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Refractive Outcome of Posterior Optic Capture versus Intrabagal Implantation of Intraocular Lenses in Pediatric Cataract Surgery

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Authors' contributions

This work was carried out in collaboration among all authors. Author RME designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors AFE and WAA managed the analyses of the study. Author WAA managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Purpose: To compare refractive outcome of posterior Optic Capture versus In-the-bag Implantation of Intraocular Lenses in Pediatric Cataract Surgery.
Design: Prospective, randomized and comparative study.
Methods: Forty eyes of 25 children (12 males and 13 females) were included in this study with unilateral or bilateral cataracts in the pediatric age during the period between October 2018 to July 2019. These children were diagnosed to have congenital or developmental cataracts. All children underwent cataract surgery and IOL implantation. In our study, all children were divided into two groups: group (A) included 22 eyes that underwent posterior capsulorhexis and anterior vitrectomy with IOL implantation entirely in the capsular bag and group (B) included 18 eyes that underwent posterior capsulorhexis and posterior optic capture of the IOL. Patient demographics, surgical intervention, presenting symptoms, postoperative refraction and follow up of refractive changes for 6 months were recorded.

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Results: Ten cases were unilateral and fifteen cases were bilateral. The mean age was 5.44 ±3.30 in group (A) while the mean age was 4.26±1.45 in group (B). At 1.5 month, the mean spherical error in group (A) was 2.85 ± 1.41 D with range from 1 to 6.5D, and the mean spherical error in group (B) was 2.50 ± 1.70 D with range from -0.75 to 3.75 D with no statistically significant difference in both groups. The mean cylindrical error in group (A) was -0.96 ± 1.87 D with range from -3.5 to 2.25D and the mean cylindrical error in group (B) was -1.38 ± 1.79 D with range from -3 to 2D with no statistically significant difference in both groups. At 6 months, the mean spherical error in group (A) was 0.73 ±1.89 D with range from -4.00 to 3.75D and the mean spherical error in group (B) was 0.00 ± 2.27 D with range from -3.50 to 2.7D with no statistically significant difference in both groups. The mean cylindrical error in group (A) was -1.21± 0.90 D with range from -2.75 to 1.25D and the mean cylindrical error in group (B) was -1.68 ±0.93 D with range from -3.00 to -0.75D with no statistically significant difference in both groups.
Conclusion: There was no statistically significant difference between in-the-bag intraocular lens implantation and intraocular lens posterior optic capture in the term of post-operative refraction. Posterior optic capture helped in preventing posterior capsule opacification (PCO) postoperatively in all cases.

Keywords: Visual outcome of posterior optic capture; in-the-bag implantation; pediatric cataract surgery.

1. INTRODUCTION

Childhood cataract is one of the most important causes of blindness and severe visual impairment in children and it is responsible for 5-20% of pediatric blindness worldwide [1].

The aim of pediatric cataract surgery is to provide and maintain a clear visual axis with a focused retinal image. Early diagnosis and treatment are of crucial importance to prevent the development of irreversible stimulus-deprivation amblyopia. The management of pediatric cataract should be customized depending upon the age of onset, laterality, morphology of the cataract, and other associated ocular and systemic comorbidities [2].

Intraocular lenses (IOLs) implantation in the pediatric cases is an alternative form of optical correction to contact lenses and spectacles [3].

The lack of a hard nucleus, vastly reduced scleral and corneal rigidity, and enhanced posterior vitreous pressure demand a surgical approach that differs in many ways from the adult procedure [4].

Pediatric cataract surgery usually has a post-operative refractive goal that aims at significant amount of residual hyperopia that accommodates for the anticipated growth and refractive shift of the eye after surgery [5].

It is critical that surgeons can predict the post-operative refraction and implant an intraocular lens with an accurate power in pediatric eyes [6].

The most important factor affecting postoperative visual acuity in pediatric cataract surgery is the development of PCO which leads to decreased vision and amblyopia. Therefore, posterior capsulorhexis is performed to prevent post-operative PCO. In addition to posterior capsulorhexis, various other surgical approaches have been employed to prevent PCO [6].

When IOL implantation is planned, the IOL can be placed in the bag (optic and haptic in the bag), or the optic component can be captured behind the posterior capsulorhexis while placing the IOL haptic in the bag (haptic in the bag, optic behind the posterior capsulorhexis) [7].

2. PATIENTS AND METHODS

This study was conducted at the Ophthalmology department, Tanta University hospital, it was carried out on forty eyes of 25 child decided for either primary or secondary IOL implantation of both unilateral or bilateral cataract.

These children were selected randomly by assigning one case to one group and the subsequent case to the other, and so on.

2.1 Rules

2.1.1 Preservation

- Patient privacy and confidentiality was preserved.
- Unexpected risks during the study were informed to the patients.

2.1.2 Inclusion criteria

- Congenital and developmental cataract.
- Age: below 18 years old.
- Aphakia for secondary implantation.
- Both unilateral and bilateral cases.

2.1.3 Exclusion criteria

- Traumatic and complicated cataract.
- Pre-existing ocular conditions such as:
- Corneal opacities and scars.
- Microcornea and microphthalmos.
- Glaucoma.
- Uveitis.
- Optic nerve diseases.
- Retinal diseases.
- Congenital colobomas.

2.1.4 Children were divided into two main groups according to the site of IOL implantation into group A&B:

Group A: included 22 eyes that underwent double capsulorhexis and anterior vitrectomy with IOL implantation entirely in the capsular bag.

Group B: included 18 eyes that underwent double capsulorhexis with posterior capturing of the optic part of the IOL and cases of aphakia.

- In this group, the IOL haptic was implanted in the ciliary sulcus and the edge of the optic was slid behind the posterior capsulorhexis margin.

2.1.5 All patients were subjected to the following:

1. History of maternal drug taking, infection exposure during pregnancy**.**
2. Detailed birth history and family history of similar conditions.
3. History of the onset of the opacities, progression and laterality.

2.1.6 Complete ophthalmological examination including:

a. Table mounted or portable Slit lamp to examine the anterior segment. Uncooperative children were examined under general anaesthesia.
b. Posterior segment examination using direct and indirect ophthalmoscope.
c. Uncorrected and corrected visual acuity using Snellen's chart and examination by the direct ophthalmoscopy in infants.
d. In preverbal children who are uncooperative for standard visual acuity testing, fixation behavior, fixation preference, and objection to occlusion were checked. In younger infants with poorly developed fixation, a red reflex test was performed in a darkened room with a direct ophthalmoscope along with undilated retinoscopy to assess the visual significance of the lens opacity. Beside this, the Teller acuity cards were also used for the assessment of visual function.

2.1.7 Preoperative ophthalmic investigations:

All children were subjected to:

- B scan ultrasonography in cases with dense cataracts for assessment of posterior segment.
- Contact hand-held A-scan to measure the axial length for calculating IOL power and monitoring the globe elongation postoperatively.
- K-readings by manual keratometry in cooperative children and portable autorefractokeratometer in uncooperative children under general anaesthesia.
- IOL power calculation formulae were recommended as per axial length: Hoffer Q and Haigis were best for short axial length < 22 mm, Holladay was considered for axial lengths 22-26 mm and SRK/T was considered for long axial length > 26mm.
- Desired postoperative target refraction of different age groups according to Trivedi and Wilson [8]:

Age (years)	Amount of reduction
First year	+12 to +7
1-2 year	+6
2-3 year	+5
4 years	+4
5 years	+3
6 years	+2
7 years	+1.5
8-10 years	+1
10-14 years	0.50
>14 years	Plano

2.2 Surgical Strategy

- A continuous curvilinear capsulorhexis (CCC) was done followed by hydrodissection and lens aspiration. Primary

vitrectomy was done in patients planned for IOL implantation in the capsular bag.
- Children younger than 2 years with bilateral cataracts were left aphakic and prescribed aphakic glasses based on retinoscopy findings. In unilateral cases, posterior chamber IOL (PCIOL) was implanted at the same setting.
- In children older than 2 years, PCIOL was implanted at the same sitting of cataract extraction.
- The IOL used for secondary implantation was the three piece Acrysof intraocular lens (Alcon Acrysof three pieces model MA60AC IOL).

2.3 Preoperative Preparation

- Mydriasis was achieved with use of tropicamide drops every 15 minutes two hours before surgery.
- Non steroidal anti-inflammatory drugs with use of diclofenac sodium drops every 15 minutes two hours before surgery.
- Broad spectrum antibiotics with use of moxifloxacin drops every 15 minutes two hours before surgery.
- Third generation cephalosporin with use of 2 vials of cefotaxime sodium for injection every 12 hours before surgery.
- Povidine iodine , diluted to 5% solution , was applied to the eye at the end of the surgical skin and lash preparation.

2.4 Surgical Steps

- Surgery was performed under general anaesthesia.
- Superior corneal tunnel incision was constructed using 3.2 microkeratome blade.
- Two side ports were performed by MVR guage 20.
- An addition of 0.5 ml adrenaline to the infusion bottle (1:1000) maintains pupillary dilatation.
- Filling the anterior chamber with ocular viscoelastic devices (OVDs): Hydroxypropyl Methylcellulose 2% w/v and Sodium Hyaluronate.
- About 5mm CCC was performed by forceps followed by hydrodissection and aspiration of lens material using a bimanual irrigation-aspiration technique.
- With a vitrectomy tip, the posterior capsule was opened centerally. In group A, an anterior vitrectomy was performed after this procedure.
- Three piece Acrysof foldable IOL was implanted in the bag between the anterior and posterior capsule in group A.
- In group B, posterior capture of the optic of the IOL was achieved by gentle pressure of one half of the IOL optic followed by slow and gentle pressure of the second half of the optic through the central capsulorhexis opening.
- At the end of procedure, the incision was sutured with a 10-0 non absorbable monofilament nylon interrupted sutures one or more according to the need and hydration of the wound edges.
- Subconjunctival injection of dexamethasone 2 mg and gentamycin 10 mg was administerated at the end of surgery.
- The eye was then covered with a sterile patch.

2.4.1 Post-operative treatment

- Topical antibiotic eye drops 5 times daily for a week, prednisolone acetate eye drops 5 times daily for 1 week then tapered gradually over a month.
- Topical combined antibiotic and steroid ointment at bedtime.
- Spectacles were prescribed for visual rehabilition in all patients.
- Children underwent unilateral cataract surgery received occlusion therapy.

2.4.2 Postoperative follow up

- Refraction was recorded 1 week after sutures removal (1.5 month) and then at 6 months by Portable Autorefractokeratometer.

2.5 Statistical Analysis

All statistical analysis was performed with SPSS statistical software version 22. Continuous variables were presented as mean ±standard deviation. The difference between average variables was analyzed using Chi-square test for nonparametric data and the t test for parametric data. A two-sided P value of less than 0.05 was considered to be statistically significant.

3. RESULTS

3.1 As Regard the Age in Both Groups

Table 1. Demographic data (age)

		Range			Mean	±	S. D	T. test	P. value
Age	G (A)	2	–	12	5.44	±	3.30	1.211	0.282
(years)	G (B)	2.4	–	7	4.26	±	1.45		

The mean age was 5.44 ±3.30 in group (A) with range from 2 to 12 years old while the mean age was 4.26±1.45 in group (B) with range from 2.4 to 7 years old with no statistically significant difference between both groups

Table 2. Refractive data of the study participants at 1.5 month and 6 months postoperatively

		G (A)		G (B)		p. value
		Range	Mean ± S. D	Range	Mean ± S. D	
Sphere	**1.5 m.**	1 – 6.5	2.85 ± 1.41	-0.75 – 3.75	2.50 ± 1.70	0.621
	6 m.	-4 – 3.75	0.73 ± 1.89	-3.5 – 2.75	0.00 ± 2.27	0.638
Cylinder	**1.5 m.**	-3.5 – 2.25	-0.96 ± 1.87	-3 – 2	-1.38 ± 1.79	0.522
	6 m.	-2.75 – 1.25	-1.21 ± 0.90	-3 – -0.75	-1.68 ± 0.93	0.409
Axis	**1.5 m.**	35 – 174	110.06 ± 39.05	2 – 170	95.00 ± 71.44	0.246
	6 m.	17 – 180	119.29 ± 44.80	5 – 180	111.29 ± 68.59	0.725

This table showed that there was no statistically significant difference between both groups according to spherical and cylinderical errors during the postoperative period of six months but there was myopic shift in both groups

Table 3. Median visual acuity (VA) according to age at time of surgery

Age at surgery(years)	Median VA in eye with better vision	Median VA in eye with worse vision
Less than 1	20/40	20/60
1-4	20/30	20/40
4-8	20/25	20/30
More than 8	20/25	20/25

Median VA of the eye with better vision was best in children older than 4 years with a Snellen visual acuity of 20/25. Median VA the eye with poor vision was worse for children younger than 1 year with a Snellen visual acuity of 20/60

Table 4. Distribution of the studied eyes as regarding to the incidence of PCO:

	Group A (n=22)		Group B (n=18)	
	N	%	N	%
PCO	5	22.7	0	0

This table showed that PCO was more prominent in 5 patients (22.7%) in group (A), while there was no cases recorded with PCO in group B and this means that the capture of the posterior optic of the IOL prevents PCO 100% in all cases

4. DISCUSSION

The diagnosis of pediatric cataract and its surgical management remains a major challenge worldwide [1].

The mean age was 5.44 ±3.30 in group (A) with range from 2 to 12 years old while the mean age in group (B) was 4.26±1.45 with range from 2.4 to 7 years old. Jonsson et al. [9] thought that early visual rehabilitation using IOL around 2 years will improve visual prognosis.

Median VA the eye with poor vision was worse for children younger than 1 year with a Snellen visual acuity of 20/60. Our study disagreed with Kim et al. [10] who recommended that young infants less than 1 year with unilateral cataract with or without IOL implantation give rise to poor visual acuity <20/200.

At 1.5 month, the mean spherical error was 2.85 ± 1.41 D (range from 1 to 6.5D) , 2.50 ± 1.70 D (range from -0.75 to 3.75 D) in group A&B respectively with no statistically significant difference (p0.621) in both groups and the mean cylindrical error was -0.96 ± 1.87 D (range from -3.5 to 2.25D), -1.38 ± 1.79 D (range from -3 to 2D) in group A&B respectively with no statistically significant difference in both groups (p 0.522).

At 6 months, the mean spherical error was 0.73 ±1.89 D (range from -4.00 to 3.75D) ,0.00 ± 2.27 D (range from -3.50 to 2.7D) in group A&B respectively with no statistically significant difference in both groups (p0.638) and the mean cylindrical error was -1.21± 0.90 D (range from -2.75 to 1.25D), -1.68 ±0.93 D (range from -3.00 to -0.75D) in group A&B respectively with no statistically significant difference in both groups (p0.409).These findings are consistent with those of Enyedi et al. [11] who found that the overall postoperative myopic shift was greatest in younger patients aged up to 8 years. Unlike previous studies, Zwann et al. [12] found little shift in refraction in 306 eyes, but many of these patients were older. Two thirds of the patients in this study were over the age of 6 years, and less than one tenth under the age of 4 years, which may account for the small postoperative refractive change found.

Also in 2004, Inatomi et al [13] recognized that myopic shift after cataract surgery with IOL insertion can occur even in older children, as it does in the general population, Gimbel et al. [14] targeted to induce a +2 D refractive error immediately postoperatively, yet most patients still had become myopic by 3 to 4 years after surgery.

Dahan et al. [15] implanted IOLs in 17 infants after unilateral cataract surgery. After a mean follow up of 7.5 years (range, 2–11.5 years), the mean initial postoperative refractive error in these eyes was +6.4 D (range, +3 to +9 D); and the mean last refractive error was –1.0 D (range, +3.50 to –8.0 D). The mean myopic shift was –7.4 D (range, –2.50 to –12.75 D), slightly less than the 9–15D, which has been reported in monocularly aphakic children corrected with contact lenses.

Our study found that there was no statistically significant difference in refraction between both groups in accordance with Vasavada,(2001) [16] who found that there was no difference in visual acuity or post-operative refraction between the two groups.

In contrast, Raina(2002) [17] that showed improved visual outcome in the optic capture group over the intra-bagal group.

Posterior capsule opacification is the most common complication following pediatric cataract surgery. The incidence of PCO is nearly 100% in infants not undergoing PPC and anterior vitrectomy [18].

PCO was more prominent in 5 patients (22.7%) in group (A) but no cases reported in group (B). These results were similar to the results of a study by Raina [17] that showed that 8/18 children who did not have optic capture developed PCO requiring a second intervention. None of the sixteen children that had optic capture developed this problem. There was no difference between the groups after this secondary procedure. None of the children had an anterior vitrectomy.

Posterior capsulectomy and anterior vitrectomy in congenital cataract surgery remarkably lowers the incidence of PCO (Caporossi et al) [19].

Recently, Zhou et al. [20] published a Meta-analysis of 282 eyes with pediatric cataracts that were subjected to IOL optic capture and showed that the technique can significantly reduce the visual axis opacification rate and eccentricity of IOL.

Gimbel, 1996 [21] conducted posterior capsulorhexis with optic capture without anterior vitrectomy in 13 eyes. There was no PCO after cataract surgery. In another survey by Gimbel in 1997, [14] he also did not report any case of VAO in 16 eyes using heparin coated IOLs among 2.5 to 12 years old patients who underwent Posterior capsulorhexis plus IOL capture without anterior vitrectomy.

Raina et al. [17] supported the conclusion that IOL optic capture without anterior vitrectomy can effectively prevent PCO.

In 1997, Koch and Kohnen [22] reported that Posterior capsulorhexis with anterior vitrectomy was the only effective method of preventing or delaying secondary cataract formation in infants and children.

Vasavada and Desai, [23] suggested that anterior vitrectomy is desirable along with primary PCCC in children younger than 5years with congenital cataracts as it helps in maintaining clear visual axis.

Our study also agreed with another study by Vasavada et al. [24] which covering 26 eyes with pediatric cataracts that were subjected to IOL capture without anterior vitrectomy. After 12month of follow-up, all visual axis areas were found to have maintained their transparency.

5. CONCLUSION

There was no significant difference between in-the-bag intraocular lens implantation after posterior capsulorhexis and intraocular lens posterior optic capture through posterior capsulorhexis in term of the post-operative refraction. In both groups, the major postoperative refractive error at last follow-up time was myopia. Early cataract surgery, aphakic correction with glasses and secondary IOL implantation around 2 years of age appears to be appropriate methods.

IOL optic capture significantly reduces the chance of PCO which is the most common complication after pediatric cataract surgery.

IOL optic capture technique does not increase the incidence of other post-operative complications, which appears to be a promising alternative to the standard surgical technique for the treatment of pediatric cataracts and it might allow clinicians to avoid the additional step of anterior vitrectomy.

The limitation of the study was the small number of children and short period of follow up.

CONSENT AND ETHICAL APPROVAL

As per international standard or university standard ethical approval has been collected and preserved by the authors.

An informed consent was obtained from the parents and was included in the research.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Foster A, Gilbert C, Rahi J. Epidemiology of cataract in childhood: a global perspective. Journal of cataract and refractive surgery. 1997;23(1):601-4.
2. Lee KA, Park MH, Kim YJ, Chun SH. Isolated congenital hereditary cataract in a dizygotic twin: prenatal ultrasonographic diagnosis. Twin research and human genetics: The Official Journal of the International Society for Twin Studies. 2013;16(5):994-7.
3. Vasavada AR, Raj SM, Nihalani B. Rate of axial growth after congenital cataract surgery. American journal of ophthalmology. 2004;138(6):915-24.
4. Enyedi LB, Peterseim MW, Freedman SF and Buckley EG. Refractive changes after pediatric intraocular lens implantation. Am J Ophthalmol. 1998;126(5):772-81.
5. Neely DE. Accuracy of intraocular lens calculations in infants and children undergoing cataract surgery. J AAPOS. 2005;9:160-65.
6. Vasavada AR, Trivedi RH, Singh R. Necessity of vitrectomy when optic capture is performed in children older than 5 years. J Cataract Refract Surg. 2001;27:1185-93.
7. Olsen T. Calculation of intraocular lens power: a review. Acta Ophthalmol. Scand. 2007;85:472-85.
8. Trivedi RH, Wilson ME, Bartholomew LR. Pediatric cataract surgery and intraocular lens implantation: practice styles and preferences of the 2011 ASCRS and AAPOS memberships. Journal of Cataract and Refractive Surgery. 2012;29(9):1811-20.
9. Jonsson R, Magnusson G, Nystro¨MA et al. Stability of visual outcome from 7 years in children treated surgically for bilateral dense congenital cataracts before 37 weeks of age. Acta Ophthalmol. 2009;98:65-70.
10. Kim DH, Kim JH, Kim SJ, Yu YS. Long term results of bilateral congenital cataract treated with early cataract surgery, aphakic glasses and secondary IOL implantation. Acta Ophthalmol. 2012;90(3):231-6.
11. Enyedi LB, Peterseim MW, Freeman SF, Buckley EG. Refraction changes after pediatric intraocular lens implantation. Am J Ophthalmol. 1998;126:772- 81.
12. Zwann J, Mullaney PB, Awad A, Sal-Mesfer SA, Wheeler DT. Pediatric intraocular lens implantation: surgical results and complications in more than 300 patients. Ophthalmology 1998;105:112–119.

13. Inatomi M, Kora Y, Kinohira Y, Yaguchi S. Long-term follow up of eye growth in pediatric patients after unilateral cataract surgery with intraocular lens implantation. J AAPOS. 2004;8:50–55.
14. Gimbel HV, Basti S, Ferensowicz M, DeBroff BM. Results of bilateral cataract extraction with posterior chamber intraocular lens implantation in children. Ophthalmology. 1997;104:1737-43.
15. Dahan E, Drusedau MUH. Choice of lens and dioptric power in pediatric pseudophakia. J Cataract Refract Surg. 1997;23:618–23.
16. Vasavada AR, Trivedi RH, Singh R. Necessity of vitrectomy when optic capture is performed in children older than 5 years. J Cataract Refract Surg. 2001;27(8):1185-93.
17. Raina UK, Gupta V, Arora R, Mehta DK. Posterior continuous curvilinear capsulorhexis with and without optic capture of the posterior chamber intraocular lens in the absence of vitrectomy. J Pediatr Ophthalmol Strabismus 2002;39(5):278-87.
18. Kim KH, Ahn K, Chung ES, Chung TY. Clinical outcomes of surgical techniques in congenital cataracts. Korean J. Ophthalmol. 2008;22:87–91.
19. Caporossi A, Cintorino M, Frezzotti R et al. Pathogenesis of posterior capsular opacification. Part 2: histopathological and in vitro culture findings. J Cataract Refract Surg.1990;16:353-60.
20. Zhou HW, Zhou F. A Meta-analysis on the clinical efficacy and safety of optic capture in pediatric cataract surgery. Int J Ophthalmol. 2016;9(4):590-96.
21. Gimbel HV. Posterior capsulorhexis with optic capture in pediatric cataract and intraocular lens surgery. Ophthalmology 1996;103(11):1871-75.
22. Koch DD, Kohnen T. A retrospective comparison of techniques to prevent secondary cataract formation after posterior chamber intraocular lens implantation in infants and children. J Cataract Refract Surg. 1997;23(1):657-63.
23. Vasavada A, Desai J. Primary posterior capsulorhexis with and without anterior vitrectomy in congenital cataracts. J Cataract Refract Surg. 1997;23(1):645-51.
24. Vasavada AR, Vasavada V, Shah SK, Trivedi RH, Vasavada VA, Vasavada SA, Srivastava S, Sudhalkar A. Postoperative outcomes of intraocular lens implantation in the bag versus posterior optic capture in pediatric cataract surgery. J Cataract Refract Surg. 2017;43(9):1177-83.

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