

A Dissertation on

**INTRA OPERATIVE, POST OPERATIVE COMPLICATIONS
AND VISUAL OUTCOME IN CASES OF POST UVEITIC
CATARACTS**

Submitted to

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DECLARATION

I, **Dr.T.VIMALA** solemnly declare that the dissertation titled **“INTRAOPERATIVE, POSTOPERATIVE COMPLICATIONS AND VISUAL OUTCOME IN CASES OF UVEITIC CATARACTS”** has been prepared by me. This is submitted to The Tamil Nadu Dr. M.G.R. Medical University, Chennai, in partial fulfilment of the requirement for the award of M.S., degree Examination to be held in March 2008.

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CERTIFICATE

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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, the type and material of intra ocular lens used.

Establishing the diagnosis, thorough ocular examination, careful patient selection and meticulous control of perioperative inflammation are key elements to a successful visual outcome.

ANATOMY OF UVEAL TRACT

Uvea is a highly vascular pigmented layer, which consists of iris, ciliarybody, choroid.

DEVELOPMENT:

IRIS:

The mesenchyme situated on the anterior surface of the lens condenses to form the pupillary membrane. The two layers of neuroectoderm forming the edge of the optic cup extend onto the posterior surface of the pupillary membrane, these structures fuse to form the iris. The sphincter and dilator muscles are derived from the pigment cells of neuroectoderm. The mesenchyme forms the connective tissue and blood vessels of the iris. The opening in the central part of the iris becomes the pupil.

CILIARY BODY:

The mesenchyme situated at the edge of the optic cup differentiates into the connective

tissue of the ciliary body and smooth muscle fibres of the ciliary muscle. The two layers of the neuroectoderm grow onto the posterior surface of the ciliary muscle forming the two epithelial layers covering the ciliary body.

CHOROID:

Choroid, the inner vascular coat of the eyeball, develops early and is formed from the mesenchyme surrounding the optic vesicle.

ANATOMY:

IRIS:

It is a thin pigmented diaphragm with a central aperture – the pupil. It measures about 12mm in diameter. It is thickest at the collerette and thinnest at the root of iris.

Anterior surface of iris is divided into a central pupillary zone and a peripheral ciliary zone. The line of demarcation is known as collarette.

Layers of iris:

Stroma

Anterior non pigmented epithelium

Posterior pigmented epithelium.

Stroma:

Vascular connective tissue which contains collagen, fibroblasts, melanocytes, sphincter and dilator muscles, nerve fibres.

Epithelial layer:

The anterior layer is continuation of the pigmented layer of ciliary epithelium and the posterior layer is the continuation of the non pigmented layer of ciliary epithelium.

Blood supply: is by the major arterial circle which is formed by the 2 long posterior ciliary arteries and the anterior ciliary artery.

Nerve supply: the long and short ciliary nerves form the sensory and autonomic nerve supply.

Functions: it regulates amount of light entering through the pupil.

Plays role in accommodation

CILIARY BODY:

It is a triangular structure which is continuous anteriorly with the iris and posteriorly with the choroid. The anterior surface has fingerlike projections and is called pars plicata, the posterior surface is smooth and is called pars plana.

Layers of ciliary body:

Ciliary epithelium

Ciliary stroma

Ciliary muscle

Functions:

Suspends the lens through the zonules

Pars plicata produces aqueous humor

Pars plana secretes glycosaminoglycans

Accommodation

CHOROID:

It is the vascular coat lining the inner surface of the sclera. It extends from optic nerve posteriorly to the ciliary body anteriorly.

Layers:

Supra choroidal lamina of fusca

Layer of Haller and Satter

Layer of chorio capillary

Bruch membrane

Blood supply: posterior ciliary and recurrent branches of anterior ciliary artery.

Functions:

Supplies nutrition to the outer layers of retina

Absorbs excessive light

Regulates intraocular pressure.

ANATOMY OF THE LENS

Lens is a transparent, biconvex, crystalline structure placed between the iris and the vitreous. The diameter of the lens is 9-10mm and the thickness is 4- 5mm. The rim of lens separating the anterior and posterior surface is called the equator. The lens consists of capsule, anterior epithelium and the lens fibres.

DEVELOPMENT:

The rudimentary lens is first seen as a thickening of the surface ectoderm, the lens placode, at 22days of gestation; it overlies the optic vesicle. The lens placode invaginates and sinks below the surface ectoderm to form the lens vesicle. The cells forming the posterior wall of the lens now rapidly elongate and become filled with proteins called crystallins. These densely packed elongated cells are known as the primary lens fibres. All additional lens fibres are formed by the mitotic division of the anterior epithelial cells at the equator; these are known as the secondary lens fibres.

The lens capsule is a noncellular envelope that completely surrounds the lens. It is

formed from the thickened basal lamina, which is developed from the lens epithelium. The suspensory ligaments of the lens are formed from the mesenchyme situated at the edge of the optic cup.

Capsule: transparent, homogenous, highly elastic envelope. It is thicker in the anterior aspect than in the posterior aspect. The capsule consists of zonular lamina which is lamellated.

Epithelium: anteriorly it is present as single layer of cuboidal cells. At the equator these cells elongate into columnar cells and differentiate to form the lens fibres.

Lens fibres: these are long prismatic bands, made up of albuminoid material enclosed in a pseudomembrane . The lens fibres formed first are derived from the posterior epithelium then they are formed from cells in the equator.

The new fibers are superficial to the old fibres and hence the lens gets a laminated appearance. The central fibres form the nucleus and the superficial fibers form the cortex.

UVEITIS

It is the inflammation of the uveal tract, either the iris, ciliary body or choroid or all the three layers.

INTERNATIONAL UVEITIC STUDY GROUP CLASSIFICATION

1. ANATOMICAL

Anterior uveitis- Iritis

Anterior cyclitis

Iridocyclitis

Intermediate uveitis- Posterior cyclitis

Hyalitis

Parsplanitis

Basal retino choroiditis

Posterior uveitis- focal choroiditis

Focal retinitis

Multifocal choroiditis

Multifocal retinitis

Neuroretinitis

Panuveitis

2. ETIOLOGICAL-

Idiopathic

Infective

Immune related

Neoplastic

Traumatic

3. ONSET-

Acute - < 6wks

Chronic->6 wks

4. PATHOLOGY-

Granulomatous

Nongranulomatous

Symptoms of uveitis

1. Pain- due to ciliary spasm and corneal edema
2. Photophobia and excessive tearing.
3. Redness
4. Reduced vision due to- corneal edema

KPs on back of cornea

Anterior chamber turbidity

Irritant myopia

Complicated cataract

Pupillary membrane/ exudate

Vitreous cells

Macular edema

Papillitis

Secondary glaucoma

5. Flashes, floaters.

SIGNS:

1. Ciliary injection – due to dilated episcleral vessels

2. Cornea-

Keratic precipitates - are inflammatory cellular deposits on the endothelial surface. They are mainly scattered in the inferior cornea in a base down triangle-**Arlts triangle**.

Types of Kps-

Fine and medium sized kps- mainly consists of lymphocytes, found in acute non granulomatous uveitis.

Mutton fat kps- large greasy in appearance, made of epitheloid cells and

macrophages, found in granulomatous uveitis.

Fresh kps- white, non pigmented

Old kps- pigmented, granulated, flat and shrunken.

3. Iris and pupil:

Iris has a muddy appearance, forms inflammatory adhesions either with posterior surface of cornea – PERIPHERAL ANTERIOR SYNECHIAE or anterior capsule of lens – POSTERIOR SYNECHIAE.

When the entire pupillary margin is adherent to the lens it is known as – SECLUSIO PUPILLAE, this leads to forward bowing of iris- IRIS BOMBE.

When the inflammatory membrane surrounds the entire surface of the lens it is known as- OCCLUSIO PUPILLAE. If the synechia is incomplete, the pupil on dilatation has a festive paper appearance known as the FESTOONED PUPIL.

4. Anterior chamber:

There is turbidity of the aqueous due to transudation of proteins, because of breakdown

of blood aqueous barrier. When the slit beam is obliquely aimed across the anterior chamber, the ability to visualize the path of beam is termed as- FLARE.

Grading of flare-

- 0- no flare
- 1- very slight
- 2- moderate (iris and lens clearly seen)
- 3- marked (iris and lens hazily seen)
- 4- intense (fibrinous reaction)

CELLS- inflammatory cells migrate across the iris and ciliary vasculature into the aqueous. Polymorphonuclear leucocytes are the predominant cells in the acute phase. In chronic cases lymphocytes, plasma cells, monocytes and macrophages are seen.

Grading of cells-

- 0-no cells
- 1+ 5-10 cells/ field
- 2+ 11-20 cells / field

3+ 21-50 cells / field

4+ >50 cells / field

TREATMENT OF UVEITIS

The main mode of treatment of uveitis is

1. cycloplegics
2. steroid
3. specific antibiotics, antiviral, antimicrobials
4. immunosuppressives

1. **Cycloplegics** – these drugs act by

- relieving ciliary spasm
- decreases hyperemia
- prevents formation of posterior synechiae
- breaks already formed synechiae

Initially all patients with acute uveitis should be started with potent cycloplegics like 1% atropine, then when full pupillary dilatation is achieved, it can be replaced by weaker drugs like cyclopentolate.

When a powerful mydriatic effect is needed as in cases of breaking a formed synechiae, subconjunctival injection of 0.3ml of mydracaine (0.1ml of atropine , 0.1ml of adrenaline, 0.1ml of procaine) can be given.

2. Corticosteroids-

Topical- topical steroids are the mainstay of treatment for anterior uveitis. Potent steroids like betamethasone, dexamethasone, or prednisolone are started initially with frequent applications. Later if there are signs of regression, it can be tapered and replaced by less potent steroids like fluoromethalone.

Periocular steroids-

Indications- severe uveitis

Intermediate uveitis

Adjunct to topical or systemic steroids

Prior to any surgical intervention

Advantages –

Better therapeutic concentration in the posterior segment

Long duration of action in depot preparations

Systemic steroids-

Indications- intractable uveitis

Severe, bilateral, posterior or pan uveitis

Intermediate uveitis unresponsive to periocular steroids

Dose- prednisolone- 1mg/kg/day

3. Immunosuppressive –

Indications- sight threatening uveitis

Bilateral, non infectious uveitis

Unresponsiveness to periocular or systemic steroids

Patients with side effects to steroids

Classification of immunosuppressives:

Alkylating agents-

Cyclophosphamide-1-3.0mg/ kg / day

Chlorambucil - 0.1mg / kg /day

Antimetabolites-

Azathioprine- 1-3.0 mg / kg /day

Methotrexate- 0.15 mg / kg once weekly

Antibiotics-

Cyclosporine-2.5-5.0 mg / kg / day

FK 506- 0.1- 0.15 mg / kg / day

COMPLICATED CATARACT

Cataracta complicata refers to cataract those results from a disturbance of nutrition to the lens due to inflammatory or degenerative disease of other parts of the eye.

Causes for complicated cataract:

1. chronic uveitis
2. long standing retinal detachment
3. retinitis pigmentosa
4. degenerative myopia
5. trauma
6. ciliary body tumors
7. diabetes mellitus

8. following glaucoma, retinal detachment surgery

FACTORS LEADING TO CATARACT FORMATION:

1. presence of inflammatory mediators
2. increase in the permeability of the lens
3. non physiological changes in aqueous or vitreous
4. decrease in lens antioxidants
5. synechiae formation, membranes interfering with lens metabolism
6. direct involvement of lens cells by infectious toxic agents.

PATHOLOGY:

Following 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.

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 slit lamp the opacities have an appearance like breadcrumbs and a characteristic rainbow display of colours often replace the normal achromatic sheen, called as the polychromatic lustre.

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.

BIOCHEMICAL CHANGES IN CATARACT

The opacification of lens is accompanied by progressive decrease in lens proteins and free amino acids levels in lens and important alterations in its electrolytes and water content of the lens.

Water content:

Water content of the lens is increased with the maturation of the cataract. Most of the water responsible for the lens hydration is extralenticular. However, there also occurs a release of bound water from the altered lens proteins.

Protein content:

There is a decrease in soluble proteins and an increase in water insoluble fraction of the proteins. The major protein change in cataractous lens is the loss of α A crystalline and the selective loss of gamma S crystalline. The following mechanism has been suggested for the decrease insoluble proteins -

1. Leakage of low molecular weight proteins from the lens into surrounding tissue.
2. conversion of soluble proteins into insoluble proteins.
3. decreased synthesis of lens protein.
4. increased protein catabolism.

Free amino acids:

A progressive decrease in the level of total free amino acids has been reported. Proteogenic amino acids diminish much more than the non-proteogenic amino acids. Decrease in amino acid level has been attributed to leakage from the disrupted lens membrane.

CATARACT SURGERY IN UVEITIS PATIENT

INDICATIONS:

1. visual rehabilitation
2. enhancing visualization of posterior segment
3. removal of protein leaking lens in patients with phacogenic uveitis.

PRE OPERATIVE MANAGEMENT:

One of the most important determinants of successful cataract extraction in a patient with uveitis is the ability to control the inflammation before the surgery. Elimination of intraocular inflammation for atleast 3 months before the surgery is desirable.

The elimination of flare may be impossible in patients with long standing inflammation, so the emphasis should be on the absence of cells in the anterior chamber and absence of active mobile cells in the vitreous

The main stay of pre operative anti inflammatory therapy is topical corticosteroids.

Potent topical corticosteroids such as prednisolone acetate or dexamethasone 0.1%

should be used to reduce the inflammation.

CATARACT EXTRACTION:

SURGICAL APPROACH:

Phacoemulsification is the preferred approach to the removal of most cataracts in eyes with uveitis. The small incision, reduction of iris trauma from prolapse into the wound, reduction of iris stretch with nucleus expression and capsulorhexis all favour phacoemulsification.

Pars plana vitrectomy and lensectomy are preferable when posterior segment pathology must be addressed surgically and complete removal of cataract with the capsule is desired. The most common setting for this surgery is a patient with juvenile rheumatoid arthritis. These eyes often do poorly with intra ocular lenses. In addition leaving the posterior capsule may provide scaffold for cyclitic membrane formation.

When vitreous debris is present along with cataract, a reasonable approach is to perform cataract extraction through the limbus and vitrectomy through the pars plana, allowing the placement of an intra ocular lens in the bag. It is possible that the removal of vitreous may reduce subsequent inflammation in the posterior segment.

MANAGEMENT OF PUPIL:

Poor pupillary dilatation can be a problem in eyes with uveitis. The pupil may be held in place by synechiae to the lens, at the pupil or anywhere on the posterior surface of the iris.

Synechiae should be gently lysed with a spatula placed under the iris through the pupil. Stretching the pupil with two instruments placed 180 degree apart at the pupil margin can help break circumferential fibrous bands. Injection of viscoelastics under the iris can also break the synechiae.

If the pupil is too small, iris hooks may be inserted. Peripheral iridectomies increase inflammation, but reduce the risk of post operative iris bombe and angle closure glaucoma.

CAPSULORHEXIS AND CATARACT EXTRACTION:

A round capsulorhexis is preferred in patients with uveitis. Synechiae are less likely to form with a smooth capsulorhexis edge than with a ragged, torn capsular edge. In addition a rhexis smaller than the optic diameter prevents adhesions of the iris to the posterior capsule.

Removal of the nucleus and cortex is the same as in any eye without uveitis. It is crucial to remove all cortical material to prevent post operative phacogenic inflammation.

Topical and sub conjunctival corticosteroids administered at the end of surgery are helpful.

IOL IMPLANTATION:

Silicone lenses with silicone or PMMA haptics has been used in patients with uveitis. Acrylic lenses appear to be well tolerated. Surface modification of lenses holds some promise for reduction of inflammation and synechia.

Every effort should be made to place the lens in the capsular bag, this eliminates contact of the lens with other ocular structure, especially iris and ciliary body. Contact of lens with these structures in an eye with pre existing uveitis can lead to uncontrollable inflammation.

POST OPERATIVE MANAGEMENT:

Topical corticosteroids should be used as often as every hour. If hourly steroid drops are inadequate, oral prednisolone can be given. Cycloplegics can be useful in eyes with fibrin in the anterior chamber and in eyes with even a hint of synechia formation.

Patients with uveitis are more likely to experience inflammatory glaucoma and iris bombe, it is better to avoid pilocarpine drops in these eyes.

COMPLICATIONS OF UVEITIC CATARACT SURGERY

INTRA OPERATIVE COMPLICATIONS:

1. **Synechiae:** posterior synechiae are present in up to 80% of uveitic patients. Circumscribed posterior synechiae can easily be lysed with viscoelastic substance or with a spatula. Occasionally firmly fixed adhesions must be dissected with fine scissors.

Thin pupillary membranes are also common in uveitic patients. The lens may be completely occluded by severe fibrin formation that may contract the pupil margins and fixes the iris to entire lens capsule.

2. **Miosis** : it is a very common finding in patients with uveitis. The pupil may be sufficiently dilated after synechiae are lysed. The pupillary margin can be gently dilated with a iris retractor or hook. Sometimes 1-1.5 mm radial iridotomies of the sphincter muscles are required.

3. **Hyphaema** : hyphaema may appear from rubeotic vessels located in the angle of the chamber or at the pupillary margin or from the scleral tunnel incision. It also results from accidental iris disruption during phacoemulsification, from dissecting synechiae or fibrous membrane from the pupillary margin or from the iridotomies. These complications can be managed by injecting viscoelastic substances, compressing the bleeding vessel or by wet field cautery.

4. **Vitreous loss**: due to synechiae, miosis, capsular fibrosis and vitreous opacities, the risk of capsule rupture and vitreous loss is increased in uveitic patients.

POST OPERATIVE COMPLICATIONS:

1. **Inflammation**: the recurrence of uveitis in early post operative period is dependent on the underlying etiology. Relapses may occur in upto 50% of patients with anterior

uveitis, while they are relatively rare in patients with infective posterior uveitis.

The gold standard is to increase the steroid dosage post operatively compared to the treatment level that the patient had before surgery. The increased dosage must be continued for 8-12 weeks after surgery

2. **Glaucoma:** open angle glaucoma is very common in uveitis patients. The mechanisms that are involved in the post operative rise of intra ocular pressure are swelling of the trabecular meshwork, inflammatory cells or red blood cells that clog the meshwork, neovascularisation or peripheral anterior synechiae. As the increased pressure in these patients often return to normal level after inflammation subsides, the anti-inflammatory regimen should be optimized. Drugs like beta blockers, brimonidine, dorzolamide can be used to lower the intraocular pressure.

Angle closure glaucoma after cataract surgery in uveitis patients is mostly as a result of posterior synechiae with subsequent iris bombe and pupillary block. Nd YAG laser iridotomy can be done for these patients.

3. **Ocular hypotony:** this is typically noted within the first post operative week. It may be the result of ciliary body detachment with or without uveal effusion or from decreased secretion caused by active cyclitis. It must be managed promptly to avoid

secondary complications like cystoid macular edema, macular detachment, choroidal folds and pthisis. Firstly wound leakage must be excluded. Secondly topical and oral steroid should be given in high dose. Cycloplegics are applied in all cases.

4. **Synechia**: adhesion between iris and intraocular lens or lens capsule often occurs with persistent or recurrent inflammation. Newly formed synechia should immediately be treated with high dose of topical or periocular steroid. Injection of lytic cocktail of atropine, phenylephrine and cocaine can also be given.

5. **Hyphaema and rubeosis**: patients with Fuchs iridocyclitis, vasculitis or herpes iridocyclitis have an increased risk of post operative hyphaema formation. Quiescence of the inflammation must be obtained with topical steroids. Anterior chamber injection of triamcinalone 5mg can achieve regression of rubeosis and avoid rebleeding.

6. **Posterior capsular opacification**: it is a consequence of proliferation of lens epithelial cells onto the posterior capsule. Nd YAG laser capsulotomy is effective in these patients.

7. **Cystoid macular edema**: this is observed in upto 50% of cases and it commonly occurs within the first post operative week. It is treated with high dose of topical steroid or periocular steroids.

Aim of the study

1. To assess intra operative and post operative complications encountered during surgery for uveitic cataract.
2. To assess the factors which affect the visual outcome

Materials and Methods

The study was done in Regional Institute of Ophthalmology and Government Ophthalmic Hospital, Egmore, Chennai from August 2005 to Oct. 2007. The patients who attended the out patient and uvea clinic were included for the study.

A total of 60 patients were taken up for the study. A detailed history and a complete ophthalmic examination was done.

Inclusion criteria:

1. Patients with chronic uveitis and complicated cataract.
2. A quiet eye (without inflammation) for atleast 3 months.

Exclusion criteria:

1. Complicated cataract due to causes other than uveitis.
2. Patients with posterior segment pathology (by Bscan).

Ocular examination:

A complete ophthalmic examination was done for all patients, which included

detailed slitlamp examination

fundus examination by direct and indirect ophthalmoscopy

visual acuity

colour vision

IOP measurement

Bscan

Investigations:

Routine blood investigations – TC, DC, ESR

Mantoux, chest x- ray

Blood sugar

To rule out any associated systemic disorders, opinion from other departments like- rheumatology, gynaecology, dental, and dermatology were obtained.

Pre operative medications:

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.

Surgery:

Peribulbar block was given to adults, and general anaesthesia for children. Out of 60 patients, 52 patients underwent SICS with PCIOL implantation, 6 patients underwent ECCE with PCIOL and for 2 patient phacoemulsification with PCIOL implantation was done.

First a conjunctival flap was made superiorly, tenons capsule was separated completely, bipolar cautery was done to the bleeding vessels. Anterior chamber was entered either through the limbal wound or the scleral tunnel. Viscoelastics were used to maintain the anterior chamber.

Capsulotomy was done by continuous curvilinear capsulorhexsis in small incision cases and by 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, limbal wound was closed by interrupted sutures with 10-0 ethicon.

Injection of 0.5 ml subconjunctival bethamethasone was given to all patients.

Post operative treatment:

All patients were put on topical antibiotic steroids, 5 times a day. In addition patients who had anterior chamber reaction received injection of periocular steroids.

Follow up:

Slit lamp examination was done for all patients, for first 3 post operative days. Patients were asked to review every week for the first 4 weeks. During the follow up, thorough examination was done to look for improvement in vision, any anterior chamber reaction, position of the IOL, fundus picture.

Observation and Discussion

TABLE 1: SEX PREDILICTION

| SEX | INCIDENCE |
|------------|------------------|
| MALE | 40 |

| | |
|--------|----|
| FEMALE | 20 |
|--------|----|

In our study, the incidence of post uveitic complicated cataract was more in males (66%)

TABLE 2: AGE INCIDENCE

| AGE GROUP | INCIDENCE | PERCENTAGE |
|-----------|-----------|------------|
| 1-10 | - | |
| 11-20 | 08 | |
| 21- 30 | 10 | |
| 31-40 | 16 | |
| 41-50 | 08 | |
| 51-60 | 12 | |
| 61-70 | 06 | |

20-60 yrs were the commonly affected age g

TABLE 3:

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 |

In this posterior subcapsular cataract with cortical involvement was the commonest variety of the complicated cataract, followed by pure posterior subcapsular type.

TABLE 4:

TYPE OF CATARACT SURGERY

| SURGERY | NO. OF PATIENTS | PERCENTAGE |
|-----------------|-----------------|------------|
| SICS WITH PCIOL | 52 | 86.6 |

| | | |
|--------------------------------|----|------|
| ECCE WITH PCIOL | 06 | 10.0 |
| PHACOEMULSIFICATION WITH PCIOL | 02 | 3.33 |

Of the 60 patients, 52 patients underwent small incision cataract surgery, 6 patients had extra capsular cataract extraction and 2 patients had phaco emulsification with posterior chamber intra ocular lens implantation.

TABLE 5 :

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 |

The most common intra operative 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 viscodilatation. 4 patients required sphincterotomy.

Excessive bleeding from the conjunctiva was the next common intra operative 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 6:

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 |

Anterior chamber reaction ranging from mild iritis to severe uveitis was the most common early post operative complication. This result was comparable to the study done by Harari and Sangwan Virender done at the L V Prasad eye institute, Hyderabad.

In their study 23.9 % of patients had persistent uveitis in the post op period. The other early post operative complications noted were pigment dispersion in 20 patients, striate keratitis in 18 patients and macular edema in 16 patients.

TABLE 7:

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 |

The common complications that were noted 6wks post operative were posterior capsular opacification and cystoid macular edema. 20/60 patients had posterior capsular opacification, this result was comparable to the study done by Dana MR et al at the Massachusetts eye and ear infirmary, Boston. In their study 54 % of patients had

visually significant posterior capsular opacification. In another study done by Rahman and N P Jones –Royal eye hospital, Manchester UK, 96% of patients had visually significant posterior capsular opacification.

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 intraocular lens and raised intra ocular pressure.

14/60 patients had persistent cystoid macular edema. This was less compared to the study done by Ronald E Smith & Nicholas Kakaris who reported macular edema in 7/10 patients. In another study done by Harari , Sangwan Virender 20.9 % patients had cystoid macular edema.

Macular edema is usually a sequel of chronic intra ocular 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 removal of inflammatory mediators from the

vitreous gel.

The other late post op complications noted were pupillary capture of IOL that was seen in 04 patients and membrane in pupillary area in 06 patients.

Foster CS and Stavrou in their study have shown that for cases with cyclitic membrane or chronic low grade inflammation not responding to treatment, removal of IOL has led to decrease in inflammation and improvement in vision in 14/19 eyes.

TABLE 8:

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 |

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 perception of hand movements, 10

patients had perception of light.

TABLE 9 :

IMMEDIATE POST OPERATIVE VISUAL ACUITY

| VISION | NUMBER OF PATIENTS | PERCENTAGE |
|---------------|---------------------------|-------------------|
| 6/9-6/12 | 02 | 3.33 |
| 6/18-6/24 | 12 | 20.0 |
| 6/36-6/60 | 22 | 36.6 |
| 2/60-5/60 | 20 | 33.3 |
| <2/60 | 04 | 06.6 |

In our study the immediate post operative visual acuity recorded after 2 days, using the 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 decrease in vision in immediate post op period were anterior chamber reaction and pigment dispersion over the IOL.

TABLE 10:**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 |

The vision recorded at the end of 6 wks ranged from 6/6 to 6/18 in 34 patients, 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.

RESULTS

1. The incidence of uveitic complicated cataract was found to be more in males.
2. The commonly affected age group was between 20-60 yrs.
3. Posterior subcapsular cataract with cortical involvement was the commonest type of cataract seen.
4. 52 patients under went SICS with PCIOL, 6 patients had ECCE with PCIOL and 2 patients had phacoemulsification with PCIOL.
5. The intraoperative complications that were encountered were dense posterior synechiae in 36 patients, excessive conjunctival bleeding in 24 patients.
6. The immediate post op complications that were noted were anterior chamber reaction and pigment dispersion
7. The most common late post operative complications that were noted were posterior capsular opacification and cystoid macular edema

8. The immediate post operative 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, less than 2/60 in 4 patients.

9. The visual acuity after 6 wks ranged from 6/6 to 6/18 in 34 patients, 6/24 to 6/60 in 26 patients. The most common cause for decrease in vision was posterior capsular opacification.

CONCLUSION

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 cataract in uveitic patients is about 50% in juvenile rheumatoid arthritis and upto 75% in chronic anterior uveitis.

The facts concerning these cataracts that make the therapeutic / surgical approach different from other forms of cataract are:

1. Cataract associated with uveitis usually develops at an early age, affecting children and young adults.
2. A higher incidence of sub capsular cataract leads to glare and near vision difficulties.
3. Preoperative anti inflammatory regimen must be carefully planned for each individual patient.
4. 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 in order to prevent important complications.

PROFORMA

NAME:

AGE:

SEX:

OP/IP NO:

ADDRESS:

PRESENTING COMPLAINTS:

DURATION:

Redness of eyes

Pain

Defective vision

Watering, photophobia

ONSET OF ILLNESS- Sudden/ insidious/ recurrent

PAST HISTORY:

H/O trauma, diabetes mellitus, tuberculosis, sexually transmitted disease, joint pains,
any other systemic illness.

Similar illness in the past.

PERSONAL HISTORY:

H/O smoking, consuming non vegetarian diet, exposure to pets.

FAMILY HISTORY:

H/O contact with tuberculosis, similar illness in the family.

EXAMINATION

GENERAL EXAMINATION:

Built, nourishment, anemia, lymphadenopathy

SYSTEMIC EXAMINATION:

To rule out oral or genital ulcers, bone or joint abnormalities, skin lesions, respiratory system examination to rule out tuberculosis and sarcoidosis.

OCULAR EXAMINATION:

RE

LE

Facial symmetry

Eyebrows

Eye lashes

Extra ocular movements:

Conjunctiva: congestion/ nodules

Cornea: KPs/ iris pigments/ edema/

Anterior chamber: depth/ flare/ cells/ hypopyon/ hyphaema

Iris: pattern/ nodules/ new vessels/ sunechia

Pupils: size/ shape/ reaction

Lens: type of cataract

Anterior vitreous face: cells/ strands

Visual acuity:

Tension:

Gonioscopy:

Fundus : direct and indirect ophthalmoscopy/ 90D examination

INVESTIGATIONS

Urine: albumin/ sugar

Blood glucose:

Nasolacrimal duct patency:

Axial length

K reading

IOL power

B scan

SURGERY DETAILS

Date:

Anesthesia:

Type of surgery:

Type of IOL implanted

Intra operative complications:

POST OPERATIVE DETAILS

Visual acuity: immediate post op day/ after 1 week/ after 4 weeks

Post operative complications:

KEY TO MASTER CHART

Ac- anterior chamber

Cme- cystoid macular edema

CFCF- counting finger close to face

Cb-conjunctival bleeding

EPO- early post operative complications

F- female

Hyp- hyphaema

Ib- iris bleed

Kps- keratic precipitates

LE- left eye

M- male

nc- no cells

Ps- posterior synechiae

Pco- posterior capsular opacification

Pm- papillary membrane

Pc- papillary capture of IOL

Pcr -posterior capsule rent

Pd- pigment dispersion

RE- right eye

Sk- striate keratitis

Zd- zonular dialysis

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LIST OF SURGERIES PERFORMED

| No | Name | Age | Sex | OP/IP No | Diagnosis | Surgey |
|----|-------------|-----|-----|----------|----------------------------------|----------------------------------|
| | Ganesan | 65 | M | 367967 | RE - Aphakia LE- Mature cataract | LE- ECCE with PI |
| | Chinnammal | 60 | F | 403867 | BE - Mature cataract | RE - ECCE with PI |
| | Vasuki | 55 | F | 659832 | BE - Immature cataract. | RE - ECCE with PCIOL |
| | Murugan | 59 | M | 953061 | RE - Mature cataract. | RE - ECCE with PCIOL |
| | Munusamy | 60 | M | 756432 | LE - Immature cataract. | RE - ECCE with PCIOL |
| | Ponni | 50 | F | 370775 | RE - Mature cataract. | RE - ECCE with PCIOL |
| | Kasiammal | 48 | F | 399364 | LE - Chronic dacryocystitis | LE - DCT |
| | Velu | 27 | M | 365389 | RE - Fungal corneal ulcer | RE - TKP |
| | Valliyammal | 50 | M | 265790 | RE - Iris prolapse | RE - Iris prolapse repaired |
| | Kanniappan | 68 | M | 847301 | RE - Mature cataract with POAG | RE - Trab with ECCE+PCIOL+P |
| | Manickam | 58 | M | 368225 | LE - Immature cataract | LE - SICS with PCIOL |
| | Arumugam | 59 | M | 380999 | RE - Fungal corneal ulcer | RE - TKP |
| | Mani | 45 | M | 456794 | RE - Chronic dacryocystitis | RE - DCR |
| | Sivaraman | 47 | M | 890989 | LE - Immature cataract | LE - SICSwith PCIOL |
| | Kesavan | 35 | M | 345600 | RE - Corneal tear | RE - Corneal tear sutured |
| | Vijaya | 52 | F | 345226 | LE - Immature cataract | LE - SICS with PCIOL |
| | Alagammal | 50 | F | 567780 | RE - Immature cataract | RE - SICS with PCIOL |
| | Premalatha | 56 | F | 877654 | LE - Mature cataract | LE - SICS with PCIOL |
| | Perumal | 25 | M | 566555 | LE - Upper Lid tear | LE - Lid tear sutured |
| | Ponnusamy | 35 | M | 455678 | RE - Nasal pterygium | RE - Excision with autograft don |
| | Josephine | 61 | F | 677890 | RE - Immature cataract | RE - SICS with PCIOL |
| | Alagesan | 48 | M | 456880 | LE - POAG | LE - Trab with PI |
| | Jyothi | 53 | F | 344450 | RE - Immature cataract | RE - SICS with PCIOL |