



## A STUDY ON ETIOLOGY OF PEDIATRIC CATARACT

Dr Ajit Kumar

MS, Dept. of Eye Asst. Professor JLNMC, Bhagalpur (Bihar)

Dr Punit  
Parasurampuria\*

Senior Resident, JLNMC, Bhagalpur \*Corresponding Author

**ABSTRACT** Cataract is responsible for the blindness in children. 344 children participated in the current study. Out of these 344 cases, 224 had non-traumatic cataract and 120 had traumatic cataract. The mean age of the children in non-traumatic group was observed to be  $5.63 \pm 3.59$  years. On the other hand, the mean age in traumatic group was found to be  $7.39 \pm 3.94$  years. Hereditary was observed in 84 cases of non-traumatic cataract. Pediatric cataract is mostly found in children of age between 0 and 14. The major cause of child blindness is supposed to be this pediatric cataract. Cataract in children is caused due to trauma, heredity and metabolic diseases etc. The current paper highlights the etiology of pediatric cataract.

**KEYWORDS** :Cataract, Blindness, Trauma**INTRODUCTION**

Pediatric cataract is very harmful for the eyes as it leads to the blindness among the children. It is mostly found in the children of Asia region. It is reported that approximately two lakh children in Asia get blindness due to pediatric cataract.

In India, this cataract is responsible for the childhood blindness in 7 to 15 % of the total cases. WHO has started an international program in order to eliminate this blindness till 2022. A number of surgical methods have been invented to improve the procedure of early detection of pediatric cataract. Besides, these kinds of inventions, still the pediatric cataract is causing blindness among the children.

It is observed that in some of the cases, the detection of the cause of the cataract is very difficult which is considered as idiopathic. In the current study, the cases were divided into two groups i.e. traumatic cataract and non-traumatic groups.

Non-traumatic cataract was further divided into isolated hereditary, complicated, syndrome, metabolic and idiopathic cataract. Isolated hereditary cataract indicates inherited type as hereditary. On the other hand, the presence of intra-ocular drugs leads to the formation of complicated cataract.

In case of syndromic cataract, some characteristics of syndromes is associated with the cataract whereas hyperglycemia is related with the cataract in case of metabolic cataract. The cases where it was difficult to know the reason of cataract were placed in idiopathic cataract.

In the current study, the etiology of the non-traumatic and traumatic groups was done and it was observed that maximum number of children were having hereditary cataract. On the other hand, metabolic cataract was found in least number of cases.

Similarly, the morphology of both the groups i.e. traumatic and non-traumatic groups was performed in the current study. Lamellar cataract was found in most of the cases whereas posterior polar cataract was found in few cases.

About 31% of the cases were in idiopathic group as the cause of the cataract was known. It is reported that the number of children suffering from blindness is increasing year by year and it has become very serious issue for the developing countries to overcome this.

Many programs have initiated by the World Health Organization to eliminate this vital disease as it is destroying the future of our children and their parents as well. In some cases, this cataract is inherited into the children from one of the affected parent while in other cases, the factors like trauma are responsible for the childhood blindness. In recent years, many surgical methods have been evolved which are used for the diagnosis of pediatric cataract.

**RESEARCH METHOD**

In the current study, total 344 children participated and examined. The age of the children was between 0 and 14 years. Among them, 120

children were suffering from traumatic cataract while 224 children had non-traumatic cataract.

Microsoft Excel was used for the compilation of the data obtained. Here, Statistical Package for Social Science (SPSS) version 10 was used for the purpose of data analysis. The patients were divided into two groups i.e. traumatic and non-traumatic groups.

**RESULTS AND DATA INTERPRETATION**

The following table presents the patient age with non-traumatic cataract.

**Table 1 Age of patient with non-traumatic cataract**

Age (in years)	n=224
0-0.5	6
>0.5-1	16
>1-2	36
>2-5	64
>5-8	56
>8-11	30
>11-14	16

**DATA INTERPRETATION:**

Out of 224 non-traumatic cataract patients, 6 children were between the age of 0 and 0.5. The age of 16 children was found to be between 0.5 and 1. Similarly, there were 16 children with the age between 11 and 14 year.

**Etiology of Non-traumatic cataract:**

The following table presents the etiology of non-traumatic cataract.

**Table 2 Etiology of non-traumatic cataract**

Etiology	Unilateral	Bilateral	Total
<b>Hereditary</b>	-	84	84
<b>Idiopathic</b>	22	40	62
<b>Cataract with other Ocular malformations</b>	12	10	22
<b>Complicated Cataract</b>	10	12	22
<b>Cataract in Systemic Syndrome</b>	-	18	18
<b>Maternal Infection</b>	-	10	10
<b>Metabolic Cataract</b>	-	6	6
<b>Total</b>	44	180	224

**DATA INTERPRETATION:**

It is clear from Table 2 that Hereditary cataract was found in 84 children whereas 62 children were observed to have Idiopathic cataract. On the other hand, 22 children were suffering from complicated cataract. Also, maternal infections were observed in 10 cases.

### Morphology of Non-traumatic Cataract

The following table shows the morphology of non-traumatic cataract.

**Table 3 Morphology of non-traumatic cataract**

<b>Lamellar</b>	84 (37.5%)
<b>Nuclear</b>	70 (31.25%)
<b>Total Cataract</b>	30 (13.39%)
<b>Posterior Sub-capsular</b>	22 (9.8%)
<b>Posterior Polar</b>	18 (8.03 %)

### DATA INTERPRETATION:

It is clear from table 3 that Lamellar morphology was reported in 37.5% cases of non-traumatic cataract whereas 31.25% cases were found with nuclear morphology. On the other hand, posterior sub-capsular morphology was observed in 22 children.

### TRAUMATIC CATARACT

Out of 120 children with traumatic cataract, 84 were male and 36 were females. The age of children was between 5 and 8 years. The age of 40 children was below 5 years. Blunt trauma was reported in 36 children while penetrating trauma was observed in rest of 84 children.

### DISCUSSION

Maternal infection was not a common cause of congenital cataract in our study as compared to the study from south India and Oman. 10,13

It may be due to the fact that only few children presented before the age of one year. However out of 11 children below one year of age, four had serology positive for rubella. Galactosemia is the most common metabolic disturbance causing cataract in children Angra reported a higher frequency (2.5%) of sugar cataract among congenital cataract from north India. 11 In our study three children had positive reducing substance in urine Maternal infection was not a common cause of congenital cataract in our study as compared to the study from south India and Oman. 10,13 It may be due to the fact that only few children presented before the age of one year. However out of 11 children below one year of age, four had serology positive for rubella. Galactosemia is the most common metabolic disturbance causing cataract in children Angra reported a higher frequency (2.5%) of sugar cataract among congenital cataract from north India. 11 In our study three children had positive reducing substance in urine In India, the causes of traumatic cataract in children are different from that of Western population. Open-globe injury is three times more frequent than closed-globe injury, with bow and arrow injury being the most common causal agent. The other causes are firecracker, ball, stone, wood, and metal injuries. Cataract is frequently associated with shallow anterior chamber, hyphema, corneal perforation/scarring, iris distortion, posterior synechiae, vitreous hemorrhage, vitreous in anterior chamber, and posterior capsular tear.

The main aim of treatment is to clear the visual axis followed by postoperative visual rehabilitation. Surgery in children differs from that of adults as they have lower corneal and scleral rigidity, very elastic anterior capsule, soft lens, and well-formed vitreous. Superior incision is preferred which allows wound to be protected by eye lid and by Bell's phenomenon, in trauma-prone childhood years. Either scleral or clear corneal incision can be used, and it has been shown to be insignificant with respect to astigmatism caused by the incision.

Pediatric eyes due to immaturity of the blood-aqueous barrier have more intraocular reaction, which includes anterior-chamber cells, flare, fibrinous reaction, pupillary membrane formation, and posterior synechiae formation. Patients are prescribed topical steroids (prednisolone acetate 1% six times/day) and cycloplegics (preferably homatropine 2%) postoperatively. Heparin surface-coated IOL in uveitic cases and subconjunctival injection of dexamethasone with or without triamcinolone are known to reduce postoperative inflammation.

### CONCLUSION

Pediatric cataract surgery has evolved over the years and has become more safe and predictable. Early identification, immediate referral, and appropriate management have favorable outcomes.

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