

Early Experience With the OMNI Surgical System



Targeting all three points of resistance can restore physiological outflow.

BY DAN LINDFIELD, BM, MRCOPHTH, PGCE, FRCOPHTH

The emergence of interventional glaucoma and MIGS has ushered in a new paradigm in glaucoma management. This group of procedures provides us with the ability to intervene surgically much earlier in the patient journey through glaucoma progression. Surgery is therefore no longer the last step but rather an intermediate step. MIGS procedures can improve patients' quality of life, reduce the medication burden, and even improve the ocular surface. Considering these procedures earlier in the disease state can be a win-win for patients and practitioners.

BACKGROUND

Compared with traditional penetrating glaucoma procedures, MIGS is less invasive and has a more favorable safety profile. With MIGS, we can now access the same safe and effective IOP outcomes that nonpenetrating glaucoma surgery allows but from an ab interno approach, leaving the conjunctiva undisturbed and potentially reducing surgical case time. MIGS maximizes the existing outflow without causing collateral impact. Logic dictates that a 360° treatment may therefore provide additional benefits over more focal meshwork/canal surgical approaches.

MIGS commonly targets the conventional outflow pathway, but most procedures work in one or two locations at most. It is currently not possible, however, to identify the specific areas of outflow resistance in a glaucomatous eye with in-vivo diagnostic testing. It is estimated that 50% to 70% of total outflow resistance occurs within the trabecular meshwork (TM)^{1,2} and 30% to 50% within Schlemm's canal and the collector channels.^{3,4} The most reasonable surgical approach therefore is one that can address all three sources of physiological outflow resistance rather than targeting one or two potential areas of blockage. The OMNI Surgical System (Sight Sciences; Figure 1) is a relatively new surgical device and the only one that combines two ab interno treatments—canaloplasty and trabeculotomy—in a single procedure (Figure 2). While the microcatheterization of Schlemm's canal for viscodilation or trabeculotomy has been performed both ab externo and ab interno using other types of devices, the OMNI allows the procedures to

be performed sequentially in the same surgical session using a single corneal incision with a single device. Further, 180° or 360° viscocanaloplasty plus/minus 180° or 360° trabeculotomy can be performed to titrate the level of surgery to your desired IOP outcome. Additionally, the OMNI device delivers a controlled amount of viscoelastic reducing inter-surgeon and inter-procedure variation. The device seems versatile and can produce noticeable IOP-lowering results with reduced medication use.

GETTING STARTED

As the effectiveness of MIGS increases and as devices such as the OMNI Surgical System take a more comprehensive approach to restoring physiological outflow, I think the use of MIGS with and without cataract surgery will expand further.

The surgical learning curve with MIGS is not long. For OMNI, for example, most glaucoma and even cataract surgeons can get up to speed in about 10 cases (Figure 3). What might take a little longer to grasp, however, is choosing the right patient. Being honest with yourself and with your patient about what you're trying to achieve is one of the biggest pitfalls of getting started with MIGS. I recommend starting with patients with open angles who are likely to respond well to a target pressure between 15 and 17 mm Hg. On the contrary, patients with narrow angles or a shallow anterior chamber do not make ideal candidates for early experience with MIGS. Technically, the procedure is much harder when working in a narrow angle. Patients with greater drainage angle pigmentation

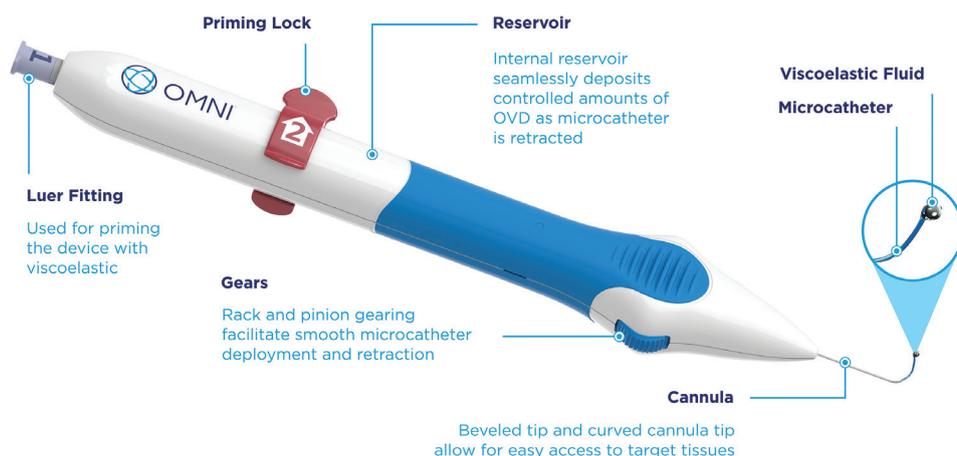


Figure 1. The OMNI Surgical System.

Figures 1-3 courtesy of Sight Sciences

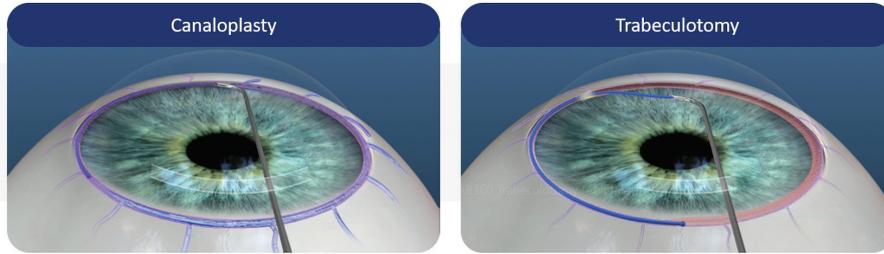


Figure 2. Two distinct implant-free procedures in one device.

rather than paler TM structures are best to start with so the angle landmarks are easier to differentiate.

Getting used to gonioscopy is key to MIGS. First, experiment preoperatively by fitting the gonioscope to just visualize the angle at the end of a cataract case. Think to yourself, “If I were to use OMNI or any other MIGS device, where would it go?”

Also, be aware that hyphema and inflammation affect the angle. I use adrenaline, a potent vasoconstrictor, in my irrigating solution to reduce the risk of bleeding. I also use intracameral phenylephrine prior to insertion and intracameral dexamethasone at the end of the case, which help to keep the eye calm and suppress inflammation on day 1 postoperative. I also do not leave the table until I see any hemorrhage stop, and I usually opt to give MIGS patients a little more steroid than I would for a routine patient. I always prescribe an NSAID to reduce the risk of postoperative macular edema, and I always reduce medications in a stepwise sequential way over time in order to reduce the risk for a pressure spike.

The beauty of nonstenting procedures such as OMNI is that you can see them going into Schlemm’s canal, and they almost let you know when they’re in the right place because the device will not slide a lot. It is much harder to get the same feeling with stenting devices. The OMNI is an elegantly designed device that enables easy access to Schlemm’s canal through a single corneal incision.

CLINICAL USE

The OMNI is one of the only MIGS devices that may be used in both concomitant cataract surgery and in a standalone application. I find OMNI has a role in both situations. Some angles will

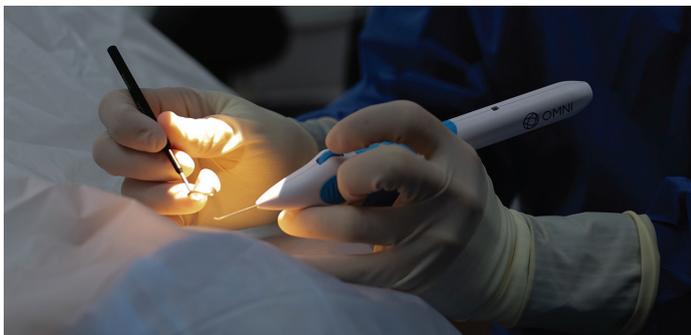


Figure 3. A surgical procedure with the OMNI Surgical System.

require phacoemulsification to allow easy access. Additionally, if angles are tighter than standard, removing the lens will likely improve the IOP outcome. I’m happy to use OMNI in eyes for which IOP reduction is my main goal and the lens doesn’t need to come into play.

For patients with open-angle glaucoma who require cataract surgery, I add OMNI to essentially

reduce their eye drop burden in the long term. This approach also has the benefit of cost-effectiveness for the health care system.

OMNI seems to be an effective procedure on its own and doesn’t necessarily require the cataract surgery effect to help augment the pressures. When used as a standalone procedure, the OMNI works best in primary open-angle glaucoma in eyes that have not undergone a previous trabecular stenting procedure. It needs to be an untouched angle, both internally and externally. Ideally, standalone OMNI procedures should be performed in low-risk eyes. Patients should have high-normal or above normal (18–24 mm Hg) IOP and be on one to two IOP-lowering medications.

I recently analyzed my 6-month data with the OMNI. Most patients experience about a 50% reduction in medication and pressures in the mid-teens.

CONCLUSION

Interventional glaucoma has revolutionized the way in which we care for patients. We now have tools that allow us to intervene earlier in the disease state and reduce the medication burden for patients.

Innovations such as MIGS are cost effective and safe. For glaucoma patients who’ve tried medication and are intolerant, noncompliant, or physically can’t get medication in their eyes, a standalone procedure such as OMNI is an effective option for them. Likewise, for glaucoma patients who are scheduled for cataract surgery, a procedure like OMNI can help to reduce their medication burden long term. ■

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- Financial disclosure: Consultant (Alcon, Allergan/Abbvie, VisionEngineering); Honoraria (Alcon, Allergan/Abbvie, EndoOptiks, Novartis, Sight Sciences, Spectrum, Thea)

IMPORTANT PRODUCT INFORMATION

INDICATIONS FOR USE: The OMNI™ Surgical System is indicated for the catheterization and transluminal viscodilution of Schlemm’s canal and the cutting of trabecular meshwork to reduce intraocular pressure in adult patients with open-angle glaucoma. For important safety information including contraindications, warnings, precautions and adverse events, please visit omnisurgical.com.