

## A Clinical Study of Congenital Cataract

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### Abstract

**Purpose:** To study the causes of congenital cataract, management and the visual outcome **Methods:** Retrospective study conducted in the tertiary eye care center from January 2014 to December 2014. Twenty children with age ranging from 1 month to 11 years were included in the study after fulfilling the inclusion and exclusion criteria. All the children underwent thorough clinical examination before the surgery. Children underwent Small Incision Cataract Surgery with Intra Ocular Lens, Phacoemulsification with Intra Ocular Lens, Scleral fixated Intra Ocular Lens.

**Results:** 20 children had congenital cataract in both eyes. Among them, 9 were male and 11 were female. Consanguinity was present in 16 children and parents of 4 children were not related. Surgery was performed in all the children. The preoperative visual acuity ranged from perception of light to 6/24. After surgery, 60% (23eyes) had 6/60 to 6/18 vision. The rest of the eyes had a perception of light to 5/60 vision.

**Conclusion:** Study revealed that consanguinity of various grades was the aetiological factor and that their visual acuity before surgical intervention was very poor. After surgery the visual acuity improved in the range of 6/60 to 6/18 in 60% of the children. The Study was taken up in view of bringing out the importance of early surgical intervention in children with congenital cataract and give them a better future. Timely recognition and intervention can eliminate blind years due to childhood cataract as the condition is treatable.

**Keywords:** Consanguinity, Maternal infections, Nystagmus

### Introduction

Childhood cataract is responsible for 5 % to 20% of blindness in children worldwide and for an even higher percentage of childhood visual impairment in developing countries. The prevalence of childhood cataract varies from 1.2 to 6.0 cases per 10,000 infants [1-3]. Hence the timely removal of cataract followed by prompt visual rehabilitation is of utmost importance in children [4,5]. Important causes of childhood cataract include genetic disorder, intrauterine infection, metabolic disorders, drug induced, trauma and other ocular disorders like aniridia, microphthalmia, persistent hyperplastic primary vitreous and anterior segment cleavage syndrome [6,7]. In developed countries, hereditary cataracts are the most common type of congenital cataract. In some developing countries, approximately 25% of infantile cataracts are due to congenital rubella infection [8,9]. Globally, there are 190,000 children who are blind from cataract. Cataract in children may be present at birth (congenital cataract) or may appear anywhere during the first few years of life (developmental cataract) [9]. In the present study an attempt has been made to describe the clinical details of congenital cataract [6].

### Aim of the Study

To study the causes of congenital cataract, management and the visual outcome.

### Materials and Methods

This is a retrospective study conducted in government medical college from January 2014 to December 2014. Twenty children with age ranging from 1 month to 11 years were included in the study.

#### Inclusion criteria

1. Children with age less than 11 years
2. Children with vision not less than Hand Movements
3. Children of both consanguinous and non consanguinous parents

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Exclusion criteria

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A detailed history, birth history, examination - both routine and ocular with any ocular abnormality has been done.

**Examination of the following has been done-**

- Recording of visual acuity and fixation pattern in each eye
- Refraction
- Cover-uncover test / Hirschbergs test
- Nystagmus
- Slit lamp examination.
- B-scan in a case of dense cataract

A thorough and comprehensive post operative examination was done for each patients starting from 1<sup>st</sup> post operative day till the date of discharge from the hospital which was usually the 4<sup>th</sup> and 5<sup>th</sup>.

On the 5<sup>th</sup> post operative day a retinoscopy was done and glasses prescribed to most of the patients. Those of the older age group, were tested subjectively with Snellen's chart and appropriate glasses prescribed.

**Results**

This is a retrospective study conducted over a period of one and half year in government medical college. 20 patients included in this study. The results of the above said study are as follows (Table 1-6).

Sex	No. of patients	No of patients in %
Male	09	45%
Female	11	55%

**Table 1:** Gender distribution

The distribution of the patients between the sexes was more or less balanced, with slight weight age towards females. 45% of the patients were males while 55% of the patients were females.

In this study, 40 eyes of 20 patients with congenital cataracts were operated. The maximum number of patients is in the age group between 1-6years. The least number of patients was found in the age group between 1month-6months (Table 2).

Age group	Percentage
1month-6month	5%
7month-12 month	10%
1year- 6year	50%
7year-12year	35%

**Table 2:** Congenital cataracts

A detailed history was taken for all the patients, which included consanguinity grade I, grade II, grade III & non consanguinity (Table 3).

Consanguinity	No. of patients
Grade I	3 (15%)
Grade II	7 (35%)
Grade III	6 (30%)
Non – Consanguinity	4 (20%)

**Table 3:** Grades of consanguinity

15% of the patients had a positive history of grade I consanguinity.  
 35% of the patients had a positive history of grade II consanguinity.  
 30% of the patients had a positive history of grade III consanguinity.  
 Non consanguinity was found in 20% of the patients.

S.No	Preoperative visual acuity	No of eyes	Post operative visual acuity	No of eyes
1	PL	11 (27.50%)	PL	1(0%)
2	HM	3 (7.5%)	HM	2 (5%)
3	CFC	4 (10%)	CFC	2 (5%)
4	1/60-5/60	18 (45%)	1/60-5/60	12 (30%)
5	6/60-6/24	4 (10%)	6/60-6/18	23 (60%)

**Table 4:** Pre and post operative visual acuity

This table provides an appropriate range of visual acuity of all patients before surgery

- 27.5% of the patients had the visual acuity of PL.
- 7.5% of the patients had visual acuity of HM.
- 10% of the patients had visual acuity of CFC.
- 45% of the patients had vision ranging from 1/60-5/60.
- 10% of the patients had vision ranging from 6/60-6/24

The surgery was performed mainly under general anaesthesia. Most of the children underwent SICS with IOL. Phaco emulsification with IOL was done in 4 eyes, Scleral fixated IOL in 2 eyes, and SICS with IOL in 34 eyes (Table 5)

S.No	Types of surgery	No. of eyes
1	Phaco with IOL	4 (10%)
2	SICS with IOL	34 (85%)
3	S.F IOL	2 (5%)

**Table 5:** Types of surgeries

S.No	Visual acuity	No of eyes
1	PL	1(0%)
2	HM	2(5%)
3	CFC	2(5%)
4	1/60-5/60	12(30%)
5	6/60-6/18	23 (60%)

**Table 6:** Postoperative visual acuity

The visual acuity in the postoperative period was recorded with appropriate correction.

- 5% of the patients had the visual acuity of HM.
- 5% of the patients had the visual acuity of CFC.
- 30% of the patients had the vision ranging from 1/60 - 5/60.
- 60% of the patients had the vision ranging from 6/60 - 6/18.

**Discussion**

In the present study, the clinical and surgical data of 40 eyes of 20 children with congenital cataract patients done at government medical college between January 2014 to December 2014 were assessed.

There are numerous surgical procedures described for the treatment of cataract including peripheral iridectomy (for central

opacities), needling and aspiration, Lensectomy, optic captured posterior chamber intraocular lens after phacoemulsification [10-12]. In order to visually rehabilitate an infantile eye after cataract extraction, the eye must be focused optically and therapy must be initiated to treat and prevent the further development of amblyopia [11,13].

The study done by Forbes et al on the surgical management of cataract in children shows the need for early surgery at or before 6 weeks of age and before the development of binocular vision which will give a good visual prognosis [1]. This inference coincides with the present study.

A case report presented by Ruth et al mentions about cataract extraction with IOL implantation in a 8 week old child. The child had better vision in the operated eye than the normal eye [7]. This also matches the present study with regard to postoperative visual prognosis.

Ledoux et al have done a retrospective study of 510 children who underwent cataract surgery with IOL implantation. The average age of the patients was about 5 years. The Vision was assessed 4 years after surgery. The results showed that 50% had visual acuity better than 20/30 and 50% worse than 20/30. This is comparable to the data of the present study [14].

The real challenge starts after the cataract surgery as the child is left with gross refractive error, which can lead to the development of amblyopia if not corrected in time [15]. Achieving a good visual outcome following cataract surgery in children remains difficult, requiring extra effort and patience on the part of the ophthalmologist and good compliance from the parents [12,16-18].

In this study, all the 20 children had congenital cataract in both eyes. Among them, 19 were male and 11 were female. The youngest child in this study was a 1 month old and the eldest was 11 years old. Consanguinity was present in 16 children and parents of 4 children were not related. Surgery was performed in all the children - Small Incision Cataract Surgery with Intra Ocular Lens in 34 eyes, Phaco with Intra Ocular Lens in 2 eyes, and Scleral Fixated Intra Ocular Lens in 2 eyes. The preoperative visual acuity ranged from Perception of light to 6/24. After surgery, 60% (23eyes) had 6/60 to 6/18 vision. The rest of the eye had Perception of light to 5/60 vision.

## Summary

This retrospective study entitled "A clinical study of congenital cataract" which included 40 eyes of 20 children with congenital cataract revealed that consanguinity of various grades was the aetiological factor and that their visual acuity before surgical intervention was very poor. After surgery the visual acuity improved in the range of 6/60 to 6/18 to 60% of the children. This is definitely a great boon to the otherwise blind child and also to the parents and the society.

The management of congenital cataract is complex, and should only be carried out in specialist centers. However, every eye worker can play a role by assisting with case finding and follow up.

Timely recognition and intervention can eliminate blind years due to childhood cataract as the condition is treatable.

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