



A Study On Intraoperative, Postoperative Complications, And Visual Outcomes In Cases Of Post Uveitic Cataracts

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Abstract

Background: Cataract surgery in a patient with uveitis is more complex than senile cataract extraction because it involves multiple considerations related to the cause of uveitis, prospects of visual rehabilitation, appropriate surgical timing, and technique, the type and material of intraocular lens used.

Aim of the study: to assess intraoperative and postoperative complications encountered during surgery for uveitic cataracts.

Methods: the study was conducted at the department of Ophthalmology, Annapoorana medical college, and hospitals in Salem. A total of 60 patients were taken up for the study. A detailed history and a complete ophthalmic examination were done. All patients were started on topical antibiotic steroids 1 week before the surgery Strong mydriatics like 1% atropine eye ointment or 2% homatropine were used for full pupillary dilatation. Slit-lamp examination was done for all patients, for the first 3 postoperative days. Patients were asked to review every week for the first 4 weeks. During the follow-up, a thorough examination was done to look for improvement in vision, any anterior chamber reaction, the position of the IOL, and fundus picture.

Results: In this posterior subcapsular cataract with cortical involvement was the commonest variety of the complicated cataract, followed by the pure posterior subcapsular type. The most common intraoperative complication encountered was dense posterior synechiae and excessive conjunctival bleeding. 52 patients underwent SICS with PCIOL, 6 patients had ECCE with PCIOL and 2 patients had phacoemulsification with PCIOL. The intraoperative complications that were encountered were dense posterior synechiae in 36 patients, and excessive conjunctival bleeding in 24 patients. The immediate post-op complications that were noted were anterior chamber reaction and pigment dispersion. The most common late postoperative complications that were noted were posterior capsular opacification and cystoid macular edema. The immediate postoperative visual acuity ranged from 6/9 to 6/24 in 14 patients, 6/24 to 6/60 in 22 patients, 5/60 to 2/60 in 20 patients, and less than 2/60 in 4 patients. The visual acuity after 6 wks. ranged from 6/6 to 6/18 in 34 patients, and 6/24 to 6/60 in 26 patients. The most common cause for the decrease in vision was posterior capsular opacification. Patients had a perception of light.

Conclusion: The improvement in surgical technique, pre and postoperative control of inflammation related to new and safer small incision surgeries, and the usage of steroids have led to better results in patients with uveitis. This has increased the tendency to operate these eyes earlier to prevent important complications.

Keywords: Post Uveitic Cataracts, Slit Lamp Examination, Pre & Post Operative Complication

Introduction

Cataract surgery in a patient with uveitis is more complex than senile cataract extraction because it

involves multiple considerations related to the cause of uveitis, prospects of visual rehabilitation, appropriate surgical timing, and technique, and the type and material of intraocular lens used. [1]Establishing the diagnosis, thorough ocular examination, careful patient selection, and meticulous control of perioperative inflammation are key elements to a successful visual outcome. inflammation of the anterior segment, a nondescriptive opacification appears throughout the cortex which usually progresses and matures rapidly such as is seen in Fuchs heterochromic iridocyclitis. In inflammation or degenerations affecting the posterior segment a characteristic opacification usually commences in the posterior part of the cortex in the axial region- posterior cortical or posterior subcapsular cataract.[2]With the slit lamp, the opacity is seen to have irregular borders extending diffusely towards the equator and often axially towards the nucleus. In the beam of the slit lamp, the opacities have an appearance like breadcrumbs, and a characteristic rainbow display of colors often replaces the normal achromatic sheen, called the polychromatic luster [3]. Pathologically the lens usually shows profound degenerative changes, liquefaction, cholesterol deposition, and calcification. The capsule becomes thickened and the whole lens becomes shrunken, distorted, and tremulous.[4]

Methods

the study was conducted at the department of Ophthalmology, annapoorana medical college, and hospitals in Salem. A total of 60 patients were taken up for the study. A detailed history and a complete ophthalmic examination were done. All patients were started on topical antibiotic steroids 1 week before the surgery Strong mydriatics like 1% atropine eye ointment or 2% homatropinewere used for full pupillary dilatation. Slit-lamp examination was done for all patients, for the first 3 postoperative days.

Patients were asked to review every week for the first 4 weeks. During the follow-up, a thorough examination was done to look for improvement in vision, any anterior chamber reaction, the position of the IOL, and fundus picture. Inclusion criteria: Patients with chronic uveitis and complicated cataract, A quiet eye (without inflammation) for at least 3 months.Exclusion criteria: Complicated cataract due to causes other than uveitis.Patients with posterior segment pathology (by B scan). The peribulbar block was given to adults and general anesthesia for children. Out of 60 patients, 52 patients underwent SICS with PCIOL implantation, 6 patients underwent ECCE with PCIOL and for 2 patients phacoemulsification with PCIOL implantation was done. First, a conjunctival flap was made superiorly, the tenons capsule was separated, and bipolar cautery was done to the bleeding vessels. The anterior chamber was entered either through the limbal wound or the scleral tunnel. Viscoelastic was used to maintain the anterior chamber. Capsulotomy was done by continuous curvilinear capsulorhexis in small incision cases and by the can opener technique in ECCE. Nucleus delivery was done and a thorough cortex wash was done. PCIOL was implanted in the bag. For ECCE surgery, the limbal wound was closed by interrupted sutures with a 10-0 Ethicon. Injection of 0.5 ml subconjunctival dexamethasone was given to all patients. All patients were put on topical antibiotic steroids, 5 times a day. In addition, patients who had anterior chamber reactions received injections of periocular steroids. Slit lamp examination was done for all patients, for the first 3 postoperative days. Patients were asked to review every week for the first 4 weeks

Results

In our study, the incidence of post uveitic complicated cataracts was more in males (66%) 20-60 yrs was the commonly affected age group.

Table 1: Type Of Cataract

TYPE OF CATARACT	INCIDENCE	PERCENTAGE
Posterior subcapsular cataract	20	33.3

Posterior subcapsular with cortical involvement	34	56.6
Mature cataract	06	10.0

Table :1 In this posterior subcapsular cataract with cortical involvement was the most commonest variety of the complicated cataract, followed by the pure posterior subcapsular type. Of the 60 patients, 52 patients underwent small incision cataract surgery, 6 patients had extracapsular cataract extraction and 2 patients had phacoemulsification with posterior chamber intraocular lens implantation.

Table 2:Intra Operative Complications

COMPLICATIONS	INCIDENCE	PERCENTAGE
CONJUNCTIVAL BLEEDING	14	23.3
POSTERIOR SYNECHIAE	36	60.0
IRIS BLEEDING	06	10.0
POSTERIOR CAPSULE RENT	04	06.6
IRIS PIGMENT DISPERSION	10	16.6
ZONULAR DIALYSIS	04	06.6

Table:2 The most common intraoperative complication encountered was dense posterior synechiae and excessive conjunctival bleeding. 36/60 patients had dense posterior synechiae and poor pupillary dilatation, which was managed by synechiolysis, and vasodilatation. patients required sphincterotomy. Excessive bleeding from the conjunctiva was the next common intraoperative complication. This was effectively managed by bipolar cautery. The other complications encountered were pigment dispersion, iris bleeding, zonular dialysis, etc. 4/60 patients had posterior capsular rent, which occurred during nuclear rotation, due to dense posterior synechiae

Table 3:Early Post Operative Complications

COMPLICATION	INCIDENCE	PERCENTAGE
AC REACTION	22	36.6
STRIATE KERATITIS	18	30.0
HYPHAEMA	04	06.6
PIGMENT OVER LENS	20	33.3
MACULAR EDEMA	16	26.6

Table :3 Anterior chamber reaction ranging from mild iritis to severe uveitis was the most common early postoperative complication. In their study, 23.9 % of patients had persistent uveitis in the post-op period. The other early postoperative complications noted were pigment dispersion in 20 patients, striate keratitis in 18 patients, and macular edema in 16 patients.

Table 4:Late Post Operative Complications

COMPLICATION	INCIDENCE	PERCENTAGE
PCO	20	33.3
CME	14	23.3
PUPILLARY CAPTURE	04	06.6
PUPILLARY MEMBRANE	06	10.0

Table:4 The common complications that were noted 6wks postoperative were posterior capsular opacification and cystoid macular edema. 20/60 patients had posterior capsular opacification, this result was comparable to the study done

Table 5:Pre Operative Visual Acuity

VISUAL ACUITY	INCIDENCE	PERCENTAGE
6/36- 6/24	06	10.0
1/60-6/60	22	36.6
CFCF	02	3.33
HM	20	33.3
PL	10	16.6

Table:5 The pre-operative visual acuity ranged from 6/24-6/36 in 6 patients, 22 patients had visual acuity between 6/60 – 1/60, 20 patients had a perception of hand movements, and 10 patients had a perception of light.

Table 6:Immediate Post Operative Visual Acuity

VISION	NUMBER OF PATIENTS	PERCENTAGE
6/9-6/12	2	3.33
6/18-6/24	12	20
6/36-6/60	22	36.6
2/60-5/60	20	33.3

<2/60	4	6.6
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Table:6 In our study the immediate post-operative visual acuity was recorded after 2 days, using Snellen’s chart, the vision ranged from 6/9 to 6/24 in 14 patients, 6/24 to 6/60 in 22 patients, 5/60to 2/60 in 20 patients, less than 2/60 in 4 patients. The most common cause of a decrease in vision in the immediate post-op period was anterior chamber reaction and pigment dispersion over the IOL.

Table 7:Visual Acuity At The End Of 6 Wks

VISION	NUMBER OF PATIENTS	PERCENTAGE
6/6-6/9	22	36.6
6/12- 6/18	12	20.0
6/24-6/36	18	30.0
6/60	08	13.3

Table:7 The vision recorded at the end of 6 wks ranged from 6/6 to 6/18 in 34 patients, and 6/24 to 6/60 in 26 patients. The significant improvement in the visual acuity was due to aggressive management of post-op inflammation. Those patients who had vision less than 6/24 had significant PCO and were treated with Nd YAG capsulotomy. This result was comparable to the study done by Dana MR et al who reported visually significant PCO in 54 % of patients.

Discussion

Cataract development is a very common occurrence in any form of anterior and intermediate uveitis, because of chronic intraocular inflammation, frequent relapses, and long-term use of corticosteroids. The reported incidence of cataracts in uveitic patients is about 50% in juvenile rheumatoid arthritis and up to 75% in chronic anterior uveitis.[5] The common complications that were noted 6wks postoperative were posterior capsular opacification and cystoid macular edema. 20/60 patients had posterior capsular opacification, this result was comparable to the study done by Foster CS et al at the Massachusetts Eye and ear infirmary, Boston. In their study 54 % of patients had visually significant posterior capsular opacification.[6] In another study done by Rahman and NP Jones –Royal eye hospital, Manchester UK, 96% of patients had visually significant posterior capsular opacification [7]. Patients with uveitis

because of their underlying pathology and possibly due to younger age are at a higher risk of capsular opacification. Nd YAG laser capsulotomy is an effective method of treatment. Nd YAG laser capsulotomy is associated with vision-threatening complications like cystoid macular edema, retinal detachment, damage to the intraocular lens, and raised intraocular pressure.14/60 patients had persistent cystoid macular edema. [8] This was less compared to the study done by. Van Gelder RN reported macular edema in 7/10 patients.[9]. Macular edema is usually a sequel of chronic intraocular inflammation. Pars plana vitrectomy has recently been utilized as a possible effective treatment modality for macular edema. The possible mechanism of regression of macular edema after pars plana vitrectomy may be because of the removal of inflammatory mediators from the vitreous gel.[10] The other late post-op complications noted were

pupillary capture of IOL which was seen in 04 patients and membrane in the pupillary area in 06 patients. Liu X and Zhao C in their study has shown that for cases with cyclitic membrane or chronic low-grade inflammation not responding to treatment, removal of IOL has led to a decrease in inflammation and improvement in vision in 14/19 eyes. [11,12]

Conclusion

The facts concerning these cataracts that make the therapeutic/surgical approach different from other forms of cataract are: Cataract associated with uveitis usually develops at an early age, affecting children and young adults. A higher incidence of subcapsular cataracts leads to glare and near vision difficulties. A preoperative anti-inflammatory regimen must be carefully planned for each patient. Postoperative follow-up should ensure control of inflammation and monitor the incidence of complications including posterior capsular opacification, recurrence of inflammation, and macular edema. The improvement in surgical technique, pre and postoperative control of inflammation related to new and safer small incision surgeries, and the usage of steroids have led to better results in patients with uveitis. This has increased the tendency to operate these eyes earlier to prevent important complications.

References

1. Thorne JE, Woreta FA, Dunn JP, Jabs DA. Risk of cataract development among children with juvenile idiopathic arthritis-related uveitis treated with topical corticosteroids. *Ophthalmology*. 2010;117:1436–41.
2. Hooper PL, Rao NA, Smith RE. Cataract extraction in uveitis patients. *Surv Ophthalmol*. 1990;35:120–44.
3. Durrani OM, Tehrani NN, Marr JE, Moradi P, Stavrou P, Murray PI, et al. Degree, duration, and causes of visual loss in uveitis. *Br J Ophthalmol*. 2004;88:1159–62.
4. Rojas B, Zafirakis P, Foster CS. Cataract surgery in patients with uveitis. *Curr Opin Ophthalmol*. 1997;8:6–12.
5. Chu CJ, Dick AD, Johnston RL, Yang YC, Denniston AK UK Pseudophakic Macular Edema Study Group. Cataract surgery in uveitis: A multicentre database study. *Br J Ophthalmol*. 2017;101:1132–7.
6. Foster CS, Rashid S. Management of coincident cataract and uveitis. *Curr Opin Ophthalmol*. 2003;14:1–6.
7. Meier FM, Tuft SJ, Pavésio CE. Cataract surgery in uveitis. *Ophthalmol Clin North Am*. 2002;15:365–73.
8. Rahman I, Jones NP. Long-term results of cataract extraction with intraocular lens implantation in patients with uveitis. *Eye (Lond)* 2005;19:191–7.
9. Van Gelder RN, Leveque TK. Cataract surgery in the setting of uveitis. *Curr Opin Ophthalmol*. 2009;20:42–5.
10. 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;91:916–21.
11. Liu X, Zhao C, Xu T, Gao F, Wen X, Wang M, et al. Visual prognosis and associated factors of phacoemulsification and intraocular lens implantation in different uveitis entities in Han Chinese. *Ocul Immunol Inflamm*. 2017;25:349–55.
12. Kang YH, Lee JH. Phacoemulsification and posterior chamber intraocular lens implantation in uveitis. *Korean J Ophthalmol*. 1997;11:94–7.