Cataract Surgery Co-Management

Phacoemulsification, Clear-Lens Extraction, and LensX

INCLUSION CRITERIA:

- Significant visual complaints (decreased VA, increased glare, decreased Activities of Daily Living [ADLs], etc.)
- Treatment of secondary ocular disease (phacomorphic glaucoma, uveitis)
- Management of ocular disease (diabetic retinopathy, etc.)

The patient's Snellen best-corrected visual acuity must be 20/50 or worse. They may also be eligible for surgery if their BCVA is 20/40 or better and have significant difficulty with glare. Complaints of glare should be confirmed by brightness acuity testing or another suitable diagnostic test.

EXCLUSION CRITERIA:

- Patients who are unable to receive proper postoperative care
- Patients in poor overall health (Primary Care Physician will not clear patient for surgery)

TYPES OF CATARACT PATIENTS:

Congenital:

- If cataract obscures visual axis (> or equal to 3mm) or is causing secondary disease, extraction should be performed within days to weeks after diagnosis in infants and small children to prevent amblyopia.
- If the cataract is not causing complications, closely observe for progression.
- Often patients with visually-significant, unilateral, congenital cataracts have strabismus and may require muscle surgery after extraction.

Acquired:

- Most often, senile (Nuclear sclerosis, cortical degeneration, subcapsular)
- Due to systemic disease: (not limited to those listed below)
    - ◊ Diabetes Mellitus
    - ◊ Hypocalcemia
    - ◊ Myotonic Dystrophy
    - ◊ Frabry's Disease
    - ◊ Down's Syndrome
    - ◊ Atopic Dermatitis
    - ◊ Wilson's Disease
    - ◊ Uveitis
    - ◊ Steroids
    - ◊ Radiation
    - ◊ Trauma—Blunt or Penetrating
    - ◊ Intraocular Tumor

CATARACT MEASUREMENTS

Accurate cataract measurements are critical for optimal outcomes. Cataract evaluations are provided at ECCNC facilities.

- Thorough ocular and medical history
- Best-Corrected Visual Acuity (OD/OS)
- Glare Testing/Brightness Acuity Testing (BAT)
- Pupillary testing (small pupils may need pupiloplasty)
- Confrontation Visual Fields
- Extraocular movement testing
- Intraocular Pressure (applanation)
- Refraction/Autorefraction
- Keratometry
- A-SCAN or IOL Master
- Slitlamp Examination - special attention to corneal endothelium and lens surface for pseudoexfoliation syndrome
- Dilated Fundus Examination
- Potential Acuity Meter (PAM) - May be used to estimate the eye's visual potential in the presence of macular defects OR Laser Interferometry
- B-SCAN - May be required if unable to visualize the fundus
- Specular Microscopy/Pachymetry - if corneal guttata or edema exist

PREOPERATIVE MEDICATIONS

◊ Patients will be prescribed all required drops.

**** IT IS VERY IMPORTANT ****
that the patient understands that they need to have the antibiotic prescription filled before surgery.

The patient's surgery kit will contain a detailed checklist of when they are to take their drops.

- ANTIBIOTIC:

- Antibiotic is used 2-4 times for 3 days prior to surgery and the day of surgery (1 or 2 drops dependent on surgery time)

- NONSTEROIDAL:

- ONE drop 1-2 times/day for one month starting 3 days before surgery along with antibiotic for perioperative pain or for CME prophylaxis.

CME Prophylaxis:

Standard pre-op is 3 days with nonsteroidal, including patients who are at risk for cystoid macular edema (CME).

These patients include:

- All Diabetics
- Patients with a history of uveitis
- Any patient with a history of prior CME
- Any history of macular pathology; Ex:
  - ◊ ERM
  - ◊ AMD
  - ◊ Coats
  - ◊ Macular hole

POSTOPERATIVE CARE

Phacoemulsification, Clear-Lens Extraction and LenSx

After cataract surgery, the patient will be instructed on postoperative care of their eye(s).

Medications: *** BEGIN ALL EYE MEDICATIONS THE DAY OF SURGERY (*unless they are patched overnight)***

- ANTIBIOTIC*:*

- Antibiotic is used 7 days postoperatively (10 full days)
- One refill is provided on the written script if the originals do not last the full SEVEN postop days.

- STEROID: Pred Forte or Durezol:

- Used for ONE month postoperatively on a tapering schedule.

- NONSTEROIDAL:

- Continue on schedule until bottle has run out.

Patients may use OTC pain relievers such as Tylenol as needed.

Diabetic patients and those previously identified as steroid-responders will be given a weaker steroid such as Lotemax in place of Econopred 1%. The same schedule applies to both drops.

POSTOPERATIVE ACTIVITIES

Patients may resume many normal activities the day after surgery (watching TV, climbing stairs, light housework). Bending is allowed. Showering and bathing are allowed but patient must **AVOID GETTING WATER IN THEIR EYE(S).**

- **Eye Shield** - May be worn at bedtime for 7 days postop.
- **Water** - No water (including tap water) in the eye(s) for TWO weeks.

ONE-DAY POSTOP VISIT

PURPOSE:

- Evaluation of UNCORRECTED visual acuity (Pinhole VA is <20/40)
- Evaluation of wound and anterior segment (with special attention to cornea, anterior chamber and IOL position)
- Discuss expected symptoms and visual quality/abilities
- Complete postop report and FAX to ECCNC same day

TESTING:

- UNCORRECTED distance visual acuity OD/OS
- Pinhole (PH) visual acuity is <20/40
- Autorefraction/Manifest refraction with Best-Corrected Visual Acuity
- IOP (applanation if possible)
- Slit Lamp Examination

EXPECTATIONS:

- Slit Lamp Examination
    - ◊ Negative Seidel sign at wound
    - ◊ Minimal intraocular inflammation
- Counsel patient that near vision may be blurred due to loss of accommodation.
- Will see floaters better, especially with a white wall or blue sky as a background.
- May note shimmering with light coming in from the side during the first two weeks.

CLINICAL FINDINGS AND EVALUATION:

- Corneal endothelium decompensation
- Flat anterior chamber
- Iris or lens capsular incarceration
- Vitreous wick syndrome
- Pupillary block glaucoma
- UGH Syndrome (Uveitis, Glaucoma, Hyphema)
- Infectious bacterial endophthalmitis

CORNEAL ENDOTHELIUM DECOMPENSATION:

- Early edema may be present due to advanced Fuch's corneal dystrophy. Bullous keratopathy may result.
- Treat with:
    - ◊ Topical sodium chloride 5% drops t.i.d. and ointment q.h.s. if epithelial edema is present.
    - ◊ Increased regimen of typical steroid (up to q.1hour) if not contraindicated.

- Reduce IOP if elevated with anti-glaucoma medications (avoid epinephrine derivatives and prostaglandin analogs)
- Antibiotic ointment (erythromycin) may be used to treat ruptured bullae with or without pressure patching for 24 hours. A bandage contact lens can be used for recurrent episodes.
- If condition persists or worsens, contact ECCNC.

FLAT ANTERIOR CHAMBER:

- A flat anterior chamber is characterized by the anterior displacement of the iris to near or in actual contact with the posterior aspect of the cornea often caused by leakage of aqueous at the wound site.
- Lengthy anterior chamber decompression may lead to extensive synechiae and potentially angle closure glaucoma.
- Corneal endothelial damage may cause corneal edema and eventually hydrops.
- Place a bandage contact lens, and contact ECCNC immediately.

IRIS OR LENS INCARCERATION;

- Iris or lens incarceration leading into the conjunctiva may act as a wick, allowing aqueous to escape and causing a flat anterior chamber with the above complications.

VITREOUS WICK SYNDROME:

- Vitreous is incarcerated in the wound into the conjunctival, subconjunctival or onto the ocular surface.
- Anterior placement of the vitreous may cause extensive intraocular inflammation without infection.
- The vitreous may act as a pathway for bacteria, causing bacterial endophthalmitis.

UGH SYNDROME:

- Uveitis, Glaucoma, Hyphema

INFECTIOUS BACTERIAL ENDOPHTHALMITIS:

- Presents early in the postoperative period. May present on day one, but is most common in the first 7 days postoperatively. However, signs of endophthalmitis can happen at any time. If there is any question, please contact ECCNC immediately.
- Infectious entity that can cause total destruction of the eye.
- If endophthalmitis is suspected, contact ECCNC immediately.

CLINICAL FINDINGS:

- ***Day One Vision***
  - ◊ In most patients, vision may be improved but may not be sharp and clear. Patients should be reassured that vision should continue to improve over the three-week postoperative period. Even patients with 20/20 vision should be informed that their vision may fluctuate mildly throughout the healing process.
- ***Corneal Appearance***
  - ◊ Mild to severe corneal edema (with or without striae) may be noted on day ONE. Edema may be proportionate to the severity of the preoperative cataract (Brunescent cataracts often have more corneal edema). Patient cooperation during surgery or other factors may also contribute.

- ◊ Superior Punctate Keratitis (SPK) may be present centrally. SPK often resolves within two to three days. Encourage the patient to use preservative-free Artificial Tears.

- ***Wound***
  - ◊ Careful observation for a Seidel sign should be performed at day ONE. Fluorescein dye is instilled into the eye and the incision is viewed. **NO PRESSURE IS APPLIED TO THE WOUND.** Note any flow of aqueous from incision. Notify ECCNC if leakage cannot be managed.
- ***IOP***
  - ◊ Intraocular pressure should be measured by applanation tonometry. IOP less than 30mmHg postoperatively is considered acceptable. A measurement above 30mmHg may require a pressure-lowering medication or release of fluid at the incision site. Contact ECCNC immediately if notably high pressures cannot be lowered quickly with drops.

ONE-WEEK POSTOPERATIVE VISIT

PURPOSE:

- Evaluate UNCORRECTED visual acuity OD/OS
- Evaluate anterior segment with special attention to cornea, anterior chamber, wound, and lens position
- Evaluate autorefraction/manifest refraction for best-corrected visual acuity
- Complete postoperative report and fax to ECCNC

TESTING:

- Visual acuity OD/OS
- Autorefraction/manifest refraction
- Applanation tonometry
- Slit Lamp examination
- Dilated fundus examination

EXPECTATIONS:

- Uncorrected visual acuity should have stabilized at the one-week postop visit. However, it may not completely stabilize until week three. Therefore, spectacles should not be prescribed until week FOUR. Mild vision fluctuations may occur for weeks after surgery.

CLINICAL FINDINGS:

- ***Week One Vision***
  - ◊ Visual acuity is often significantly improved at the week one postoperative visit. It is important to confirm the patient's best-corrected visual acuity at this time. If the acuity does not coincide with the preoperative expectations, a dilated fundus exam MUST be performed to determine the health of the posterior segment.
- ***Corneal Appearance***
  - ◊ Corneal healing may take several weeks to complete. At the one-week visit, any SPK have usually resolved. Edema, though much improved, may persist.
- ***Wound***
  - ◊ Evaluate wound for Seidel sign. If leakage of aqueous is noted, contact ECCNC.

- ***IOP***
    - ◊ Intraocular pressure should be measured by applanation tonometry. IOP should have returned to near the preoperative level. If you suspect the patient is a steroid responder, consider discontinuing Durezol and beginning a mild topical steroid such as Lotemax or FML.

ONE-MONTH POSTOPERATIVE VISIT

PURPOSE:

- Evaluate uncorrected visual acuity OD/OS
- Evaluate anterior segment
- Evaluate manifest refraction and BEST-CORRECTED visual acuity
- Evaluate intraocular pressure (applanation)
- Complete data form and FAX to ECCNC

TESTING:

- Uncorrected visual acuity
- Manifest refraction and best-corrected visual acuity
- Applanation tonometry
- Slit Lamp examination
- Dilated Fundus Examination (if deferred at week ONE)

EXPECTATIONS:

- Often, corneal edema has resolved by week THREE, though it may persist if initially severe.
- Visual acuity completely stabilizes between weeks THREE and SIX. Spectacles may be prescribed at that time.

CLINICAL FINDINGS:

- Same as Week ONE

LONG-TERM COMPLICATIONS

Cystoid Macular Edema

- **Etiology**
    - ◊ May occur after any type of ocular surgery
    - ◊ Usually manifests between postoperative week 6-10, and the rate of incidence increases with surgical complications (including Vitreous Wick Syndrome, iris prolapse, etc.)
    - ◊ Associated with use of latanoprost (Xalatan) used in glaucoma treatment
- **Signs/Symptoms**
    - ◊ Decreased vision is noted by the patient
    - ◊ Decreased foveal light reflex, thickening at the macula with or without intraretinal cysts
- **Treatment**
    - ◊ Topical nonsteroidal anti-inflammatory (NSAID), ex: Ilevro q.i.d. x 4-6 weeks.
    - ◊ Mild topical steroid, such as Lotemax or FML for a 2-week taper (q.i.d. week 1, and b.i.d. week 2)
    - ◊ Postsurgical CME is not an emergency. However, if it persists or worsens contact ECCNC.