DEALING WITH UNEXPECTED SURGICAL OUTCOMES

Sometimes cataract surgery doesn't go quite the way it was planned. Here are a few tips for identifying complications and rolling with the punches.

BY SEAN W. SMOLENYAK, OD

The total number of global cataract surgeries performed each year is estimated to be more than 9.5 million.[1] Although no serious complications typically occur with this procedure, there is the occasional postoperative endophthalmitis,[2] and, less concerning but very common, inflammation. I discussed both of these in a previous article, which can be read here: bit.ly/MOD1121Smol.

This article covers the additional complications common to cataract surgery: namely, wound leaks; corneal edema; increased IOP, dislocated, decentered, or misaligned IOLs; and retinal issues. I explain how to identify these complications, why they occur, the role of the comanaging optometrist, and when and if patients need to be referred back to their surgeons.

WOUND LEAKS

Cataract surgery requires the creation of two incisions, a primary and a sideport. One of the most important details for the comanaging optometrist to check on postoperative day 1 is whether these incisions are sealed. This is easily done by swabbing the incision sites using fluorescein sodium and benoxinate HCl strips (multiple vendors). Keep in mind that an eye with normal or even elevated IOP and a well-formed chamber can still have a wound leak.

Small leaks are best managed with close observation, by applying a bandage contact lens, and/or by adjusting the patient's postoperative drop regimen. I sometimes have the patient stop taking the prescribed steroid (assuming he or she is using one) to allow faster scarring within the wound

but continue the NSAID to manage inflammation in the interim.

I prefer not to patch wound leaks for the following reasons:

- Patients are usually uncomfortable wearing a patch;
- Patients typically do not like the cosmesis;
- There is risk of putting too much pressure on the globe; and
- There's no visual feedback for the patient if things are worsening.

For leaks that don't seal in a timely manner (within 3 to 7 days) despite your best nonsurgical efforts, referral back to the surgeon is warranted. The addition of a suture or use of a sealant such as ReSure Sealant (Ocular Therapeutix) can be an easy surgical remedy.

Whether you are able to resolve a wound leak yourself or have to refer the patient back to the surgeon, be sure to inform the surgeon of the leak. If the surgeon sees a pattern developing, he or she might consider adjusting technique (wound architecture, incision size) or instrumentation (type of blade, etc.).

CORNEAL EDEMA

Corneal edema is a common finding in the days after cataract surgery. Sectoral edema (localized around the incision) often has to do with wound hydration and endothelial damage sustained during surgery, usually caused by a stray instrument touching the endothelium. Other factors that can contribute to edema include the amount of energy used during the procedure, existing corneal disease (eg, Fuchs dystrophy), retained lens fragment, and elevated IOP.[3,4]

In my experience, corneal edema is the most common cause of patient disappointment with the visual results from surgery in the immediate days after surgery. Often, education and encouragement will change the patient's mindset and reset expectations.

Treatment for lasting edema varies depending on its degree. Adding sodium chloride drops or ointments can speed up resolution, and I have also had success with increasing or extending steroid use to help resolve significant swelling. Vision, refraction, and, if necessary, serial pachymetry readings, are the best way to monitor progression.

INCREASED IOP

Most immediate postoperative IOP issues are related to elevated pressure, not hypotony. Risk of IOP elevation is increased with dense cataracts and complex cases, in patients with glaucoma or ocular hypertension, or in routine cases when remnants of viscoelastic material have been left in the eye, clogging the trabecular meshwork. If IOP elevation occurs in the second week after surgery or beyond, then usually the culprit is a steroid response.

Treatment varies depending on the degree of IOP elevation and the health of the optic nerve. Mildly elevated IOP with a healthy nerve and no symptoms can be managed by observation and will often normalize on its own. If IOP is highly elevated, if the nerve is at risk or already weakened by previous disease, or if the patient is symptomatic (nausea and headaches), treatment options include adding topical and/or oral hypotensives and burping the wound.

Burping the wound involves using sterile instrumentation to open one of the incisions, typically the sideport, to release fluid. Afterward, be sure to check the integrity of the wound, recheck IOP, and add a few drops of a topical antibiotic. Keep in mind, this procedure will usually cause only a temporary decrease in IOP, so adding a hypotensive medication to the regimen is indicated.

Because there are some risks (eg, iris or vitreous prolapse, IOL shift, endophthalmitis) associated with burping the wound, be selective about which patients truly need this procedure. If you are not comfortable with the idea of burping the wound, then you can address the high IOP with topical and/or oral medication and, if necessary, refer back to the surgeon in a timely manner.

Follow-up over the next few days is warranted, and in some cases repeated burping may be necessary. In a few cases, if you are unable to control the IOP in the immediate days after surgery, referral back to the surgeon for an anterior chamber washout might be necessary. However, in the approximately 40,000 postops I have handled over the past 20 years, I can count on one hand the number of patients who needed a washout.

Again, communicating an elevated IOP to the surgeon is necessary, especially if you see a pattern developing. In

AT A GLANCE

- If a complication develops, whether or not you are able to resolve it yourself, inform the surgeon. If it is part of a pattern, the surgeon may consider adjusting his or her technique or instrumentation.
- Factors that can increase the risk of corneal edema after surgery include wound hydration, endothelial damage sustained during surgery, the amount of energy used during the procedure, corneal disease, high IOP, or a retained lens fragment.
- Cystoid macular edema is the most common cause of decreased vision after cataract surgery.

dealing with steroid responders, appropriate adjustment of their medications will be necessary. Stopping the steroid or adding hypotensive medications are the best options in this instance.

Less often, the patient's IOP may *decrease* after surgery. This could be due to a wound leak; a change in angle anatomy, especially in eyes with shallow chambers; or a short axial length.

DISLOCATED, DECENTERED, AND MISALIGNED IOLS

A dislocated IOL can mean different things depending on the situation. In a clean, uncomplicated cataract surgery with an intact capsular bag, true dislocation or decentration is uncommon.

In complicated cases (eg, those involving broken or open capsules or IOLs placed in the sulcus with or without optic capture), the IOL may become dislocated or decentered. To lessen the effect of this decentration, many IOL manufacturers have added aspheric designs to their IOL optics, which helps to keep the power consistent from edge to edge.

Despite this, if the edge of the dislocated IOL bisects the pupil, distorted vision and/or diplopia can occur. Additionally, an anteriorly dislocated IOL can cause pupillary block, leading to elevated IOP or iris chafing, which can cause pigment dispersion and increased risk for secondary pigmentary glaucoma.

Proper centration and alignment of toric IOLs is especially critical to ensuring best vision after surgery. Remember that for every 1° of misalignment, effective cylinder correction decreases by 3%.[5] The effect is greater as the amount of cylinder increases, just as with toric contact lenses. Axis alignment is essential.

Toric or not, if a slightly decentered or dislocated IOL is having no negative consequences on ocular health or vision, then careful observation may be all that is needed. However, if the dislocation is adversely affecting the patient, then he or she should be referred back to the surgeon to address the problem. In some instances, further surgery to reposition an IOL or even an IOL exchange may be necessary. The key is to identify what is truly a problem that cannot be managed without surgical intervention.

RETINAL ISSUES

Floaters

For most patients, floaters after cataract surgery are a result of either their now-clearer media or debris from surgery. With the cataract gone and more light reaching the retinal surface, long-standing floaters and posterior vitreous detachments (PVDs) can be noticed more easily. Often a careful history and preoperative examination noting an existing PVD will alleviate fears of a new onset retinal detachment or PVD.

If a patient has received an injection of a compounded suspension such as triamcinolone acetonide/moxifloxacin (Tri-Moxi, ImprimisRx), complaints of floaters in the days after surgery are almost guaranteed. Luckily, these medications dissolve in the eye rather quickly.

Retinal Detachments

The risk of retinal detachment after cataract surgery is extremely low, with rates varying from 0.067% to 1.5%.[6] Risk factors include male sex, younger age, and higher myopia.[6] Be aware of patient complaints of increasing floaters, flashes, and peripheral vision loss.

CME

The most common retinal complication and most common cause of decreased vision after cataract surgery is cystoid macular edema (CME).[7] Risk factors for this vision-disrupting inflammation include vitreous loss or retained lens fragments during surgery, and a history of diabetes or uveitis. Estimates range from 1% to 19%, depending on how CME is defined.[7]

Clinical CME is essentially edema or thickening that is significant enough to cause a decrease in vision. In OCT or *angiographic CME*, the inflammation is seen on imaging but the patient's vision is not affected.

Treatment is usually necessary for clinical CME, and it can involve topical steroids and NSAIDs over a number of weeks with serial macular OCT testing to monitor response.

Comanaging optometrists should not be shy about initiating topical therapy and managing patients with CME initially. Automatic referral to a specialist is not always the first step. If a positive response is not elicited in a satisfactory time frame, then referral to a retina specialist for intravitreal injections of a steroid therapy or other therapies is a logical next step.

DEAL WITH THE OUTCOMES, COME WHAT MAY

Even with an uneventful cataract surgery, postoperative complications can occur. Most are not vision– or ocular health–threatening and can be easily handled by the comanaging optometrist.

With the increasing role of optometry in the comanagement of cataract surgery, a good understanding of the issues that can arise is fundamental to ensuring a smooth postoperative period and maximizing the final visual results. ■

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