

Uncomplicated Phacoemulsification Surgery In Complicated Cataract Due To Uveitis - Visual Recovery And Adverse Outcomes

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Abstract

Aim: To evaluate the efficacy of phacoemulsification surgery in effecting visual recovery and minimising adverse outcomes in complicated cataracts due to uveitis.

Materials and Methods. 34 eyes with complicated cataract due to uveitis were included in this study. Complete preoperative ophthalmic and systemic evaluation was done. Meticulous phacoemulsification surgery was performed. Foldable single piece hydrophobic acrylic PC IOL with square edge optic was implanted in all eyes. Post operative follow up was done at periodic intervals. Visual Acuity and development of any postoperative complications like reactivation of uveitis, IOL deposits, posterior capsular opacification and anterior capsular fibrosis, IOL decentration and cystoid macular oedema were recorded. Optical coherence tomography Fundus Fluorescein Angiography was done to confirm cystoid macular oedema.

Results. 34 eyes with complicated cataracts were included in this study. This included 19 males and 15 females. The mean age was 49.55 yrs. The mean postoperative follow up was 7.58 mths, 28 eyes (82.35%) achieved a visual acuity of 6/6. One eye did not improve beyond 6/24 due to pre-existing macular pathology. Five eyes had final visual acuity between 6/9 to 6/18, four of which improved to 6/6 after YAG laser posterior capsulotomy. Visually significant posterior capsular opacification was seen in six eyes (17.64%) cystoid macular oedema in two eyes (5.88%), reactivation of uveitis in five eyes (14.70%), IOL deposits in four eyes (11.76%) and anterior capsular fibrosis in one eye (2.94%).

Conclusions. Phacoemulsification is a safe and effective procedure in high risk uveitic eyes with complicated cataract leading to good visual recovery in most cases.

Key Words:- Complicated Cataract, Phacoemulsification.

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I Introduction

Cataract is a well established complication of Uveitis which is an important cause of ocular morbidity and blindness. Complicated cataract in uveitis occurs as a result of several factors which include severity, chronicity and location of the inflammation, the presence of synechiae and prolonged use of corticosteroids. Cataract surgery is essential for restoration of vision. However cataract surgery in uveitis is challenging and often associated with vision threatening complications. Phacoemulsification is now a universally accepted surgery for uncomplicated cataracts. But complicated cataract presents a special and challenging setting for performance of phacoemulsification surgery demanding special skill and expertise. This study aims to evaluate the efficacy of phacoemulsification surgery in effecting visual recovery and minimising adverse outcomes in complicated cataracts due to uveitis.

II Materials And Methods

34 eyes with complicated cataract due to uveitis requiring surgery were included in this study. This was a prospective study. Informed consent was taken from all participants. Complete preoperative ophthalmic and systemic evaluation was done. Pupils in six eyes did not dilate due to almost 360° posterior synechiae. 11 eyes had posterior synechiae in one to two quadrants. Grades of cataracts varied between grade two to three. Meticulous phacoemulsification surgery was performed. Foldable single piece hydrophobic acrylic posterior chamber intra ocular lens (PC IOL) with square edge optic was implanted in all eyes. Post operative follow up was done at periodic intervals. Visual Acuity and development of any postoperative complications like reactivation of uveitis, IOL deposits, posterior capsular opacification and anterior capsular fibrosis, IOL

decentration and cystoid macular oedema were recorded. Optical coherence tomography (OCT) was done postoperatively to confirm presence of cystoid macular oedema. Patients with any other ocular or systemic disease were excluded

Pre-operative management. All patients received oral Prednisolone 1 mg/kg given three days prior to surgery. Periocular posterior subtenon injection of triamcinolone acetonide (20mg in 0.5ml) was administered to all eyes three days prior to surgery.

Surgical Management. Meticulous phacoemulsification was performed under peribulbar anaesthesia through a clear corneal incision. Flexible self retaining iris hooks were used in cases with 360 degree posterior synechiae. Synechiotomy with iris repositor was done in eyes with posterior synechiae in one or two quadrants large capsulorrhexis was made. Nucleus was managed using stop and chop/direct chop techniques. Bimanual irrigation aspiration was carried out. Good cortical clean up with capsule polishing was done. Endocapsular IOL implantation was done in all cases to prevent iris-lens touch.

Postoperative Management. All patients were treated with frequent topical 1% Prednisolone acetate eye drops and oral steroids which were gradually tapered off in addition to routine management consisting of topical cycloplegics, NSAIDs and nonselective beta blockers.

Patients were reviewed on day 1, day 3, 3 weeks, 3 months, 6 months and 1 year. Various findings were recorded. All the patients had a minimum follow up of 6 months.

III Results

34 eyes of 34 patients of complicated cataract were included in this study. This included 19 males and 15 females (Table 1). The mean age was 49.55 years (Table 2). Preoperative visual acuity and type of uveitis is tabulated in Table 3 and 4. The mean postoperative follow up was 7.58 month. 28 eyes (82.35%) achieved a visual acuity of 6/6. Five eyes (14.70%) had final visual acuity between 6/9 to 6/18, four of which improved to 6/6 after YAG laser posterior capsulotomy. One eye did not improve beyond 6/24 (Table 5). Visually significant posterior capsular opacification was seen in six eyes(17.64%), Cystoid macular oedema in two eyes(5.88%), reactivation of uveitis in five eyes(14.70%), IOL deposits in four eyes(11.76%) and Anterior capsular fibrosis in one eye (2.94%) (Table 6).

IV Discussion

Complicated cataract due to uveitis is a challenging situation for any cataract surgeon. Surgery is difficult be it Extracapsular cataract extraction (ECCE) or phacoemulsification due to presence of posterior synechiae, nondilating pupil, white cataract and invisible anterior capsule, weak zonules and corneal haze due to past uveitis^{1,2,3}. Type and site of IOL implantation is another matter of debate Surgery in such eyes often leads to reactivation of severe uveitis⁴. In recent years several studies have shown that strict preoperative, intraoperative and postoperative control of inflammation coupled with meticulous surgical methods and excellent IOL biomaterials allow a safe surgery in most of these eyes^{1,2,3}

In our study all 34 eyes of 34 patients underwent an uneventful phacoemulsification surgery. Foldable single piece hydrophobic acrylic posterior chamber intra ocular lens (PC IOL) with square edge optic was implanted in all eyes. 28 eyes (82.35%) regained a visual acuity of 6/6, five eyes (14.70%) had a vision between 6/9 to 6/18 due to a development of posterior capsular opacification, four eyes improved to 6/6 following a YAG laser posterior capsulotomy. So all eyes except two (94%) had a complete visual recovery [Table 5]. One eye did not improve beyond 6/24 due to preexisting cystoid macular oedema (CME) due to uveitis. One eye improved only upto 6/12 due to development of CME. The findings are in conformity with the findings of Alio JL, Chipont E, Ben Ezra & Fakhry⁵, who compared the performance of intraocular lenses in eyes with complicated cataract due to uveitis and found that acrylic IOLs provided a better visual outcome as compared to rigid PMMA IOLS. Chiu H, Dang H et al⁶ [14] also concluded that cataract surgery with acrylic posterior-chamber IOL implantation is effective at improving visual acuity in patients with uveitis. Visually significant posterior capsular opacification (PCO) was seen in six eyes (17.64%) PCO occurs as a result of proliferation of residual lens epithelial cells on to the posterior capsule. It is the commonest cause of postoperative visual impairment after uncomplicated cataract surgery. Incidence of PCO is even higher in uveitic eyes. Elgohary. MA, McCluskey PJ et al⁷ [13] reported PCO in 38.6% which they attributed to use of hydrogel and silicon IOLs in their study. The severity of postoperative inflammation is directly related to the tissue handling which is more in ECCE and this in turn is directly related to PCO. Abela-Formanek C, Aman M, Schauersherger J^{8,9,10} [6,7,8] reveal that PCO rate in inflamed eyes is more than normal eyes. Their study also reveals that sharp edged acrylic optics with an overlapping CCC had lower PCO rates. Cystoid Macular Edema was seen in two eyes (5.88%) These two eyes had panuveitis. The sample size being too less the statistical correlation could not be carried out. However CME is a known complication of surgery even in eyes without any past history of uveitis or intraocular inflammation. Quentin et al¹¹ [9] reported incidence of CME in 22% of intracapsular cataract extraction (ICCE) and 12% of ECCE at six months. Uveitic eyes have a higher incidence of CME.

Cataract research outcome team¹² [10] declared that incidence of CME did not differ in ECCE and phacoemulsification in uncomplicated cataracts. But our study shows that Phacoemulsification in complicated cataracts has a lesser incidence of CME. Suresh and Jones¹³ [15] also reported a lower prevalence of macular oedema (2%) during an average follow-up of 24.1 months after Phacoemulsification surgery.

Reactivation of uveitis occurred in five eyes (14.70%) Reactivation of uveitis occurs in all cases of uveitis undergoing surgery as a result of tissue handling and due to the natural course of the disease. Theoretically Phacoemulsification involves minimal tissue handling and uveitis should be less which has been observed in this study. It has been documented by Rossa V, Sundmacher R, Willers R¹⁴ [11] that operative method is not associated with increased risk of uveitis. A strict preop and postop control of inflammation is a must. Chee and colleagues¹⁵ compared the two methods of ECCE and Phacoemulsification in uveitis eyes and found that the Phacoemulsification eyes invariably had less inflammation.

Early rise of IOP was seen in two eyes (5.88%) in our study which was comparable with findings of Elgohary. MA, McCluskey PJ et al¹⁶ who reported incidence of 5.9%.

IOL deposits were seen in four eyes (11.76%). Abela-Formanek C, Amon M, Schild G et al⁹, have found that hydrophobic acrylic material had lower uveal but better capsular biocompatibility.

Anterior capsular fibrosis was seen in one eye (2.94%). It is a known condition in uveitis. Abela Formanek C Amon M^{8,9,10} have found in their studies that Anterior capsular opacification is higher in uveitic eyes irrespective of the lens biomaterial used.

V Conclusion

Phacoemulsification surgery has the advantage of a small incision, minimal breakdown of blood aqueous barrier, closed chamber surgery and a shorter surgical time. It is a safe and effective technique for tackling complicated cataract, due to uveitis with good postoperative visual outcome and results.

References

- [1]. Meier FM, Tuft SJ, Pavesio CE. Cataract surgery in uveitis. *Ophthalmol clin of N Am* 2002; 15: 365-370
- [2]. Suresh PS, Jones NP. Phacoemulsification with intraocular lens implantation in patients with uveitis. *Eye-2001 Oct; 15 (Pt 5): 621-8.*
- [3]. Foster CS, Rashid S. Management of coincident cataract and uveitis. *Curr Opin Ophthalmol.* 2003 Feb; 14(I): 1-6.
- [4]. Rahman I, Jones NP. Long term results of cataract extraction with intraocular lens implantation in patients with uveitis. *Eye* 2005 Feb; 19(2) : 191-7.
- [5]. Alio JL, Chipont E, Ben Ezra D, Fakhry MA. Comparative performance of intraocular lenses in eyes with cataract and uveitis. *J. cataract Refract surg.* 2002 Dec, 28 (12): 2096-108.
- [6]. Chiu H, Dang H, Cheung C, Khosla D Arjmand P, Rabinovitch T, Derzko-Dzulynsky L. Ten-year retrospective review of outcomes following phacoemulsification with intraocular lens implantation in patients with pre-existing uveitis. *Can J Ophthalmol.* 2017 Apr;52(2):175-180
- [7]. Elgohary. MA, McCluskey PJ, Towler HMA, Okhravi N, Singh RP, Obikpo R, and Lightman SS. Outcome of phacoemulsification in patients with uveitis. *Br J Ophthalmol.* 2007 Jul; 91(7): 916-921.
- [8]. Abela- Formanek C, Amon M, Schild G, Schauersberger J, Kolodjaschna J, Barisani Asenbaum T, Kruger A. Inflammation after implantation of hydrophilic acrylic, hydrophobic acrylic or silicon intraocular lenses in eyes with cataract and uveitis : comparison to a control group. *J Cataract Refract Surg* 2002 Jul; 28(7): 1153-9.
- [9]. Abela-Formanek C, Amon M, Schauersberger J, Schild G, Kolodjaschna J, Barisani- Asenbauer T, Kruger A. Uveal and capsular biocompatibility of 2 foldable acrylic intraocular lenses in patients with uveitis or pseudo exfoliation syndrome: comparison to a control group. *J Cataract Refract surg* 2002 Jul; 28 (7): 1160-72.
- [10]. Abela- Formanek C, Amon M, Schauersberger J, Kruger A, Nepp J, Schild G. Results of hydrophilic acrylic, hydrophobic acrylic and silicon intraocular lenses in uveitic eyes with cataract : comparison to a control group. *J Cataract Refract surg.* 2002 Jul; 28(7): 1141-52.
- [11]. Quentin CD: CME and visual acuity after ICCE and Choyce AC lens Vs ECCE and PC lens in the partner eye. *Ophthalmology* 1993 90(4): 364-366
- [12]. Powe NR Cataract patient outcome research team. *Arch Ophthalmol* 1994 112. 239-252.
- [13]. Suresh P S, Jones N P. Phacoemulsification with intraocular lens implantation in patients with uveitis. *Eye* 2001 15:621-628.
- [14]. Rossa V, Sundmacher R, Willers R Risk factors for fibrinoid reaction after posterior chamber lens implantation- a retrospective study. *Klin Monatsbl Augenheilkd* 1992 200: 101-104.
- [15]. Chee SP, Ti Se, Sivakumar M, Tan DT. Postoperative Inflammation Extracapsular cataract Extraction versus Phacoemulsification. *J Cataract Refract surg* 1999 ; 25 : 1280-5 .

TABLE-1
SEX DISTRIBUTION

MALES	-	19
FEMALES	-	15
TOTAL	-	34

TABLE-2
AGE DISTRIBUTION

SER NO	AGE GROUP(YRS)	NO OF PATIENTS
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1.	< 21	NIL
2.	21-30	01
3.	31-40	6
4.	41-50	11
5.	51-60	09
6.	61-70	7
7.	> 70	NIL

TABLE-3
TYPES OF UVEITIS

Ser No	Types of uveitis	No of cases	%
1	Healed Anterior uveitis	14	41.17
2	Fuchs Hetero chronic cyclitis	3	8.82
3	Intermediate uveitis	11	32.35
4	Intermediate uveitis with spill over Anterior uveitis	2	5.88
5	Pan uveitis	3	8.82
6	Multifocal choroiditis	1	2.94

TABLE-4
PREOPERATIVE VISUAL ACUITY

Reduced to PL with Accurate PR	2
6/60	12
6/36	2
6/24	9

TABLE-5
POST PHACOEMULSIFICATION VISUAL RECOVERY

VISUAL ACUITY	NO OF PATIENTS
6/6	28
6/9 -6/18	05 (4 improved to 6/6 after laser capsulotomy)
6/24	01

TABLE-6
POST OPERATIVE FINDINGS

SER NO	POSTOP COMPLICATION	NO OF PATIENTS	PERCENTAGE
1.	Posterior capsular opacification	06	17.64%
2.	Cystoid macular oedema	02	5.88%
3.	Reactivation of uveitis	05	14.70%
4.	IOL deposits	04	11.76%
5.	Anterior Capsular fibrosis	01	2.94%
6.	IOL decentration	Nil	Nil
7.	Early rise of IOP	02	5.88%

Dr. Pradeepghimire MS, FRCSED." Comparison of Different Scoring System in Predicting the Severity and Prognosis of Acute Pancreatitis."IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 4, 2018, pp 44-47