

Treatment Guidelines for

Laser Vitreolysis

The following guidelines relate to treatment of Vitreous Opacities (Laser Vitreolysis) with the LIGHTMED LIGHTLas YAG-V or LIGHTLas SLT Deux-V laser systems.

It is important to note that all information contained herein has been compiled based on results of various generic clinical studies and investigations, and intended to serve as general guidance only. While laser vitreolysis provides a highly effective and minimally invasive treatment, LIGHTMED strongly recommends that all physicians novel to this technique seek adequate training, and understand the latest suggested methods of treatment prior to commencing treatment.

Revolutionary Illumination Prism:

The LIGHTLas YAG-V & LIGHTLas SLT Deux-V laser systems change the way that vitreolysis is performed, allowing for a new treatment paradigm.

LIGHTMED's vitreolysis systems include:

- **Tuned laser cavity engine** – produces peak optical breakdown to better evaporate vitreous strands
- **Revolutionary illumination prism system** – allows physicians to better visualize and treat vitreous opacities
- **Unique split prism tower** – produces coaxial illumination to better illuminate deeper into the vitreous; allows for an unobstructed laser beam to make treatment more controllable, precise and convenient

Q: What factors should I look for to qualify my patient?

Many floaters can be effectively treated with vitreolysis, although it's absolutely necessary to undertake proper assessment of the individual patient to determine their suitability for treatment.

The most important factors to consider are the type of floater and the presence of other potential ocular diseases, which would exclude patients from this treatment. A comprehensive pre-treatment dilated examination should always be performed.

Key points include:

1. Vitreous opacities being considered for laser vitreolysis should be stable for at least 2 months prior to treatment. Vitreous floaters associated with active retinal pathology or intraocular inflammation should never be treated with laser vitreolysis.
2. The presence of active macular edema is a contraindication to treatment at this time.
3. Microscopic floaters, most common in patients <45 years of age, should not be treated with laser vitreolysis since these opacities are usually located within 1-2 mm of the retina (too close to be safely treated).
4. Weiss Ring / PVD floaters are usually very amenable to vitreolysis once other pathological causes such as a retinal tear or detachment have been ruled out. A comprehensive indirect exam, including scleral-depression of the periphery, is the appropriate standard of care when evaluating a PVD.
5. Patients with untreated retinal lattice degeneration are not good candidates for laser vitreolysis at this time.
6. Do not perform laser vitreolysis if photopsias are present. This suggests an incomplete posterior vitreous detachment, which increases the risk of a retinal detachment/tear.

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7. Vitreous sheets, strands, and cobwebs are less likely to respond to laser vitreolysis. In most instances, treatment of this type of floater should be avoided; however, recommendations may change based on future studies.
8. Floaters due to hemorrhage or inflammatory cells are not amenable to laser vitreolysis.
9. Focusing may be complicated by the presence of strong lenticular astigmatism in a phakic patient, or by a multifocal IOL in a pseudophakic patient.
10. When mastering the procedure, it is recommended to focus on pseudophakic patients with a well-defined, fibrous, "Weiss-ring" type of floater, without a multifocal lens.

Q: What are the side effects of the procedure?

Complications and side effects are rare and include:

- Inadvertent retinal laser application. Floaters closer than 3mm to the retina should not be treated and laser should never be administered over the macula.
- Retinal detachment/retinal tears/holes/breaks. A thorough preoperative exam is always necessary to identify pre-existing pathology.
- Traumatic cataract. Inadvertent laser to the lens may hasten cataract formation. Rarely, the posterior lens capsule may be breached and subsequent cataract surgery can be more complicated. This type of injury can be minimized by not treating opacities in the anterior vitreous.
- Lens pitting of an IOL. This can be avoided by not treating opacities in the anterior vitreous.
- Increased intraocular pressure (IOP). An increase in IOP is very rare and usually transient, amenable to topical therapy with glaucoma agents. Caution should be undertaken in patients with advanced or uncontrolled glaucoma.
- Intraocular inflammation (uveitis). Rarely, mild uveitis may occur postoperatively which usually responds to anti-inflammatory eye drops. Patients with a history of anterior or posterior uveitis are not candidates for laser vitreolysis.

Q: What kind of Contact Lens should I use?

LIGHTMED only recommends use of a specialty vitreous lens for vitreolysis.

The VOLK Mid-Vitreous lens is the single most versatile lens for vitreolysis. Dedicated lens sets from OCULAR Instruments are also well suited for treatment including the Ocular Peyman 18mm Vitreous Lens, the Ocular Karickhoff 21mm Vitreous Lens, and the Ocular Karickhoff 25mm Vitreous Off-Axis Lens.

It is very important to note that the more commonly available Goldmann YAG Capsulotomy & Iridotomy lenses are NOT SUITABLE for vitreolysis.

Treatment Overview:

Pre-Treatment

1. Discuss the risk/benefits and alternatives to laser vitreolysis and document informed consent. It is important to discuss appropriate expectations with the patient when obtaining consent.
2. Once the patient has achieved optimal dilation, place the contact lens on the anesthetized patient's cornea with the appropriate lens coupling gel.

Laser Settings

1. The YAG laser energy needs to pass through more optical media in a vitreolysis procedure than in a typical capsulotomy treatment; therefore, more energy is required to perform the vitreolysis procedure.
2. It is always recommended to commence with a low energy and gradually increase the power until there is adequate vaporization and optical breakdown of the vitreous collagen.

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3. Commence treatment with a single pulse per shot. Set energy at the minimum level required to create the optical breakdown in the vitreous cavity (typically 2 mJ- 3 mJ).
4. Most treatments can be performed at energy between 2 mJ – 4 mJ.
5. Do not exceed a maximum total energy of 1000 mJ per vitreolysis session. This corresponds to no more than 250 shots at a power no greater than 4 mJ. Staged procedures may be considered after a 2-week period if the patient is stable.

Focusing Tips

- Inadvertent injury to the retina or lens may occur if the aiming beams are not coincidental or superimposed.
- Avoid treating too closely to the retina, typically judging if the floater appears in sharp focus together with retina.
- If the aiming beam is not clearly in focus, do not fire. To refocus, first focus on the targeted vitreous opacity, then pull back the joystick slightly; this will enable you to clearly visualize the two aiming beams. Then, push slowly forward to refocus the beams into one spot.
- The vitreous opacity may move during laser treatment. When firing directly at a mobile vitreous opacity, always wait for it to settle before continuing.

Anterior & Posterior Offset

1. It is possible to position the optical breakdown in front of (anterior offset) or behind (posterior offset) the structure to be vaporized. When the energy is increased, the optical breakdown and resulting plasma move closer to the operating physician. This offset capability permits greater accuracy in positioning the optical breakdown.
2. When working deeper in the posterior vitreous, chromatic aberration may focus the treatment beam more posterior which may be countered by an anterior offset. It is recommended to usually treat with offset of 0 microns.

Post-Treatment

1. Typically no post-treatment medications are necessary. In very rare cases of inflammation of the anterior segment, treat with a short-course of a topical steroid.
2. Patients may resume physical activities as tolerated without restriction following vitreolysis.
3. Patients may see small, dark specks in their lower field of vision in the initial 15-30 minutes post-procedure, corresponding to micro gas bubbles, which should quickly dissipate.

Reimbursement

CPT Code – VITREOLYSIS

Severing of vitreous strands, vitreous face adhesions, sheets, membranes or opacities, laser surgery, one or more stages	67031
Unlisted procedure, posterior segment	67299

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