

Clinical Study of Paediatric Cataract and Visual Outcome after Iol Implantation

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Abstract:

Objectives:

- (1) To know the possible etiology of Paediatric cataract,
 - (2) Type of Paediatric cataract
 - (3) Associated other ocular abnormality (microphthalmia, nystagmus, Strabismus, Amblyopia, corneal opacity etc.),
 - (4) Systemic association,
 - (5) Laterality (whether unilateral or bilateral),
 - (6) Sex incidence
 - (7) Pre-operative vision
 - (8) To evaluate the visual results after cataract surgery in children aged between 2-15 years and
 - (9) To evaluate the complication and different causes of visual impairment following the management.
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I. Material And Methods

Prospective study was conducted in the Department of Ophthalmology at Darbhanga Medical College and Hospital, Laheriasarai (Bihar). The material for the present study was drawn from patients attending the out-patient Department of Ophthalmology for cataract management during the period from November 2012 to October 2014.

25 cases (40 Eyes) of pediatric cataract were included in the study. Patients were admitted and the data was categorized into etiology, age, and sex and analyzed. All the cases were studied in the following manner.

Inclusion Criteria:

- All children above 2 years of age and below 15 years with visually significant cataract.
- Parents willing for surgery and regular follow-up.

Exclusion criteria:

- Cataracts with VH or exudates in vitreous.
- Trauma
- Presence of ocular infections (conjunctivitis, scleritis, blepharitis).
- Nasolacrimal duct obstruction
- Co-existent ocular abnormalities
- Glaucoma
- Uveitis
- Previous intra-ocular surgery
- Parents unable to comply with post-operative optical correction and regular follow-up visits.

II. Result

Total of 40 eyes of 25 patients were enrolled in the study and operated on by different surgeons at department of ophthalmology in Darbhanga Medical College and Hospital.

TABLE --: SEX WISE DISTRIBUTION

Gender	Number of cases	Percentage
Male	18	72
Female	7	28
Total	25	100

As shown in the table 18 patients (72%) were males and 7 patients (28%) were females

TABLE --: AGE DISTRIBUTION

Age (yrs.)	Number of cases	Percentage
< 5	--	--
5-8	8	32
8-10	12	48
10-15	5	20
Total	25	100

This study included patients below the age of 15 years. There were no patients below the age of 5 years probably because of socioeconomic regions. Majority of the patients were aged between 5-10 years at presentation

TABLE --: LATERALITY OF CATARACT

Laterality	Number of patients	Percentage
Bilateral	15	60
Unilateral	10	40
Total	25	100

As shown in the table, bilateral cataracts comprised 60% of the cases and 40 % of the cases were unilateral.

TABLE --: ETIOLOGY OF CATARACT

Etiology	Number of cases	Percentage (%)
Hereditary	10	40
Rubella	3	12
Idiopathic	12	48
Total	25	100

In this study, 48% were idiopathic, 40% due to hereditary. Rubella accounted for 12% of the cases

TABLE --: TYPE OF CATARACT

Type of cataract	Unilateral n (%)	Bilateral n (%)	Total cases n (%)
Zonular	2(8)	8(32)	10(40)
Total	5(20)	2(8)	7(28)
Membranous	--	1(4)	1(4)
Nuclear	--	1(4)	1(4)
Others	3(12)	3(12)	6(24)

In this study, incidences of zonular cataract were 40% and total cataracts have incidence of 28%.

TABLE --: MANAGEMENT OF CATARACT

Surgical procedure	Number of eyes	Percentage
SICS + PCIOL (Group 1)	32	80
SICS + PPC + PCIOL (Group 2)	8	20
Total	40	100

As shown in the table, about 80% of the eyes underwent only SICS with PCIOL and 20% of eyes underwent SICS with PPC with PCIOL.

TABLE -: VISUAL OUTCOME (NUMBER OF EYES)

VA	Preop n (%)	Postop BCVA n (%)
PLPR	10(25)	--
HM	7(17.5)	--
CFCF	8(20)	--
1/60 – 5/60	10(25)	3(7.5)
6/60 – 6/36	5(12.5)	10(25)
6/24 – 6/18	--	7(17.5)
6/12 – 6/9	--	18(45)
6/6	--	2(5)
Total	40	100

TABLE -: POST OPERATIVE REFRACTIVE STATUS

Residual refractive error (SE)	Number of eyes n (%)
> - 3.00 D	--
- 3 to - 1 D	18(45)
> - 1 D to + 0.5	4(10)
> + 0.5 to + 1.5 D	7(17.5)
> + 1.5 to + 3 D	6(15)
> 3 D	--
Undetermined	5(12.5)
Total	40

As shown in the table, 45% patients showed a myopic residual refractive error between - 1 to - 3 D and 32.5% patients had a hyperopic residual refractive error between + 0.5 to + 3 D. In 5 eyes refractive error was undetermined due to nystagmus in 2 cases and macular opacity in 1 case.

TABLE -: ASSOCIATED FEATURES

Features	No. of cases	Percentage (%)
Nystagmus	2	8
Strabismus	7	28
Microphthalmia	2	8
TORCH	3	12
Corneal opacity	6	24
Amblyopia	9	36

As shown in the table, the most common associated features were Amblyopia (36%), strabismus (28%) and corneal opacity (24%) and the rest showed approximately equal incidence at presentation.

TABLE -: POSTOP COMPLICATIONS

Complications	SICS WITHOUT POSTERIOR CAPSULORHEXIS Group1- n (%)	SICS WITH POSTERIOR CAPSULORHEXIS+ANT. VITRECTOMY Group2-n (%)
Fibrous reaction	2(6.25)	1(12.5)
HypHEMA	2(6.25)	1(12.5)
Anterior uveitis	18(56.25)	4(50)
Stiate keratopathy	4(12.5)	2(25)
Updrawn Pupil	--	--

TABLE:-LATE COMPLICATION

	SICS WITHOUT POSTERIOR CAPSULORHEXIS Group1- n (%)	SICS WITH POSTERIOR CAPSULORHEXIS+ANT. VITRECTOMY Group2-n (%)
Vitreous Haemorrhage	3(9.37)	--
Glaucoma	2(6.25)	--
Posterior synechiae	2(6.25)	1(12.5)
Macular oedema	--	--
Lens subluxation and dislocation	2(6.25)	1(12.5)
Bullous keratopathy	--	--
Retinal detachment	--	--
Posterior capsular opacification	22(68.75)	1(12.5)

Most common postoperative complications were PCO (23 eyes) and anterior uveitis (22 eyes).

III. Conclusion

Most common postoperative complications were PCO and anterior uveitis. PCO was more common in surgery done without posterior capsulorhexis. Inference-PCO and Anterior Uveitis are most common complications associated with different technique of surgery done during past 5 years but incidence of PCO reduced with newer technique Of Surgery that is SICS+posterior capsulorhexis+ anterior vitrectomy

IV. Summary

TABLE-OUR STUDY INFERENCE

IN OUR STUDY	
Sex	Male(72%) predominance
Laterality	Bilateral (60%)>Unilateral (40%)
Associated features	Amblyopia (36%)>Strabismus (28%)
Possible Etiology	Idiopathic (48%)>Hereditary (40%)>Rubella (12%)
Type of cataract	Zonular (40%) type are commonest
Age	Majority are 5-10 years (80%)
Preop vision	<6/60 (87.5%)
Postop visionBCVA	<6/12(50%)
Postop ref. status	-3to-1D (45%), +0.5to +3.0D (32.5%)
Complication	Ant. uveitis more common in Group1 (56.25%) than Group2 (50%), PCO are more common in Group1 (68.75%) than Group2 (12.5%).

- In this study 40 eyes of 25 patients with pediatric cataract between age group of 2-15 years were studied.
- Majority of patients were aged between 5-10 years at time of presentation, indicating a possibility of delay at presentation and unawareness of parents towards the disease.
- The incidence was higher among males (72%) than females (28%).
- Majority of the cases were bilateral (60%).
- Zonular cataract presented having higher incidence 40% among all the type of cataracts.
- 62.5% of eyes had pre-operative visual acuity of < 6/60.
- PCIOL implantation was done in all patients. Among these, 8 eyes (20%) had undergone SICS +POSTERIOR CAPSULORHEXIS+ANT. VITRECTOMY and 32 eyes (80%) had undergone SICS without posterior capsulorhexis.
- Post operatively 50% of eyes had a final BCVA of 6/12 or better at 4 months follow up.
- The most common unfavorable associated feature was amblyopia.
- The most common post-operative complications were PCO and anterior uveitis.
- Anterior uveitis was more common in group1 (56.25%) than group2 (50%).
- PCO was more common in group1 (68.75%) than group2 (12.5%).

V. Discussion

In a study conducted by Abhay Vasavada, PCO was compared between PPC with or without anterior vitrectomy in congenital cataract and it was noted that the incidence of PCO was 62.5% in children who underwent PPC without vitrectomy and 10% in children who underwent PPC with vitrectomy A study conducted by O'Keefe M and associates showed that PPC reduces the incidence of PCO. Therefore our study is accordance to above study.

Limitation of Study:

- Small study sample size
- Short follow-up period
- Surgical facilities and skills required in pediatric cataract surgery are at subspecialty level.

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