Content available at: https://www.ipinnovative.com/open-access-journals

IP International Journal of Ocular Oncology and Oculoplasty

Journal homepage: https://ijooo.org/

Original Research Article

Visual outcome of cataract surgery in paediatric uveitis

Natasha Radhakrishnan[1]*, Anil Radhakrishnan[1], Suma Balan[1], Pooja Kandula[1]

[1]*Dept. of Ophthalmology, Amrita Institute of Medical Sciences, Amrita Vishwa Vidyapeetham, Kochi, Kerala, India*

ARTICLE INFO

Article history:
Received 15-03-2024
Accepted 01-04-2024
Available online 03-05-2024

Keywords:
Pediatric uveitis
Cataract surgery
Visual outcome
Complications

ABSTRACT

Objectives: 1. To analyse the visual outcome in patients of paediatric uveitis who underwent cataract surgery; 2. To analyse the post-operative complications of cataract surgery in paediatric uveitis.
Materials and Methods: Retrospective observational study was done on patients of uveitis who underwent cataract surgery. Patients who were under 18 years and co-operative for examination were included.
They underwent Phacoaspiration with posterior chamber IOL implantation by a single surgeon after 3 months of activity free interval, BCVA(in Log MAR) in every follow up, anterior segment examination using slit lamp and posterior segment examination using IDO, post-operative complications and Intra ocular pressure was recorded using Noncontact tonometer.
Uveitis was classified using the SUN classification of uveitis. Use of corticosteroids, biologics and immunosuppressive drug were collected at each visit.
Results: Total of 18 subjects diagnosed with cataract as a complication of uveitis & undergone cataract surgery were studied (6 were females, 12 were males) 9 had anterior uveitis, 1had intermediate uveitis and 5 had pan uveitis. JRA (66.7%) was the most common cause identified. Improvement in vision from baseline was observed post-surgery at the end of first, third and 6th month which was statistically significant (P-Value <0.05). Average duration of disease before they underwent surgery was 18 months. Most common post op complication was posterior capsular opacification (50 %), others include secondary glaucoma (38.9), exudative retinal detachment (5.6%) and Vitritis (22.2%)
Conclusion: Unlike adult uveitic patients, the surgical management of paediatric uveitic cataract is both challenging and controversial, and the surgery itself has been associated with poor visual outcomes. However, our study had shown that with implantation of IOL, good immunosuppressants and control of the disease can give these children a good visual outcome.

1. Introduction

Uveitis is less common in children than in adults, and its diagnosis and management can be particularly challenging. Young children are often asymptomatic either because of inability to express complaints or because of the truly asymptomatic nature of their disease. Even in advanced cases, parents may not be aware of severe visual impairment until the development of externally visible changes such as band keratopathy, strabismus, or leukocoria.

Cataract development is a frequent complication in patients with chronic uveitis, either as a result of chronic inflammation or secondary to steroid use. Cataract surgery in children with uveitis remains a surgical challenge. Implantation of intraocular lens (IOL) in children with uveitis is still controversial. However, recent studies have revealed good outcomes in children with uveitis after posterior chamber intraocular lens (PCIOL) implantation. Children with uveitic cataract can be visually rehabilitated in a better way with primary PCIOL implantation.

* *Corresponding author*.
E-mail address: rnatasha1@yahoo.com (N. Radhakrishnan).

https://doi.org/10.18231/j.ijooo.2024.007

In this study, we present our experience of cataract surgery in children with uveitis, their visual outcome and complications.

2. Aims of the Study

1. To analyse the visual outcome in patients of paediatric uveitis who underwent cataract surgery.
2. To analyse the post-operative complications of cataract surgery in paediatric uveitis.

3. Materials and Methods

A hospital-based, retrospective observational study was conducted in the Department of Ophthalmology during period of 2015 January to 2020 March.

3.1. Inclusion criteria

Patients who had paediatric uveitis and who underwent cataract surgery with the age limit up to 18 years

3.2. Exclusion criteria

Patients who are not cooperative for slit lamp examination, vision assessment.

Patients who had lost follow up after surgery.

Patients of uveitis who underwent cataract surgery were obtained from the electronic medical records. Information of all patients who were evaluated and treated for paediatric uveitis with cataract was entered into a proforma. The parameters included in the ophthalmological database were age, gender, course of the disease prior to cataract surgery,activity of the disease prior to cataract surgery, other preexisting complications like band shaped keratopathy and hypotony, duration of disease till surgery, systemic and topical medications and systemic diagnosis. Uveitis was anatomically classified in anterior, intermediate, posterior and pan uveitis (SUN classification). All the patients were managed in consultation with paediatric rheumatolgist.

All patients underwent Phaco-aspiration with posterior chamber IOL implantation done by a single surgeon after 3months of activity free interval. Post-operatively, Prednisolone acetate eyedrops were given eight times a day and Homide eyesdrops were given 6 times a day followed by slow taper on an individual basis. All patients were given short course of oral steroids in (1mg/kg body wt) addition to their systemic immunosuppressants, started 2 days prior to cataract surgery, in consultation with a paediatric rheumatologist.

Best corrected visual acuity (in LogMAR) in every follow up, anterior segment examination using slit lamp and posterior segment examination using Indirect ophthalmoscope, post-operative complications and Intra Ocular Pressure (IOP) was recorded using Noncontact tonometer or tonopen depending on cooperation of the subjects.

4. Results

A total of 18 eyes of 18 subjects who underwent cataract surgery for uveitic cataract were included in the study. Of these 6 were females, 12 were males. Among18 subjects, 11(61.1%) subjects were in the age group of 5-10 years of age group, 4(22.2%) subjects in the 10-15years of age group, 3(16.7%) subjects in the age group more than 15yrs.

The most common cause of uveitis in these children was juvenile idiopathic arthritis (JIA)accounting for 66.7%, other causes include sarcoidosis (16.7 %), immunological Uveitis (11.1%) and Crohn's disease (5.6%).as shown inTable 1.

On comparing Baseline Visual acuity with follow-up, there was improvement in vision in each follow up. The average base line visual acuity was 1.49±1.38 and in 1month follow-up 0.31±0.34, in 3months 0.29±0.30, 6 months 0.22 ± 0.28, 1 year 0.30 ± 0.25 and the result was found to be statistically significant each visit with P-Value <0.05.

On comparison between 1 month & 1 year post op vision, 1 month post op 0.330±0.360 and 1 year post op 0.300±0.255, the results are not found to be statistically significant with P Value .833.

Children were under adequate control of inflammation preoperatively with systemic medications like Methotrexate alone in 11 subjects, both methotrexate and Mycophenolate mofetil in 7 subjects and Exemptia in 1 subject.

Average duration of disease before they underwent surgery since diagnosis of disease was 18 months. Most common post op complication was posterior capsular opacification (50 %), others were secondary glaucoma (38.9%), exudative retinal detachment (5.6%) and Vitritis (22.2%).Table 3

Posterior capsular opacity developed in 9 eyes and in two out of 9 eyes, needed membranectomy, seven needed only Nd: YAG laser. Secondary glaucoma was managed both medically (6 eyes) and surgically (1 eye). None of the patients underwent vitrectomy and exudative detachment/Vitritis was well managed with intravitreal implantation of dexamethasone.

5. Discussion

The main purpose of this study was to determine the visual outcome in patient of paediatric uveitis who underwent cataract surgery and the post-operative complications of cataract surgery in paediatric uveitis. Visual improvement was noticed in all the 18 subjects when compared pre and post opratively. Proper patient selection, biocompatible intraocular lenses (IOLs) availability and improved surgical techniques have considerably decreased the incidence of complications in uveitic cataract extraction in recent

Table 1: Cause of uveitis

Cause	Frequency	Percentage
JIA	12	66.7
Sarcoidosis	3	16.7
Immunological uveitis	2	11.1
Crohn's disease	1	5.6

Table 2: Comparison of pre-op and post-op vision

Pre-op	Post-op 1 month	Post-op 3 months	Post-op 6 months	Post-op 1 year
Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
1.49±1.38	0.31± 0.34	0.29± 0.30	0.22± 0.28	0.30± 0.25
-	0.001	0.001	<0.001	0.002

Table 3: Post operative complications

Complication	Frequency (n=18)	Percentage
Posterior capsular opacity	9	50.0
Secondary glaucoma	7	38.9
Exudative retinal detachment	1	5.6
Vitritis	4	22.2

times.[1–5]

In our study, we took subjects who are under 18 years with mean age of 5-10 years. This concurs with reports from others studies that states that most patients are in the mean age of 15 decades of life at the onset of the disease.

JIA-associated uveitis in children have a more relentless postsurgical course compared with uveitis secondary to other causes.[6,7] In our study 66.7 % had JIA associated uveitis who underwent cataract surgery, their pre op vision is 1.85±1.576 while post op 1 year 0.39±.323 which showed significant improvement. The largest series (162 eyes) of patients with JIA who had cataract extraction was reported by Kanski and Shun-Shin.[8] 61 had cataract removed by needling and aspiration and 101 had lensectomy and limited anterior vitrectomy. Vision was hand motion or less in l5% of the lensectomized eyes, 20/400 to count fingers in 30%, and better than 20/60 in 56%.

Pre-operative control of inflammation is essential in uveitis cases as it determines the postoperative success.[9,10] Immunosuppressive chemotherapy other than steroids and the administration of biologic agents have changed enormously the efficacy of control of intraocular inflammation. Control of inflammation in our patients was attained by methotrexate and additional Mycophenolate mofetil in 7 subjects and Exemptia in 1 subject.

After activity free interval of 3 months, which has shown to have decreased risk of post op cystoid macular edema, these children underwent cataract extraction and PCIOL lens was implanted. We have classified the visual outcome of the subjects into 5 groups - pre op, post op-1month, 2 months, 6 months and 1 year. On comparing the results there was improvement in vision and was found to be statistically significant with P-Value <0.05. However, post op result at 6 months, we have noticed drop in vision, that can be explained by post- op complications. The most common complication is posterior capsular opacification (PCO) following any type of cataract surgery and the risk is higher in uveitic eyes,[11–13] especially in children.[14,15] In our study we had PCO as the most common complication accounting for 50 percent. Anterior vitrectomy diminishes PCO in children operated for cataract,[16] a study done by Anna et al have shown that three eyes of their patients not developing PCO, two had anterior vitrectomy in their case series.[17] Rupesh et al in their case series also had PCO as the most common complication in the late postoperative period.

6. Conclusion

Unlike adult uveitic patients, the surgical management of paediatric uveitic cataract is both challenging and controversial, and the surgery itself has been associated with poor visual outcomes. However, our study had shown that with implantation of IOL, good immunosuppressants and control of the disease can give these children a good visual outcome.

7. Source of Funding

None.

8. Conflict of Interest

None.

References

1. Foster CS, Rashid S. Management of coincident cataract and uveitis. *Curr Opin Ophthalmol*. 2003;14(1):1–6.
2. Meier FM, Tuft SJ, Pavésio CE. Cataract surgery in uveitis. *Ophthalmol Clin North* . 2002;15(3):365–73.

3. Rahman I, Jones NP. Long-term results of cataract extraction with intraocular lens implantation in patients with uveitis. *Eye (Lond)*. 2005;19(2):191–7.
4. Van Gelder R, Leveque TK. Cataract surgery in the setting of uveitis. *Curr Opin Ophthalmol*. 2009;20(1):42–5.
5. Elgohary MA, Mccluskey PJ, Towler HM, Okhravi N, Singh RP, Obikpo R, et al. Outcome of phacoemulsification in patients with uveitis. *Br J Ophthalmol*. 2007;91(7):916–21.
6. Benezra D, Cohen E. Cataract surgery in children with chronic uveitis. *Ophthalmology*. 2000;107(7):1255–60.
7. Quinones K, Cervantes-Castañeda RA, Hynes AY, Daoud YJ, Foster CS. Outcomes of cataract surgery in children with chronic uveitis. *J Cataract Refract Surg*. 2009;35(4):725–31.
8. Kanski JJ. Lensectomy for complicated cataract in juvenile chronic iridocyclitis. *Br J Ophthalmol*. 1992;76(2):72–5.
9. Terrada C, Julian K, Casoux N, Prieur AM, Debre M, Quartier P, et al. Cataract surgery with primary intraocular lens implantation in children with uveitis: Long term outcomes. *J Cataract Refract Surg*. 2011;37(11):1977–83.
10. Lam LA, Lowder CY, Baerveldt G, Smith SD, Traboulsi E. Surgical management of cataracts in children with juvenile rheumatoid arthritis- associated uveitis. *Am J Ophthalmol*. 2003;135(6):772–8.
11. Foster CS. Cataract surgery and intraocular lens implantation in patients with intermediate uveitis. *Dev Ophthalmol*. 1992;23:212–8. doi:10.1159/000429654.
12. Estafanous MF, Lowder CY, Meisler DM, Chauhan R. Phacoemulsification cataract extraction and posterior chamber lens implantation in patients with uveitis. *Am J Ophthalmol*. 2001;131(5):620–5.
13. Okhravi N, Lightman SL, Towler HM. Assessment of visual outcome after cataract surgery in patients with uveitis. *Ophthalmology*. 1999;106(4):710–22.
14. Dana MR, Chatzistefanou K, Schaumberg DA, Foster CS. Posterior capsule opacification after cataract surgery in patients with uveitis. *Ophthalmology*. 1997;104(9):1387–94.
15. Balta O, Sungur G, Acar MA, Kosker M, Yakin M, Ornek F, et al. Long-term results of cataract surgery in patients with anterior uveitis. *Int Ophthalmol*. 2017;38(4):1399–407.
16. Vasavada A, Desai J. Primary posterior capsulorhexis with and without anterior vitrectomy in congenital cataract. *J Cataract Refract Surg*. 1997;23(Suppl 1):645–51.
17. Lundvall A, Zetterström C. Cataract extraction and intraocular lens implantation in children with uveitis. *Br J Ophthalmol*. 2000;84(7):791–3.

Author biography

Natasha Radhakrishnan, Professor https://orcid.org/0000-0003-0736-3309

Anil Radhakrishnan, Associate Professor

Suma Balan, Professor

Pooja Kandula, Registrar

Cite this article: Radhakrishnan N, Radhakrishnan A, Balan S, Kandula P. Visual outcome of cataract surgery in paediatric uveitis. *IP Int J Ocul Oncol Oculoplasty* 2024;10(1):36-39.