

# Vitreous Shaving With Scleral Depression

Surgical pearls for performing this technique in phakic patients.

BY KOUROUS A. REZAEI, MD

*In this issue of Retina Today, Kourous A. Rezaei, MD, describes his technique for shaving the vitreous base with scleral depression.*

*We extend an invitation to readers to submit surgical pearls for publication in Retina Today. Please send submissions for consideration to Ingrid U. Scott, MD, MPH, ([iscott@psu.edu](mailto:iscott@psu.edu)); or to Dean Elliott, MD ([deliott@doheny.org](mailto:deliott@doheny.org)). We look forward to hearing from you.*



—Ingrid U. Scott, MD, MPH; and Dean Elliott, MD

**N**ew technologies have significantly affected how vitreous surgery is performed today. These technologies include wide-angle viewing systems, high-speed vitreous cutters, small-incision trocar systems, lighted and curved instruments, and chandelier lighting systems. Such technologies enable surgeons to perform a thorough vitrectomy, which is crucial for the treatment of many vitreoretinal pathologies, including retinal detachment. Every surgeon develops surgical techniques that he or she believes will produce the best possible outcomes for his or her patients. In this article, I describe my current technique, and the technologies used, for shaving peripheral vitreous with scleral depression.

## ESSENTIAL INSTRUMENTATION

For this technique, I use the SDI-BIOM panoramic viewing system (Insight Instruments, Inc., Stuart, FL) for wide-angle viewing. The 23-gauge sutureless trocar system by Alcon Laboratories, Inc. (Fort Worth, TX), is used for microincisions, and a 27-gauge dual-port chandelier light fiber (Dutch Ophthalmic USA, Exter, NH) is used for auxiliary lighting. I use the Constellation Vision System (Alcon Laboratories, Inc.) for vitrectomy.

## INSTRUMENT INSERTION

The first step of this technique is insertion of the chandelier light (Figure 1). Initially, it may be tricky to insert the chandelier; however, with time and practice, this becomes easier. The 27-gauge dual-port chandelier light

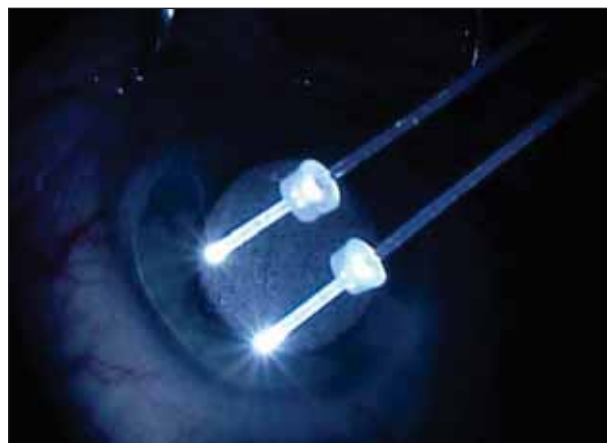


Figure 1. Chandelier light fibers.

fiber is available with an adjustable silicone stopper, which is adjusted 4 to 5 mm from the tip. The inferior chandelier light is inserted inferiorly and slightly temporal to 6 o'clock to avoid touching the lid speculum when the eye is tilted inferiorly. The chandelier is inserted 3.5 mm posterior to the limbus in phakic patients and 3 mm posterior to the limbus in pseudophakic or aphakic patients.

A guidance needle with an elongated bevel is used to insert the chandelier light fiber. The first chandelier light fiber is inserted before the infusion cannula to avoid conjunctival ballooning. The chandelier light fiber is taped to the drape so that the tip is perpendicular to the sclera to prevent glare. Next, the infusion cannula is inserted through a 23-gauge cannula. The temporal port of the



Figure 2. Location of the chandelier light fibers and the trocars.

chandelier light is inserted temporally superior to the infusion in a similar fashion as above. The other two trocars are then inserted (Figure 2).

### SHAVING THE VITREOUS

After core vitrectomy and induction of posterior vitreous detachment, peripheral vitrectomy is performed. The chandelier light allows the surgeon to shave the vitreous with scleral depression without assistance. Even in phakic patients, a thorough peripheral vitreous shaving is possible.

The sclera is depressed with the narrow shaft of the scleral depressor. It is easier to manipulate the sclera with the narrow shaft, and this also reduces the likelihood of ripping the conjunctiva at the fixation points (trocar and chandelier light insertions). The vitreous cutter is set at 5,000 cuts per minute, and the suction is adjusted with the foot pedal. The vitreous cutter is introduced into the eye while the other trocar is plugged. The sclera is depressed gently while the suction is increased. Low suction is used to avoid tearing the peripheral retina. It is important to note that in phakic patients, to prevent touching the lens, the shaft of the vitreous cutter is aligned parallel to the surface of the retina and is not angled. The surgeon must not move the cutter anterior to the ora serrata.

The intraocular pressure (IOP) may have to be lowered during vitrectomy to reduce counter-resistance and allow easy depression of the sclera. IOP may be set at 20 mm Hg on the vitrectomy machine and adjusted based on the rigidity of the sclera during scleral depression. While moving the scleral depressor, the surgeon must be cautious not to suddenly remove the depressor from the sclera. Depression should be decreased gently to allow time for the globe to fill and prevent it from getting soft. Remember, because the IOP is reduced, it will take longer for the vitreous cavity to fill.

One important aspect of scleral-depressed vitreous shaving is lighting. Scleral depression is started inferiorly,

WATCH IT ON NOW ON THE RETINA SURGERY CHANNEL AT [WWW.EYETUBE.NET](http://WWW.EYETUBE.NET)



By Kourous A. Rezaei, MD

23G Peripheral Vitreous Shaving and Endolaser in Phakic Patients

direct link to video:

<http://eyetube.net/videos/default.asp?guzovi>



Peripheral Vitreous Shaving Endolaser in Phakic Patients

direct link to video:

<http://eyetube.net/videos/default.asp?doowod>

Vitrectomy and Endolaser in Near the Ora in Phakic Patients

direct link to video:

<http://eyetube.net/videos/default.asp?subezo>

where the light from the chandelier allows direct visualization of the vitreous base. In areas farther from the chandelier light, retroillumination is used to view the vitreous. It may not be possible to visualize the vitreous in certain situations, such as in an eye with severe cataract. In these situations, the surgeon has already visualized the posterior location of the vitreous base inferiorly (under direct lighting from chandelier light) and, therefore, has an idea of how posterior the vitreous base is located. This landmark may be used for vitrectomy in areas of reduced lighting. When vitreous shaving is complete, the peripheral retina is examined with an endoilluminator and scleral depression to assure that adequate vitrectomy is performed. The goal is to remove as much vitreous as possible without inducing iatrogenic retinal breaks. ■

Kourous A. Rezaei, MD, is an Associate Professor in the Department of Ophthalmology at Rush University Medical Center and is in private practice at Illinois Retina Associates in Harvey, IL. He states that he received a grant from Alcon Laboratories, Inc. Dr. Rezaei may be reached at [karezaei@yahoo.com](mailto:karezaei@yahoo.com).



Ingrid U. Scott, MD, MPH, is a Professor of Ophthalmology and Public Health Sciences, Penn State College of Medicine, Department of Ophthalmology, and is a member of the Retina Today Editorial Board. She may be reached by phone: +1 717 531 4662; fax: +1 717 531 5475; or via e-mail: [iscott@psu.edu](mailto:iscott@psu.edu).

Dean Elliott, MD, is a Professor of Ophthalmology and Director of Clinical Affairs, Doheny Eye Institute, Keck School of Medicine at USC, and is a member of the Retina Today Editorial Board. He may be reached by phone: +1 323 442 6582; fax: +1 323 442 6766; or via e-mail: [deliott@doheny.org](mailto:deliott@doheny.org).