LASER VITREOLYSIS FOR FLOATERS

This safe and effective procedure is well within the scope of any ophthalmologist.

BY KARL G. STONECIPHER, MD

Underreported, underestimated, and undertreated, floaters have been refractive surgery's elephant in the room for too long.

For years, patients who complained of symptomatic floaters were given two choices: (1) learn to live with them or (2) undergo vitrectomy and run the risk—albeit small—of cataract, endophthalmitis, retinal detachment, glaucoma, vitreoretinal hemorrhage, and macular edema.[1] As physicians, we have perhaps been guilty of downplaying the impact of floaters on patients' quality of life. I suspect this is partly because of our inability to offer them a credible treatment beyond invasive vitrectomy.

Although floaters may be a mild and short-lived inconvenience for most patients, there is nevertheless a sizeable minority for whom the problem is far more serious. One recent survey found that the deleterious impact of floaters on individuals' quality of life was comparable to or worse than that of age-related macular degeneration, diabetic retinopathy, or glaucoma.[2]

The good news is that we now have another option to treat symptomatic floaters, one that does not carry the same risk profile as vitrectomy. I have been working with laser platforms since I was a medical student back in the 1980s, and I was always intrigued by the potential of using lasers to treat floaters. It was really only when Ellex started working seriously on the problem and developed a YAG laser that was capable of performing laser vitreolysis with greater efficacy and an improved safety profile compared to a conventional YAG laser that I thought that this approach might be useful in my practice.

TABOO TERRITORY

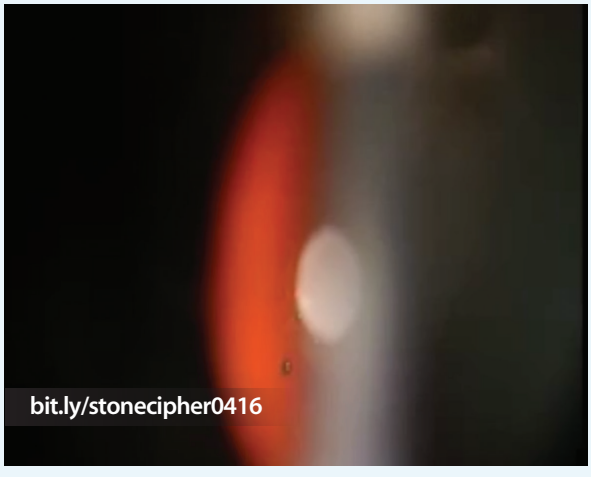
For many if not most of my refractive surgery colleagues, the idea of treating floaters with a YAG laser was taboo. They felt it was crossing a line, that these were healthy eyes that did not require surgical intervention, and that the risks outweighed any potential benefits. I understood and even shared some of their skepticism, but I really felt that we owed it to our patients to offer them something more than just a sympathetic ear when they explained the negative impact of floaters on their quality of life.

Although I was keen to help my patients, I was also determined not to leap into uncharted territory until I had access to what I considered to be the appropriate technology to safely and effectively perform vitreolysis. My colleagues and I had already bought the Ultra Q Reflex laser (Ellex) for our practice a couple of years earlier, primarily for YAG capsulotomies. Around this time, the first results of surgeons treating floaters with this device began to emerge, further convincing me that laser vitreoylsis could play a role in my own practice to help this small minority of unhappy patients.

It turned out to be an excellent decision. Although there is a learning curve, as there is with any surgical procedure, I believe that the procedure is well within the scope of any

WATCH IT NOW

Karl G. Stonecipher, MD, performs laser vitreolysis for the treatment of floaters.



ophthalmologist. Ellex has also done an excellent job of providing clear guidelines on the various steps to be taken and the laser parameters to be used in order to perform vitreolysis safely and effectively.

PATIENT'S PERSPECTIVE

From a patient's perspective, laser vitreolysis has much to recommend: it is a simple, noninvasive treatment that causes no pain or discomfort and has a high success rate in treating symptomatic floaters. Designed specifically for use in the posterior and anterior segments, the Ultra Q Reflex emits short nanosecond bursts of energy focused on the floaters, safely vaporizing them in the process.

In addition to the appropriate technology, it is important to use the correct lenses in order to properly visualize what I am are trying to laser. I have been using the Ocular Karickhoff Vitreous Lenses (Ocular Instruments) and the Volk Idrees VIMV (midvitreous) lens (Volk Optical), which enable me to safely target the laser focal point on the floater in 3-D space in the vitreous.

The beauty of this recent technology is that I can change the angle of focus on the YAG laser itself, which means that I can now reach places that used to be out of range of the aiming beam. When performing a YAG capsulotomy, I aim at the center of the lens, whereas laser vitreolysis allows me to target different axes of the vitreous at all points on the clock.

Visualization really is the key to successful treatment. Only when surgeons have obtained clear visualization of the floaters should treatment commence. This might seem obvious, but it is important not to become trigger happy and start firing the laser indiscriminately, because that is when surgeons may run into complications by hitting the retina or the lens. When firing directly at a moving floater, it is advisable to wait for it to settle into position before continuing with treatment. I also recommend starting treatment with a single pulse per shot, with the energy set at the minimum level of around 2 to 2.5 mJ and then increasing it as required once more comfortable with the procedure.

PATIENT SELECTION

Careful patient selection is a key component of any surgical procedure, and laser vitreolysis is no different. My advice to anyone interested in incorporating this procedure into practice is to start on pseudophakic patients who have undergone cataract surgery and who have well-defined vitreous opacities in the midanterior vitreous. If the posterior capsule in a phakic patient is hit, a traumatic cataract is the inevitable outcome, so it is best to start off with the floaters that are easily visualized and to stay well away from the retina and macula. It is also prudent to avoid treating patients with multiple vitreous opacities, other ocular pathologies, and poor anatomy, because the outcomes are uncertain for such complex cases.

AT A GLANCE

- Although floaters may be a mild and short-lived inconvenience for most patients, there is nevertheless a sizeable minority for whom the problem is far more serious.
- The Ultra Q Reflex laser convinced Dr. Stonecipher that laser vitreoylsis could play a role in his own practice to help these unhappy patients.
- The beauty of this technology is that the surgeon can change the angle of focus on the YAG laser itself, which means being able to reach places that used to be out of range of the aiming beam.
- Visualization is the key to successful treatment.

SAFETY AND EFFICACY

The limited evidence from the scientific literature supports my own clinical experience in terms of the safety and efficacy of vitreolysis in carefully selected patients.

As early as 1983, Katzen et al reported improvements of at least 3 Snellen lines in 10 out of 14 eyes and visual acuities of 20/40 or better in 11 of 14 eyes after laser vitreolysis in patients with cystoid macular edema.[3] In a follow-up study, the investigators reported an improvement in visual acuity of at least 2 Snellen lines in 49 of 62 eyes and a visual acuity of 20/40 or better in 45 eyes, with no adverse events or complications in any of their cases.[4] In another study, Levy and Pisacano reported an improvement of 2 or more Snellen lines in eight out of 20 eyes and 1 Snellen line in 10 out of 20 eyes. They also noted that only three out of 20 eyes had a visual acuity of 20/40 or better preoperatively; this improved to 11 of 20 eyes postoperatively.[5] There were no adverse events or complications in the 20 patients treated by vitreolysis.

More recently, Van der Windt reported that, during 10 years of follow-up, the safety of the laser vitreolysis procedure was indicated by the absence of any complications among treated patients.[6] A retrospective observational study undertaken by Inder Paul Singh, MD, of 296 eyes of 198 patients showed that 93% of patients were satisfied with the laser vitreolysis procedure.[7]

Furthermore, although retinal detachment has sometimes been suggested as a possible complication of laser vitreolysis, there is no evidence of this in the scientific literature. Karickhoff has suggested that cutting vitreous strands essentially reduces vitreous traction and thus the future risk of any retinal detachment.[8]

CHAIR TIME, THE RETINA PERSPECTIVE

From my perspective, chair time is another important element of successfully incorporating laser vitreolysis into any refractive surgery practice. The mantra of underpromising and overdelivering applies here. I use the concept of enhancement to tell patients from the outset that there is a possibility that the treatment will require more than one session to resolve their problem. I explain that breaking larger vitreous opacities down into smaller pieces may require multiple sessions before they will really see the benefit and that the floaters are vaporized and removed from their visual axis. In this way, patients will not perceive the initial treatment as a failure, because they have been psychologically prepared for the possibility of two or more sessions to resolve the problem.

One other vital piece of the puzzle is to try to have retinal colleagues on board who understand and believe in what I am trying to achieve with laser vitreolysis. This is useful in the event a complication arises or if it turns out that the floaters are beyond the scope of the YAG treatment and the patient may want to consider a core vitrectomy.

CONCLUSION

Laser vitreolysis has become a positive addition to my busy practice. The treatment is safe, effective, and painless with a very low complication rate.[8] The bottom line is that the procedure has enabled scores of patients to achieve functional improvements in their vision and greatly improved their quality of life in the process. ■

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