



TECHNICAL TALK

KEYS TO SUCCESS WITH THE ISTENT INJECT



Strategies for optimizing surgical outcomes and managing patient expectations.

BY I. PAUL SINGH, MD

Safe and effective treatments for the growing number of glaucoma patients are always in demand, and developments in MIGS are proving to be advantageous for physicians and patients alike. This article describes some of the keys to success I have discovered for implanting the iStent inject (Glaukos).

VISUALIZATION

Proper visualization and an understanding of the landmarks of the angle are key foundational components of most MIGS procedures. The better the view, the more anatomic landmarks can be identified and the more straightforward and successful the MIGS procedure (Figures 1 and 2).

Newer gonioprisms facilitate the use of MIGS, but, even with most current gonioprisms, surgeons still need to hone their visualization skills. Surgeons must learn to turn the microscope and the patient's head as needed, to increase the magnification, to apply the appropriate amount of pressure on the cornea, and to use the optimal amount of OVD for visualization. For newer MIGS surgeons, I recommend practicing these gonioscopy skills ahead of their first MIGS procedure, ideally during routine cataract surgery.

With this procedure, the key is to achieve an en face view (Figure 3). If the surgeon views the trabecular meshwork (TM) through the gonioprism but it is pointing downward, then he or she should tilt the patient's head and/or the microscope until the TM is pointing at the surgeon. This will ensure the best angle to engage the TM.

PLACEMENT

In my experience, the surgical technique for implanting the iStent inject is intuitive and straightforward. The injector



Figure 1. With any MIGS procedure, visualization of the angle is key.

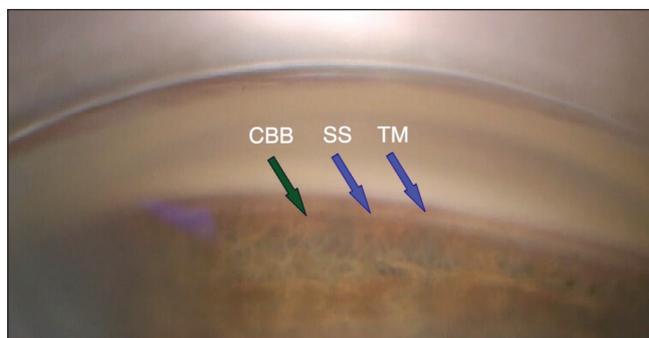


Figure 2. View of the angle, depicting the ciliary body band (CBB), the suprachoroidal space (SS), and the trabecular meshwork (TM).

approaches the TM not circumferentially but perpendicularly (Figure 4), so the surgeon does not need to turn his or her hand to advance the stent through the canal.

When implanting the device, the surgeon should engage the TM and push against the posterior wall of Schlemm canal until it dimples slightly to ensure that the stents

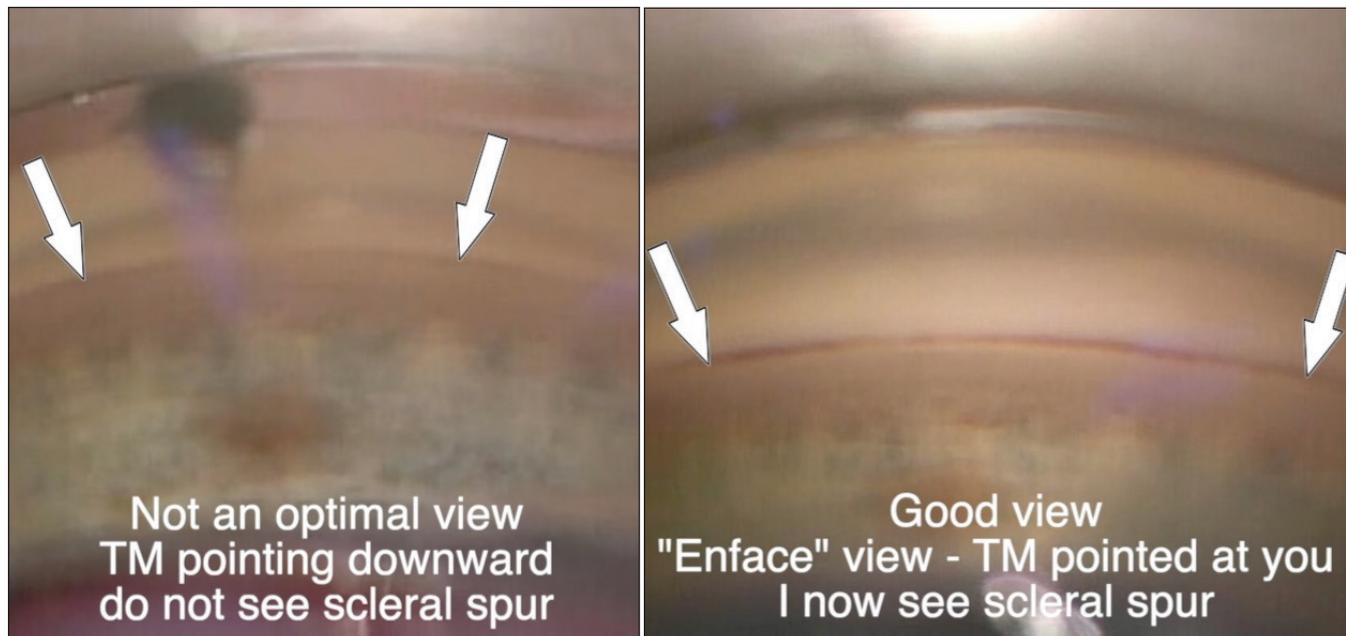


Figure 3. Gonioscopic view of the TM facing downward (A) and en face (B).

are implanted at the proper depth (Figure 5). It is not necessary to push hard enough to distort the angle—a simple dimpling of the tissue is sufficient. The stents can then be deployed by squeezing the release button on the injector. Holding the injector in place for a moment before pulling back provides enough time for the stents to fully release. Proper placement of the stents can be confirmed by blood reflux (Figure 6).

The injector allows four attempts to deploy the stents. Therefore, if a surgeon feels that the first stent is under-implanted (ie, the second stent is still in the loader), he or she can rethread the stent with the trocar and then reengage the TM, but with less pressure against the TM to redeploy the stent. This way, the second stent actually pushes the first stent through, thereby requiring less dimpling. This approach is known as the *flush technique*. If the second stent is under-implanted, the surgeon can rethread the stent and use the standard amount of pressure to dimple the TM.

In the event of over-implantation, the surgeon can use microforceps to gently pull out the stent from the canal or from deep in the TM. In these

situations, if I can no longer see a stent, I will let that stent be, place the other stent, and be content with that one stent. Other times, I may ask the technician to grab another iStent package, and then I can place a new stent if needed.

SURGICAL PEARLS

After insertion of the iStent inject, I find that eyes are typically quiet. My prescribed postoperative regimens are therefore similar to those with phacoemulsification alone. My patients are generally on a tapering dosage of a steroid for 3 to 4 weeks postoperatively, NSAIDs for approximately 4 to 6 weeks, and an antibiotic for 1 week. With some of the new formulations of loteprednol, I have adjusted my prescribed steroid regimen to twice daily for 4 weeks before stopping with no taper.

I have not found implantation of the iStent inject to induce additional swelling, inflammation, fibrosis, or irritation. Additionally, because the refractive targeting is similar to that of cataract surgery alone, I feel comfortable implanting toric IOLs, accommodating IOLs, and, for eyes with mild disease, extended depth of focus or

low-add multifocal IOLs.

In my practice, the reduction of IOP-lowering medications typically begins immediately after surgery. On postoperative day 1, glaucoma medications are ceased, and the patient is evaluated to assess the stents'

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iStent inject First Day



Dr. Singh shares pearls for implanting the iStent inject after performing the procedure in his initial group of patients.

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iStent inject With Premium IOL Implantation



Dr. Singh demonstrates use of the iStent inject following implantation of a Trulign Toric IOL (Bausch + Lomb).

▶ [BIT.LY/0120GTTT2](https://bit.ly/0120GTTT2)

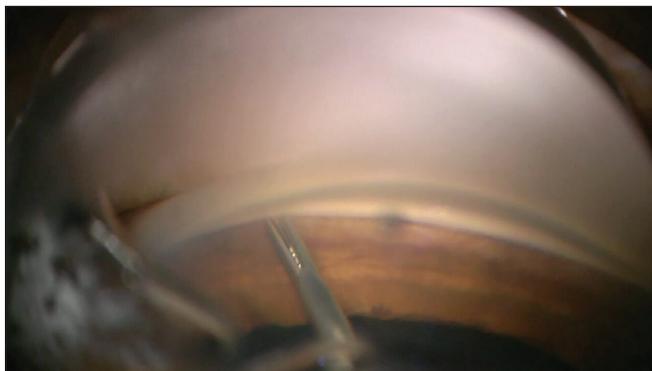


Figure 4. The iStent inject is implanted perpendicularly to the TM.



Figure 5. Engaging the TM and pushing against the posterior wall of Schlemm canal until it slightly dimples will ensure that the stents are implanted at the proper depth.



Figure 6. Proper placement of the device is confirmed by blood reflux.

efficacy. If the patient's pressure increases, drops can be reinstated, although this is rarely necessary. I have found IOP to be notably stable throughout the day following this procedure. Although adequate IOP reduction is essential, minimizing possible IOP fluctuation is a necessary and welcome benefit. I often receive more thanks from patients for reducing their drops than for improving their vision.

MANAGING EXPECTATIONS

Many patients, regardless of their chosen IOL type, expect rapid visual recovery. Although rare and less frequent than

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with many other MIGS procedures, blood reflux leading to hyphema can occur. If the surgeon sees significant blood reflux, he or she can pressurize the eye until active reflux is no longer seen and then slowly decompress the eye by burping the wound and releasing small amounts of fluid from the anterior chamber every 20 to 30 seconds down to physiologic IOP. This may take a minute or two, but it can help prevent postoperative hyphema.

As with any procedure, managing expectations is the key to maintaining high patient satisfaction. Placing value on decreasing postoperative glaucoma medications is important, but, for patients taking multiple medications or those with a fairly high baseline IOP, the goal may not always be to eliminate all medications, but rather to reduce IOP even with the medications or to maintain preoperative IOP but reduce the number of medications. The definition of success is different for each patient. For mild glaucoma, I tend to stop the glaucoma drops on postoperative day 1, which can help the cornea to heal by decreasing BAK exposure.

CONCLUSION

As the MIGS space grows and more treatment options become available, it is increasingly important for surgeons to understand the nuances of each device and the keys to their successful implantation. For the appropriate candidates and with the proper techniques, MIGS offers glaucoma specialists the ability to provide tangible benefits to their patients soon after treatment. ■

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