

Co-Management of Cataract Patients in the 21st Century
QEI Winter 2007 Newsletter
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Introduction

The role of the primary care optometrist has substantially evolved over the past several decades. Primary care optometrists are now in prime position to have a significant impact on their patient's visual quality and overall general health. The days of solely prescribing eyewear and contact lenses have passed as optometrists now play an integral role in the diagnosis and management of ocular and systemic disease.

We have seen many advances in the medical and surgical management of ocular disease. Due to the development of better pharmaceuticals, improvements in intraocular lens design and advances in surgical technique. The average cataract patient can expect to have almost instantaneous visual improvement in a relatively short post operative period.

Optometrists play a substantial part in the preoperative and postoperative care of the cataract patient. Thus, it is imperative that the provider be well educated and experienced when it comes to co-managing the surgical cataract patient. Cataract surgery is usually a very pleasant experience for both the patient and rendering eye care professional when careful planning and care are undertaken, but if an issue is overlooked you could end up with a very unhappy patient, or even worse, a blind eye.

Opening Comments

Before engaging in comanaging your cataract patients you should familiarize yourself with the surgeon, their surgical technique, and their pre and post operative regimen. This does not mean having a few conversations with the surgeon over a cup of coffee. You should actually spend some time with the surgeon in the operating room and in the office. You can get a better feel for how they are going to care for your patients while strengthening your relationship with the surgeon. Lastly, you should always keep the communication line open with the surgeon. If you have questions or concerns pick up the phone and talk to the surgeon.

Preoperative Issues

Thorough preoperative history and evaluation is just as important to the success of your patient's cataract surgery as is the operation itself. As the patient's primary care provider, patients expect and deserve an explanation of the options, benefits and risks of cataract surgery.

The typical conversation today often includes discussion regarding intraocular lens selection (multifocal IOLs vs. monofocal IOL), expectations, and post operative care. The comanaging optometrist must develop the confidence and trust of the patient and surgeon for the relationship to work.

A good preoperative examination will identify issues that may potentially lead to complications. These issues must be addressed prior to the surgery and the surgeon should be made aware that the issues are present.

Potential Disaster

There are numerous systemic medications that may produce ocular side effects. Alpha 1 blockers are commonly prescribed to treat benign prostatic hyperplasia. These medications produce smooth muscle relaxation in the bladder and prostate leading to better urine flow. Though these medications improve the quality of life in the patients who are taking them they may lead to intra-operative complications during cataract surgery. Alpha 1 blockers cause unwanted smooth muscle relaxation in the iris which may lead to IFIS (intraoperative floppy iris syndrome). When IFIS occurs, the iris becomes flaccid and difficult to manage during the procedure. The iris may prolapse into the incision and there is a higher prevalence of capsular tears. Unfortunately, discontinuing the use of these medications does little to improve the condition so a thorough history and notifying the surgeon is vital. Commonly prescribed alpha 1 blockers include Flomax(tamsulosin), Hytrin (terazosin), Cardura (doxazosin) and Uroxatral (alfuzosin).

Pre-existing ocular conditions may pose potential risks to the patient. Lid disease, specifically blepharitis, is an often overlooked problem that potentially may lead to devastating consequences. Patients with uncontrolled blepharitis have a significantly higher risk of developing postoperative endophthalmitis. Blepharitis and other lid diseases should be treated well prior to the surgery date. Treatment may include the utilization of lid hygiene, antibiotic ointments, and oral tetracyclines.

A good preoperative examination will also reveal pre-existing corneal disease. Particular attention should be directed at identifying any evidence of corneal dystrophy or degeneration. If there is evidence of significant guttata, endothelial cell counts should be performed to identify patient who may develop chronic corneal edema secondary to endothelial cell decompensation.

Pseudoexfoliation poses additional challenges during and after cataract surgery. Pseudoexfoliation is a systemic syndrome in which filaments and fibrils derived from elastin and basement membrane coat the lens, corneal endothelium, trabecular meshwork, and lens zonules. The condition is most easily recognized by examining the lens of the dilated patient. Findings include a central area of pseudoexfoliative material surrounded by a clear zone on the anterior

lens capsule. Other findings include poor dilation, iris trans illumination defects, Sampolesi line, increased trabecular meshwork pigment, ocular hypertension and glaucoma. Patients with pseudoexfoliation have a 5 to 10 fold increase in complication rate when undergoing cataract surgery. These patients are more prone to lens subluxation, zonular dialysis and vitreous loss due to weakened lens zonules. Intraocular pressure spikes are commonly encountered postoperatively. Again, it is imperative that the condition is identified and the surgeon notified.

Preoperative Medications

Post operatively, cataract patients are usually placed on a regimen of topical antibiotic, steroid, and non steroidal anti inflammatory drops. The antibiotics of choice are fourth generation fluoroquinolones which provide broad spectrum bacteriacidal coverage with relatively low toxicity. The steroid of choice is typically 1 % prednisolone acetate which is tapered over a four to five week period. Non steroidal anti-inflammatories are added to the regimen to decrease post operative pain and prevent cystoid macular edema.

Post Operative Evaluation

When evaluating a patient during the post operative recovery period, whether its 1 day, 1 week, 1 month, or 3 months after the surgery, the first question you should you should ask yourself is; "Are the symptoms and findings typical at this point in the post operative period?" If the optometrist is familiar with what is normal, it is much easier to identify what is not.

Expected Postoperative Findings

Early in the postoperative period it is quite common for patients to have symptoms of blurry vision, foreign body sensation and mild discomfort. Severe pain is not normal and the etiology must be identified. It is not uncommon to find mild to moderate corneal edema and mild anterior chamber reaction during the first week postoperatively. These mild symptoms and findings should improve rapidly over the next several days to weeks.

Red Flags

While it is important to know what findings are to be expected during the post operative period it is imperative to be able to immediately identify what is outside normal limits. If a complication is not identified and addressed in a timely fashion, the consequence is often severe and irreversible.

Incision Complications

Careful examination of the incisions that were made during the surgery should be performed to look for abnormalities. Modern cataract surgery usually involves a clear cornea incision without the use of sutures. The incisions are often performed in a manner in which tunnels with an internal corneal valve are formed. Post operative abnormalities in the wound structure are due to abnormalities in the tunnel architecture, trauma, poor healing due to systemic disease, abnormal wound tissue, or incarceration of ocular tissue such as iris, lens, or vitreous. Wound abnormalities are best identified by careful examination of the incision and surrounding tissues. Fluorescein instillation is helpful in identifying wound leaks (Seidels). If a wound abnormality is identified during the post operative period, the eye should be protected with a fox shield and the surgeon immediately contacted. Wound abnormalities are an open invitation for the development of endophthalmitis along with other severe consequences, hence the necessity for prompt intervention.

Endophthalmitis

Intraocular infection otherwise known as endophthalmitis is the most feared post operative complication due to its guarded to poor prognosis. Post operative endophthalmitis may be acute or chronic depending on the pathogenicity of the offending organism. The causative organisms that are most commonly responsible for acute post operative infection are gram positive coagulase negative micrococci such as staphylococcus aureus, staphylococcus epidermidis, and enterococci. The acute form of endophthalmitis develops 2 to 4 days postoperatively and follows a rapid course. The condition is characterized by pain, vision loss, injection, chemosis, significant anterior chamber reaction and hypopyon. It is important to understand that when in its early stage, endophthalmitis may present with no symptoms and seemingly insignificant signs. For example, a post operative patient with early infectious endophthalmitis may present with an increased anterior chamber reaction with no associated pain or vision loss.

Chronic endophthalmitis is caused by bacteria with low pathogenicity, with the most common organism being Propionibacterium acnes. Chronic endophthalmitis presents weeks or months following the surgery and is characterized by chronic uveitis with or without hypopyon, vision loss, and plaque like material on the posterior capsule.

If endophthalmitis is suspected, the surgeon should be notified immediately and the patient referred for evaluation, vitreous tap with culture, intravitreal antibiotics and possible vitrectomy. Early diagnosis and treatment is crucial to the patient's prognosis. A delay of diagnosis by several hours may mean the difference between a good visual outcome and losing the eye.

Intra-ocular pressure spike

Increased intraocular pressure (IOP) is a common finding in the first 1 to 3 days following cataract surgery. Patients experiencing IOP spikes may experience nausea and vomiting and often have significant corneal edema due to corneal endothelial dysfunction. The pressure spike is often secondary to retained viscoelastic substances used during the surgery or debris obstructing the trabecular meshwork. IOP spikes that present early in the postoperative course are best treated using topical antiglaucoma medications and/or venting of the anterior chamber. Venting of the anterior chamber is performed by the surgeon by applying pressure with blunt forceps to the poster lip of the paracentesis incision allowing a small amount of aqueous to escape from the anterior chamber. Patients are often kept on antiglaucoma medication for several days or weeks and followed closely to assure adequate control.

Cystoid Macular Edema

Cystoid macular edema (CME) is the most common etiology of reduced vision following cataract surgery. Up to 50% of patients undergoing cataract surgery develop fluorescein angiography proven CME, however, clinical CME (vision loss) develops in only 2-3 % of postoperative patients. The onset of CME is 3-4 weeks postoperatively. Patients who have intraoperative complications such as retained lens particles, vitreous loss, severe iris trauma, or vitreous to the incision site have a higher risk. Additionally, patients who have a history of uveitis, diabetic retinopathy, or epiretinal membrane carry a higher risk of developing CME. CME is diagnosed by clinical examination and fluorescein angiogram. The retinal examination may reveal honeycomb like cystic changes in the macular which are best observed with a contact lens fundus evaluation. Fluorescein angiography often reveals petaloid leakage seen in the late frames of the examination. Initial treatment involves the use of topical steroid and non steroidal anti-inflammatories used 4 times a day. Unresponsive patients are often treated with sub-tenons injection of steroids or surgical correction of the precipitating factor (i.e. ERM)

Retinal detachment

Detachment of the neurosensory retina is a relatively uncommon condition that occurs in approximately 1 in 10000 patients. Cataract surgery, especially when complicated, statistically increases the risk of retinal detachment. The managing optometrist must be suspicious and thoroughly evaluate symptomatic and non symptomatic patients whom recently underwent cataract surgery. Symptoms such as new onset floaters, flashes, or loss of vision should prompt an immediate dilated fundus examination. Other ominous clues to a potential retinal detachment include vitreous pigment (tobacco dusting) and vitreous hemorrhage. If either vitreous pigment and/or hemorrhage is present and you do not find a tear or detachment, look again, as a

significant number of patients will have a retinal tear or detachment. If you are not 100% sure that a symptomatic patient does not have a tear or detachment, refer for a second opinion.

Optometrists play a critical role in comanaging postoperative cataract patients. Though comanaging with a good cataract surgeon is very rewarding and beneficial, great care must be exercised. A substandard preoperative evaluation or undiagnosed/ misdiagnosed complication may prove devastating for the patient and the care provider.

References available upon request