

MY SWITCH TO NEW NEEDLES FOR INTRAVITREAL INJECTION



How one small instrument change improved my patients' lives.

BY DAVID A. EICHENBAUM, MD

Intravitreal injections are the most common surgical procedures in ophthalmology. The volume of intravitreal injections has dramatically increased over the past decade, and there is no evidence of volume decreasing in the foreseeable future: The aging population requires treatment, and treatments under investigation for dry age-macular degeneration and complementary pathways use injectable medication.¹ The most common complaint we hear from patients after an intravitreal injection is discomfort related to the injection procedure. The most serious and feared injection-related risk is infectious endophthalmitis.

Injection pain is probably related to several factors, including a combination of aseptic preparation with topical ophthalmic povidone-iodine, potential corneal and/or conjunctival tissue trauma, fornix disbursement of anesthetic related to eyelid speculum placement, tissue trauma related to subconjunctival anesthetic administration, and the injection procedure itself. Postprocedure trauma may occur if the patient manipulates a heavily anesthetized eye after the injection. Randomized controlled trials have compared various anesthetic recommendations, and evidence supports both topical and subconjunctival anesthesia.^{2,3} There is also evidence that patients prefer bimanual eyelid retraction in lieu of lid speculum eyelid retraction.⁴

Risk factors for endophthalmitis after intravitreal injection have been thoroughly evaluated. Accepted practices for risk reduction include use of topical povidone-iodine, lid splinting to prevent eyelid-to-needle contact, respiratory droplet reduction, and hand hygiene.⁵ It has been suggested that anesthetic for the injection procedure should be applied copiously, well before povidone-iodine application, so as not to create a barrier between the povidone-iodine and the injection site.

Reported rates of endophthalmitis related to intravitreal injection are between 0.019% and 0.09%, similar to those for cataract surgery.⁶ There has not been a consensus recommendation on needle bore or bevel vis-à-vis endophthalmitis risk.

WHY I MADE THE SWITCH

I recently switched all of my intravitreal anti-VEGF injections to the

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AT A GLANCE

- ▶ With many patients experiencing injection-related discomfort, finding the right kind of injection needle is crucial.
- ▶ Improving patient tolerance to intravitreal injections may result in more satisfied patients and higher patient retention.
- ▶ Although existing intravitreal injection practices are safe, we can continue to study and adopt innovations that may improve injection safety.



Figure. A SteriCap needle (Ocuject; left) next to a standard 30-gauge needle (right).

SteriCap needle (Ocuject) with consideration for patient comfort and safety (Figure). The SteriCap needle has a short, 33-gauge sharply beveled cannula with a sterile spring-controlled shroud and integrated calipers (Video). The shroud protects the cannula from contact contamination from eyelids and eyelashes and prevents airborne contamination, neither of which is provided by use of a lid speculum or manual lid retraction. The shroud exerts minimal pressure onto the conjunctiva during intravitreal injections, does not leave a mark or imprint (such as those left by calipers), mechanically retracts with minimal pressure at the time of intravitreal injection, and covers the needle at the end of the injection.

In my practice, SteriCap needles have helped me achieve a number of goals.

Avoiding a Speculum

Although I have long had a preference for injecting with a bimanual lid retraction technique and no lid speculum, I find the shrouded needle helpful and convenient in giving me more confidence without a speculum in everyday practice. The shrouded needle ensures safety by putting a sterile mechanical barrier between the injection needle and the eyelashes and eyelids.

Patient Comfort

The smaller-bore needle (0.2 mm outer diameter) and extremely sharp bevel appear to noticeably improve patient comfort. I use lidocaine pledget anesthesia with almost all of my patients, and there has been a clear trend of improved patient comfort with and preference for the SteriCap needle.

Improved Safety

The shroud's design provides a useful injection positioning aid that ensures a safe injection location with the integrated 3.5-to-4.0-mm measuring mark, which is useful in a busy injection clinic. The shroud applies almost no pressure on the sclera due to the very low-force spring that keeps the needle covered by the shroud at all times. It also protects against airborne contamination of the needle. The smaller bore needle may impart improved safety with reduction of vitreous efflux or bacterial influx from the ocular surface. The literature supports the safety of intravitreal injection techniques using primarily 30-gauge needles, and the theoretical benefit of a smaller bore with regard to safety is yet to be determined.

ONE MINOR ADJUSTMENT, NUMEROUS BENEFITS

In my practice, improving patient tolerance of intravitreal injections has been a stepwise process. This improvement has translated to relatively happy patients and excellent patient retention. Over the past decade, I have transitioned from eyelid speculums to bimanual eyelid retraction, from subconjunctival anesthesia to viscous topical anesthesia and then to lidocaine pledgets, and from 30-gauge needles to SteriCap 33-gauge needles. Each step has improved my intravitreal injection protocol, and I plan to continually refine this, my most frequently performed procedure. I believe that converting to the SteriCap needle has been an advancement in my protocol, and the SteriCap merits further investigation of potential patient comfort and safety benefits. In the meantime, I encourage the retina community to give the needle a try. ■

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