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Cataract & Refractive Surgery Today

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COMBINED CANALOPLASTY AND CATARACT SURGERY: Considerations for Implementation and Adoption



In part two of a series, **William F. Wiley, MD**, explains why addressing two problems at once doesn't have to be complicated.

Whenever we do “something extra” during cataract surgery, we want to make sure it is truly adding to the surgery, whether that is better safety, improved efficiency, or enhanced outcomes. Equally important, we do not want anything we add, no matter how beneficial, to be complicated or time consuming.

Fundamentally, when we add MIGS to cataract surgery, the “something extra” is treating two co-existing conditions at the same time with interventions that function synergistically to give patients improved postoperative vision and better long-term control of IOP (as the only modifiable risk factor in glaucoma). More specifically, when we add iTrack Advance (Nova Eye Medical) to cataract surgery, we are addressing the anatomy within the conventional outflow pathway at three anatomic locations—the Schlemm canal (SC), trabecular meshwork (TM), and collector channels—with a 360° treatment that functions to restore natural physiologic outflow. Those benefits are additive to the well-known IOP-lowering effect of cataract surgery with phacoemulsification alone.

But what about the practical questions: Is it a difficult procedure to master, and will adding it to one's surgical protocol in any way diminish what is done during the cataract surgery?

From my experience, iTrack Advance incorporates seamlessly into a cataract operation. Additionally, rather than diminishing the effects or results of cataract surgery, there are several ways in which it enhances the experience. For example, in combined procedures, knowing I have done something for the glaucoma gives me comfort that I am guarding against postoperative pressure spikes.

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At a very topline, during an iTrack Advance procedure, a microcatheter is threaded through the SC up to 360° via a handpiece, then retracted while delivering viscoelastic. The actual steps of the procedure are straightforward; it's really just a matter of getting comfortable through repetition. Below, I explore a few nuances I have learned in my journey with iTrack Advance that may help other surgeons be successful with this procedure.

PREOPERATIVE CONSIDERATIONS

Before any operating can be done, it is important to properly position yourself and the patient. The ideal angle between the



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patient’s head and the microscope is between 60° and 90°, which can be achieved either by tilting the head or the microscope. Personally, I prefer to adjust the patient’s head and use the iTrack Advance handpiece to further tilt the eye slightly, in effect achieving both a head tilt and eye tilt as I maneuver through the steps.

The surgeon’s physical comfort is important when performing any operation. In the context of the iTrack Advance, there is a need to use the nondominant hand to hold the goniolens, meaning that the surgeon needs to be in a position that frees both hands to move in a precise, predictable, and careful manner. Using a goniolens intraoperatively is not at all complicated, but some training surgeons under my guidance have told me they struggle with this aspect in early cases. I’ve relayed that performing gonioscopy, and using it intraoperatively, is a skill that can be acquired, and it can actually be practiced when examining patients in the clinic.

BEFORE VERSUS AFTER CATARACT SURGERY

Whether a surgeon prefers to do an iTrack Advance procedure before or after the cataract portion of the operation really comes down to personal preference. There is no right or wrong sequence, and it may be preferable to start with one or the other in certain situations. Of course, performing iTrack Advance in a standalone setting, depending on patient requirements, obviates the question.

All things being equal, I prefer to start with the iTrack Advance when the cornea is clear and visualization is most ideal. Although that means I do not have a sideport already started, the paracentesis for the iTrack Advance microcatheter can be as small as 1.0 mm. Such a small opening facilitates a closed system, minimizing the risk for egress from the anterior chamber. That becomes a factor later when viscodilation is performed (see Sidebar: 5 Key Steps to the iTrack Advance Procedure). During that portion of the procedure, the viscoelastic has only one direction to go (ie, back into the collector channels), and so there is instant feedback in the form of blanching of the episcleral venous system.

BENEFITS OF THE ITRACK ADVANCE

Safety is a concern in any surgical procedure, but one of the great things about the MIGS class is that it is specifically intended to be safe and so we can use the various MIGS procedures to intervene earlier, surgically, in cases of mild to moderate glaucoma. There is a theoretical risk of damaging the angle with iTrack

Advance if the microcatheter is misdirected; however, the device has been designed with a few considerations in mind that provide additional comfort to the operating surgeon.

Perhaps the most recognizable feature of the iTrack Advance microcatheter is the blinking beacon on the tip, which provides real-time feedback on the location of the microcatheter as it is navigated through the canal. It lets the surgeon know instantly if the microcatheter has moved posteriorly and allows the surgeon to quickly adjust the approach to avoid breaching the canal. If obstructions are encountered during intubation, the blinking light will let the surgeon know exactly where they are occurring, at which point viscodilation can be performed (without introducing an additional instrument) or the device retracted for a pass in the opposite direction.

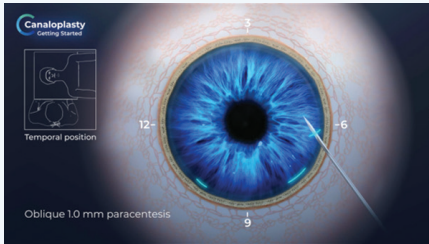
“The techniques of the iTrack Advance procedure literally build upon what has already been mastered in performing cataract surgery.”

Because the iTrack Advance features a rotating nozzle, the microcatheter can be set up to advance in a clockwise or counterclockwise fashion—and this also makes it ergonomically friendly for right- and left-handed surgeons alike. Meanwhile, unlike other canaloplasty devices on the market, the microcatheter advances for the full 360° of the canal via a single intubation, which minimizes instrument passes compared to navigating only 180° at a time. Indeed, the iTrack Advance has been designed as an all-in-one device, with all steps of the procedure—intubation, retraction, and viscodilation—performed in a single sequence.

Finally, some may look at the fact that OVD delivery is performed by another person in the room as a negative. I prefer it because my attention is free to focus on the case. It does not need to take much effort to coordinate delivery when needed; we use a simple counting system in our OR. As a result, I feel I am more precise with OVD delivery, as opposed to less.

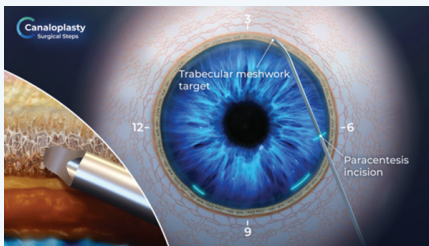


5 Key Steps to the iTrack Advance Procedure



1. Cut the paracentesis

- As small as 1.0 mm

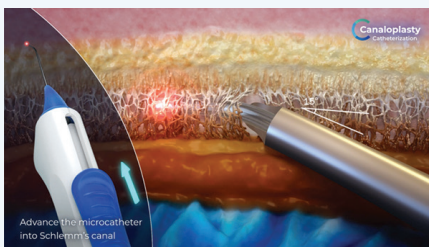


2. Fill the anterior chamber (AC) with viscoelastic

- In addition to pressurizing the AC, this helps to tamponade any heme if present

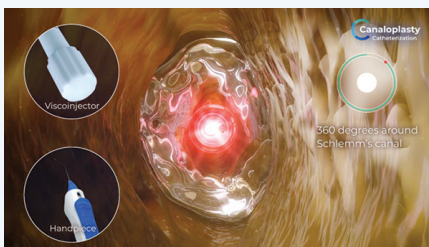
3. Introduce the microcatheter

- Target the anterior portion of the pigmented TM to create the TM incision, which will guide the microcatheter to follow the natural curvature of the canal upon intubation
- Take note of the angle of the cannula upon insertion: ideally, the tip of the cannula is inserted into the incised TM tissue at a slight 15° upward angle



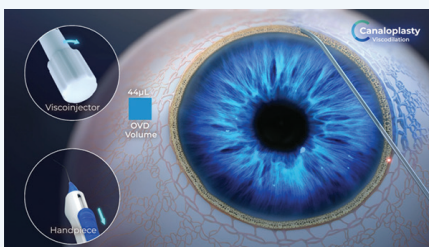
4. Advance the microcatheter in the forward direction

- This action mechanically breaks herniations in the canal (the first mechanism of action)
- The lighted tip provides feedback on location
- In case of herniations, OVD can be delivered, or else the microcatheter can be reversed, the head nozzle rotated, and then advanced in the opposite direction



5. Retract the microcatheter while introducing viscoelastic (“viscodilation”)

- This action introduces the second and third mechanisms of action, dilating and stretching the canal while flushing the collector channels, while also creating micro-perforations in the TM
- Because the actual delivery of OVD is performed by a technician, the surgeon's hands and attention are free to focus on the case
- In my clinic, I simply count aloud as I am retracting, signalling to my technician to perform a “click” with the Viscoinjector: ie, push the actuator to deliver the OVD
- Viscoelastic delivery is titratable, and the needs of the case will dictate how much to perform; in general, I aim for 9 clicks per quadrant, or 36 total clicks around the 360° circumference of the canal



Scan the QR code to learn more about
iTrack Advance





CONCLUSION

The perception that canaloplasty is a fussy procedure may be a holdover from the days when the surgery was performed ab externo. Modern canaloplasty, performed ab interno, owes its heritage to that surgery, but it is vastly different. And with the iTrack Advance, the steps of the procedure have been further streamlined to make it even friendlier to adopt and use in practice.

The techniques of the iTrack Advance procedure literally build upon what has already been mastered in performing cataract surgery. The biggest obstacle may be a need to refresh knowledge of

the angle anatomy, and perhaps a need to hone up on goniotomy skills. Otherwise, the steps are well within the skillset of any comprehensive ophthalmologist or cataract surgeon. ■

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The iTrack™ Advance has a CE Mark (Conformité Européenne) and US Food and Drug Administration (FDA) 510(k) #K221872 for the treatment of open-angle glaucoma.

INDICATIONS: The iTrack™ Advance is indicated for fluid infusion or aspiration during surgery. The iTrack™ Advance is indicated for catheterization and viscodilation of Schlemm's canal to reduce intraocular pressure in adult patients with open angle glaucoma.

CONTRAINDICATIONS: The iTrack™ Advance is not intended to be used for catheterization and viscodilation of Schlemm's canal to reduce intraocular pressure in eyes of patients with the following conditions: Neovascular glaucoma; Angle-closure glaucoma; Previous surgery with resultant scarring of Schlemm's canal.

ADVERSE EVENTS: Possible adverse events with the use of the iTrack™ Advance include, but are not limited to: hyphema, elevated IOP, Descemet's membrane detachment, shallow or flat anterior chamber, hypotony, trabecular meshwork rupture, choroidal effusion, Peripheral Anterior Synecchia (PAS) and iris prolapse.

PRECAUTIONS: The iTrack™ Advance should be used only by physicians trained in ophthalmic surgery. Knowledge of surgical techniques, proper use of the surgical instruments, and post-operative patient management are considerations essential to a successful outcome.

For full safety information, visit: <https://itrack-advance.com/us>