

Why I Am Glad My Cataract Surgeon Offers Dropless Cataract Surgery

Benefits for the patient and the practice.

BY RICHARD B. MANGAN, OD

During my tenure as center director of a large comanagement practice, I decided it was time to bring together the cataract surgeons at our practice and our local key opinion leaders in optometry in hopes of reaching a consensus on one perioperative drop regimen for our patients. At the time, all six cataract surgeons had different drop protocols. Needless to say, this was confusing at times.

How hard could it be to arrive at consensus? Regardless of the drop regimen, all of our surgeons had excellent outcomes. Surely, we could get this done. So we met. And we met. And we met. Nine months later, still no consensus.

A few months later, one of our surgeons, Kevin T. Scripture, MD, returned from a meeting claiming he may have had an answer to my problem: “dropless” cataract surgery. He reported that Paul S. Koch, MD, had been awarded best paper of the 2005 ASCRS/ASOA symposium for his paper, “Intracameral injection studied to replace postoperative eye drops.” That paper described how, with a formulation of triamcinolone and gatifloxacin delivered intracamerally at the conclusion of cataract surgery, 1,100 patients were treated uneventfully, without infection, and without eye drops.¹

EVIDENCE HAS GROWN

In recent years, evidence to support the use of alternative methods for delivering antibiotics and steroids to the eye after cataract surgery has grown, while the need for added coverage with prescription eye drops has increasingly been questioned. A 6-year prospective study in Sweden looked at endophthalmitis rates with the administration of intracameral cefuroxime with and without adjunctive antibiotic drop therapy. The results were compelling. After nearly 465,000 cataract surgeries, the reported rate of endophthalmitis was 0.029%.²

Based on their study results, the authors determined that there were three chief risk factors for postcataract endophthalmitis: presence of posterior capsular rupture, patient age 85 years or older, and no use of intracameral antibiotics. Most relevant to this article was their opinion that perioperative use of antibiotic eye drops in combination with intracameral cefuroxime did not confer any clear-cut benefit.

Although the use of intracameral antibiotics at the conclusion of cataract surgery is gaining momentum, we employ a modified technique and formulation that addresses not only infection prophylaxis but also postoperative inflammation, including cystoid macular edema (CME).

DROPLESS

Using a proprietary formulation that combines triamcinolone and moxifloxacin (Imprimis Pharmaceuticals), approximately 0.1 to 0.2 mL of this drug is delivered into the anterior vitreous after the posterior chamber IOL has been implanted in the capsular bag. This combination antibiotic-antiinflammatory formulation is not delivered by pars plana injection. Rather, the medication is delivered transzonularly using a bent 27- or 30-gauge cannula via a previously established sideport incision. The advantages of intravitreal over intracameral delivery include delayed drug clearance and improved proximity of the steroid for CME prophylaxis.

Over the past 8 years, Dr. Scripture has performed approximately 20,000 cases using this type of formulation.

SURGICAL RISKS MINIMAL

Transzonular delivery of dropless therapy requires adopting a new technique using a 27- to 30-gauge cannula to inject the drug in the region between the equator of the capsular bag and the edge of the ciliary body. The main risk is related to delivering an insufficient dose through the zonules into the vitreous. In cases in which not enough drug has been delivered, supplemental steroid drops may be needed to address any postoperative inflammation that may occur. Once the transzonular delivery technique has been perfected, there is a very low incidence of breakthrough inflammation requiring treatment with drops. In a talk presented at the 2014 ASCRS meeting, Jeffrey T. Leigner, MD, reported that 95% of his patients healed without the use of supplemental steroids.³

Other anticipated complications such as intraocular pressure (IOP) spikes in steroid responders, zonular injury, vitreous presentation, and retinal detachment have not been seen in tens of thousands of cases reported by Dr. Scripture, James Lewis, MD, Dr. Leigner, and others. Surgeons using the dropless technique with premium IOLs are not seeing an increase in Z-syndromes, and toric lens malrotation has not been reported. In a high-risk population, the rate of CME with the dropless technique matched the rate in a similar population using a 3-week standard drop regimen (personal communication with James Lewis, MD, September 2014). The transzonular delivery technique for dropless cataract surgery is easily learned by a skilled surgeon, and the therapy provides clear benefits to patients.



POSTOPERATIVE CHALLENGES

Once the surgeon has refined the delivery technique, the postoperative management of dropless patients is not much different from that of patients using drops postoperatively, with a few exceptions:

Visual obscurations. With the dropless delivery technique, 99% of the time, patients will bring to your attention that they see floaters after surgery, particularly when prompted. While these are pronounced on postoperative day 1, by day 14 they are rarely noticeable. These observations are not complaints, as long as you or your surgeon prepare your patient ahead of time that these phenomena are to be expected.

IOP spikes after surgery. Any time steroids are injected into the vitreous, there is the potential risk for a steroid response and a prolonged spike in IOP. In my years of comanaging this technique, I have had just one true case of steroid-induced glaucoma. In most cases, the IOP spike is related to retained viscoelastic material. For dropless patients, we have found it to be effective and simply more convenient to add one IOP lowering agent (such as brimonidine tartrate) to manage the IOP as opposed to having to start the patient on two or possibly three drops after doing a paracentesis.

Inflammatory cells or triamcinolone particles. In approximately 2% of patients, residual cells can be seen in the anterior chamber at the 1-week postoperative visit. Often these eyes are quiet and show no evidence of true inflammation. However, as it can be difficult to discern inflammatory cells from residual triamcinolone particles, we usually start these patients on a topical anti-inflammatory agent, typically a nonsteroidal anti-inflammatory drug.

The doctors in our practice educate patients during their consultation visit that the intravitreal administration of these formulations eliminates the need for drops postoperatively in most cases. However, we note, there are times when drops still must be added. This emphasizes the importance of attending their scheduled postoperative appointments. We have found that, between managing intermittent IOP spikes and residual anterior chamber cell, patients have only an 8 to 10% chance of needing supplemental prescription eye drops after surgery.

FIVE REASONS

Here are the five reasons I am glad we started offering dropless cataract surgery, in no particular order:

No. 1. Assured compliance. When dealing with the geriatric population especially, there are a number of potential physical, mental, and situational barriers to eye drop adherence. With sound technique, compliance with dropless surgery patients is 100%.

No. 2. Reduced out-of-pocket expense.

The cost of prescription eye drops may be a burden for some patients. Some patients will stretch the doses of their eyedrops in hopes of avoiding the need for refills.

This formulation reduces this burden for patients, especially those that may be on a fixed income.

No. 3. Convenience. While going dropless may be more affordable than drops for patients seeking cataract surgery, in my experience this has not been the driving force for patients choosing dropless cataract surgery. Ultimately, we have found that it is the inconvenience associated with postoperative eye drops that has been the biggest barrier to patients having their cataracts addressed in a timely fashion. The dropless formulations solve this problem.

No. 4. Less confusion. Dropless surgery eliminates any confusion associated with the administration of eye drops. Less staff time is spent fielding questions about a patient's postoperative protocol, whether from the patient, the family, or the referring optometrist.

No. 5. Practice growth. Having to use eye drops is a tremendous barrier for patients. Any practice that can separate itself from the competition by offering dropless cataract surgery will in a very short time see its cataract surgical volume rise.

CONCLUSION

In our hands, dropless cataract surgery has been safe, effective, and ultimately beneficial for patients. ■

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