Original Article

Analysis of postoperative visual and surgical outcome following surgery for absorbed cataract in pediatric age group and the intraoperative difficulties

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Purpose: To analyze the postoperative visual and surgical outcomes following surgery for pediatric-absorbed cataracts and intraoperative difficulties. **Methods:** This prospective longitudinal study included 43 eyes (30 children) with absorbed cataracts aged between 6 months and 18 years (either sex). All children underwent best-corrected visual acuity (BCVA), anterior and posterior segment evaluation, rubella titer estimation, intraocular lens (IOL) power calculation, superior small incision cataract surgery with or without posterior capsulotomy/anterior vitrectomy/IOL implantation under general anesthesia, visual rehabilitation, and were followed up for 1 year. **Results:** The mean age was 7.89 ± 4.84 years. Preoperative BCVA distance: 39 eyes had either perception of light (PL) or counting finger close to face (CFCF); near BCVA: all eyes had either PL or N36. Postoperative (12 months) distant BCVA: a majority of the eyes (27) had 6/60–1/60, 11 eyes had 6/18–6/36; near: N18 in 19 eyes, N6 in 7 eyes. Anterior continuous curvilinear capsulorrhexis (ACCC) was possible in eight eyes. Cortical aspiration was difficult in 16 eyes (peripheral calcified ring). A majority (32 eyes) underwent in the sulcus implantation (in-the-bag: eight eyes); two eyes: no IOL, one eye: secondary IOL. Eleven eyes had early postoperative inflammation. At 12 months, one eye underwent membranectomy for visual axis opacification and 38 eyes had well-centered IOLs. **Conclusion:** Surgery in absorbed cataracts is challenging because of the anatomic disorganization of the absorbed lens. By adopting appropriate surgical methods and good visual rehabilitation, one can achieve satisfactory surgical and visual outcomes, highlighting the need for surgical intervention.

Key words: Absorbed cataract, anatomic disorganization, satisfactory outcome, Sulcus IOL, surgical intervention

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A pediatric cataract is a treatable leading cause of childhood blindness.[1] The most common type of pediatric cataract is zonular cataract. Other types described are nuclear, lamellar, sutural, and capsular cataracts.[1] Yet another type that is encountered in clinical practice, although not frequent, is the absorbed or membranous cataract. This is formed when the lens cortex and nucleus are partially or completely absorbed leaving a small amount of opacified lens material between the anterior and posterior lens capsules. They may be present at birth (presentation can be either early or late) or occur following trauma.[2,3] During yesteryears, the absorbed cataract was difficult to operate on and was associated with poor results following surgical intervention.[4] Now with better instrumentation, techniques, and visual rehabilitation methods, it is feasible and worth operating on absorbed cataracts and to achieve better outcomes.[5] Surgical intervention includes routine cataract extraction, tackling the posterior capsule, anterior vitrectomy, and intraocular lens (IOL) implantation, though there are difficulties encountered in every step. There are only a few studies available regarding the surgical techniques, intraoperative difficulties, and results following the management of pediatric-absorbed cataracts, hence, the purpose of our study.

Methods

This was a single group prospective longitudinal study, conducted in a tertiary eye hospital in South India between June 2016 and May 2019. The study was approved by the Institutional Review Board and adhered to all the principles mentioned in the Declaration of Helsinki, 2000. Based on previous literature, considering 90% statistical power and 5% level of significance, a sample size of 30 eyes was determined. Children between 6 months and 18 years of age of either sex, with absorbed cataracts, bilateral or unilateral involvement, with no history of previous ocular surgery, and willing for follow-up were included in the study. Children with traumatic cataract, associated ptosis, corneal lesions, glaucoma, uveitis, associated congenital anomalies like microcornea and/or microphthalmos and coloboma, retinal detachment, vitreous hemorrhage, and optic nerve diseases were excluded from the study. Associated systemic comorbidities like Down's syndrome, cerebral palsy, and global developmental delay were also excluded. Written informed consent was taken

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from all the parents before any procedure was performed. A detailed ocular and systemic history relating to the present and past condition of the children were taken from the parents. A detailed family history (including consanguineous marriage), antenatal, intranatal, and postnatal history of the mother was taken. Uncorrected and best-corrected visual acuity (UCVA; BCVA) using Snellen's chart, both for distance and near, were measured in each child. Where measurements were not possible, the same was noted. The presence of squint and nystagmus was noted. The intraocular pressure (IOP) was measured using a noncontact tonometer (Topcon, CT 80®) or tonopen (Reichert®). The anterior segment examination was carried out using slit-lamp wherever feasible. Dilated fundus examination with indirect ophthalmoscope using +20 D condensing lens was carried out. B-scan was done when the fundus view was inadequate. Keratometry reading (K1 and K2) using Nidek-KM-500® and A-scan biometry with Biomedix Echorule 2® were measured. Aphakic mode was used to measure the axial length (AXL) when the regular cataract mode was not feasible to record the same.

When any or all of the above clinical tests were not possible, the same was carried out in the operation room under intravenous sedation; thereafter, the IOL power was calculated by the Sanders, John Retzlaff, Kraff Theoretical formula (SRK T). formula. The Immunoglobulin G (IgG) and Immunoglobulin M (IgM) titers for the rubella infection along with routine blood investigations (hemoglobin%, bleeding, and clotting time) were advised in all children preoperatively. All children were posted for surgery after obtaining clearance for general anesthesia from the anesthetist and pediatrician. A preoperative antibiotic, topical tobramycin 0.3% eye drops, was prescribed for the eye to be operated, three times daily for 3 days before the day of surgery. Additionally, in the case of rubella titer positivity, oral and topical steroids were prescribed 3 days before surgery. All surgeries were performed by the same surgeon. All children underwent superior small incision cataract surgery (SICS) under general anesthesia: (1) the superior scleral section of 5.5–6 mm was fashioned after conjunctival resection; (2) the anterior capsule was stained with trypan blue; (3) the anterior capsulotomy consisted of: (i) anterior continuous curvilinear capsulorrhexis (ACCC); this was attempted in all children using the Utrata capsule forceps under sodium hyaluronate ophthalmic solution 1.4% (ii) where ACCC was not possible, anterior capsulectomy (AC) was carried out using bent 26-G needle to make an opening in the thinnest area and Vannas or vitreous scissors were used to cut the thickened capsule. Thus, an opening of the required size was made. (4) The cortex was either aspirated using the Simcoe cannula or visco expressed if it was soft. When it was thicker and absorbed, especially in the periphery, prior separation from the capsule by minimal hydrodissection (wherever possible) was carried out. Thereafter, a Sinskey hook was used to bring out the thickened cortex. (5) Primary posterior capsulotomy (PPC): (a) primary posterior continuous curvilinear capsulorrhexis (PPCCC) was attempted manually using a bent 26-G needle and Utrata capsule forceps in situations where the intact and free posterior capsule was available or (b) posterior capsulectomy (PC) was done when the posterior capsule was thicker or had a dense plaque. Vannas or vitreous scissors or vitrectomy cutter (20/23-G) or in combination were used to cut the same. An opening of 4.5–5 mm was made. (6) Automated anterior vitrectomy (AV) using a 20- or 23-G cutter was carried out. (7) The IOL was not implanted in children less than 2 years. In children aged 2 years and above, polymethyl methacrylate (PMMA), single, rigid piece, equiconvex, Model C with step vault IOL of overall length 12.5 or 13 mm and optic diameter of 6 or 6.5 mm (Excelens® company) was implanted according to Dahan *et al.'s* rule.[6] The IOL was implanted under sodium hyaluronate ophthalmic solution 1.4% either in the capsular bag or in the sulcus, based on the status of the capsular bag. The sizing of the IOL was decided based on the horizontal corneal diameter (white to white), the size of the anterior and posterior capsular opening, and the status of the capsular rim. In cases where IOL implantation was not possible, iris-fixated IOL implantation was planned. (8) Peripheral iridectomy was done in all children. (9) Sodium hyaluronate 1.4% was aspirated. (10) The scleral section was closed with 10-0 nylon suture (two to three interrupted sutures); the conjunctiva was opposed with 8-0 vicryl or bipolar cautery. (11) A subconjunctival steroid 0.5 mL injection (triamcinolone 2 mg) was given. (12) Postoperatively, topical antibiotic—steroid eye drops (tobramycin 0.3% and prednisolone acetate 1%) tapered over 2 months, cycloplegic (homatropine 2% BD for 2 weeks), and oral steroids (1 mg/kg body weight for 1 week) were administered in all the children.

The intraoperative difficulties assessed were (1) feasibility of obtaining ACCC and PPCCC, (2) difficulty in cortical aspiration, (3) feasibility of IOL implantation be it in the capsular bag or the sulcus.

Following surgery, all children were evaluated on the third day, 1, 3, 6, and 12 months. At each of these follow-up visits, the UCVA and BCVA both for distance and near, IOP, corneal edema, postoperative inflammation, IOL-related problems (decentration, pupillary capture, deposits over the IOL surface), posterior capsular opacification, and fundus details were noted. By 1 month, spectacles were prescribed to all children. Amblyopia (occlusion) therapy was advocated in children with unilateral amblyopia and asymmetric bilateral amblyopia and was followed up. The data were analyzed. A descriptive analysis of all the parameters was carried out. The P value < 0.05 was considered statistically significant. IBM SPSS version 22 was used for the statistical analysis.

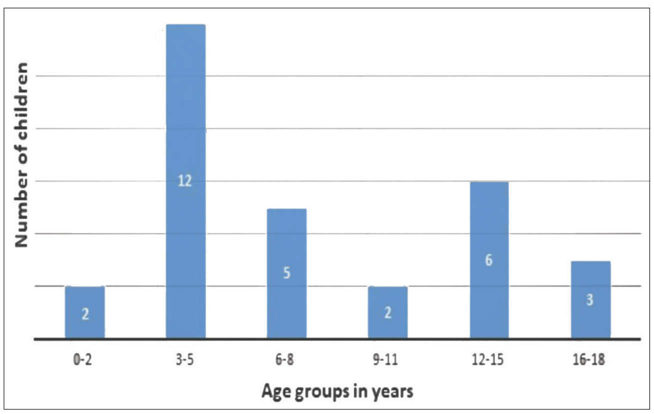
Results

Although the estimated sample size was 30 eyes, we were able to recruit and analyze 43 eyes of 30 children. The mean age was 7.89 ± 4.84 years, the minimum age was 9 months and the maximum was 18 years. The age distribution is depicted in Graph 1. Thirteen (43.33%) and 17 (56.67%) were male and female children, respectively. Thirteen (43.33%) children had bilateral absorbed cataracts, whereas 17 (56.67%) had unilateral involvement. Table 1 shows preoperative and postoperative BCVA both for distance and near at 1, 3, 6, and 12 months. The mean preoperative IOP was 15.79 ± 2.84 mmHg. While a majority of the children, 34 eyes (79.07%) of 26 children had absorbed cataracts with adherent capsule, only 9 eyes (20.93%) of 6 children had absorbed cataracts [Fig. 1] with a nonadherent capsule. The most common ocular association observed in our study was nystagmus in 22 eyes (51.16%), followed by esotropia in 16 children (53.33%). The mean K1 value was 43.45 ± 1.96 D (range: 39.25–47.75 D) and K2 was

Table 1: Preoperative and postoperative BCVA-both distance and near

Preoperative BCVA distance	HM and PL	CFCF	1/60	> 1/60	*P*
	29 eyes (67.44%) 21 children	10 eyes (23.26%) 7 children	4 eyes (9.30%) 2 children	Nil	
Preoperative BCVA near	PL	N36	-	-	
	29 eyes (67.44%) 21 children	14 eyes (32.55%) 9 children	-	-	
Postoperative BCVA distance	1st month (eyes)	3rd month (eyes)	6th month (eyes)	12th month (eyes)	
6/6-6/12	2 (4.65%)	3 (6.98%)	3 (6.98%)	3 (6.98%)	
6/18-6/36	3 (6.98%)	3 (6.98%)	8 (18.60%)	11 (25.58%)	
6/60-1/60	36 (83.72%)	35 (81.39%)	30 (69.77%)	27 (62.79%)	0.398
Follows objects @1 m	2 (4.65%)	2 (4.65%)	2 (4.65%)	2 (4.65%)	
Postoperative BCVA Near (1015 cm)					
N 36	23 (53.49%)	18 (41.86%)	14 (32.55%)	6 (13.95%)	
N 24	6 (13.96%)	11 (25.58%)	10 (23.25%)	7 (16.27%)	
N 18	8 (18.60%)	3 (6.98%)	8 (18.60%)	19 (44.19%)	
N 12	1 (2.33%)	5 (11.63%)	2 (4.65%)	0	0.002
N 8	2 (4.65%)	2 (4.65%)	2 (4.65%)	2 (4.65%)	
N 6	1 (2.33%)	2 (4.65%)	5 (11.63%)	7 (17.07%)	
Could not be assessed	2 (4.65%)	2 (4.65%)	2 (4.65%)	2 (4.65%)	

BCVA - best-corrected visual acuity, HM - hand movement, PL - perception of light, CFCF - counting finger close to face



Graph 1: Age distribution

45.37 ± 2 D (range: 42.00–51.25 D). The AXL was obtained in six eyes (13.95%) using the cataract mode, whereas in the remaining 37 eyes (86.04%), the aphakic mode was used. The mean AXL was 22.43 ± 2.04 mm. A history of consanguinity was present in 80% of the parents. Eighteen children (60%) were found positive for rubella antibodies (IgG), out of which six children (20%) were IgM-positive as well. Six children (20%) were negative and in the remaining six, it was not tested. A majority of the children, 38 eyes (88.37%) of 27 children underwent cataract removal with PPCCC or PC + AV + IOL implantation. The cataract removal + IOL implantation and no PPCCC or PC or AV was carried out in two eyes (4.65%) of one child (15-year-old child). Cataract removal + PC + AV but no IOL implantation in three eyes (6.98%) of two children was done in a primary sitting: one child was 9 months old with bilateral absorbed cataract (remained aphakic till the end of a 1-year follow-up) and the other child was 10 years old with unilateral absorbed cataract with inadequate capsular support (received iris-fixated lens 1 month after cataract surgery). Intraoperatively, ACCC and PPCCC were possible only in eight eyes (18.6%) of six children. Cortical aspiration was possible in 27 eyes (62.79%) and it was difficult to aspirate in 16 eyes (37.2%) due to the presence of the peripheral cortical calcified ring. Three eyes of three children had posterior capsular plaque wherein the Vannas scissors and vitreous scissors were employed to cut the same. The IOL was implanted in 41 eyes (95.34%) of 29 children. In the capsular, bag implantation was feasible only in eight eyes (18.6%) of six children; whereas, predominantly, it was in the sulcus implantation [Fig. 2] -32 eyes (74.41%) of 22 children. One eye (2.32%) received an iris-fixated lens. The IOL power in our study ranged from +8 D to +29 D and the most common IOL power implanted was +23 D in five eyes (11.6%) of four children. Eleven eyes (25.58%) of eight children received lower powers ≤ +16 D. Regarding the sizing of IOLs, 21 eyes (48.84%) of 12 children received single-piece rigid PMMA IOL of 6 mm (optic diameter) × 12.5 mm (overall length) and 19 eyes (44.19%) of 16 children received 6.5 mm × 13 mm-sized IOLs. The iris-fixated (claw) lens used was the Excel lens, single-piece biconvex lens (a constant 117.2, length 8 mm, optic 5 mm, model PIC5580, power +23 D).

Postoperatively, on day 3, a majority, 32 eyes (74.4%) of 20 children had no anterior uveitis, whereas 10 eyes (23.26%) of 9 children and 1 eye (2.33%) of 1 child had mild and severe anterior uveitis, respectively. Five eyes (11.63%) of five children had mild corneal edema. Table 2 summarizes the various parameters during postoperative follow-up at 1, 3, 6, and 12 months. At 12 months, one eye of one child developed opacification in the visual axis; membranectomy with automated AV was done for the same. Postoperatively, at 1 month: bifocal spectacles were prescribed in 28 children (93.33%), aphakic spectacles were prescribed to one child (3.33%) aged 9 months with bilateral cataract, one child received bifocals after 1 month following secondary iris-fixated IOL surgery (second-month follow-up). Only one eye (2.32%) of one child had no amblyopia (unilateral absorbed cataract). Moderate amblyopia (BCVA 6/18 to 6/36) was observed in

Table 2: Postoperative period and various observations

Postoperative observations	1st month	3rd month	6th month	12th month	*P*
Mean IOP (mmHg)	16.14+/-2.38	15.95+/-2.5	16.21+/-2.75	16.12+/-2.38	
Range (mmHg)	10-21	11-20	10-21	10-19	
Clear cornea	43 (100%)	43 (100%)	43 (100%)	43 (100%)	
Uveitis	Nil	Nil	Nil	Nil	
IOL status (eyes)					
No IOL	3 (6.97%)	2 (4.65%)	2 (4.65%)	2 (4.65%)	0.95
Decentered	2 (5%)	2 (4.87%)	3 (7.31%)	3 (7.31%)	0.940
Well-centered	38 (95%)	39 (95.12%)	38 (92.68%)	38 (92.68%)	0.331
Pupillary capture	1 (2.5%)	3 (7.31%)	5 (12.19%)	5 (12.19%)	0.776
IOL deposits (pigments)	5 (12.5%)	5 (12.19%)	3 (7.31%)	3 (7.31%)	
Clear visual axis (eyes)	43 (100%)	43 (100%)	43 (100%)	42 (97.67%)	
Fundus (eyes)					
Disk pallor	3 (6.98%)	3 (6.98%)	3 (6.98%)	3 (6.98%)	1.00
Salt pepper retinopathy	2 (4.65%)	2 (4.65%)	2 (4.65%)	2 (4.65%)	1.00

IOP - intraocular pressure; IOL - intraocular lens

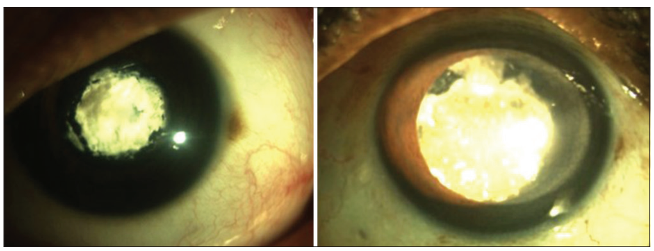


Figure 1: Absorbed cataract

three eyes (6.98%) and severe amblyopia (≤6/60) was observed in 38 eyes (88.37%). Patching was advocated for 19 children which included 3 children operated for bilateral cataracts with bilateral amblyopia and 16 children with unilateral cataracts with amblyopia. On the other hand, patching was not advised in 11 children: 10 children with bilateral amblyopia and same vision in both eyes; one child had no amblyopia following surgery. Among the 13 children with bilateral amblyopia, four children received low vision aid (LVA): three for distance only and one for both distance and near. Nine children did not receive LVA because they were less than 5 years and could not cope up with LVA.

Discussion

In our scenario, over the past few years, we observed a good proportion of children who were brought to our hospital through the outreach camps (rural areas) with decreased vision and had absorbed/membranous cataracts [Fig. 1] in one or both eyes. The mechanism of the absorption of the lens is believed to be different in different cases. Duke-Elder suggested that an unrecognizable tear of the capsule can be a possible cause of the absorption of the lens material.[4] Osmotic changes due to chemical changes on either side of the lens capsule also play an important role. Absorption can also occur secondary to various complications—injury to lens capsule being one of them.[7] Surgery in absorbed cataracts can be challenging because of anatomic disorganization of the absorbed lens, abnormal capsular bag, and calcification of the capsule. All of these determine in achieving a successful in-the-bag IOL implantation.[8] Although, invariably denser amblyopia was anticipated following surgery due to the denser and

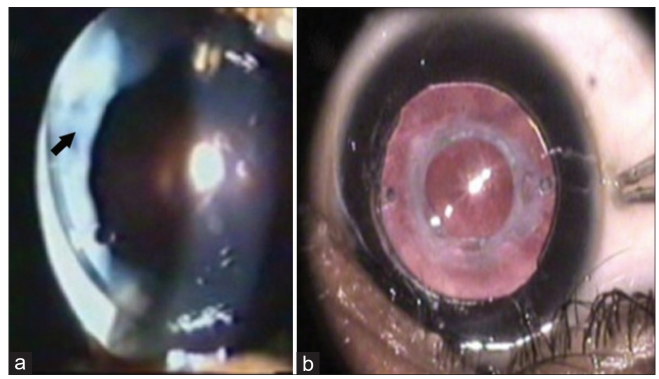


Figure 2: (a) Intraocular lens in the sulcus placed over the calcified peripheral cortical rim. (b) Well-centered intraocular lens with a clear visual axis

longstanding nature of the cataract, yet surgical intervention was advocated in our study to achieve some ambulatory vision in these children. According to a multicenter study conducted over eight states in India by Sheeladevi *et al*.,[9] the mean age at surgery for congenital and developmental cataracts was 48.2 ± 50.9 and 99.7 ± 46.42 months, respectively. The factors contributing to the delayed presentation in their study included gender, laterality, and local health service availability. However, our study reported a mean age of surgery at 93.6 ± 57.6 months. We observed that poverty, illiteracy, lack of awareness, and hesitance to procure treatment accounted for late presentation and absorption of cataracts. We found a high percentage (80%) of parents with a history of consanguineous marriage probably because they all came from rural areas. Mohammad Muhit *et al*.[10] found parental consanguinity among 33.3% of the cases with hereditary childhood blindness. In a study by Malathi *et al*.,[11] 42 out of 55 children with bilateral congenital cataracts were positive for rubella antibodies (22 had both anti-rubella IgM and IgG antibodies, 13 only had anti-RV IgG antibodies, and seven only had IgM antibodies). In our study, 18 children (60%) were positive for rubella antibodies (IgG); six (20%) out of these children were IgM-positive as well. Singh *et al*.[12] in their study tested 120 children under the age of 6 years with congenital cataract for serology and polymerase chain reaction (PCR). The PCR positivity for rubella was found in 33.3% of the children. We also observed that the presence of absorbed cataracts was independent of the age of presentation when it was associated with rubella positivity; 11 out of 30 children (36.66%) were ≤4 years and all were tested positive for rubella antibodies. Two types of absorbed cataracts were observed based on slit-lamp biomicroscopy and operating microscope findings: (1) absorbed cataract with nonadherent (intact) capsule: In this, the anterior lens capsule could be visualized on slit-lamp examination along with some amount of clear peripheral cortex (the contour of the anterior lens surface being relatively regular). Intraoperatively, the same was confirmed when a complete ACCC was obtained. (2) Absorbed cataract with adherent capsule: In this type, the anterior capsule was indistinguishable from the underlying cortex due to calcification and/or thickening (irregular contour of the anterior lens surface on slit-lamp examination). The whole thickness of the lens being cataractous, absorbed, and densely white. Intraoperatively, the same was confirmed when ACCC was not feasible. Long *et al*.,[13] in their observation, described five major types of congenital membranous cataracts based on ultrasound biomicroscopy imaging and operating microscope findings. The fact that got highlighted while measuring AXL in the eyes with absorbed cataracts was that in most cases (39 out of 43 eyes), it was not feasible to measure in the routine cataract mode but was possible only in the aphakic mode. This has to be borne in mind while measuring AXL. Different types of absorbed cataracts require different surgical procedures. In our study, the anterior capsulotomy included (1) ACCC which was possible in five eyes of four children with absorbed cataracts and nonadherent (intact) capsules using Utrata forceps. (2) The AC (relatively a circular opening) in three eyes of two children with thicker anterior capsules was obtained using Vannas scissors and/or vitreous scissors. In all these eight eyes of six children, IOL was implanted inside the capsular bag.

Long *et al*.[13] used Kloti RF capsulotomy tip to perform anterior and posterior capsulorrhexis, whereas we used the Utrata forceps, Vannas and vitreous scissors to do the same. In absorbed cataracts with nonadherent capsules, where there is a possibility of obtaining ACCC and PPCCC, the use of a femtosecond laser can be thought of too. In difficult situations, other options could be the plasma Fugo blade, diacapsutom, and pulsed-electron avalanche knife.[14] Simcoe cannula was used for cortical aspiration. However, it was difficult to aspirate in 16 eyes (37.2%) due to the presence of a peripheral calcified cortical ring. Long *et al*.[13] used irrigation aspiration probe for the same. The posterior capsulotomy included (1) PPCCC which was made using the Utrata forceps in eight eyes (18.6%). (2) PC was carried out using Vannas scissors or vitreous scissors or vitrectomy cutter or in a combination in 33 eyes (76.74%). Kloti RF capsulotomy tip, plasma Fugo blade, a or femtosecond laser can also be used.[14]

Three eyes of three children had a central, very dense, posterior capsular plaque. In such situations, it is good to avoid unnecessary stress on the zonules while trying to cut the plaque; a micro vitreoretinal (MVR) blade or capsulotomy needle (26-G bent or straight) was used to make an opening in the thinnest area of the posterior capsule, thereafter, a vitrectomy cutter (20 or 23-G) was used to cut the same and an opening of adequate size was made. PPCCC and AV were not performed in two eyes of one child because the child was 15 years old, anticipating that the child would cooperate for Neodymium-doped Yttrium Aluminium Garnet capsulotomy (Nd-YAG) capsulotomy at a later date. Some absorbed cataracts with adherent capsules looked like doughnuts because of the peripheral thickened cortical rim which was left behind after removing the central part of the cataract and performing an AV. This rim which could not be aspirated or removed provided support for the placement of IOL in the sulcus. Intracameral triamcinolone acetonide (TA) can be used to stain the anterior vitreous to ensure a complete AV, decrease postoperative inflammation, and posterior capsule opacification. This has been brought out well in the studies by Dixit *et al*.[15] and Allam *et al*.[16] However, we have not used intracameral triamcinolone acetonide (TA) in our study.

The prerequisites for IOL implantation in the capsular bag were: (1) Circular anterior capsulotomy. (2) No adhesions between the anterior and posterior capsule (3) No thickened or calcified cortex in the peripheral capsular bag. If these prerequisites were not satisfactory then the IOL was placed in the sulcus. In our study, we implanted only single-piece rigid PMMA IOLs, as they could be placed more conveniently in unstable capsular bags, although a three-piece acrylic hydrophobic IOL can be used. For in-the-bag IOL placement, the size of both the anterior capsulotomy and posterior capsulotomy was important; a 12.5 mm IOL (overall length) with an optic size of 6 mm could be implanted in-the-bag when the anterior capsulotomy was 5 mm or more. As regards the size of the posterior capsulotomy, when it was more than 6 mm, we could not place the IOL in-the-bag. An almost equal number of eyes received 12.5 and 13 mm IOLs. Alexander *et al*.[5] placed a PMMA IOL in the sulcus in their case of membranous cataract. In routine pediatric cataract surgeries apart from PMMA IOLs, it is possible to implant acrylic single-piece and three-piece IOLs (13 mm) with better ease because of the better anatomy of the capsular bag unlike in the absorbed cataracts.[17] Long *et al*.[13] studied 18 eyes of 12 children with congenital membranous cataracts, wherein they performed ACCC, removal of lens material, PCCC, and AV in all the eyes, but the IOLs were placed in only four eyes. However, we were able to place single-piece rigid IOLs in 40 eyes (93.02%) of 28 children: in the capsular bag implantation: eight eyes (18.6%); in the sulcus: 32 eyes (74.42%). A 10-year-old child who was left aphakic primarily received secondary iris-fixated implantation 1 month later. This was possible because of better instrumentation and techniques.

Children with mild corneal edema (five eyes) during the early postoperative period cleared eventually. In all children with early postoperative uveitis, oral steroids were given postoperatively for a week, same controlled it.

Additionally, oral and topical steroids were prescribed 3 days before surgery for those who had positive rubella titer. This steroid intervention could have been a probable reason for lesser (11 eyes) early postoperative inflammation than anticipated by the authors, despite the fact that the cataracts were fully matured, absorbed, and positive for rubella (60%). Kanwal Latif *et al*.[18] in their study of 192 eyes (120 patients), with visually significant congenital cataracts, observed that 28% had mild to severe postoperative uveitis. The postoperative inflammatory membrane was the most common (10.1%) complication as noted by Srijana Adhikari *et al*.,[19] where they implanted acrylic hydrophilic IOLs in 178 eyes with pediatric cataracts.

In our study, almost all children had preoperative BCVA of hand movement (HM) or counting finger close to face (CFCF); because the cataract was dense, only two children had 1/60. At the end of 12 months, only three eyes (6.97%) had BCVA of 6/12, whereas Michael X Repka *et al*.[20] observed visual acuity of 20/50 (6/15) or better in 125 of 153 (81.8%) bilateral pseudophakic eyes and 73 of 141 (51.8%) unilateral pseudophakic eyes. Similarly, Gogate PM *et al*.[21] observed postoperative BCVA >6/18 at the 3–8-year follow-up in 109 (42.2%) eyes, while 149 (57.8%) had it <6/18 following surgery in 258 children with congenital and developmental cataracts.

In our study, three eyes (6.97%) had BCVA between 6/18 and 6/36 (moderate amblyopia) at 1 month, while at 12 months, it increased to 11 eyes (25.58%). This implies the necessity to operate on children with absorbed cataracts which are longstanding. Severe amblyopia with BCVA between 6/60 and 1/60 was present in 36 eyes (83.72%) at 1 month, which reduced to 27 eyes (62.79%) at the end of 12 months, once again highlighting the importance of surgical intervention. Optic disk pallor was seen in three eyes of three children (unilateral cataract); salt pepper retinopathy was observed in two eyes of one child (bilateral cataract) who was also positive for rubella. At 12 months, one eye of one child developed opacification in the visual axis—membranectomy with automated AV was done for the same. The age at which this child was operated primarily was 9 months. Well-centered IOLs were seen in a majority of eyes (92.68%), whereas decentered IOLs were seen in three eyes (7.31%); pupillary capture was present in five eyes (12.19%) at the end of 12 months. None of the children developed secondary glaucoma or retinal detachment at the end of 1 year, however, they need to be followed up for a longer period to understand long-term complications.

Limitation: Ultrasound biomicroscopy and specular microscopy were not done in our study. The follow-up was of short duration.

Conclusion

Surgery in absorbed cataracts can be challenging because of the anatomic disorganization of the absorbed lens. By adopting appropriate surgical methods, one can achieve good surgical outcomes. As regards the visual outcomes, amblyopia although dense initially, can be overcome with satisfactory visual rehabilitation. Our study highlights the importance of surgical intervention, irrespective of the age of presentation and extent of absorption of the lens.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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