57.1% were male and 42.9% female were examined and recorded. Few of all children examined had one or more ocular problems. 30 % consanguinity was found, in all examined subjects. One child was mentally retarded and two were found to be physically handicapped.

The proportion of diseases were squint both convergent and divergent i.e. 17.7% was the most common ocular morbidity followed by bacterial conjunctivitis 14.8%, vernal catarrh 12.1 %,trauma 9.6 %, the etiology of the trauma in this study was 50% due to foreign bodies, (like , plastic, glass piece, paint, glue, tyre burst) 10% due to lime burn, 10% stick injury, and 30 %occurred at home (by rubber bands, needles, fire crackers, while playing with others). Blepharitis 7.9 %, vitamin A deficiency 7.5 % and it was mainly due to malnourishment, poverty and large family sizes. Lid problems (chalazion , sty) 7.5%, Corneal ulcers and corneal opacity accounted for 5.3% and 4.1%respectively, additionally corneal ulceration and scar were due to bacterial conjunctivitis, viral (herpes)conjunctivitis, presence of foreign bodies and trauma, exact details for these few cases in terms of frequencies sand percentages is not presented in this document. Nasolacrimal duct block cases 3.6%, trachoma 2.3%, cataract 1.4% and other miscellaneous disease less than 2%, among them few important one include, a case of pan ophthalmitis, drooping of eyelid, nystagmus, macular degeneration and conjunctival cyst and retinoblastoma. The frequency of eye diseases was highest in children age group 7-15years in 334 i.e. 64.2%, followed by age group1-6 years 143 i.e. 27.5% and < 1 year 43 i.e. 8.3 % .Out of 520, children 334 in the age group 7-15 only were examined for refractive error, and the frequency was 56.8%.

Of the total refractive errors 50% were found to be myopic and 50% were hypermetropic. Refractive error was found predominately in male children i.e. 70% and 30% in female children. Medication (eye drops) were provided to all who needed it. Children suffering from vitamin A deficiency were provided vitamin A capsules but no one turned up for follow up. All children of cataract and refractive error were treated.

## Discussion and Conclusion

Total children 520 were examined, of which 57.1% males and 42.9% were female children. All of them had eye diseases; number of children had more than one ocular problem. Consanguinity was found in 30% of cases. Squint was registered among highest number of children 17.7% and followed by bacterial conjunctivitis. 14.8%. The leading cause of monocular blindness was trauma.

Both convergent and divergent squints were discovered in 92 i.e. 17.7 % children. Squints are common all over the world but do not have any special association with developing countries or tropical environment. There are many possible causes of squint. Squints develop in children where there is no obvious defect of refractive error in the eye.

Convergent squints were more common than divergent squints. Most of them had convergent squint associated with refractive errors. Out of total, there were 24% squints in age group (7-15 years), associated with refractive errors, 75 % children had convergent squints whereas 25 % were having divergent squint. Children with Squint were further evaluated with synaptophore.

Hypermetropic squints were found to be 80 % in age group 0-15 years i.e. 520 and 50% hypermatropic were of total refractive errors i.e. 190, the reason is that hypermetropes were ignored due to illiteracy and squint occurred whereas myopic were noticed by others, so parents seek early treatment.

This relation of esotropia to hypermetropia has also been reported by Duke–Elder (6). The proportion of squint in my study is similar to study by Chaturvedi S (7) found, the apparent/latent squint was 7.4%<sup>9</sup>. In my study squints were almost same proportion in both sexes i.e. 19.5% in male and 15.2% in female children.

It was observed that squints were due to illiteracy and uncorrected refractive errors in children, whose parents cannot afford glasses. The Government/NGOs should provide literacy and spectacles to young children, who have refractive errors, so they do not develop squint. Squints managed by glasses may need corrective surgery as well (8).

In this study the bacterial conjunctivitis was found in patients 77 (14.8%), the second highest pediatric ophthalmic disorder. Bacterial conjunctivitis was diagnosed on the presence of purulent discharge in

eye. In my study 37 % were <1 year, 4.3 % were between age group 1- 6, and 0.9 % were in age group 7-15. Conjunctivitis of the newborn is a very serious problem in many parts of the developing world (9). The great damage to sight is infection, which involves the cornea. As the condition usually affects both eyes, the tragedy of an otherwise healthy child becoming blind is avoidable.

Bacterial conjunctivitis could be due several factors i.e. due to overcrowding, poor hygiene, poor nutrition and lack of health education of mothers, as the children were coming from very poor community having large family size, and in most of family's absence of mothers from home as they were working.

In addition to bacterial conjunctivitis cases allergic conjunctivitis, viral conjunctivitis, and hemorrhagic conjunctivitis were also observed but they were all less than 1%.

Vernal keratoconjunctivitis is a recurrent, bilateral, external, ocular inflammation primarily affecting boys and young adults living in warm, dry climates. The disease was found in 63 patients i.e. 12.1%.

In this study 17% male were affected more than females who were 5%. In my study, 14.7% children in age group 7-15 years were affected predominantly, this is supported by A.Sharma (12), and the peak incidence of vernal catarrh was in age 11-13 years.

Trauma was observed in 9.6 % cases. In my study male were found to be dominant.

A countrywide population-based survey in Nepal reported that 7.7 % of all monocular blindness is due to trauma, and this was one of the causes of childhood blindness in Eastern Mediterranean countries. Jan, et al also found also found, 9.5% of trauma in hospital base study.

In my study 50%, injuries were due to foreign bodies, 10% was due to lime burn, 10 % stick injury 30% occurred at home. Among the cases of trauma, a major portion of accidents occurred at home.

The proportion of corneal ulcer / opacity in children was 5.3% and 4.1% respectively i.e. 9.3%. Tayab Afghani in a survey of blind school shows 12% corneal diseases as cause of blindness. Rahi at blind school in India shows 26.4% of corneal diseases responsible for visual impairment and blindness.

Corneal ulcers in this study were mostly due to foreign body, bacterial keratitis, and herpes infections and also due to lime burn, Vitamin A deficiency maybe a contributing factor to corneal opacity, which was found in 7.5% children and which could not be confirmed due to lack of laboratory support. According to who report about 3 million children have clinically xerophthalmia throughout the world. Majority of corneal ulcers follow the occurrence of often trivial corneal abrasions. A survey in four districts of Punjab covering 21 villages showed prevalence of Vitamin A deficiency in children as 6.4 % however that in children 5-6 years of age was 50 %, while 17% of cases were from 2-3 years and 4-5 years and 12% from 3 to 4 years.

Cataract in this study was 1.4% of cases, including all types, congenital, traumatic, and developmental and it found to be the cause of monocular blindness.

Trachoma cases accounted for only 2.3%, frequency being 12 out of 520 children. Of these 1.7% was male and 3.2 % in female children.

Eyelid problems (Chalazion, sty) in our study was 39 i.e. 7.5%. Blepharitis was discovered in 41 (7.9%) of case, the proportion was high in females i.e. 15.2 %, and mostly involves age group 7-15 years.

In countries with warm climate, the prevalence of staphylococci is as high as 95% in culture, and sub clinical and mild lid infections are quite common. Refractive errors were seen in high proportion i.e. 334 (56.8 %) in children age group 7-15 years.

A population-based study conducted by Memon in 1987- 90 showed that 11.4% of blindness was due to refractive errors and amblyopia.

In my study, visual impairment was found predominantly in males i.e. 70% and female were 30%.

The prevalence of refractive errors in school study in Nepal is 2.9%, in china 12.8%, in Chile 15.8%.

Comparing to these studies proportion is higher in my study.

It is recommended that visual acuity should be performing in all primary and secondary school students.

Daily refraction should be conducted at hospitals by providing training to the more optometrist and to the low vision workers.

## References

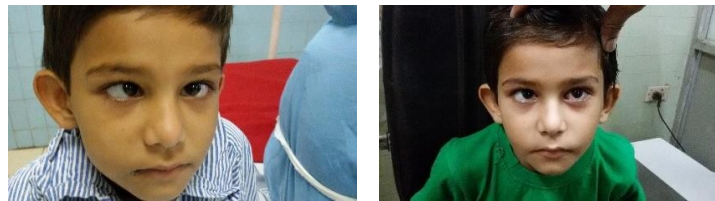
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### Illustrations

- 1) Congenital defect with cataract: Both parents and a child with coloboma and cataract.  
Treated successfully; on left side preoperative



- 2) Squint: Treated successfully. On left side preoperative



- 3) Complicated cataract in Nephrotic syndrome: steroid induced. Treated successfully



- 4) Traumatic corneal ulcer





5) Congenital cataract



6) Fireworks injury: Hyphema



7) Fireworks injury: Rupture globe

