

Original Research Article

# A clinical study of congenital cataract and its visual outcome at regional eye hospital, Warangal, Telangana

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## Abstract

**Background:** Congenital cataracts present very important ophthalmological and socio economic problem. It is one of the causes of blindness continuous to receive emphasis as a school health problem throughout the world.

**Aim:** Clinical evaluation and visual outcome following surgery in congenital cataract.

**Materials and methods:** It was a clinical study on the patients who have attended out-patient department of Ophthalmology for a period for a period of 2 year. 50 cases under the age of 12 years who were operated by SICS with PCIOL (PMMA) and Phaco with foldable IOLs were included in study. All the cases were followed for a period of 3 months.

**Results:** Among the 50 cases, positive family history of congenital cataract was present in 6%. Systemic and ocular abnormalities were present in 3 (6%) and 10 (20%) cases of congenital cataract. Majority of children presented with visual acuity of PL. Majority of children got vision between 6/36 to 6/24. 48% presented with total cataract followed by lamellar cataract 36%. Most of the children had amblyopia followed by squint and optic atrophy. Most of the intra operative complications were posterior capsular rupture followed by premature rupture, hyphema and iridodialysis. Posterior capsular opacification was common followed by iritis, shallow AC and corneal edema. IOL implantation was done in 90% of congenital cataract cases and in 5 % of cases secondary IOL is implanted. Mean IOL power calculated was + 18.00D.

**Conclusion:** Early diagnosis and meticulous management of congenital cataract may give satisfactory vision with minimal complications.

## Key words

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Congenital cataract, Total cataract, Zonular cataract, Amblyopia, Strabismus, PCO, BCVA.

## Introduction

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Congenital cataracts present very important ophthalmological and socio economic problem. It is one of the causes of blindness continuous to receive emphasis as a school health problem throughout the world. It is often noticed that ignorant patients approach the ophthalmologist for medical help when considerable permanent damage has been done to the eye by the disease. In the recent years considerable interest has been aroused since it is not only the problem of ophthalmologist in treating, but also the gynecologists and pediatricians are involved in preventing this disease [1, 2].

Congenital cataracts are usually present at birth and may or may not interfere with vision. It is well known how ever that congenital cataract may progress in severity causing increasing visual impairment. Untreated cases may lead to amblyopia, nystagmus, strabismus and permanent blindness. The great importance of congenital cataracts lie in the fact that early recognition and treatment may save the sight of the eye. This study is mainly focused on to understand the etiology, various types, associations and management of various types of congenital cataracts and their visual outcome in our hospital.

## Materials and methods

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The present clinical study of the congenital cataracts and their various aspects were undertaken on the patients who have attended out-patient department of Ophthalmology admitted during the period from January 2016 to December 2017. Total 50 cases were included. A detailed case history was recorded regarding the nature of complaint and its duration.

Detailed obstetric history including post natal, mile stones of development of child was recorded. The clinical history mainly focused on maternal nutrition, maternal infections, type of

delivery, neonatal infections etc., any similar complaints in the siblings were also noted. In case of congenital cataract history of consanguinity in the parents, drug intake, exposure to X-rays during early pregnancy were recorded. Past history of wearing glasses, ocular treatments were recorded. Detailed history of injury, general condition was thoroughly checked. All children with congenital cataract were referred to pediatrician to exclude other congenital anomalies. Ocular examination included thorough anterior segment evaluation, slit lamp examination, recording of pupillary responses, recording of intra ocular pressures under LA in cooperative children. Posterior segment was evaluated in indirect ophthalmoscopy and B scan. Routine investigation of urine for albumin and sugar, hemoglobin percentage were done. In cases of congenital cataracts estimation of rubella antibodies in the blood were done.

Pre-anesthetic check-up was done routinely for all cases one day before surgery by anesthetist. Intra ocular lens power calculation was done by keratometry and A scan. In most of the cases PMMA lenses were implanted. In few cases (12) hydrophobic acrylic foldable IOLs were used. The parents were explained the advantages and disadvantages of IOLs and about the main surgical procedure. Written consent was obtained. Systemic antibiotics, in most of the cases tab co trimoxazole were started a day before surgery. Most of the cases were done under GA, few cooperative cases were done under LA with mild sedation. As the surgery was done under GA necessary instructions like fasting from early hours of the day of surgery were given to the parents. Adequate mydriasis was obtained by instillation of 1% homatropine and of prior to surgery. SICS with PC PMMA lenses was done in 38 cases, Phaco with foldable lenses in 12 cases. Posterior capsulorhexis with anterior vitrectomy was performed in children

less than 3 years of age. Surgical wound was sutured with 10<sup>0</sup> nylon in young children.

## Results

Among the 50 cases, positive family history of congenital cataract was present in 6%. Systemic and ocular abnormalities were present in 3 (6%) and 10 (20%) cases of congenital cataract respectively. Mean age at the time of diagnosis of congenital cataract was 6 years. Vast majority of congenital cataract cases were from low income group.

Majority of children presented with visual acuity of PL. Majority of children got vision between 6/36 to 6/24 (**Table – 1**). Majority of children i.e., 48% presented with total cataract followed by lamellar cataract i.e. 36% (**Table – 2**). Majority of children had amblyopia followed by squint and optic atrophy (**Table – 3**).

**Table - 1:** Pre and post-operative vision.

Pre vision	No. of cases	%
PL	23	46
HM	16	32
CF mts (1-6)	11	22
>6/60	0	0
Post-op vision		
HM	1	2
CF mts – 6/60	9	18
6/36-6/24	29	58
6/18-6/12	11	22
<6/12	0	0

**Table - 2:** Morphology of congenital cataract.

Type of cataract	No. of cases	%
Zonular ( lamellar)	18	36
Nuclear	0	0
Sutural and axial	3	6
Polar	5	10
Total cataract	24	48

Most of the intra operative complications were posterior capsular rupture followed by premature rupture, hyphema and iridodialysis (**Figure – 1**). Posterior capsular opacification was common followed by iritis, shallow AC and corneal

edema (**Figure – 2**). Visual acuity at presentation was less than 6/60 in a significant proportion of patients. IOL implantation was done in 90% of congenital cataract cases and in 5% of cases secondary IOL is implanted. Mean IOL power calculated was + 18.00D.

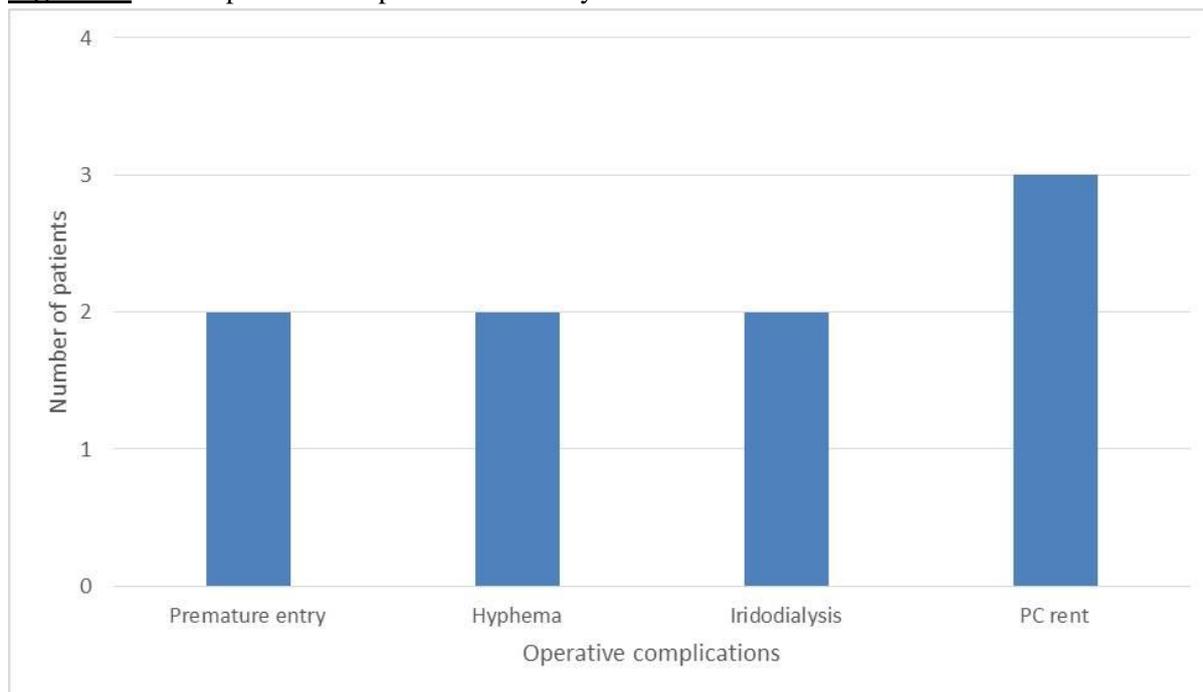
**Table - 3:** Associated ocular diseases in study.

Ocular diseases	No. of cases	%
Amblyopia	5	10
Strabismus	2	4
Retinal detachment	1	2
Optic atrophy	2	4
Corneal oedema	0	0

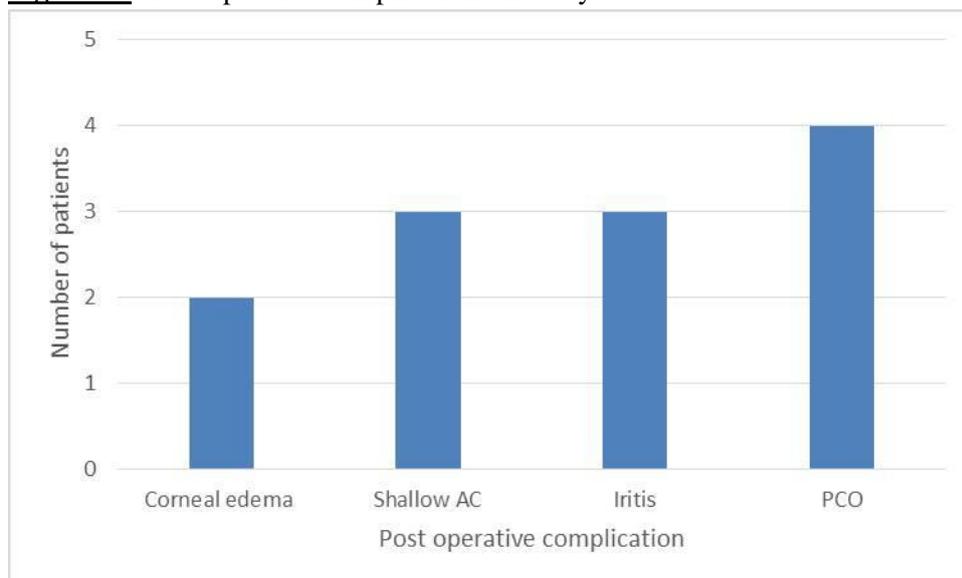
## Discussion

Cataract is one of the major diseases of eye encountered in the department of ophthalmology. The visual prognosis of children with congenital cataract has improved dramatically following surgery in modern era. Most of the ophthalmologists agree that early detection, prompt treatment, management of amblyopia, advances in surgical techniques and instrumentation have contributed greatly in the visual outcome of congenital cataracts. The present study was undertaken in the department of ophthalmology, Regional eye hospital, Warangal which is not only a referral center for various ophthalmological problems but also a teaching institution. In this present study, 50 children were studied in detail by taking all factors into consideration. The average age of presentation in our study is 4.5 years ranging from 6 months to 10 years. Melaine Chak, et al. [3] in their study of 122 children found that the age of presentation was around 5 months. This disparity in age presentation may be due to lack of patient awareness and low socio economic status in the region. Etiology of congenital cataract is multifactorial. In our study we found positive family history (other sibling suffering from congenital cataract) in three children. There was history of consanguinity in another three children. Malnutrition was seen in almost all cases in varied degrees.

**Figure - 1:** Intra operative complications in study.



**Figure - 2:** Post-operative complications in study.



The increased incidence of malnutrition due to rural background and low socio economic status. In our study 6% children presented with systemic abnormalities like mental retardation, ventricular septal defect etc. Misao Yamamoto, et al. [4] have found systemic abnormalities in 6.6% of children. In our study we found more number of total cataract cases followed by lamellar cataracts. KH Kim, et al. [5] have found more incidence of nuclear followed by polar cataract in their study. In our study we found 9 children

with unilateral and 41 children with bilateral cataracts. Chong Eun Lee, et al. [6] in his study of 29 patients has seen 7 children with unilateral and 22 children with bilateral cataracts. We had 6 cases of unilateral cataract, 2 cases of bilateral cataract under 3 years of age and 12 cases of unilateral and 30 cases of bilateral cataract over 3 years of age. Eun Ji Lee, et al. [7] in his study found 22 unilateral and 13 bilateral under 3 years of age and 8 unilateral, 13 bilateral cataract cases over 3 years of age. In a study conducted by

sadguru netra chikitsalaya in collaboration with ORBIS [8] – 87.1% had unilateral cataract 12.9% had bilateral cataract. The many fold increase in number of bilateral cataract cases in our study may be due to late presentation poor medical awareness, low socio economic status of the patients. The average age at surgery in our study is 5 years (range from 7 months to 11 years). Melaine chak, et al. [3] in their study – age at surgery was 4.6 months. This disparity in ages at surgery is mainly due to lack of awareness among parents and non-availability of well-trained health professionals in rural areas. Most of the cases were operated under general anesthesia. Few were operated under local anesthesia. Cooperation from children and excellent surgical expertise allowed us to perform the operation under local anesthesia.

After subjecting 50 children with congenital cataract surgery, 10 developed post-operative complications like shallow anterior chamber 6% (3 cases), iritis 6% (3 cases), and posterior capsular opacity 8% (4 cases). Melaine chak, et al. [3] had found 0.8% (1 case) with shallow anterior chamber. Eun Ji Lee, et al. [7] had found 1.8% (3 cases) of posterior capsular opacity and 1.2% (2 cases) with iritis. Posterior continuous capsulorrhexis was not done in most of the patients which may be the reason for the development of posterior capsular opacity in the post-operative period. The increased tissue reactivity in small children may lead to iritis cases post operatively. The 2 cases which we found resolved with topical steroids instillation. The increase in number of shallow anterior chamber post operatively is due to differences in surgical skills of surgeons. In our study of 91 eyes, 5% (5 eyes) had developed amblyopia and 1% (1 eye) retinal detachment. The post-operative best corrected visual acuity (BCVA) in our study varied from HM (hand movements) to >6/18.

83% of children post operatively (after 6 weeks) had BCVA >6/60. Eun Ji Lee, et al. [7] (study of 92 eyes) had shown that 91% of patients had BCVA > 6/60. Good visual outcome in the post-

operative period in patients who have undergone cataract surgery makes early surgical intervention the gold standard in any case of congenital cataract. 5 cases in our study had undergone secondary intra ocular lens implantation- the visual outcome was > 6/36 to 6/24 in all the cases.

## Conclusion

The present study revealed that the congenital cataract in children is an important ophthalmological problem the visual outcome depends on duration, laterality, type of cataract, age at intervention, operative procedure and associated ocular pathologies. Early detection and early and appropriate intervention may have a major role in the successful outcome of the case. Extra capsular cataract extraction with posterior chamber intra ocular lens implantation is a safe and effective method that gives an excellent post-operative visual outcome in patients with not only bilateral but also unilateral congenital cataract. Amblyopia requires early detection and occlusion therapy to improve visual prognosis still remains an effective modality so, anticipation and preparedness to treat the complications after surgery will lessen not only the complications but also gives good outcome.

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