

# A Technological Impact to MIGS

New technology offers physiological flexibility by targeting all three points of resistance for MIGS procedures.

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Glaucoma is a leading cause of irreversible blindness affecting millions of Americans today. As a frontline approach to glaucoma management, microinvasive glaucoma surgery (MIGS) impressed me from the start. I found it offered new concepts of surgical interventions for many patients with the right mild-to-moderate glaucoma scenarios.

Not only has MIGS impacted glaucoma treatment worldwide, it has also positively affected my practice. I am performing more glaucoma procedures since passing the initial learning curve and have found a majority of the procedures fairly simple to perform. Benefits of MIGS include a high yield of positive patient outcomes, rapid postoperative recovery with minimal trauma to anatomy, and a reduction in stress and financial burden of daily treatment protocols. Notably, MIGS can be combined with cataract surgery for patients with mild-to-moderate glaucoma.

## PHYSIOLOGICAL EFFECTS OF GLAUCOMA

For cataract surgeons treating glaucoma patients, it is important to examine the physiology and pathophysiology of glaucoma. It is equally important to appreciate how and why MIGS procedures work. An understanding of the three points of resistance in the conventional outflow pathway is a key element. Understanding the natural outflow track, including the trabecular meshwork (TM), Schlemm's canal, and the distal collector channels leads to a greater appreciation for the procedure and enables a more thorough education for patients when explaining why additional surgical procedures are taking place and how it will affect their overall eye health.

In MIGS today, there are several surgical targets: the TM, the ciliary body (such as endocyclophotocoagulation), and

ab interno approaches to the subconjunctival space. What is important for physicians to consider with the conventional outflow pathway is the expected benefit of targeting all three points of potential resistance. This is an interesting and appealing approach that is intended to direct fluid toward its natural flow points. I like targeting all three areas of potential resistance in the conventional outflow pathway because I feel that it provides a more comprehensive approach versus just targeting one or two areas of conventional outflow resistance.

## FLEXIBILITY OF SURGICAL INTERVENTIONS

With the advent of MIGS, there are now a number of implants, such as the iStent Trabecular Micro-Bypass (Glaukos) and the Hydrus Microstent (Ivantis), that are indicated to target the conventional outflow pathway in specific patients with mild-to-moderate primary open-angle glaucoma at the time of cataract surgery only. There are also a number of devices indicated to perform surgical procedures targeting the conventional outflow pathway, such as the Kahook Dual Blade (New World Medical) and the OMNI Surgical System (Sight Sciences). The OMNI Surgical System enables the surgeon to perform two procedures, including transluminal viscoelastic delivery and a titratable trabeculotomy, which target all three potential points of resistance in the conventional outflow pathway. What makes the OMNI Surgical System an ideal surgical intervention technology is the flexibility it allows to enable you to meet your surgical plan. This flexibility allows a physician to titrate toward a predetermined, desired outcome. For example, if I am operating on a patient with mild-to-moderate glaucoma, then I may perform a 360° transluminal viscoelastic delivery

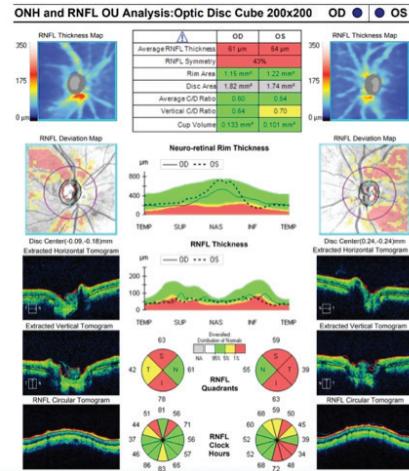


Figure 1. Patient case study OCT analysis.

and 180° trabeculotomy. This type of flexibility leaves us with future options if additional surgical interventions are needed.

There are several important functions of the OMNI Surgical System. First, it can be used to perform MIGS procedures with or without cataract surgery. Many of the MIGS devices available today are only approved to be used in conjunction with cataract surgery. Secondly, I have found the OMNI Surgical System offers a strong option for many patients, assuming they have a good open angle. I do not have to worry about leaving hardware behind since it is an implant-free option. Lastly, the two procedures OMNI performs are great options for a growing number of cataract (and pseudophakic patients) on one or more IOP-lowering drops or for cataract patients who have had less invasive interventions such as selective laser trabeculoplasty.

## SELECTING FOR SUCCESS

I think the best patients to perform transluminal viscoelastic delivery and titratable trabeculotomy on with the OMNI Surgical System are those

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needing cataract surgery who have mild-to-moderate primary open-angle glaucoma. In general, if you are performing any TM procedure, you need to make sure before surgery that you are able to get a good view of that angle intraoperatively. In my experience, transluminal viscoelastic delivery and trabeculotomy patients do not require much follow-up especially on patients undergoing concurrent cataract surgery. In general, I do not change my follow-up regimen from my cataract surgery patients.

## ACHIEVING MY SURGICAL PLAN MEANS HAPPY PATIENTS

In my experience, utilizing the OMNI Surgical System to perform transluminal viscoelastic delivery and a trabeculotomy, patients report being satisfied with the surgical outcome. If you have a patient who does not need glasses anymore after cataract surgery, they are happy. If you have a patient on glaucoma medication for a significant amount of time, they may be burdened with the compliance of taking daily medications and the financial burden of monthly copays. With postoperative control of their glaucoma, the need for drops may be reduced, the financial burden can be decreased, and the constant concern of compliance may be eased. This leaves patients extremely happy.

## A CASE STUDY

Recently, a 75-year-old black woman presented with a history of glaucoma and needed cataract surgery as well. This patient had a history of noncompliance with drops. On examination this patient

was noted to have an enlarged cup-to-disc ratio and testing consistent with moderate glaucoma. Her initial IOP in her right eye was 32 mm Hg with a central corneal thickness of 510 µm (Figures 1 and 2). Target IOP was 19 mm Hg. On latanoprost, her IOP decreased to 25 mm Hg.

We offered her the option of MIGS at the time of her cataract surgery. This is an option given to all open-angle glaucoma patients; we do explain that cataract surgery alone will decrease IOP some. However, in this particular patient, cataract surgery alone would not have decreased the IOP sufficiently. Because of the patient's insurance, options were limited to endoscopic cyclophotocoagulation, transluminal viscoelastic delivery, or trabeculotomy.

Because the patient is black, I was concerned that endoscopic cyclophotocoagulation may pose a higher risk of a postoperative inflammation. In this case I chose to perform cataract surgery and both transluminal viscoelastic delivery and a titratable trabeculotomy with the OMNI Surgical System.\* The patient's postoperative IOP on latanoprost is now 18 mm Hg with a BCVA of 20/20. There were no postoperative complications, and the patient is very happy with her improved vision and controlled IOP.

## CONCLUSION

We are living in exciting times where more viable microinvasive treatment options are becoming available at an increasing rate. What excites me most about the OMNI Surgical System is that it works within a minimum risk profile, it creates a capability to target all three

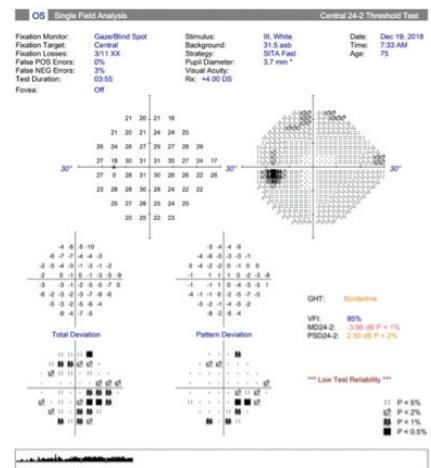


Figure 2. Patient case study single-field analysis.

points of resistance in the conventional outflow pathway, and it allows more versatility in how I manage my glaucoma patients. From a practice management perspective, the OMNI Surgical System facilitates procedures covered by established Category 1 coding, which allows for streamlined reporting and payment. With the ability to target all three points of potential resistance in the conventional outflow pathway, it is safe to say the OMNI Surgical System provides an exciting technological advancement to the field of MIGS. ■

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- Financial disclosure: Consultant (Alcon, Allergan, Glaukos, Novartis, Sight Sciences)

### Indications for use

The OMNI™ Surgical System is a manually operated device for delivery of small amounts of viscoelastic fluid, for example Healon® or HealonGV® from Abbott Medical Optics (AMO), Amvisc® from Bausch & Lomb, or PROVISC® from Alcon, during ophthalmic surgery. It is also indicated to cut trabecular meshwork tissue during trabeculotomy procedures.

### Warning

The OMNI™ System should not be used in cases where there is insufficient visualization of the anterior chamber. The following conditions may prohibit sufficient visualization required for safe and successful cannula and microcatheter placement: corneal edema, corneal haze, corneal opacity, or any other conditions that may inhibit surgeon view.

### \*Disclaimer

The views of Dr. David Goldman are his own and represent his view in the practice of medicine. This case study may not be

representative of the results other surgeons may observe with other patients when using the OMNI™ Surgical System. The OMNI™ Surgical System is cleared (indicated) by FDA for the uses set forth above. While the OMNI system is not specifically cleared for transluminal canal dilation, there is support for its use (and the use of one of its parent devices, the VISO360) in transluminal canal dilation in the literature and medical textbooks. In addition, ab interno trabeculotomy, for which it is FDA-cleared, is referred to as a MIGS procedure in the literature, medical textbooks, and dictionaries. Please visit [omnisurgical.com](http://omnisurgical.com) to access published literature about these uses.

For additional Important Safety Information, please visit [omnisurgical.com](http://omnisurgical.com)

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