

MODERN OPTOMETRY

TARGETING THE TRABECULAR MESHWORK: COLLABORATIVE GLAUCOMA CARE

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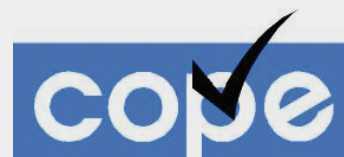
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Targeting the Trabecular Meshwork: Collaborative Glaucoma Care

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CONTENT SOURCE

This continuing education activity captures content from a webinar.

ACTIVITY DESCRIPTION

This supplement focuses on the comanagement of patients with glaucoma, specifically those who may be candidates for microinvasive glaucoma surgery (MIGS) procedures that target the trabecular meshwork, and the ways in which optometrists and ophthalmologists collaborate to provide the best pre- and postoperative care for these patients.

TARGET AUDIENCE

This certified CE activity is designed for optometrists involved in the management of glaucoma.

LEARNING OBJECTIVES

Upon completion of this activity, the participant should be able to:

- **Identify** and **understand** the advantages and disadvantages of trabecular, supraciliary, and subconjunctival MIGS procedures.
- **Describe** the efficacy and safety of trabecular and Schlemm canal MIGS procedures.
- **Identify** the patient characteristics that favor the use of trabecular and Schlemm canal MIGS procedures.
- **Adopt** optimal surgical techniques when performing trabecular and Schlemm canal MIGS procedures.

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To view the online version of the material, go to: <https://EvolveMedEd.com/1928-supplement-3>.

To view the full curriculum, including three webinars and three supplements, go to: <https://EvolveMedEd.com/course-group/targeting-the-trabecular-meshwork-goniotomy/>.



PRETEST QUESTIONS

Please review the following questions prior to accessing the material. Log onto <https://evolvemeded.com/1928-supplement-3> to complete the pretest and posttest to submit for CE credit.

1. Please rate your confidence in your understanding of microinvasive glaucoma surgery (MIGS) procedures (based on a scale of 1 to 5, with 1 being not at all confident and 5 being extremely confident).

- a. 1
- b. 2
- c. 3
- d. 4
- e. 5

2. Which statement is not consistent with the original definition of what constitutes a MIGS procedure?

- a. Ab-interno microincision
- b. Minimal trauma
- c. Excellent efficacy
- d. Rapid recovery

3. What is a differentiating factor between traditional and excisional goniotomy?

- a. Can be used to treat pediatric glaucoma
- b. Used to open an obstructed trabecular meshwork
- c. Performed under direct gonioscopy to visualize area
- d. Elevates and excises trabecular meshwork to access multiple collector channels

4. Following a MIGS procedure, patients should be advised they may have blurred vision (on average) for how long?

- a. 1 to 2 hours
- b. 1 to 2 days
- c. 1 to 2 weeks
- d. 1 to 2 months

5. Which of the following describes a patient best suited for a trabecular-based MIGS procedure?

- a. Mild to moderate disease
- b. Able to tolerate some medications
- c. IOP target of 15 to 18 mm Hg
- d. All of the above

6. According to the Centers for Medicare & Medicaid Services, the Medicare co-management fees for excisional goniotomy include ____% for the optometrist.

- a. 20%
- b. 80%
- c. 100%
- d. None of the above

Targeting the Trabecular Meshwork: Collaborative Glaucoma Care

This supplement summarizes a webinar available at <http://EvolveMedEd.com/online-courses/1928-web3>.

Like the supplement that follows, the webinar features Michael D. Greenwood, MD, and Justin A. Schweitzer, OD, FAAO, discussing excisional goniotomy, surgical pearls, and case studies. The faculty members also share their experience in providing the best pre- and postoperative care and tackle audience questions.

Targeting the Trabecular Meshwork: Collaborative Glaucoma Care

**Michael D. Greenwood, MD,
and Justin A. Schweitzer, OD, FAAO**

The term microinvasive glaucoma surgery (MIGS) describes ab interno procedures that are minimally traumatic to the eye, and have at least modest efficacy, an extremely high safety profile, and rapid recovery.¹ While MIGS procedures are not as efficacious as trabeculectomy or tube shunt surgery, they can lower intraocular pressure (IOP) enough to reduce dependence of a patient's need for topical antiglaucoma medications.

Iqbal I. K. Ahmed, MD, coined the term interventional glaucoma to describe an approach to treating glaucoma that is characterized by earlier intervention with more aggressive therapy.² MIGS is a key component of that equation, as it bridges the gap between the conservative, first-line therapies and the riskier, more invasive filtration surgeries.

A patient with mild-to-moderate glaucoma and a visually significant cataract, for example, is ideally suited to a combined phacoemulsification-MIGS procedure. With the safety profile and efficacy of MIGS, it makes sense to remove a cataract to improve a patient's vision and at the same time perform a MIGS procedure to help lower the patient's IOP and reduce his or her antiglaucoma medication burden.

Patients whose glaucoma is progressing despite their use of multiple topical medications are MIGS candidates, as are patients whose glaucoma is stable but who are intolerant of the topical medications or struggling to adhere to their drop regimen. The latter group may be experiencing ocular irritation and redness. They may be having difficulty instilling their drops correctly or remembering to use them. In these cases, we can intervene with a MIGS procedure to reduce their reliance on topical medications.

Ultimately, our goal is to enable our glaucoma patients to see for the rest of their lives, but no procedure, whether it's antiglaucoma drops, selective laser trabeculoplasty, MIGS, trabeculectomy, or a tube shunt, lasts forever. With these interventions, we are buying

time—4, 5, maybe 10 years—before we need to proceed to a more aggressive therapy. Regardless of where a patient is on the glaucoma continuum, MIGS will likely be a therapeutic option at some point.

Here, we discuss several MIGS procedures and the key aspects of collaborative care, which is crucial to their success.

CORNERSTONE OF COMANAGEMENT: COMMUNICATION

By definition, glaucoma is a progressive disease, and although we can slow its progression with various interventions, we can never stop it. According to the US Department of Health and Human Services, the glaucoma population in the United States is increasing and could top more than 6 million by 2050.³ With such a rapid rise in cases predicted, we could be facing a shortage of care.

Glaucoma is a multifactorial problem. Patients are living longer, which is fantastic. We have better treatments than ever, which is fantastic. As the number of patients increases and their disease advances, it's incumbent upon optometrists and ophthalmologists to communicate and work together to care for all of these patients.

Communication is a two-way street for effective comanagement. The ophthalmologist must share the treatment plan with the optometrist, and the optometrist must inform the ophthalmologist the extent to which he or she wishes to be involved in comanaging each case.

When referring doctors state up front what level of care they're comfortable delivering and what they expect from the ophthalmologist, both doctors benefit. Having clear communication on both sides results in effective continuity of care.

THE OPTOMETRIST'S ROLE

As primary eye care providers, optometrists know their glaucoma patients very well, having cared for them for extended periods. Part of their role is to explain the different therapies that are available, including what to expect if a surgery is indicated. It's also important to define the comanagement role of each doctor and reassure patients that their optometrist will manage their postoperative care.

An optometrist who discusses potential surgical interventions with a patient early in his or her care provides a service not only to

the patient but also to the ophthalmologist. The patient has time to think about the possibility of a surgery and process that information before arriving in a surgeon's office. If the optometrist and the ophthalmologist communicate before the patient is brought into the conversation, that helps ensure that both doctors are on the same page when discussing options with the patient.

MIGS now encompasses numerous procedures, which may or may not involve implantation of devices. Some must be performed at the time of cataract surgery, while others may be performed in phakic or pseudophakic patients and as standalone procedures. The following is an overview of various types of MIGS devices and procedures.

AQUEOUS FLOW/CANAL-BASED MIGS

Aqueous flow or canal-based procedures target the eye's natural outflow pathway. These are primarily stenting procedures, using either a trabecular micro-bypass stent (Glaukos) or the Schlemm canal microstent (Ivantis). Ideal candidates for these devices have mild-to-moderate glaucoma and a visually significant cataract, as both devices are FDA-approved for implantation only during cataract surgery.

- **Trabecular Micro-Bypass Stent.** Figure 1 shows a well-placed trabecular micro-bypass stent, which has been inserted through the trabecular meshwork (TM), is seated into position in the Schlemm canal, and connects with the anterior chamber. The stent, which is shaped like a snorkel, allows aqueous to exit into the canal.

The first trabecular micro-bypass device was approved by the FDA in 2012, so we have the benefit of numerous studies of these devices.

A meta-analysis published in 2018 compared IOP reductions in eyes that had phacoemulsification and a first-generation trabecular micro-bypass stent with IOP reductions in eyes that received the stent alone.⁴ Eyes in the stent-alone group had mean baseline IOPs of approximately 25 mm Hg. On average, these eyes had IOP reductions of more than 10 mm Hg. Eyes in the phaco-plus stent group, with mean baseline IOPs slightly lower than 20 mm Hg, had IOP reductions of about 4.5 mm Hg. These data correspond with results we've observed at our centers. The higher the baseline pressure, the greater the IOP reduction, whether the patient receives a stent alone or during cataract surgery.

The same study found that both groups were able to reduce the number of topical antiglaucoma medications they required. The reduction was greater in the stent-alone group, in which the patients

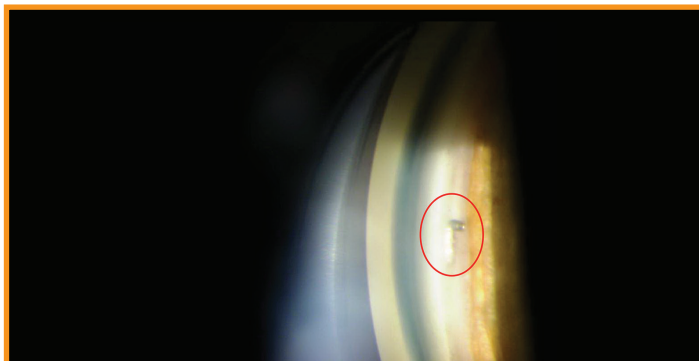


Figure 1. The trabecular micro-bypass stent is seated into position in the Schlemm canal to connect with the anterior chamber, allowing aqueous to exit into the canal.

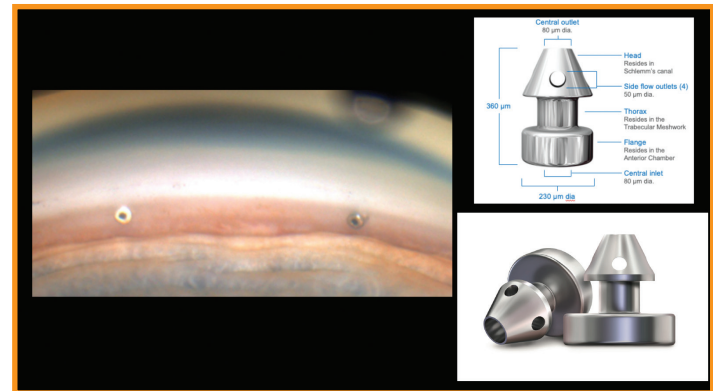


Figure 2. The second-generation trabecular micro-bypass system employs two stents placed about 3 clock hours apart.

	Stent + Cataract (n=369)	Cataract Only (n=187)
Baseline IOP (mm Hg) after washout	25.5 (+/- 3.0)	25.4 (+/- 2.9)
48 months medication free	65%	41%
48 months mean IOP (mm Hg) unmedicated	16.7 (+/- 3.1)	17.2 (+/- 3.2)
48 months mean IOP (mm Hg)	16.9 (+/- 3.3)	17.3 (+/- 3.4)
1 preoperative med	52.6%	54%
2 to 4 preoperative med	47.4%	46%

Rhee D. Four-year update of HORIZON. Presented at: American Glaucoma Society Annual Meeting; Feb. 27, 2020; Washington, DC.

Figure 3. At 4 years, about 65% of patients in the microstent plus cataract group were medication-free, and unmedicated IOP in that group was about 16.7 mm Hg.

were using more medications preoperatively. The study also looked at results after implantation of one, two, and three stents and found that IOP-lowering increased as the number of stents increased.

The second-generation trabecular micro-bypass systems (Glaukos) employ two stents placed about 3 clock hours apart (Figure 2).

In the FDA clinical trial, mean unmedicated diurnal IOP was 24.8 mm Hg preoperatively and 17.1 mm Hg 24 months postoperatively.⁵ An important take-away from this study is that baseline medicated IOP was 17.5 mm Hg; about 50% of these patients were using one medication, and 50% were using two to four medications. These studies also demonstrated that the trabecular micro-bypass system is as safe as cataract surgery alone.

- **Schlemm Canal Microstent.** The Schlemm canal microstent is somewhat larger than the trabecular micro-bypass stent. The microstent is an 8-mm scaffolding stent that dilates the Schlemm canal about three clock hours, and has an inlet that allows aqueous to flow through it into Schlemm canal. Because of its size, a portion of this microstent may be visible at the slit lamp without gonioscopy; however, confirmation of patency is possible only through a gonio lens. We encourage any clinician who is not comfortable performing gonioscopy to consult the various resources available, including gonioscopy.org and keogt.com, because this skill is crucial for managing patients before and after surgery.

Updated data from the HORIZON trial were presented at the American Glaucoma Society Annual Meeting in 2020 (Figure 3).⁶ This trial compared outcomes from microstent plus cataract surgery

versus cataract surgery alone. Microstent plus cataract surgery outperformed cataract surgery alone, and the safety profile was equal to cataract surgery. About 65% of patients in the microstent plus cataract surgery group were medication-free at 4 years, and unmedicated IOP in that group was about 16.7 mm Hg. Baseline IOP for both groups was approximately 25 mm Hg.

EXCISIONAL GONIOTOMY

Excisional goniotomy using a dual blade (New World Medical) is indicated for phakic or pseudophakic patients with mild-to-moderate glaucoma who may be intolerant of, or not well controlled by, topical antiglaucoma medications.

The dual-blade device is designed with a ramp that facilitates lifting and stretching the TM while the blades create parallel incisions for clean TM excisions (Figure 4).

Dual-blade excisional goniotomy allows aqueous to flow from the anterior chamber to the Schlemm canal and drain into the collector channels. Residual TM leaflets are minimized with this procedure. If adhesions are present in the Schlemm canal, removing a few clock hours of the TM will break up those adhesions, which is another benefit of this procedure.

Figure 5 shows the ocular anatomy after a dual-blade goniotomy. In the photo on the left, the bright white stripe is the anterior wall of the Schlemm canal. The anterior segment OCT shows that TM was removed; minimal residual leaflets are present, indicating that the system is patent.

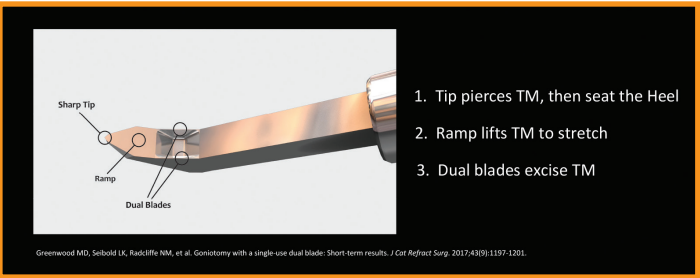


Figure 4. The dual blade device is designed with a ramp that facilitates lifting and stretching the TM while the blades create parallel incisions for clean TM excisions.

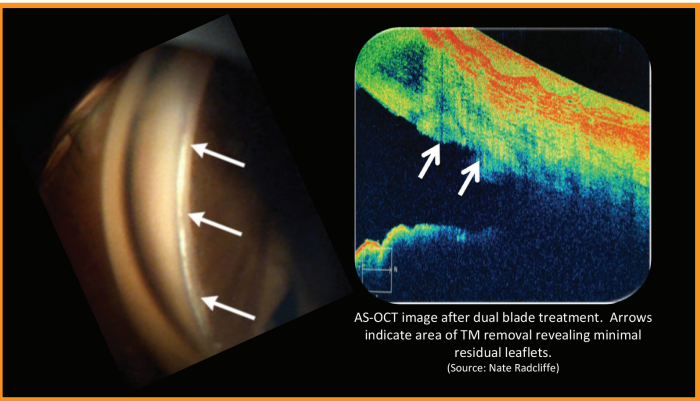


Figure 5. The bright white stripe in the photo at left is the anterior wall of the Schlemm canal. The OCT shows that TM was removed, and minimal residual leaflets are present.

In a study, patients with glaucoma and visually significant cataracts underwent phacoemulsification plus dual-blade goniotomy.⁷ Preoperative IOPs averaged 17.4 mm Hg and at 6 months postoperative, IOPs averaged 12.8 mm Hg, a reduction of 4.6 mm Hg. Medication usage was reduced from 1.6 to 0.9, a mean reduction of 0.7. Approximately 58% of eyes had IOP reductions of 20% or more from baseline, and many of these patients were able to stop at least one of their topical antiglaucoma medications.

In a similar study of cataract surgery plus goniotomy, 57.7% of eyes had a 20% IOP reduction from baseline at 12 months, and 63.5% of patients reduced the number of medications they were using by one or more.⁸ The median baseline IOP in this study was 16.5 mm Hg. In the group starting with a baseline of 16.5 mm Hg or lower, 15% had a 20% drop in IOP, and 85% eliminated at least one medication. In the group starting with a baseline of 16.5 mm Hg or higher, 100% achieved at least 20% IOP reduction, and about 40% reduced the number of medications they were using by at least one. Again, the

REIMBURSEMENT CONSIDERATIONS FOR ODs POSTEXCISIONAL GONIOTOMY

Excisional goniotomy is classified under CPT code 65820 and is described as follows:

“Trabecular meshwork is incised and/or excised with a blade or other tool to create an opening of Schlemm canal into the anterior chamber. The approach is internal via a corneal incision into the anterior chamber.”

Goniotomy can be performed as a standalone procedure or in conjunction with cataract surgery (66984).

With respect to the comanagement rules for Medicare billing, the global surgery package consists of preoperative care, intraoperative services, postoperative care (90 days), and in-office care for any postoperative complications.

The comanaging optometrist may bill for any medically necessary service within the 90-day global period. An example would be a patient who has elevated IOP after stent placement, and there is a concern that the stent is blocked. If an optometrist examines the eye with a gonio lens within the 90-day global period, that service can be billed.

Comanaging optometrists also receive the standard 20% comanagement reimbursement. The Table summarizes the average comanagement fees for excisional goniotomy in 2019.

TABLE. EXCISIONAL GONIOTOMY COMANAGEMENT FEES

Description (using 2019 national averages)	Professional Fee	Surgeon 80%	Optometrist 20%
Goniotomy	\$775	\$620	\$155
Goniotomy combined with cataract surgery	\$1,102	\$882	\$220

higher the baseline IOP, the greater the IOP lowering, but many of these patients were able to reduce their medications.

In a study of goniotomy as a standalone procedure, the majority of eyes were in the mild to moderate disease range.⁹ At 6 months, IOPs were reduced from mean 23.5 mm Hg to 15.0 mm Hg, and 68% of patients stopped at least one antiglaucoma medication.

Looking at subgroups by baseline IOP, those starting above 23 mm Hg saw a 46% IOP reduction and 1.3 medication reduction, while those starting below 23 mm Hg had more than 20% IOP reduction and almost one medication reduction.

In a different study extending out to 12 months, researchers looked at patients who had mild to severe open-angle glaucoma and were treated with excisional dual-blade goniotomy alone or in conjunction with cataract surgery.¹⁰ Mean baseline pressures of 21.6 mm Hg were reduced to 16.2 mm Hg, a reduction of 5.4 mm Hg or 25%. Medications were reduced from a mean of 2.5 to 2.0 or 20%. A key take-away from this study was that 86% of eyes (the majority with moderate to severe glaucoma) avoided more invasive glaucoma surgery during the 1-year postoperative period.

AB INTERNO TRABECULOTOMY PLUS VISCOCANALOSTOMY

Combined ab interno trabeculotomy and viscocanalostomy (Sight Sciences) can be performed as a standalone procedure or during

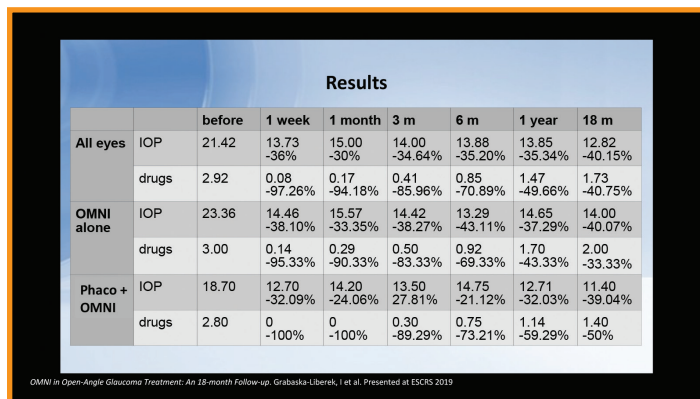


Figure 6. Summary of data from studies of combined ab interno trabeculotomy and viscocanalostomy, standalone and in conjunction with phacoemulsification.

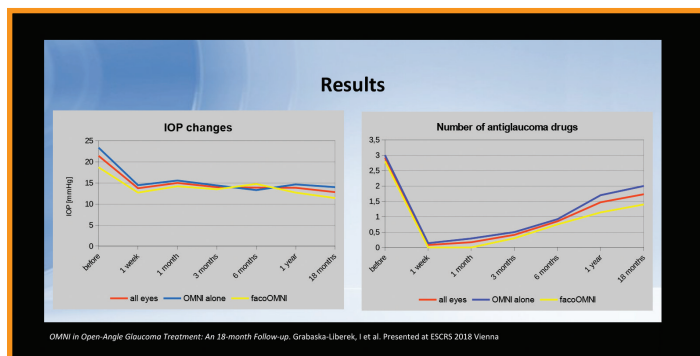


Figure 7. At 18 months, eyes treated with ab interno trabeculotomy plus viscocanalostomy had mean IOPs of 14.0 mm Hg; medications were reduced from three to two.

cataract surgery, and it can be titrated based on the severity of the glaucoma. This procedure targets three points of aqueous outflow resistance: the TM, the Schlemm canal, and the distal collector channels and can be performed 180° or 360°. The surgeon passes a microcatheter 180 degrees into the Schlemm canal. As it's retracted, it releases viscoelastic that flushes and opens the collector channels. On the last pass, the surgeon creates a trabeculotomy that opens and unroofs the TM, removing a potential barrier that would prevent aqueous from reaching the collector channels.

Figure 6 summarizes data from studies of the combined ab interno trabeculotomy and viscocanalostomy as a standalone procedure and in combination with phacoemulsification.¹¹ Preoperatively, mean IOP for all eyes was 21.4 mm Hg, and patients were using just under three topical antiglaucoma medications. At 18 months, IOPs for all eyes were reduced to just under 13 mm Hg, representing about a 40% reduction; medications were reduced to 1.7, which was about a 40% reduction.

As a standalone procedure, combined ab interno trabeculotomy and viscocanalostomy produced about a 40% reduction in IOPs and about a 33% reduction in topical antiglaucoma medications after 18 months. When performed with cataract surgery, IOPs were reduced to about 11.4 mm Hg, about a 40% reduction, and medications were reduced to 1.4, a reduction of 50%.

Figure 7 shows a different perspective. Eyes in the group treated with ab interno trabeculotomy and viscocanalostomy alone had mean IOPs preoperatively of 23.36 mm Hg. At 18 months, mean IOPs were 14.0 mm Hg. The number of medications decreased from 3 to zero at week 1, and rose as these eyes healed, settling at two medications at 18 months.

A recent study by Brown and colleagues once again underscores how baseline IOP influences postoperative results. In this study, baseline IOPs were greater than 22 mm Hg, on average, and ab interno trabeculotomy and viscocanalostomy lowered them by about 9.6 mm Hg.¹² Eyes with IOPs lower than 16 mm Hg at baseline achieved 0.5 mm Hg of IOP lowering.

POSTOPERATIVE CONSIDERATIONS FOR MIGS

The following questions often arise among optometrists who are caring for patients post MIGS:

1. When should topical antiglaucoma medications be stopped?

The timing may vary according to a doctor's preference, but we don't ever recommend stopping more than one medication at a time. Generally, if a patient is at target pressure 1 week postoperative, one medication can be stopped. Some doctors wait until the patient has completed a course of a steroid—about a month after surgery—before stopping an antiglaucoma medication. Note that patients with severe glaucoma are less likely to eliminate topical antiglaucoma medications entirely; while those with mild glaucoma may be able to stop topical medications altogether.

2. Are peripheral anterior synechiae a concern?

Peripheral anterior synechiae are not common after MIGS procedures. In the US pivotal trial of the TM micro-bypass stent, the

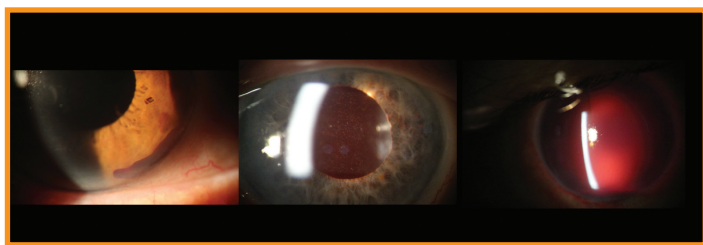


Figure 8. While hyphema usually resolves within a week, a patient with a hyphema (right) should be sent back to the surgeon as soon as possible.

incidence was 1.8% at 24 months, and in the HORIZON trial, it was 13% at 48 months.^{5,6} Despite the low incidence, it is important to perform gonioscopy postoperatively, particularly when stents are involved, to ensure the stent is patent. If something is plugging the end of a stent—a tuft of iris, for example—the surgeon may be able to dislodge it safely with a YAG laser and restore function.

3. Is hyphema problematic?

All MIGS procedures can induce some hyphema or microhyphema inside the eye. Postoperative hyphema should be monitored, as it will likely resolve in about a week. Figure 8 (center) shows what appears to be inflammation, but it's actually small red blood cells suspended in the anterior chamber, which should resolve within a week. The bottom right photo shows a significant postsurgical hyphema eye that will likely need an anterior chamber washout. That is a condition that can damage the eye, so returning the patient to the surgeon is imperative.

Hyphema after MIGS does not require the same treatment as traumatic hyphema. Bed rest is not necessary, nor are cycloplegic medications. Monitor these patients and reassure them that the condition will resolve on its own over time.

4. How should IOP spikes be handled?

The majority of IOP spikes usually can be managed with topical antiglaucoma medications. For more severe spikes, in patients with high risk or severe glaucoma oral acetazolamide can be added temporarily to lower the pressure. For high-risk or severe glaucoma

patients, anterior chamber decompression may be indicated. After decompression, the patient should use a topical antiglaucoma medication and should be seen within 24 to 48 hours.

5. Is ocular hypotony a concern with MIGS?

Ocular hypotony is extremely rare with the MIGS procedures we discuss here. None of these procedures bypasses episcleral venous pressure, ie, about 7 mm Hg to 11 mm Hg of backstop pressure, which is one of the reasons why they have a higher safety profile than filtering procedures.

6. When should new baselines be established?

About 3 months after MIGS, visual fields and OCT should be repeated, and target pressures reevaluated.

CONCLUSION

Glaucoma is both a medical and surgical disease, and in this era of interventional glaucoma, collaboration between the ophthalmologists and the optometrists caring for these patients is essential as we strive to balance efficacy and safety to preserve vision. ■

1. Saheb H, Ahmed IK. Micro-invasive glaucoma surgery: current perspectives and future directions. *Curr Opin Ophthalmol*. 2012;23(2):96-104.
2. Ahmed IK. Interventional glaucoma: the future is now and present. Presented at SECO Congress; February 20-24, 2019; New Orleans.
3. HHS (US Department of Health and Human Services). The U.S. health workforce chartbook: Part II: clinicians and health administration. Rockville, MD: HHS; 2013b.
4. Popovic M, Campos-Moller X, Saheb H, Ahmed IK. Efficacy and adverse event profile of the iStent and iStent Inject trabecular micro-bypass for open-angle glaucoma: a meta-analysis. *J Curr Glaucoma Pract*. 2018;12(2):67-84.
5. Samuelson TW, Sarkisian SR Jr, Lubeck DM, et al. Prospective, randomized, controlled pivotal trial of an ab interno implanted trabecular micro-bypass in primary open-angle glaucoma and cataract: two-year results. *Ophthalmology*. 2019;126(6):811-821.
6. Rhee D. Four-year update of HORIZON. Presented at: American Glaucoma Society Annual Meeting; Feb. 27, 2020; Washington, DC.
7. Greenwood MD, Seibold LK, Radcliffe NM, et al. Goniotomy with a single-use blade: short-term results. *J Cataract Refract Surg*. 2017;43(9):1197-1201.
8. Dorairaj SK, Seibold LK, Radcliffe NM, et al. 12-month outcomes of goniotomy performed using the Kahook dual blade combined with cataract surgery in eyes with medically treated glaucoma. *Adv Ther*. 2018;35(9):1460-1469.
9. Berdahl JP, Gallardo MJ, ElMallah MK, et al. Six-month outcomes of goniotomy performed with the Kahook dual blade as a stand-alone glaucoma procedure. *Adv Ther*. 2018;35(11):2093-2102.
10. Sieck EG, Epstein RS, Kennedy JB, et al. Outcomes of Kahook dual blade goniotomy with and without phacoemulsification cataract extraction. *Ophthalmol Glaucoma*. 2018;1(1):75-81.
11. Grabska-Liberek I, Duda P, Rogowska J, Majczyk-Ionescu J, Skowrya A, Kane I. Omni open-angle glaucoma treatment: an 18-month follow-up. Poster presented at the European Society of Cataract & Refractive Surgeons Annual Congress; September 14-18, 2019; Paris, France.
12. Brown RH, Tsegaw S, Dhamdhere K, Lynch MG. Viscodilation of Schlemm canal and trabeculotomy combined with cataract surgery for reducing intraocular pressure in open-angle glaucoma. *J Cataract Refract Surg*. 2020;46(4):644-645.

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