

NEW PRODUCT APPLICATIONS

BY KAREN APPOLD, CONTRIBUTING WRITER

The Next Generation of Vitrectomy Lighting

Transilluminating depressor offers brighter visualization.

Vortex Surgical's TID Pharos Illuminated Depressor is the first standalone transilluminator that can be used across all existing vitrectomy machine platforms without requiring a skilled assistant. The product is the second generation of the company's line of transillumi-

nation products, which includes the first-generation Todorich Illuminated Depressor (TID) launched in 2019.

"The TID Pharos design was the next step in developing our transillumination family of products," says Bob Neu, vice president of development and integration at Vortex Surgical.

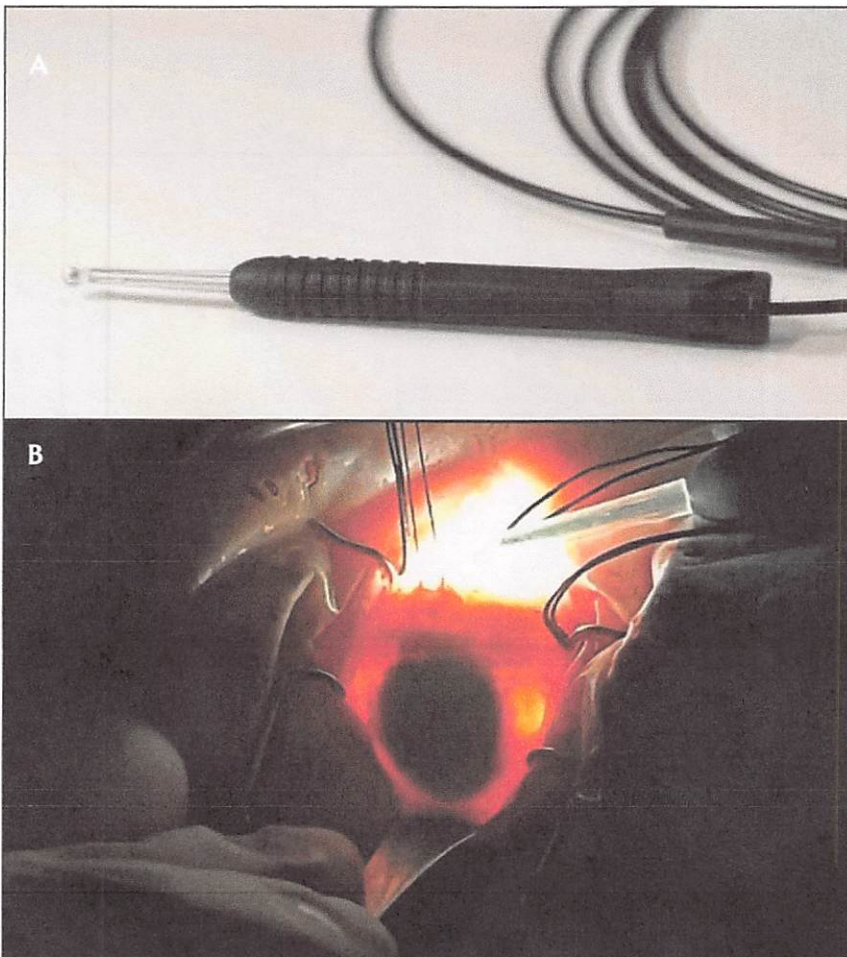
Bozho Todorich, MD, PhD, who developed both the first-generation and second-generation depressor transilluminators along with Vortex Surgical, says the TID Pharos allows for better visualization during depression than its predecessor. "It was born out of the market's need for better visualization, brighter illumination, a more ergonomic design, and ubiquitous adaptability, while promoting a surgeon's independence," says Dr. Todorich, a vitreoretinal surgeon at Lehigh Eye Specialists in Allentown, Pennsylvania.

Although modern vitrectomy machines have automated most critical steps, many vitreoretinal specialists continue to depend on skilled assistants for scleral depression during peripheral vitrectomy. "Vortex depressor-transilluminators eliminate that problem by giving surgeons full and independent control of this step also," Dr. Todorich says.

The new depressor's name is a nod to the Pharos of Alexandria, a famous lighthouse and one of the seven wonders of the ancient world. "The TID Pharos provides illumination in a sideways manner, mimicking a lighthouse's ability to light the path at a 90-degree angle," Neu explains.

WHAT IT CAN DO

The TID Pharos allows surgeons to simultaneously depress and perform unassisted transillumination of the peripheral eye wall while shaving the vitreous base. One hand holds the vitrector and the other depresses



The TID Pharos handpiece (A) and TID Pharos illuminating an ocular tumor (B). Images courtesy Vortex Surgical

and transilluminates. “This technique is most applicable in cases where thorough peripheral vitrectomy is paramount, such as a rhegmatogenous retinal detachment repair,” Dr. Todorich says.

Transillumination can also be used to localize tumors for planning of radiation seed placement and to identify and remove retained lens fragments, remove sequestered peripheral vitreous hemorrhages, and enhance vitreous base visualization during scleral fixated IOL cases. The first-generation device had a cap-over design that could be fitted over a vitrectomy light pipe, providing longitudinal or coaxial illumination. Its main limitation was the output of light intensity limited by the light pipe, Dr. Todorich says.

The TID Pharos’s “side fire illumination” technology, which has a US patent pending, allows surgeons to have a brighter view and produces less glare when compared to other cap-over designs where the illumination is directed out the tip of the device, Neu says. The device’s conventional ballpoint depressor tip is made of transparent acrylic, providing surgeons with an ergonomic but sturdy and effective depressor tip that glides seamlessly on the scleral surface.

The TID Pharos is a standalone, disposable, complete transilluminator that can connect directly to Alcon, Bausch + Lomb, and DORC Eva vitrectomy machines. “This is advantageous compared to other cap-over designs because it allows for the transilluminator and the regular endoilluminator to be available at all times during a surgery,” Neu says.

Surgeons can toggle between the light pipe and transilluminator seamlessly without any down time to put the cap on and off. The transilluminator performs well with both conventional microscopes as well as digital

viewing, such as Alcon’s Ngenuity.

According to Dr. Todorich, “The novel platform allows vitreoretinal surgeons to be fully independent. For those of us in private practice who don’t have consistent access to skilled staff, residents, or fellows, this is a game changer because everything else is automated and at a surgeon’s fingertips and toe tips.”

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EASE OF USE

The TID Pharos handle was designed to fit comfortably in a surgeon’s hand. “The device’s illumination fiber isn’t very heavy and doesn’t weigh down or impede a surgeon’s movement,” Neu says. “By being able to directly connect the depressor into a vitrectomy machine, it can be available at any point in a case.”

Along these lines, Dr. Todorich says the depressor feels light — just like existing conventional depressors. It doesn’t require additional skills, plugs into the machine like any other lighted instrument, and takes advantage of a surgeon’s existing skill set

while adding to the surgical experience and armamentarium. The learning curve is quick.

The only other way to perform independent depressed vitrectomy is to use a chandelier light. However, Dr. Todorich says, chandelier illumination is more expensive and is not uniform, with areas of glare and dark illumination, and it is static. This can compromise view and increase chance of iatrogenic retinal breaks.

Vortex Surgical’s TID and TID Pharos overcame some of these limitations because surgeons can dynamically move the instrument to areas where they’re performing a vitrectomy. They can adjust the lighting to maximize view and highlight vitreous and retina to improve visualization.

“Instead of broad endoillumination, TID Pharos provides focused, task-specific illumination,” says Dr. Todorich. “This takes some getting used to, but once mastered, offers surgeons an unprecedented level of independence, control, and visualization.” Transilluminators aren’t intended to replace conventional endoillumination, but to complement and enhance surgeon’s experience for specific parts of a case.

HOW PATIENTS BENEFIT

By allowing surgeons to depress while looking for breaks or tears at the end of a case, the TID Pharos can improve patient outcomes, Neu says.

“If you don’t have access to an assistant or chandelier, the alternative is to not shave the vitreous base,” Dr. Todorich says. “However, if you’re doing a primary vitrectomy for a retinal detachment repair and you don’t perform an adequate peripheral vitrectomy, I think this decreases the surgical success rate of primary retinal detachment repair. Furthermore, less reliance on assistants may reduce the rate of iatrogenic breaks.” **RP**