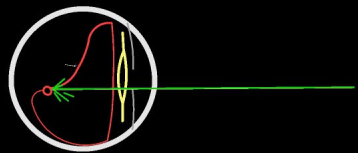
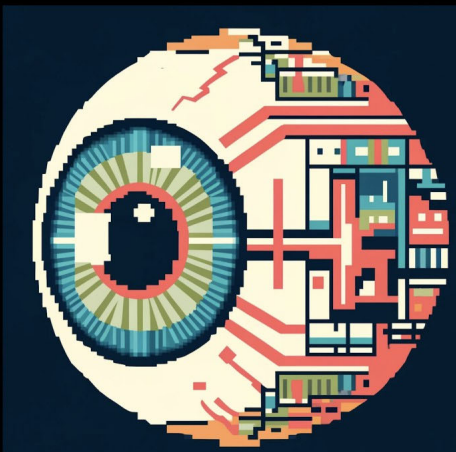
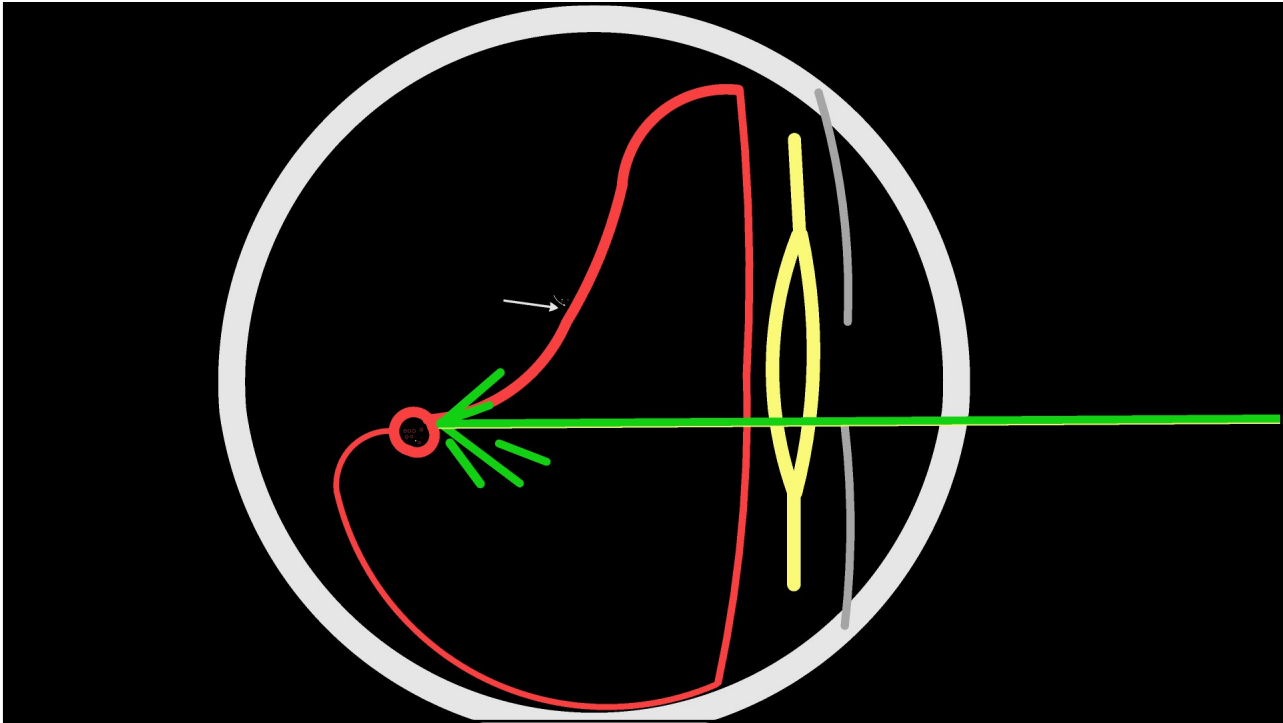


LASER VITREOLYSIS



LASER VITREOLYSIS



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Procedure HX
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**LEADERS +
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ESTIMATES OF
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EASILY OVER
50K
PROCEDURES


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BOOK]

JOHN KARIKHOFTE M.D. >5K EYES IN 2016

GELLER >20K procedures

INDER PAUL SINGH >5K PROCEDURES

KARL STONECIPHER M.D. ~5-7K YAG Vit Procedures
Johnson?

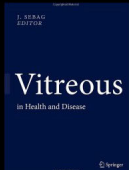



**MY STATS
OTHER O.D.'S**

NE 7/25/21 over 400 LASER TREATMENTS
Jeff Harris, OD ~400
Nina Lightner, OD ~400
Bryan Williams, OD Thousands

**VIT
TEXT
HX**

**SEBAG-FORMAL
EISNER-LESS FORMAL**

**TEXTS/
STUDIES**

CONCISE
+
THOROUGH
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PRACTICAL
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VIDEO



ONE PARAGRAPH IN 900
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"SAFE, MILDLY IF AT ALL EFFECTIVE" (pg 77)

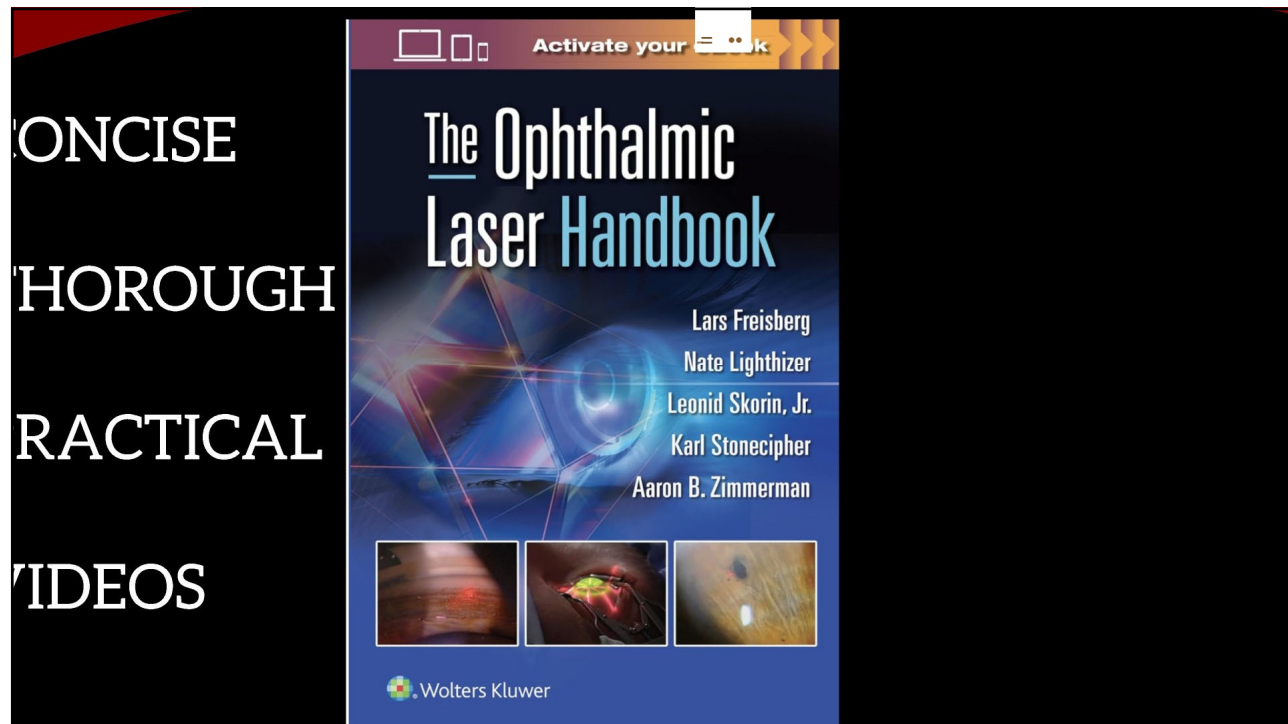
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SHAW [STUDY+PODCAST
EPISODE]

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- ELLEX
- PAUL SINGH, MD
- KARL STONECIPHER, MD
- JOHNSON, MD
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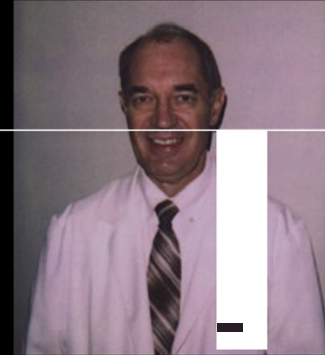
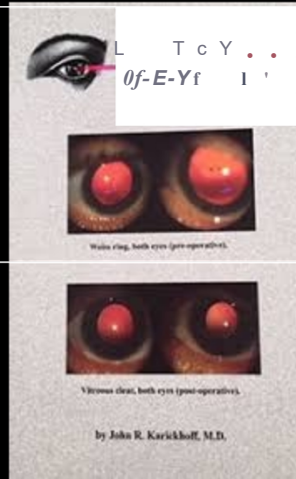
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KARIKHOFF [MOST COMPREHENSIVE]

SHAH [STUDY+PODCAST EPISODE]




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SHAH [STUDY+PODCAST EPISODE]

Original Investigation

September 2017

YAG Laser Vitreolysis vs Sham YAG Vitreolysis for Symptomatic Vitreous Floaters A Randomized Clinical Trial

Chirag P. Shah, MD, MPH¹, Jeffrey S. Heier, MD¹

¹ Author Affiliations | Article Information

JAMA Ophthalmol. 2017;135(9):918-923. doi:10.1001/jamaophthalmol.2017.2388

7

MANY OTHER STUDIES+INFORMAL STUDIES/ ARTICLES/VIDEOS/etc

- ELLEX
- PAUL SINGH, MD
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- CEES VAN DER WINDT, MD
- MARIE TASSIGNON, MD
- FIEK GERBRANDY, MD



Nd:YAG vitreolysis and pars plana vitrectomy: surgical treatment for vitreous floaters

Abstract

Purpose: To determine the efficacy of Nd:YAG vitreolysis and pars plana vitrectomy in the treatment of vitreous floaters.

Methods: This is a single centre retrospective study of 31 patients (42 eyes) who underwent 54 procedures, Nd:YAG vitreolysis or pars plana vitrectomy, for the treatment of vitreous floaters between January 1992 and December 2000. Main outcome measures were percentage symptomatic improvement following treatment and incidence of postoperative complications. Statistical analysis was performed using the Fisher exact test.

Results: Posterior vitreous detachment was the primary cause of floaters in all 42 eyes with co-existing vitreous veils in three eyes and asteroid hyalosis in two eyes. Thirty nine of 42 eyes received Nd:YAG vitreolysis. Thirty-eight percent found Nd:YAG vitreolysis moderately improved their symptoms while 61.5% found no improvement. After an average of 14.7 months follow-up no post-operative complications were recorded. Fifteen eyes underwent a pars plana vitrectomy, one with combined phacoemulsification and posterior chamber implantation and 11 following unsuccessful laser vitreolysis. Pars plana vitrectomy resulted in full resolution of symptoms in 93.3% of eyes. One patient developed a post-operative retinal detachment which was successfully treated leaving the patient with 6/5 VA.

Conclusion: Patients' symptoms from vitreous floaters are often underestimated resulting in no intervention. This paper shows Nd:YAG vitreolysis to be a safe but

patients. Pars plana vitrectomy, while offering superior results, should be reserved for patients who remain markedly symptomatic following vitreolysis, until future studies further clarify its role in the treatment of patients with floaters and posterior vitreous detachment.

Eye (2002) **16**, 21-26. DOI: 10.1038/sj/EYE/6700026

Keywords: vitreous floaters; Nd:YAG vitreolysis; pars plana vitrectomy; posterior vitreous detachment

Vitreous floaters are most commonly caused by posterior vitreous detachment (PVD),^{1,2} vitreous syneresis³ and asteroid hyalosis.³ While these symptoms are considered physiological in nature they can be of considerable inconvenience to many patients. This is especially the case in myopes in whom PVD occurs at an earlier age and in whom symptoms may be more severe because of retinal image magnification. Nd:YAG vitreolysis⁴ and pars plana vitrectomy (PPV)^{1,5} have both been advocated as effective treatment for vitreous opacities. However it is our perception that many patients with symptomatic floaters do not offered any intervention. In this paper we review the efficacy of both Nd:Yag laser and PPV in the surgical treatment of vitreous floaters.

Materials and methods

Patient's

We reviewed the clinical notes of 31 patients (42 eyes) who underwent 54 procedures, Nd:YAG vitreolysis or pars plana vitrectomy.

Clinical Study

The Department of Ophthalmology, Stoke Mandeville Hospital, Aylesbury, Buckinghamshire, UK

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Adv Ther (2020) 37:1319-1327
https://doi.org/10.1007/s12225-020-0040-0

REVIEW

Safety and Efficacy for the Treatment

Andreas Katsanos • Nikolaos Fotios Laios • Maria Stefanidou

Received: January 15, 2020 / Published: The Author(s) 2020

ABSTRACT

Emerging evidence has associated entoptic phenomena associated with vitreous opacities (i.e. vitreous floaters) with the prevalence of myopia. The use of YAG laser for the treatment of annoying vitreous floaters has attracted significant attention. However, the technique offers a number of advantages. Unfortunately,

Enhanced Digital Features: To view features for this article go to <https://doi.org/10.1007/s12225-020-0040-0>

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CLINICAL STUDY

Adv Ther (2020) 37:1319–1327
<https://doi.org/10.1007/s12325-020-01261-w>

REVIEW

Safety and Efficacy of YAG Laser Vitreolysis for the Treatment of Vitreous Floaters: An Overview

Andreas Katsanos · Nikolaeta Tsaldari · Konstantina Gorgoli ·
 Fotios Laios · Maria Stefanidou · Ioannis Asproulos

Received: January 15, 2020 / Published online: February 21, 2020
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ABSTRACT

Emerging evidence has suggested that the entropic phenomena associated with vitreous opacities (i.e. vitreous floaters) are more widespread than previously believed. In addition, the prevalence of Vitreous floaters is likely increasing due to the evolving global pandemic of myopia. The use of YAG laser vitreolysis for the treatment of annoying vitreous floaters has attracted significant attention in recent years as the technique offers a number of potential advantages. Unfortunately, the currently

available evidence that is needed to guide clinical practice is both very limited and contradictory. As a consequence, the technique remains highly controversial. A review of the existing literature sheds light on patient- and treatment-related factors that may significantly affect both the effectiveness and the safety of the procedure. The current article discusses important aspects of key publications on the topic, offers suggestions for clinical practice, and highlights unmet needs that should be addressed by future research.

Keywords: Floaters · Myodesopsia · Ophthalmology · Posterior vitreous detachment; PVD; Vitreolysis; Vitreous floaters; Weiss ring; YAG

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<https://doi.org/10.1007/s12325-020-01261-w>

**Evaluation
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V.A. SHAIMCO
 P.K. RYZHKO

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Evaluation of YAG-laser vitreolysis effectiveness based on quantitative characterization of vitreous floaters

V.A. SHAIMOVA^{1,2}, T.B. SHAIMOV², R.B. SHAIMOV², A.YU. GALIN², Z.H.A. GOLOSHCHAPOVA¹, P.K. RYZHKOV², A.V. FOMIN²

¹ Multipurpose Laser Medicine Center, Ministry of Health of the Chelyabinsk Region, 287 Pobedy prospect, Chelyabinsk, Russian Federation, 454138; ² Taente Zreniya LLC, 9 Komsomolsky prospect, Chelyabinsk, Russian Federation, 454021; Eyecare Clinic «Center FIB» LLC, 11 Tifonovskaya St., Moscow, Russian Federation, 125171; Research Institute of Eye Diseases, 11 A, B Rossolimo St., Moscow, Russian Federation, 119021

Purpose: To develop methods for evaluating effectiveness of YAG-laser vitreolysis of vitreous floaters. **Material and methods:** The study included 144 patients (172 eyes) who had undergone YAG-laser vitreolysis and were under observation from 01.01.2018 to 31.01.2018. The patients were 34 to 86 years old (mean age 62.7±10.2 years), 28 (19.4%) patients were male, 116 (80.6%) female. All patients underwent standard and additional examination: ultrasonography (Accuscan B-scan plus, U.S.A.), optical biometry (Istar 900, Haag-Streit, Switzerland), spectral optical coherence tomography using RTVue XR Avanti scanner (Optovue, U.S.A.) in modes Enhanced HD, LC, 30 Rtna, 30 Wdfield MCT, Cross Line, Angle Retina, and scanning laser ophthalmoscopy (SLO) using Navilas 577s system. Laser vitreolysis was performed using the Ultra QRellex laser (Ellex, Australia). **Results:** This paper presents methods of objective quantitative and qualitative assessment of anteflaxal shadows of vitreous floaters with spectral optical coherence tomographic scanning RTVue XR Avanti employing an algorithm of automatic detection of non-perfusion zones in modes Angle Retina, 30 Rtna, as well as foveal avascular zone (FAZ) measurement with Angio Analytics software. SLO performed with Navilas 577s was used as method of visualizing floaters and anteflaxal shadows in retinal surface layers preoperational treatment after YAG-laser vitreolysis. **Conclusion:** Suggested methods of quantitative and qualitative assessment of anteflaxal shadows of the floaters in retinal layers are promising and may provide be highly relevant for clinical monitoring of patients, optimization of treatment indications and evaluating effectiveness of YAG-laser vitreolysis. Further research of laser vitreolysis effectiveness in patients with vitreous floaters is necessary.

Keywords: vitreus floaters, laser vitreolysis, Navilas 577s, myodesopia, posterior vitreous detachment.

Vestnik Oftalmologii 2018-1 EN

Floaters opacities in the vitreous body are a significant pathology in ophthalmology. They cause visual discomfort to a considerable number of patients. Floaters, also called *muscae volitantes* (Latin: "flying flies"), occur mainly due to destructive changes in the vitreous body, syneresis, posterior vitreous detachment (PVD) [1-11]. Only few patients complain about them, so they do not require treatment, but in certain cases, thick or large opacities that get into the field of view can cause serious discomfort in daily life and become a psychologically challenging [2, 4]. As reported by B. Webb [5], floaters provoke anxiety in 76% of patients and significantly decrease the quality of life in 33% of them. According to A. Wagle et al. [6], patients with symptomatic vitreous floaters are ready to sacrifice 11 years for every 10 years of their remaining life in order to get rid of the discomfort caused by the floaters. The extent of physical discomfort depends on patient's localization relative to the floaters, their number, size and shape.

According to a number of authors, pars plana vitrectomy eliminates the floaters, but considering its invasive nature and the possible complications that include endophthalmitis, retinal perforation and detachment, cataract, the method should only be used when patient's vision is substantially impaired [2, 7].

At present, YAG-laser vitreolysis can be considered an alternative treatment for symptomatic vitreous floaters [4, 8, 9]. It has several advantages: non-invasive nature, low complication rate, absence of post-surgical limitations, economic viability [7, 8]. Reintroduction of YAG laser vitreolysis became possible thanks to a newly developed system called Rnecx (Ultra Q Rnecx laser), which allows axial (coaxial) lighting - when the light source is positioned on the same optical axis of slit-lamp microscope and radiated laser beam [7].

The mechanism of modern laser vitreolysis involves vaporization that happens due to laser-induced break

Clinical Research Report

Efficacy and safety of aluminium garnet laser vitreolysis for vitreous floaters

Jihan Luo¹, Xiaojun An² and

Abstract
Objective: To examine the efficacy and safety of aluminium garnet laser vitreolysis for the treatment of vitreous floaters.
Methods: Consecutive adult patients with symptomatic vitreous floaters at Chongqing General Hospital from April 2017 to April 2018 were included in this study. Patients had > 3 mm between the floaters and the retina, and no peripapillary Optical Coherence Tomography (OCT) abnormalities. Patients with history of glaucoma, severe cataract, or other ocular diseases were excluded from the study. Intraocular pressure (IOP) was measured by tonometry. Anterior segment photographs were taken before and after vitreolysis. Posterior segment photographs were measured by OCT were taken before and after vitreolysis. Patient satisfaction was completed 6 months after vitreolysis.
Results: No statistically significant difference was found between pre-treatment and post-treatment. Anterior segment photographs showed that the floaters disappeared after YAG laser treatment. There was no significant difference in visual acuity (nasal and temporal) was not statistically significant. There was no significant difference in IOP. 75% patients reported significant improvement.
Conclusion: The results of this study showed that YAG laser vitreolysis was a well-tolerated, effective, and safe treatment for vitreous floaters. Randomised, controlled trials involving larger numbers of patients and longer follow up period are required to confirm the efficacy and safety of YAG laser vitreolysis for the treatment of vitreous floaters.

YAG Vitreolysis

YAG vitreolysis

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Invited Commentary
page 924
Journal Club Slides and
Supplemental content

Long-Term Follow-Up of Efficacy and Safety of YAG Vitreolysis for Symptomatic Weiss Ring Floaters

Chirag P. Shah, MD, MPH; Jeffrey S. Heier, MD

BACKGROUND AND OBJECTIVE: To describe long-term outcomes and complications after YAG vitreolysis.

PATIENTS AND METHODS: This is an observational extension study to a previously reported, randomized, controlled study. Thirty-five of 52 patients returned at an average of 2.3 years (range: 1.1 to 3.0) after their lost YAG vitreolysis treatment to assess long-term efficacy and safety.

RESULTS: At 2.3 years, 50% of patients felt their symptoms were significantly or completely better, similar to results at 6 months (53%). There was a 59.4% improvement in symptoms, similar to 6 months (54%). The 25-item National Eye Institute Visual Function Questionnaire revealed improvements in: near activities, distance vision, mental health, and role difficulties. Adverse events included three eyes with delayed retinal tears, noted 1.4 to 2.8 years after YAG vitreolysis.

CONCLUSIONS: The efficacy of YAG vitreolysis observed at 6 months was sustained at 2.3 years, with half reporting significant or complete resolution of their floater symptoms. Three patients developed delayed retinal tears not evident at 6 months. A large, long-term randomized controlled trial is needed to determine the true risks of YAG vitreolysis.

J Ophthalmic Surg Clin (N.Y.). 2020;51(8):85-88.

From Ophthalmic Consultants of Boston, Boston.

Originally submitted April 15, 2019. Revision received April 15, 2019. Accepted for publication January 27, 2020.

Presented at the American Academy of Ophthalmology Retina Subspecialty Day Meeting in Chicago on October 17, 2018, as part of an update on a YAG vitreolysis lecture.

The original randomized, controlled trial and open-label extension study were both supported by the Center for Research and Education, Boston. The long-term observational visit was supported by Elies Medical Lasers, Adelaide, Australia. The study sponsors had no role in the study design, collection, analysis, and interpretation of data, writing the report, and the decision to submit the report for publication. Manuscript assisted with the initial draft of the conduct of the study, as well

INTRODUCTION

YAG vitreolysis is a controversial treatment option for symptomatic floaters, largely due to the lack of evidence in the literature and long-term follow-up data. Our group published the first randomized, controlled trial evaluating YAG vitreolysis versus sham laser for Weiss ring floaters. At 6 months' follow-up, there were no significant adverse events, such as retinal tears or retinal detachments. Approximately half, or 53%, of patients reported significant or complete resolution of their floater symptoms. This was significantly lower than the objective improvement of 95% observed by masked grading of color photographs, suggesting a disconnect between objective and subjective outcome.¹

Hahn et al at the American Society of Retina Specialists Research and Safety in Therapeutics Committee conducted a surveillance of retinal specialists to determine potential risks of YAG vitreolysis. They reported 16 complications including glaucoma, cataract and posterior capsule defects, retinal hemorrhage, scotomas, retinal tear, retinal detachment, and increased floaters. These voluntarily reported complications were reported during a 6-month period and may be underreported.² There was no denominator for this surveillance study and, thus, we do not know complication rates.

The aim of the present study was to report long-term complications and efficacy in patients enrolled in our original 6-month randomized controlled trial.



Viewpoints

Modern vitreolysis: a real solution for floaters

Inder Paul Singh, MD*

President, The Eye Centers of Racine and Kenosha, Racine, Wisconsin, USA

ARTICLE INFO

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Keywords:
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Historically, the only treatment for vitreous floaters has been pars plana vitrectomy, which works well to eliminate floaters, but there are risks, such as cataract progression, retinal detachment.¹ Although recent progress in vitreolysis has improved outcomes, there still is a postoperative recovery period, which may result in time away from work. For some patients, the potential cost of pars plana vitrectomy also re-

Safety of YAG Laser Treatment for Symptomatic Weiss Ring Floaters

controversial treatment option for symptomatic floaters, largely due to the lack of evidence in the literature and long-term follow-up data. Our group published the first randomized, controlled trial evaluating YAG vitreolysis versus sham laser for Weiss ring floaters. At 6 months' follow-up, there were no significant adverse events, such as retinal tears or retinal detachments. Approximately half, or 53%, of patients reported significant or complete resolution of their floater symptoms. This was significantly lower than the objective improvement of 95% observed by masked grading of color photographs, suggesting a disconnect between objective and subjective outcome.¹

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Originally submitted April 15, 2019. Revision received April 15, 2019. Accepted for publication January 27, 2020.

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journal homepage: www.elsevier.com/locate/survophthal

Viewpoints

Modern vitreolysis-YAG laser treatment now a real solution for the treatment of symptomatic floaters

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ARTICLE INFO

Article history:
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Received in revised form 21 February 2020
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L. Jay Katz and Hermann D. Schubert, Editors

Keywords:
floaters
vitreolysis
YAG
laser
vitreous opacity

ABSTRACT

I review the background of laser floater treatment and address the differences between the old technology and the new technology of YAG lasers. I also review some recent publications and discuss the importance of careful patient selection, some of the adverse events, and patient outcomes.

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Historically, the only treatment offered for symptomatic vitreous floaters has been pars plana vitrectomy. This procedure works well to eliminate the symptoms associated with floaters, but there are risks involved with the procedure, such as cataract progression and the possibility of a retinal detachment.¹ Although recent advances in technology have significantly improved the safety profile of vitrectomy, there still is a postoperative recovery period, which may result in time away from work. For some patients, the potential cost of pars plana vitrectomy also re-

many of the common types of floaters, such as a Weiss ring or other solitary vitreous opacities. Unfortunately, these floaters can sometimes negatively affect patients' daily functioning and quality of life.

A study by Wagle and coworkers addressed the impairment on functional quality associated with floaters in 311 outpatients.² The utility values of floaters were equal to those of age-related macular degeneration and similar to those of glaucoma, mild angina, stroke, and asymptomatic HIV. This demonstrates that floaters do have a similar impact on

Ophthalmol Ther (2022) 11:201
<https://doi.org/10.1007/s40123-021-00412-4>

ORIGINAL RESEARCH

The Efficacy and Safety of YAG Laser Treatment for Symptomatic or Non-PVD

Tiezhu Lin • Tongtong Li

Salissou Moutari • Emmannuel Lijun Shen

Lijun Shen

Received: August 9, 2021 / Accepted: 2021
© The Author(s) 2021

ABSTRACT

Introduction: To evaluate the efficacy and safety of YAG laser treatment for symptomatic or non-PVD.

Methods: In this prospective study, 100 eyes with symptomatic floaters were divided into complete posterior vitreous detachment (PVD) and non-PVD groups. Objective visual acuity and Strehl ratio were measured before and after treatment.

Supplementary Information contains supplementary material, which is available to authorized users.
doi.org/10.1007/s40123-021-00412-4

T. Lin • L. Shen (✉)
Eye Hospital and School of

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the differences between the review some recent publica some of the adverse events, 0 Published by Elsevier Inc.

ters, such as a Weiss ring ies. Unfortunately, these ly affect patients' daily rs addressed the impair ated with floaters in 311 aters were equal to those on and similar to those of l asymptomatic HIV. This ave a similar impact on and systemic diseases.

Ophthalmol Ther (2022) 11:201-214
https://doi.org/10.1007/s40123-021-00422-6

ORIGINAL RESEARCH

The Efficacy and Safety of YAG Laser Vitreolysis for Symptomatic Vitreous Floaters of Complete PVD or Non-PVD

Tie Zhu Lin • Tongtong Li • Xinmei Zhang • Yannian Hui • Salissou Moutari • Emmanuel Eric Pazo • Guangzheng Dai • Lijun Shen

Received: August 9, 2021 / Accepted: November 1, 2021 / Published online: November 15, 2021
© The Author(s) 2021

ABSTRACT

Introduction: To evaluate and compare the efficacy and safety of YAG laser vitreolysis in treating symptomatic vitreous floaters of complete posterior vitreous detachment (PVD) and non-PVD.

Methods: In this prospective cohort study, 51 eyes with symptomatic floaters were treated with YAG laser vitreolysis. Participants were divided into complete PVD and non-PVD groups. Objective visual quality measures including the Strehl ratio (SR), internal spherical aberration (SA), internal comatic aberration (CA), internal high-order aberration (HOA), area ratio of modulation transfer function (MTFa) and Vitreous Floaters Symptom Questionnaire (VFSQ-13) scores were used to compare the efficacy of YAG laser vitreolysis treatment between two groups.

Results: The mean age of all patients was 56.80 ± 10.82 years old. In total, 36 of 51 (70.59%; 95% CI 58.10-83.10) patients reported their symptoms as significant or complete improvement after YAG laser vitreolysis treatment. Post-treatment MTFa, internal SA and internal HOA were significantly better compared to baseline (26.19 ± 14.73 vs. 29.19 ± 17.98 , $p = 0.013$; 0.05 ± 0.05 vs. 0.04 ± 0.04 , $p = 0.031$ and 0.23 ± 0.22 vs. 0.16 ± 0.07 , $p = 0.044$; respectively) in all eyes. Twenty-nine of 51 (56.86%) eyes had floaters of non-PVD type. Significant or complete subjective improvements in the PVD group and non-

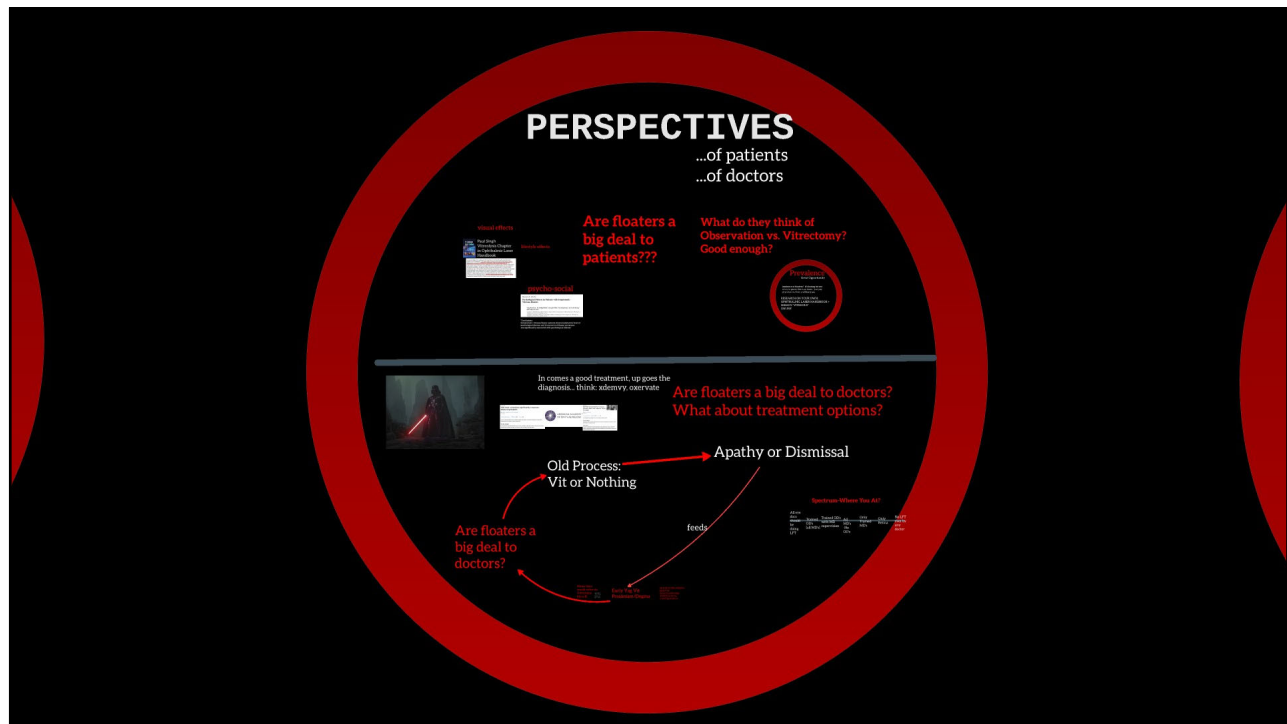
Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s40123-021-00422-6>.

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13



PERSPECTIVES
...of patients
...of doctors

visual effects
Paul Singh
Vitrectomy Chapter
in Ophthalmic Laser
Handbook

lifestyle effects

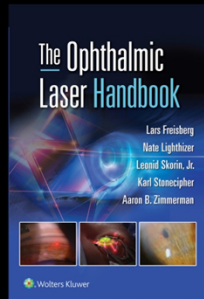
Are floaters a big deal to patients???

What do they think of Observation vs. Vitrectomy? Good enough?

Prevalence
Great Opportunity
Incidence of floaters? It's boring for me to try to prove that it isn't... just pay attention in clinic and literature.
RESEARCH ON YOUR OWN: OPHTHALMIC LASER HANDBOOK + SEBAG'S VITREOUS ONLINE

psycho-social

Research Article
Psychological Distress in Patients with Symptomatic Vitreous Floaters
Yang, J., et al. "The Young Women's Study: A Longitudinal Study of the Prevalence and Impact of Vitreous Floaters." *Journal of Ophthalmology*, 2018.
Conclusions: Symptomatic vitreous floater patients showed substantial level of psychological distress, and the severity of floaters symptoms was significantly associated with psychological distress.



Paul Singh Vitreolysis Chapter in Ophthalmic Laser Handbook

lifesty

A study by Wagle, et al., addressed the impairment on functional quality associated with floaters in 311 outpatients.² The utility values of floaters were equal to age-related macular degeneration and similar to glaucoma, mild angina, stroke and asymptomatic HIV. This demonstrates that floaters do have a significant impact on quality of life, similar to other ocular and systemic diseases. Further, a study by Webb et al., found that floaters are very common in the general population, irrespective of age, race, gender and eye color. In a review of 603 smartphone users, 76% (n=458) indicated that they notice floaters, with 199 of these individuals citing noticeable vision impairment as a result of their floaters. Furthermore, myopes and hyperopes were 3.5 and 4.4 times more likely, respectively, to report moderate to severe floaters.³ A 2016 study by Garcia et al. showed that there was a 52.5% reduction in contrast sensitivity function following PVD. In a survey of approximately 600 smartphone users, 33% of respondents reported that their floaters caused noticeable visual impairment.⁴

psycho-social

Research Article

Psychological Distress in Patients with Symptomatic Vitreous Floaters

Yong-Kyu Kim,¹ Su Young Moon,¹ Kyung Mi Yim,² Su Jeong Seong,² Jae Yeon Hwang,² and Sung Pyo Park¹

¹Department of Ophthalmology, Hallym University College of Medicine, Kangdong Sacred Heart Hospital, No. 150 Seongan-ro, Gangdong-gu, Seoul 134-701, Republic of Korea

²Department of Psychiatry, Hallym University College of Medicine, Kangdong Sacred Heart Hospital, No. 150 Seongan-ro, Gangdong-gu, Seoul 134-701, Republic of Korea

"Conclusions:

Symptomatic vitreous floater patients showed substantial level of psychological distress, and the severity of floater symptoms was significantly associated with psychological distress!

Great Opportunity

Incidence of floaters? It's boring for me
to try to prove this is an issue... just pay
attention in clinic and literature.

RESEARCH ON YOUR OWN:
OPHTHALMIC LASER HANDBOOK+
SEBAG'S "VITREOUS"
ONLINE

Are floaters a
big deal to
patients???

What do they think of
Observation vs. Vitrectomy?
Good enough?

Prevalence
Great Opportunity

Incidence of floaters? It's boring for me
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RESEARCH ON YOUR OWN:
OPHTHALMIC LASER HANDBOOK +
SEBAG'S "VITREOUS"
ONLINE

of

PERSPECTIVES

...of patients
...of doctors

visual effects

Paul Singh
Vitrectomy Chapter
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Handbook

lifestyle effects

psycho-social

Are floaters a big deal to patients???

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RESEARCH ON YOUR OWN: OPHTHALMIC LASER HANDBOOK + SEBAGS "VITREOUS" ONLINE

Conclusions
Symptomatic vitreous floaters showed a substantial level of psychological distress, and the severity of floater symptoms was significantly associated with psychological distress.

In comes a good treatment, up goes the diagnosis... think: xdemvy, oxervate

Are floaters a big deal to doctors?

What about treatment options

Old Process:
Vit or Nothing

Apathy or Dismissal

Are floaters a big deal to doctors?

Spectrum-Where You A

feeds


All eye docs should be doing LFT

Trained ODs [all MDs]	Trained ODs with MD supervision	All MDs -No ODs	Only Trained MDs
-----------------------	---------------------------------	-----------------	------------------

Old Process:
Vit or Nothing

Are floaters a big deal to doctors?

Are floaters a
big deal to
doctors?



Old Process: 
 Vit or Nothing

Are floaters a big deal to doctors?
What about treatment options?

→ Apathy or Dismissal

→ Apathy or Dismissal



feeds



na Docs
ld rather do
ectomy
e/\$]

Since 2018, the university has
announced plans to invest \$100
million in research and development
at its medical center.

Early Yag Vit
Pessimism/Dogma

Early tech/little research/
guidelines
-Some bad outcomes
-Underwhelming
-Cost/Expectations

Since 2018, I've sent only 2
patients for vitrectomy for
floaters after trying YAG VIT.
None have chosen vitrectomy
at intial consult with me.
>600 YAG VIT Treatments- to
date

Since 2018, I've sent only 2
patients for vitrectomy for
floaters after trying YAG VIT.

None have chosen vitrectomy
at intial consult with me.

>600 YAG VIT Treatments- to
date

Retina Docs
would rather do
Vitrectomy
[time/\$]

Since 2018, I've sent only 2
patients for vitrectomy for
floaters after trying YAG VIT.
None have chosen vitrectomy
at all (I consult with me
+02 YAG VIT Treatment to
date)

Early Yag Vit
Pessimism/Dogma

Early tech/little research
guidelines
-Some bad outcomes
-Underwhelming
-Cost/Expectations

Are floaters a
big deal to
doctors?

diagnosis... think. action

YAG laser vitreolysis significantly improves Weiss ring floaters

By Jayanth S Sridhar, MD, Carl J Danzig MD
Retina/Nitreous

ADD TO MY BOOKMARKS | COMMENTS | VIEWS 3245

This is the first prospective trial to evaluate the safety and efficacy of YAG laser vitreolysis for symptomatic floaters arising from posterior vitreous detachment.

Study design

This is a single-center trial randomized 52 eyes to receive 1 session of YAG laser (n=36) or sham (16). The primary outcomes were subjective changes using various scales to quantify visual disturbance.

AMERICAN ACADEMY™ OF OPHTHALMOLOGY

Nd:YAG treatment for vitreous floaters does not improve visual function

By Sreeniwas MD
Retina/Nitreous

ADD TO MY BOOKMARKS | COMMENTS | VIEWS 3570

This retrospective study assessed Nd:YAG laser vitreolysis for vitreous floaters.

Study design

Researchers examined records from 59 participants with untreated vitreous floaters, 38 with floaters treated with Nd:YAG and 35 matched controls.

Outcomes

Although laser treatment reduced vitreous echodensity by 23%, it did not improve vision or visual function relative to untreated patients. Twenty-five individuals were dissatisfied after their procedure and sought vitrectomy; these patients tended to have worse vitreous echodensity and contrast sensitivity. Thirteen patients reported satisfaction with observation.

AUG 25, 2017

YAG laser vitreolysis significantly improves Weiss ring floaters

By Jayanth S Sridhar, MD, Carl J Danzig MD

Retina/Nitreous

+ Add to My Bookmarks ... | Comments | Views 3245

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DEC 03, 2019

Nd:YAG treatment for vitreous floaters does not improve visual function

By [Seenu Hariprasad MD](#)
RetinaNitrous

[+ Add to My Bookmarks](#) • [Comments](#)  @ Views 3570

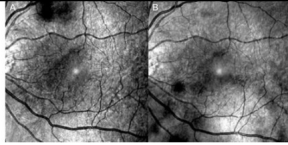
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In comes a good treatment, up goes the
diagnosis... think: xdemvy, oxervate

improves




AMERICAN ACADEMY™
OF OPHTHALMOLOGY

vitreolysis for symptomatic

DEC 03, 2019

Nd:YAG treatment for vitreous floaters does not improve visual function

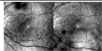
By [Seenu Hariprasad MD](#)

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All eye
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LFT

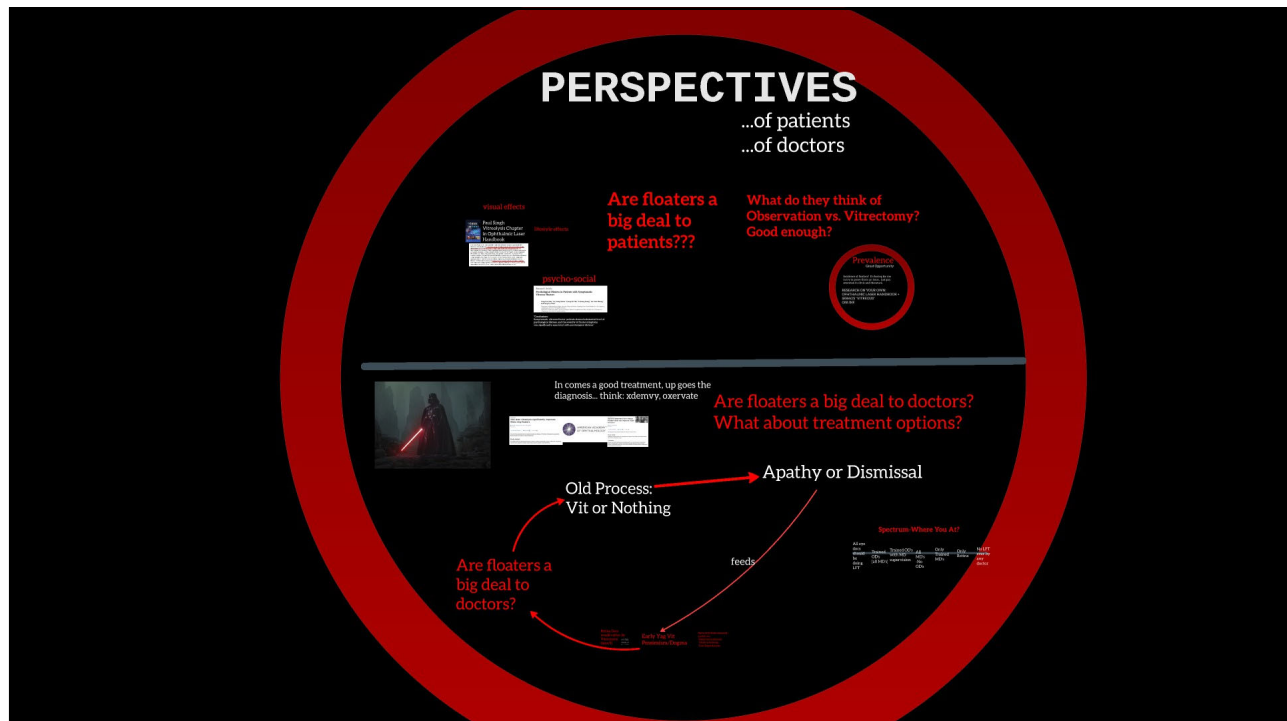
Trained
OD's
[all MD's]
Trained OD's
with MD
supervision

All
MD's
-No
OD's

Only
Trained
MD's

Only
Retina

NoLFT
ever by
any
doctor







Lumenis

DEPARTMENT OF HEALTH AND HUMAN SERVICES Food and Drug Administration Indications for Use	Form Approved: OMB No. 0910-0120 Expiration Date: 06/30/2023 See PRA Statement below.
510(k) Number (if known) I<212630	
Device Name Ellex YAG/SLT Laser (Tango, Solo, Ultra Q, Tango Reflex, Ultra Q Reflex)	
Indications for Use (Describe) In the YAG mode (Tango, Ultra Q, Ultra Q Reflex, Tango Reflex): -Iridotomy and iridectomy. -Posterior capsulotomy. -Posterior <u>membranectomy</u> .	
In the SLT mode (Tango, Solo, Tango Reflex): -Selective Laser Trabeculoplasty (SLT)	

FDA Approved for Posterior
 Membranectomy
 [Encompasses Yag Vit]



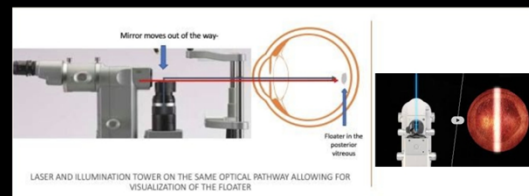
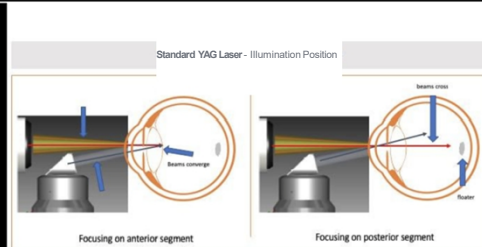
Lightmed



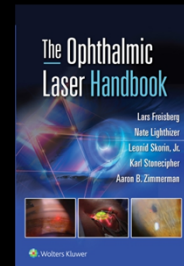
ENERGY/PULSES

Coaxial Illumination

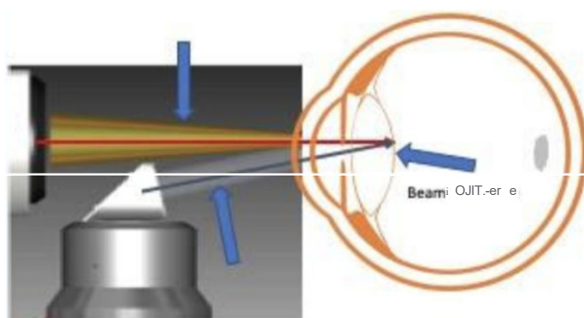
*Required beyond Ant Vit



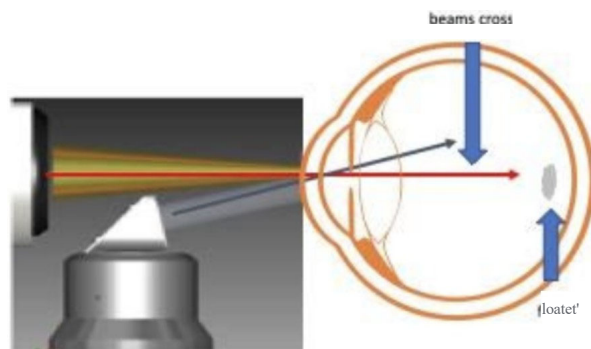
From Singh's Chapter



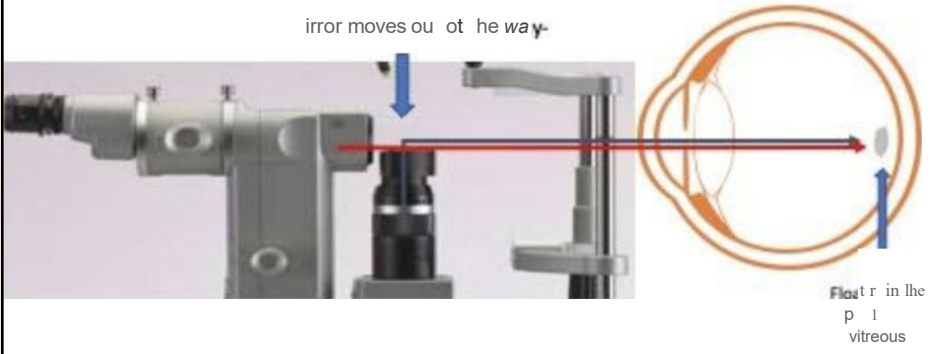
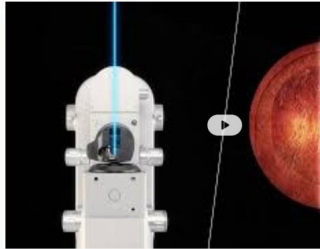
Standard YAG Laser - Illumination Position



Focusing on anterior segment



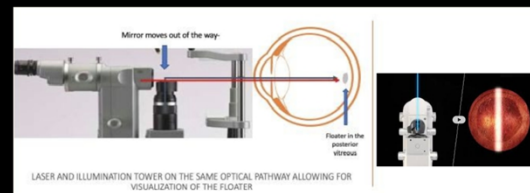
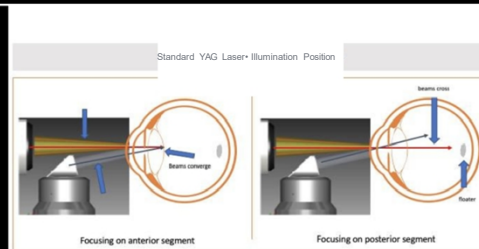
Focusing on posterior segment

Focusing on anterior segment	Focusing on posterior segment
 <p>irror moves out of the way-</p> <p>Float in the posterior vitreous</p>	

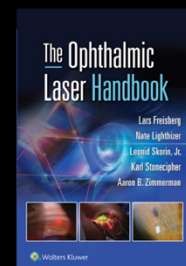
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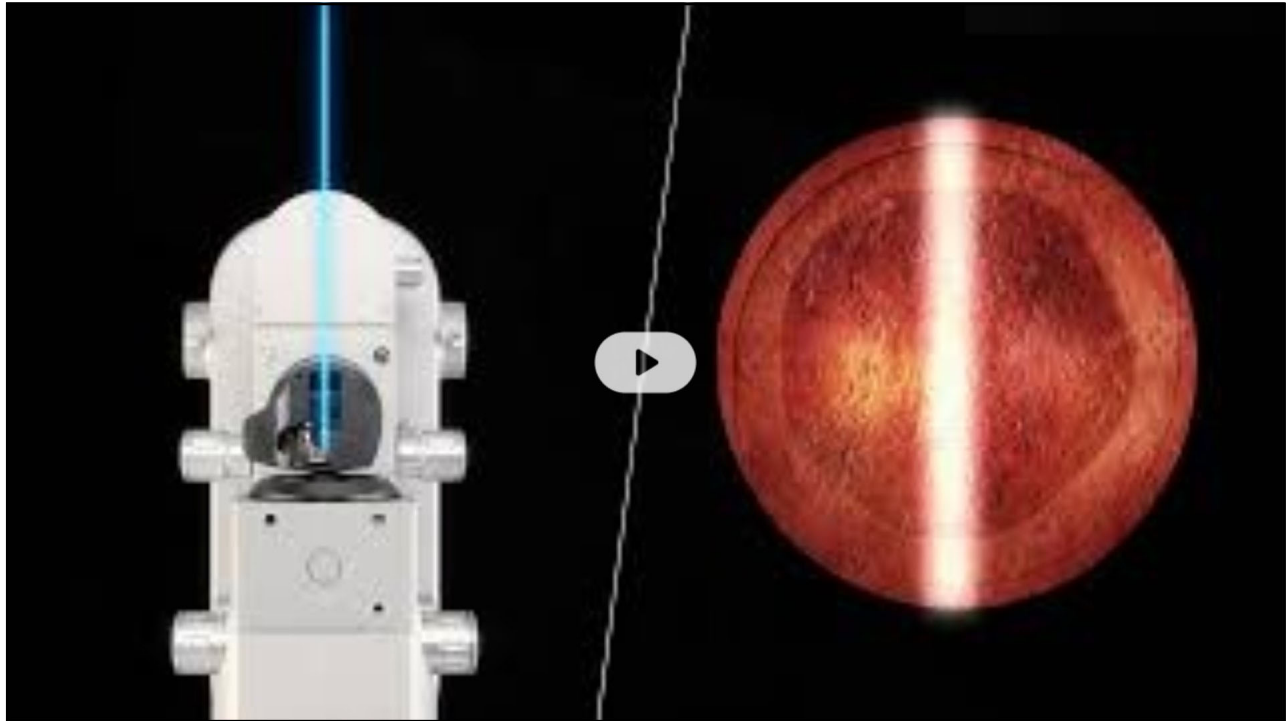
Coaxial Illumination

*Required beyond Ant Vit



From Singh's Chapter





AVOIDING THE LENS+RETINA

THE REASON FO

THE RULE

Blast Zone Size

Your visual focus is
at the plane of laser
focus

an important clinical pearl: if the floater is in focus and



THE RULE

"An important clinical pearl: if the floater is in focus and the retina is also in focus, do not fire. Conversely, if the floater is in focus and retina is out of focus, you have enough spatial distance from the retina to fire (Fig.18.9)"

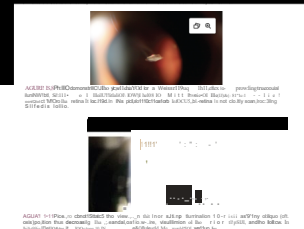
+THE SAME FOR
THE LENS



THE RULE

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+THE SAME FOR
THE LENS



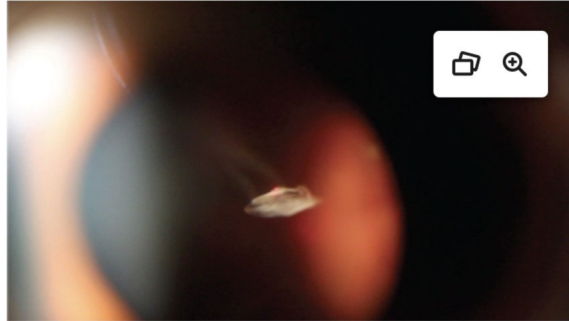


FIGURE 18-9 Photo demonstrates the view achieved for a Weiss ring using the reflex tower providing true coaxial illumination. Slight titration of the illumination tower helps to maximize the view of the opacity and provide spatial context of where the retina is located. In this picture the floater is in focus, but retina is not clearly seen, indicating safe distance to fire.

floaters are 1 mm

FIGURE 18-9 Photo demonstrates the view achieved for a Weiss ring using the reflex tower providing true coaxial illumination. Slight titration of the illumination tower helps to maximize the view of the opacity and provide spatial context of where the retina is located. In this picture the floater is in focus, but retina is not clearly seen, indicating safe distance to fire.

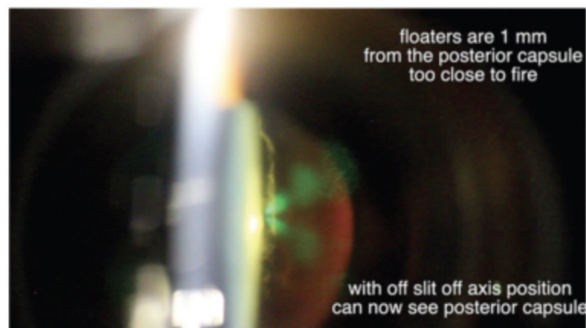
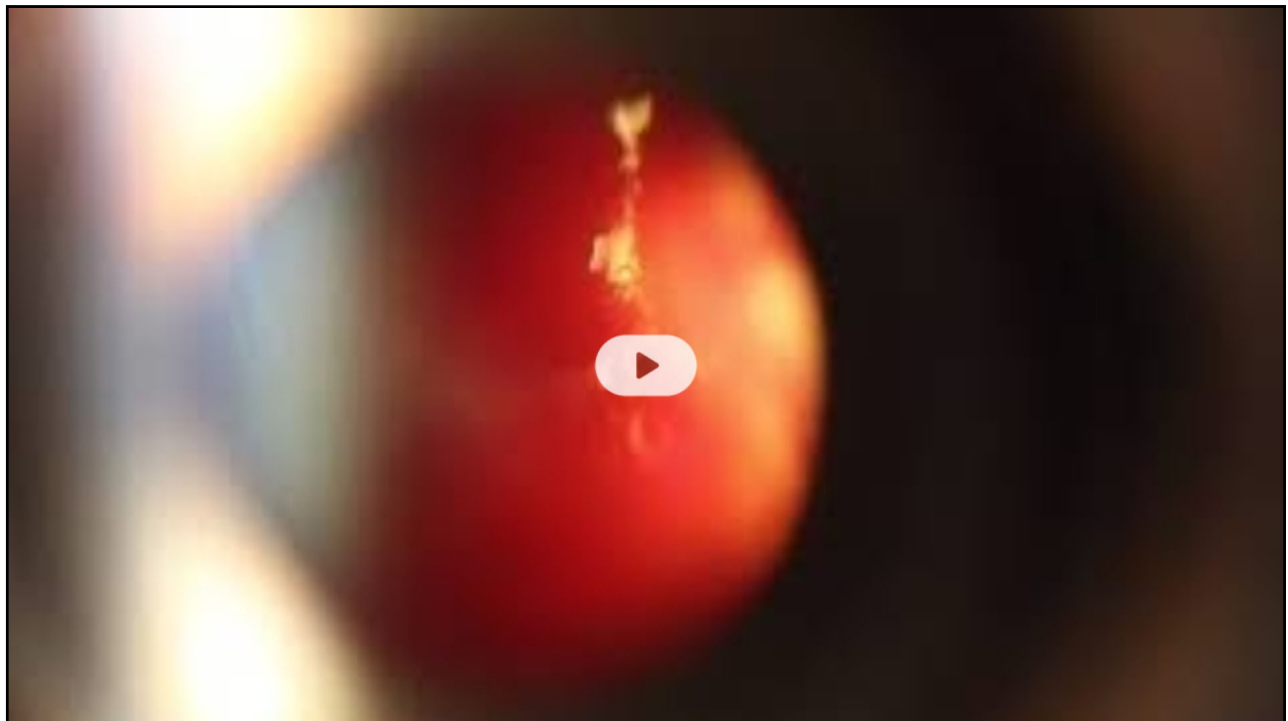
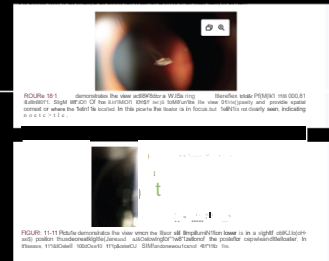


FIGURE 18-11 Picture demonstrates the view when the laser slit lamp illumination tower is in a slightly oblique (off axis) position thus decreasing the glare and also allowing for visualization of the posterior capsule and the floater. In this case, the floater is too close to the posterior capsule and one would not want to fire.

THE RULE

"An important clinical pearl: if the floater is in focus and the retina is also in focus, do not fire. Conversely, if the floater is in focus and retina is out of focus, you have enough spatial distance from the retina to fire (Fig.18.9)"

**+THE SAME FOR
THE LENS**



Calculation Summary:

- **Depth of Focus for Laser:** Approximately 0.148 mm (148 μ m)
- **Blast Zone Radius:** 0.2 mm (200 μ m)
- **Safe Distance for Retina:** >2 mm

Conclusion:

With a depth of focus of approximately 0.148 mm and a blast zone of 0.2 mm, if the floater is 2 mm from the retina, it provides a significant safety margin. The retina's defocus indicates it is far outside the depth of focus and blast zone, thus remaining safe during YAG vitreolysis.

B-SCAN DURING LFT

https://www.youtube.com/watch?v=NKocT_scKPo

https://www.youtube.com/watch?v=NKocT_scKPo Ultrasound with yag
Paul Singh minute -34:40






DANGER
**LOST IN SPACE
+ TIME**


MECHANICS

EQUIPMENT+SAFETY




LASERS, LENSES, BSCAN.


Control Illumination
*Required beyond Ant-Vit



Lightmed



Lumenis



FDA Approved for Posterior Membranectomy (Encompasses Yag Vit)

ENERGY/PULSES


AVOIDING THE LENS+RETINA

THE RULE

The important clinical point of the Rule is to keep the laser beam focused on the retina. The laser beam should be focused on the retina, not on the lens. The laser beam should be focused on the retina, not on the lens. The laser beam should be focused on the retina, not on the lens.


THE REASON FOR THE RULE

Blast Zone Size
Your visual focus is at the plane of laser focus




MECHANICS

EQUIPMENT+SAFETY




LASERS, LENSES, BSCAN.


Control Illumination
*Required beyond Ant-Vit



Lightmed



Lumenis



FDA Approved for Posterior Membranectomy (Encompasses Yag Vit)

ENERGY/PULSES


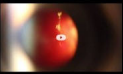
AVOIDING THE LENS+RETINA

THE RULE

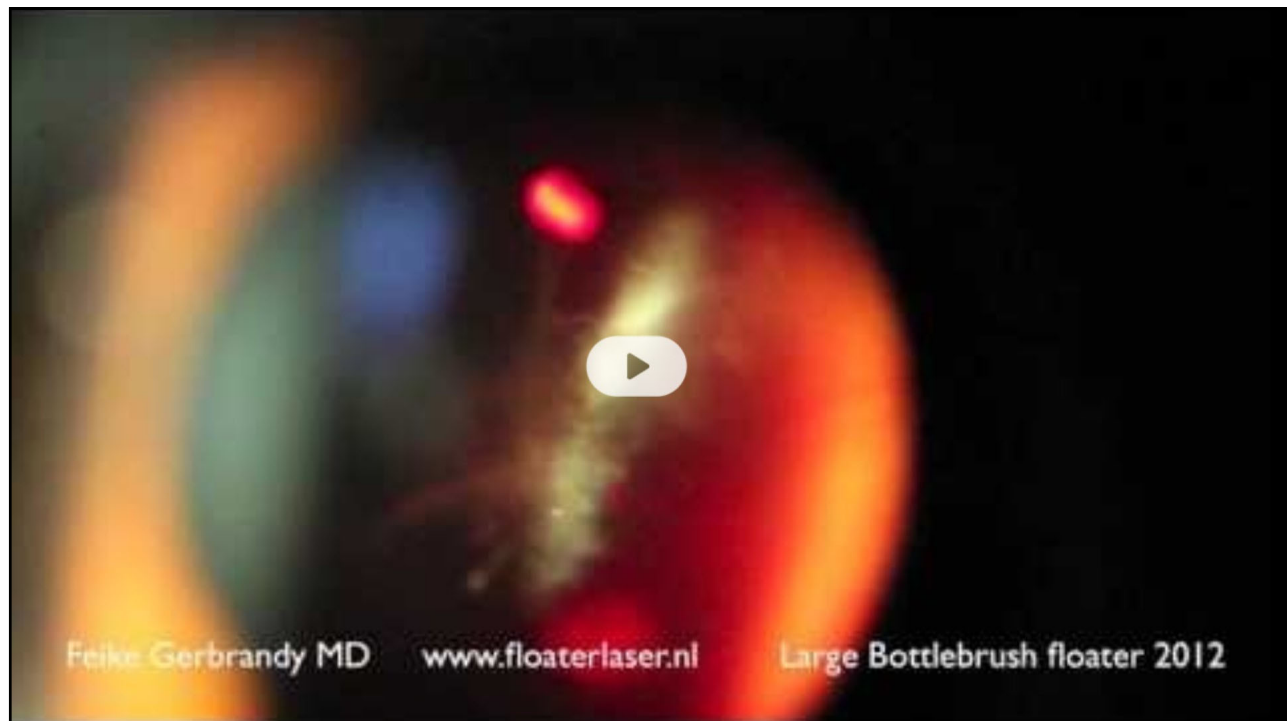
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THE REASON FOR THE RULE

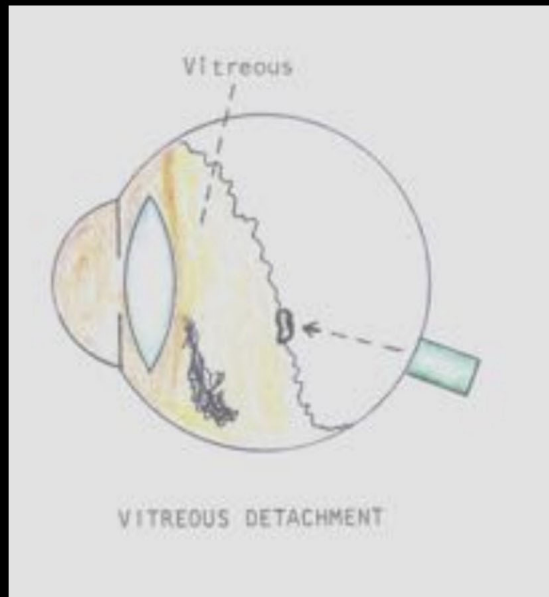
Blast Zone Size
Your visual focus is at the plane of laser focus

DANGER
LOST IN SPACE
+ TIME



DUET-pic from Karikhoffe



COMMON "LASER-ABLE" FLOATERS

WEISS

BOTTLEBRUSH-MOBY DICK

STRANDS



DOCT pic from Karikhoffe

OTHER TRASHY
FLOATERS

CLOUDS

[illegible]~~nnl:ll"lhl NPnth1n.111n. Vtrr111n. Al11n.1n111n. n!:lrrPt {NrI•VAn / VAn}~~

Retinal Heme

Top Increase

1. Singh's paper
1. 93% had immunosuppression
2. No Mac pathologic changes
3. No uveitis or vitritis
4. 7/1200 HIV positive

45

Iop Increase

Cataract



Retinal Tear?

Karikhoffe book stats:
0.25% iop spike risk
<1% retina damage (hit or tear
Cataract (2/4500)

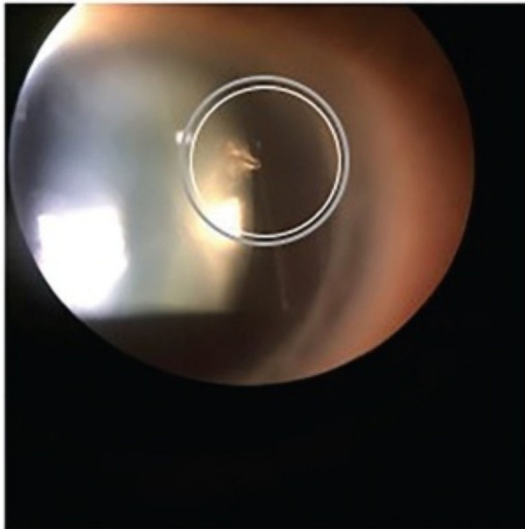
Hitting the Lens...happen



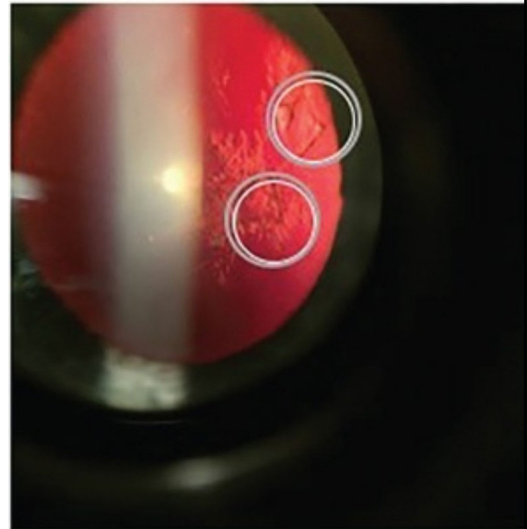
Nucleus was hit in the p-riphery. Patient asymptomatic and is being observed.

*Have actually found :
pre-op referrals from l

Hitting the Lens...happened early in learning



ucleus was hit in the periphery. Patient asymptomatic and is being observed.



Posterior capsule was hit near center of the visual axis. Patient was symptomatic and underwent lens removal with IOL

Nudeus washit In the periphery. Patient asymptomatic and is being observed.

Posterior capsule was hit near center of the visual axis. Patient was symptomatic and underwent lens removal with IOL

durin
degr
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dergo
retu

Retinal Tear?

*Have actually found about 10-20 tears on pre-op referrals from MD's and OD's

My Complications:

- 2 Retinal Tears out of 600+sessions [1wkpo]
- 1 iop increase-added slt-stable
- <1% worsen floaters or non-resolution

1. Singh's paper from ASCRS
 1. 93% had improvement
 2. No Mac pathology
 3. No uveitis effects
 4. 7/1200 iop spikes

Karikhoffe book stats:

- 0.25% iop spike risk
- <1% retina damage (hit or tear)
- Cataract (2/4500)

■ CLINICAL SCIENCE ■

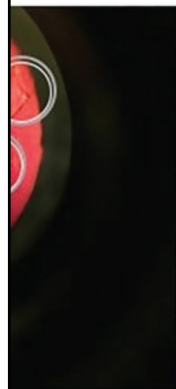
Long-Term Follow-Up of Efficacy and Safety of YAG Vitreolysis for Symptomatic Weiss Ring Floaters

Chirag P. Shah, MD, MPH; Jeffrey S. Heier, MD

Objective improvement of their Weiss ring. There were several adverse events noted

LASER HANDBOOK


Learning



Near center of the
asymptomatic and
with IOL

There were several adverse events noted between month 6 and the end of follow-up at 2.3 years, that were not evident within the first 6 months after YAG vitreolysis. The most significant were three eyes with delayed retinal tears that were noted 1.4 to 2.8 years after YAG vitreolysis. All of these tears were asymptomatic and detected on examination; they were not evident at month 6 on depressed fundus examination. Without a long-term control group, it is unclear if these delayed retinal tears are related to treatment or represent the inherent risk for these eyes. Interestingly, a single retinal tear through latice degeneration occurred in a sham-treated patient during the original 6-month study, supporting some degree of inherent risk.¹ The delayed tears reinforce the importance of long-term follow-up in eyes undergoing YAG vitreolysis, and patient education to return immediately with any symptoms.

Risk



Retinal Hit

Retinal Heme

Iop Increase

Cataract

1. Singh's paper from ASCRS
 1. 93% had improvement
 2. No Mac pathology
 3. No uveitis effects
 4. 7/1200 IOP spikes

Karikhoffe book stats:
 0.25% IOP spike risk
 <1% retinal damage (inf or tear)
 Cataract (2/4500)

Long-Term Follow-Up of Efficacy and Safety of YAG Vitreolysis for Symptomatic Weiss Ring Floaters

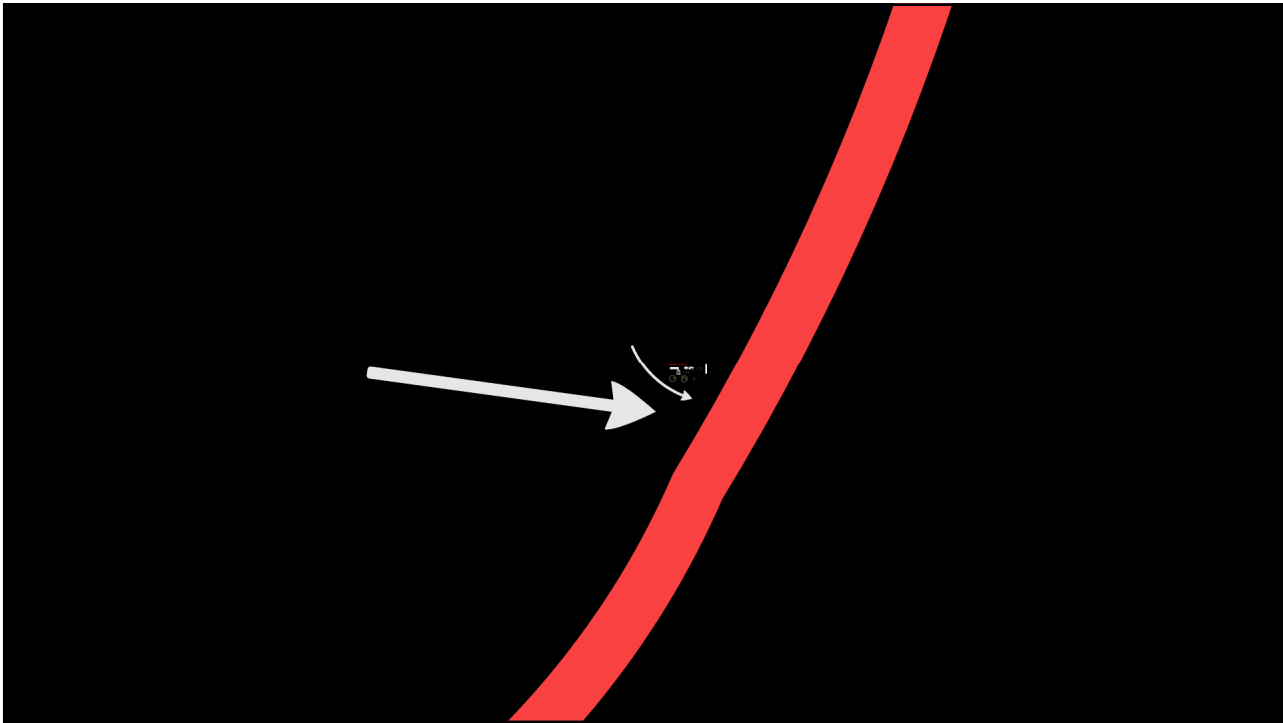
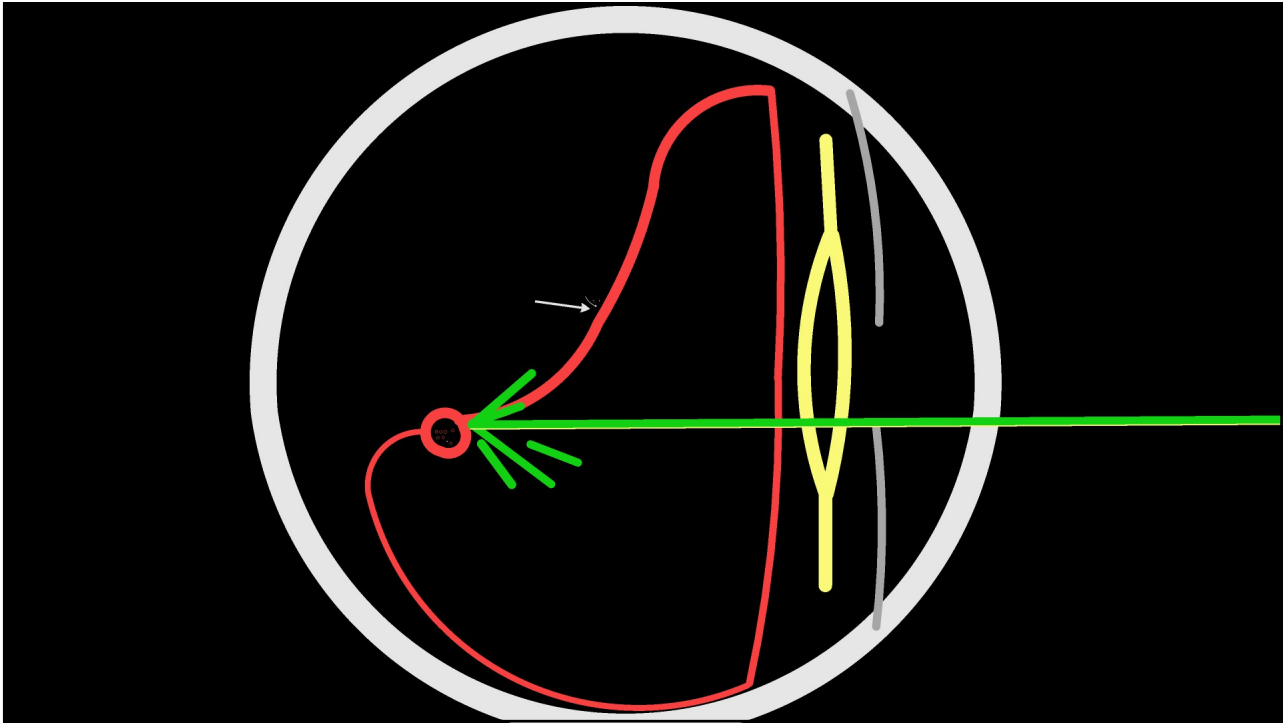
FROM P. SINGH - OPHTH LASER HANDBOOK

Hitting the Lens...happened early in learning

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ABSOLUTE:
UNCONTROLLED GLAUC
SEVERE GLAUC
TRACTION
SEVERE NPDR
VMT

CAUTION
UVEITIS
CME
MONOCULAR
PRIOR RET SURG
PERSONALITY/
EXPECTATIONS

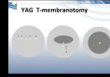


ADVANCED TECHNIQUE

Degradation of Contrast Sensitivity Function Following Posterior Vitreous Detachment

GARCIA CARLO A. GARCIA, MATI KHOSH EVIS, KEN EIH M.P. YEE, JEA IE GUYE -CUU, JUSTIN H. GUYE, AND J. SEBAG

Vitrectomy-->
50% increased
contrast
sensitivity

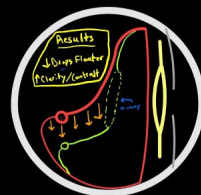
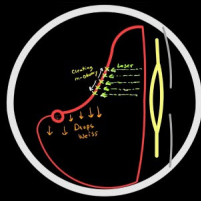
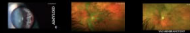
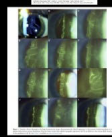


M-OTOMY+MF [me]

https://www.youtube.com/watch?v=_gcrhhesC1I

Weiss +m-otomy

<https://www.youtube.com/Shorts/AQ0Xm271>



me

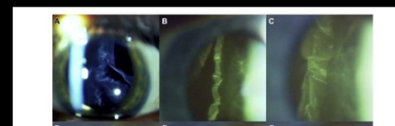


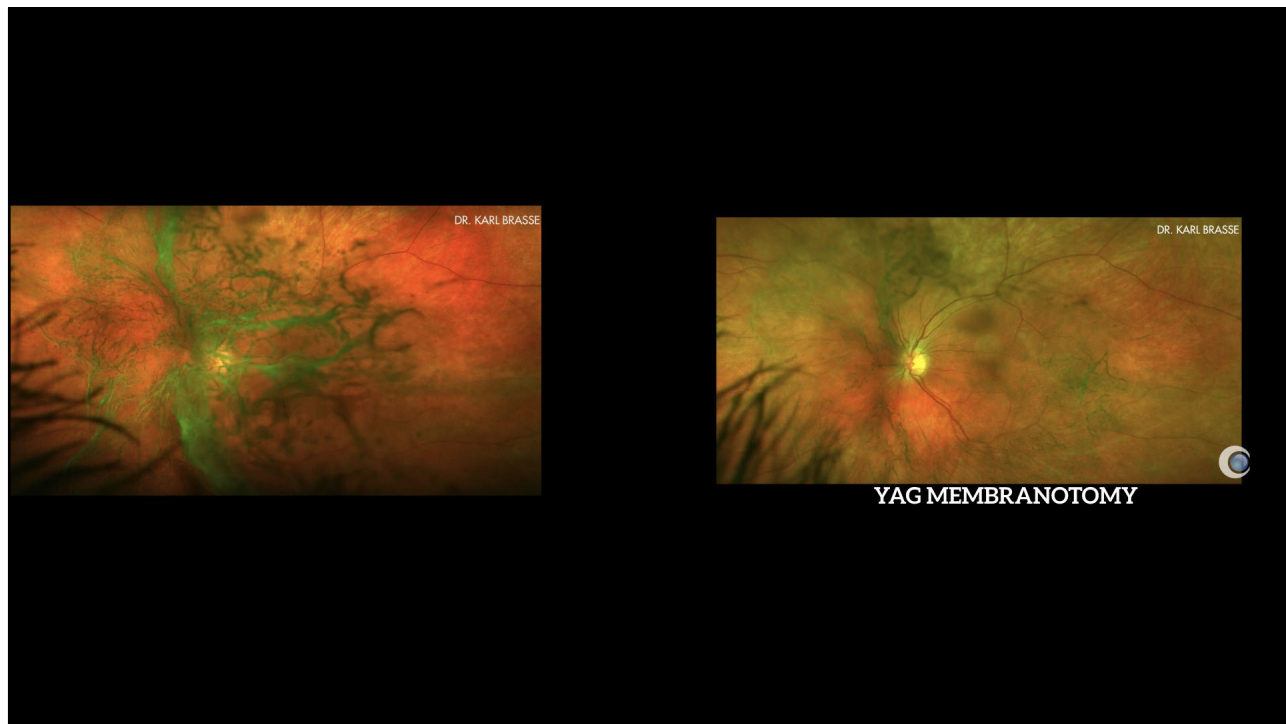
Degradation of Contrast Sensitivity Function[®] Following Posterior Vitreous Detachment

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Vitrectomy-->
50% increased
contrast
sensitivity

Posterior Vitreous Detachment and the Posterior Hyaloid Membrane





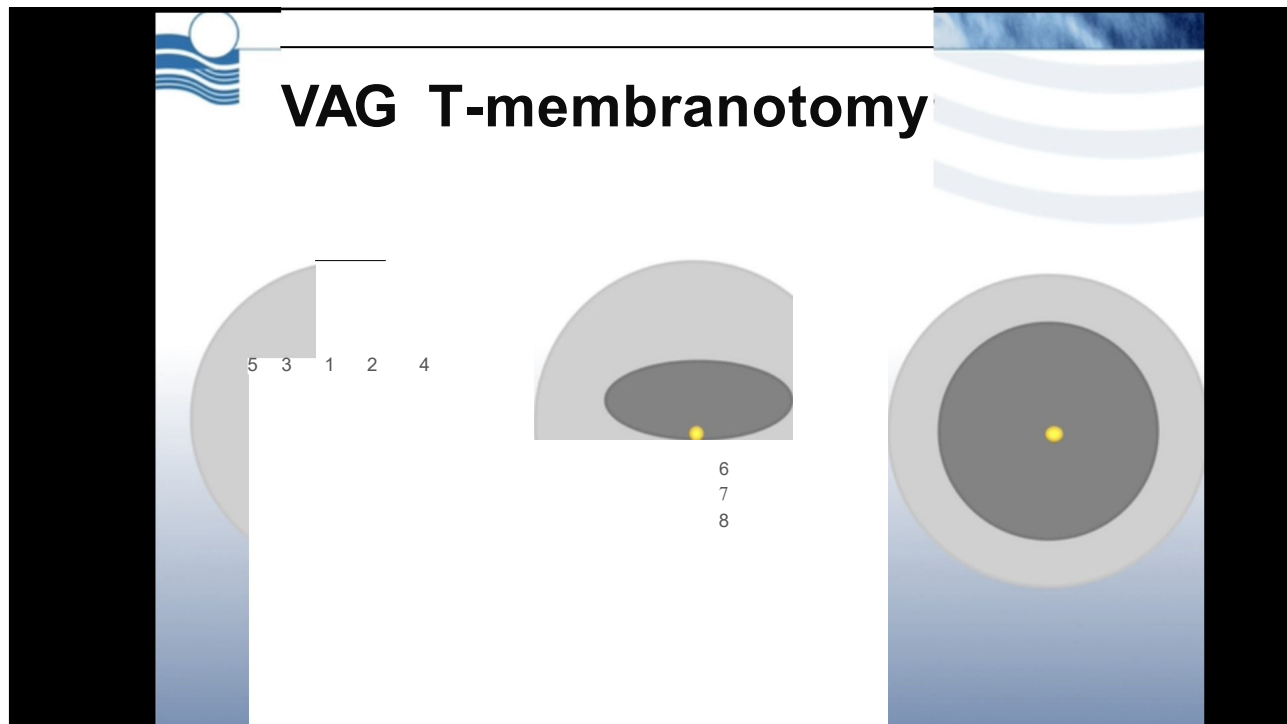
VAG T-membranotomy

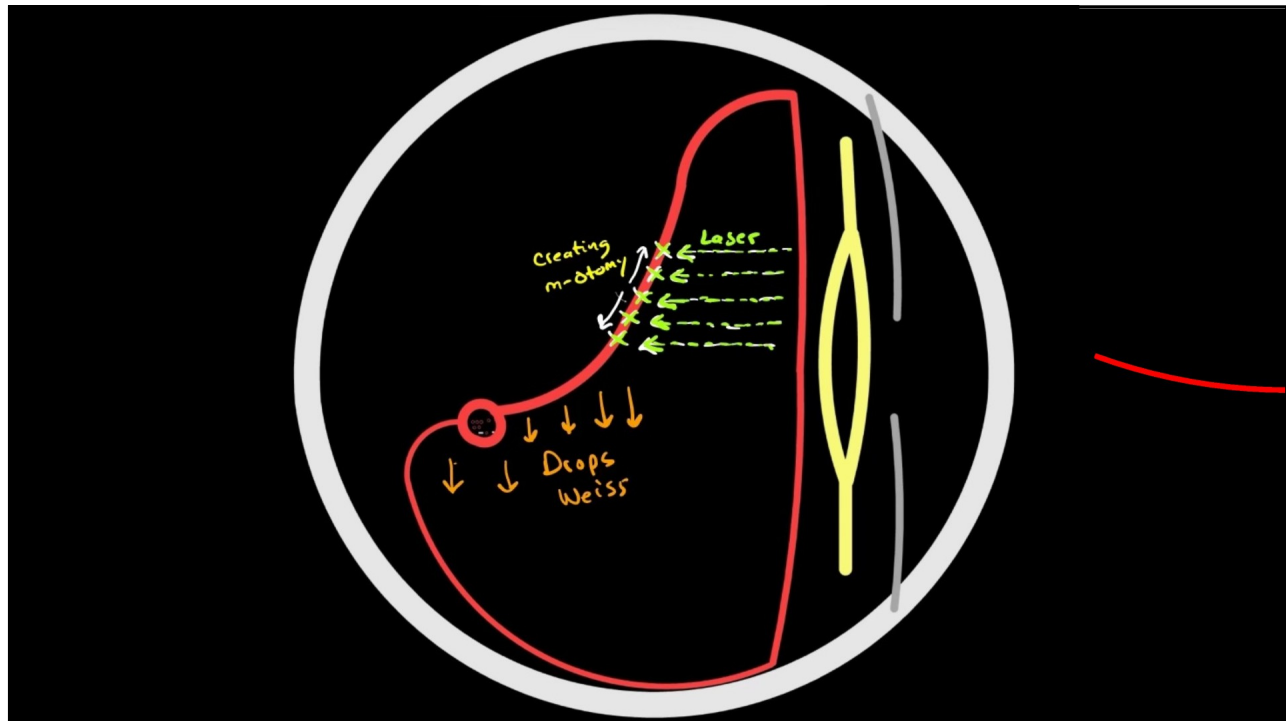
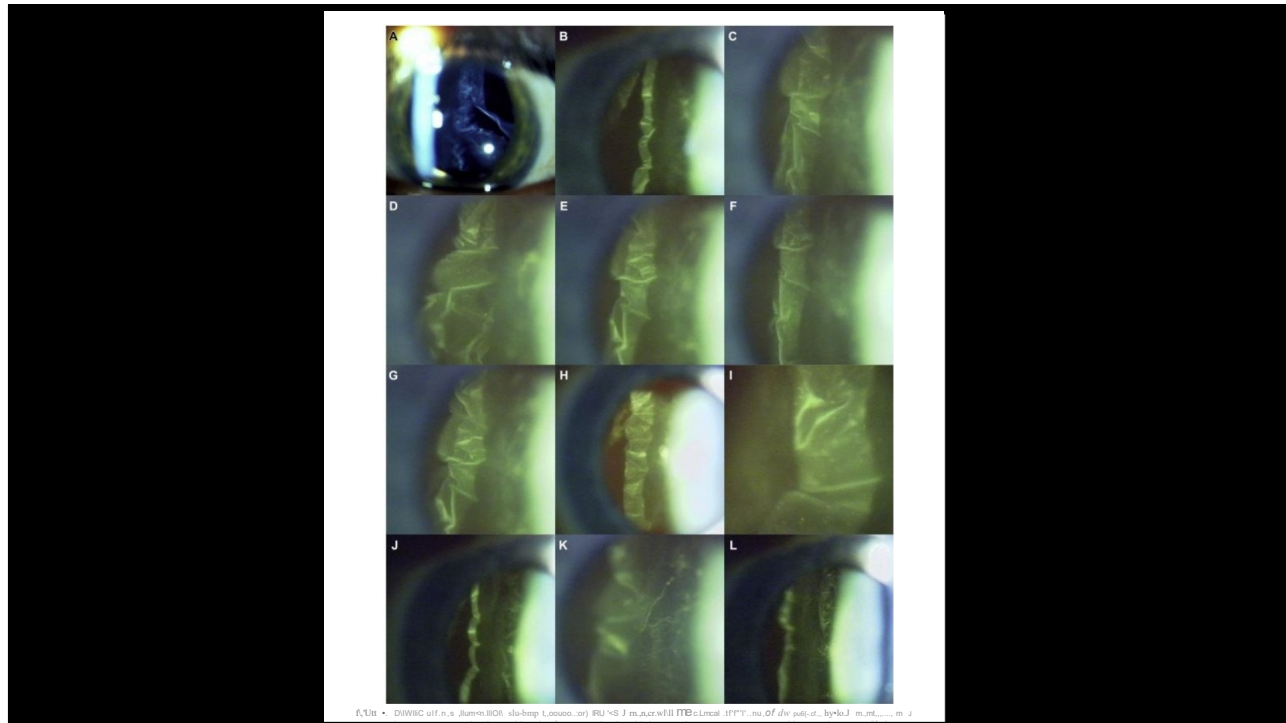
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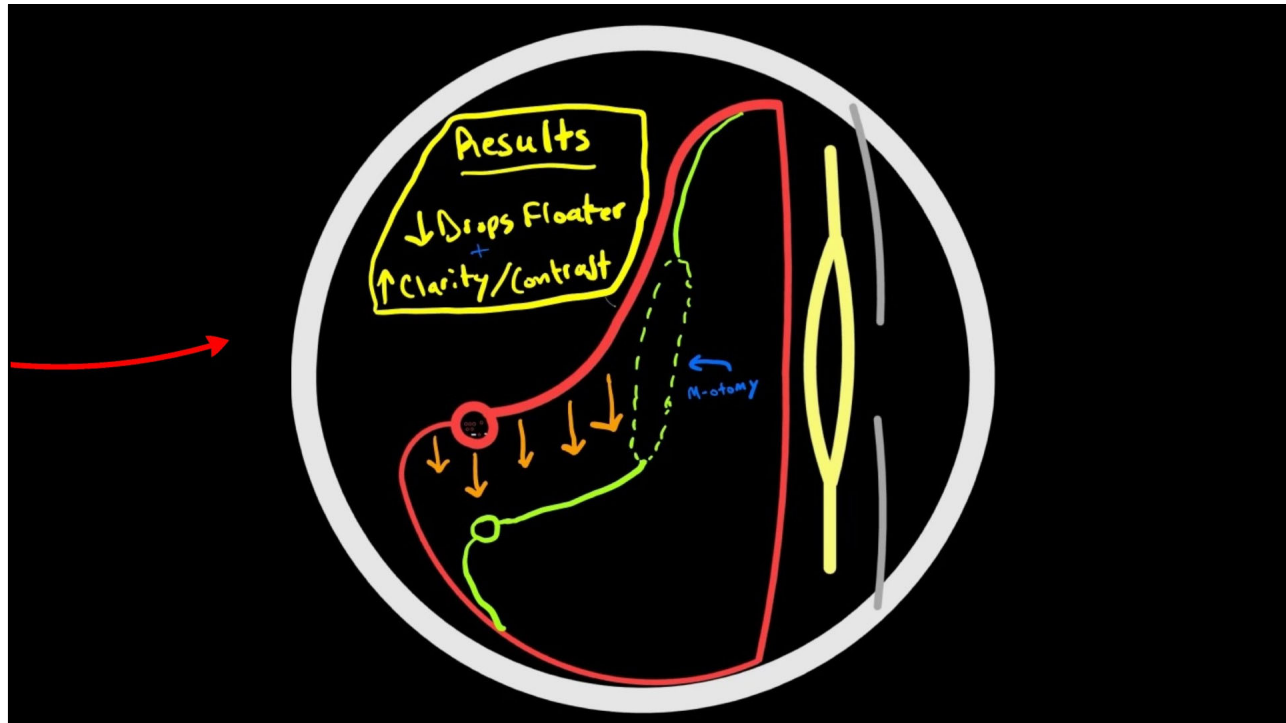
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T-membranotomy

C. van der Wilt, MD
Ziekenhuis Rivierland
Tiel, Netherlands







M-OTOMY+MF [me]

https://www.youtube.com/watch?v=_gcrhhesC1I

Weiss +m-otomy

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Trace

PLL barely visible behind SOL
 without using fundus lens.

Example: ↓

0-25% of view
 is PLL. Rest is
 formed vitreous

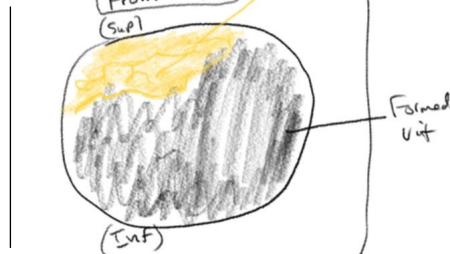
Just
 visible



yo, l) (v.v): ↓

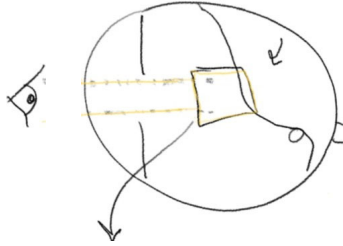
Frontal View
 (Sup)

Detached Vit



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Pu...



Your View [frontal]

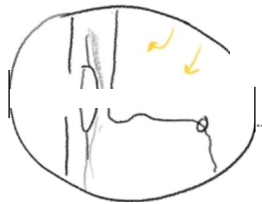


C J)):+?o,

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Grade 3 Ditto, but 75 < 100%

Grade 4 Ditto, but
100% Fully detached
PLL



G<I).L > a."J \{ oc-e

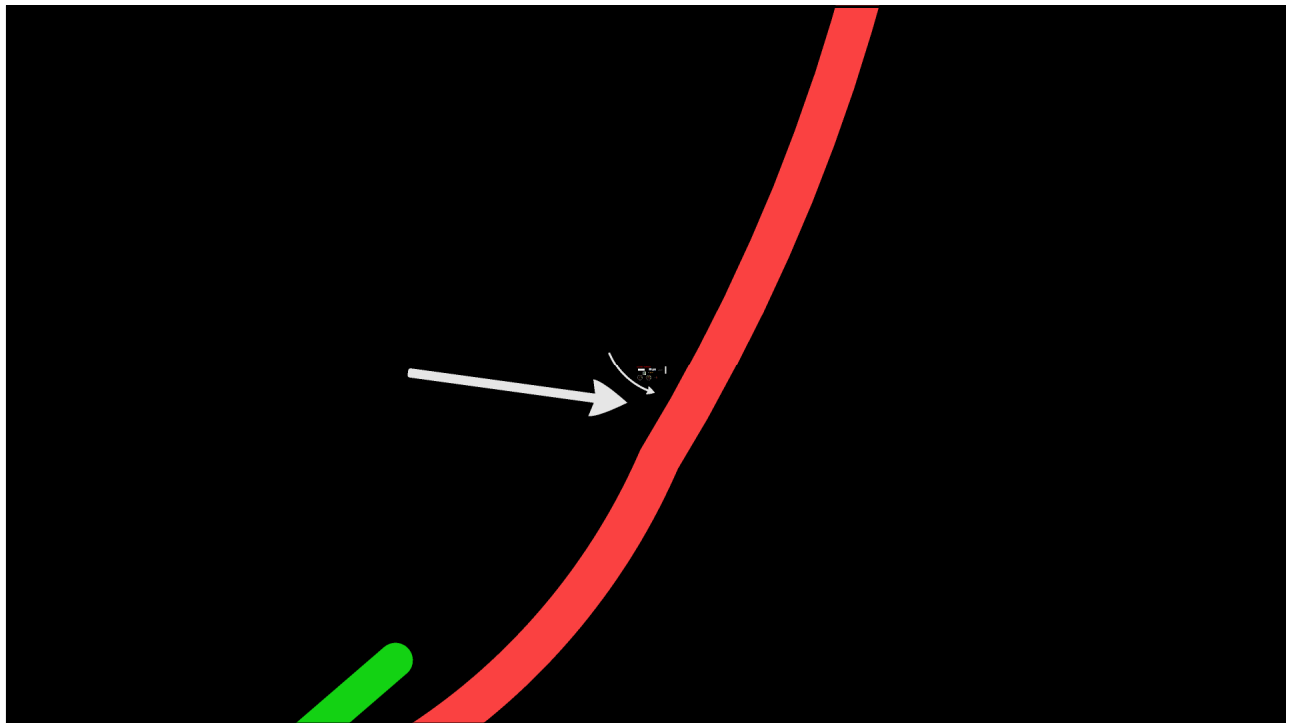
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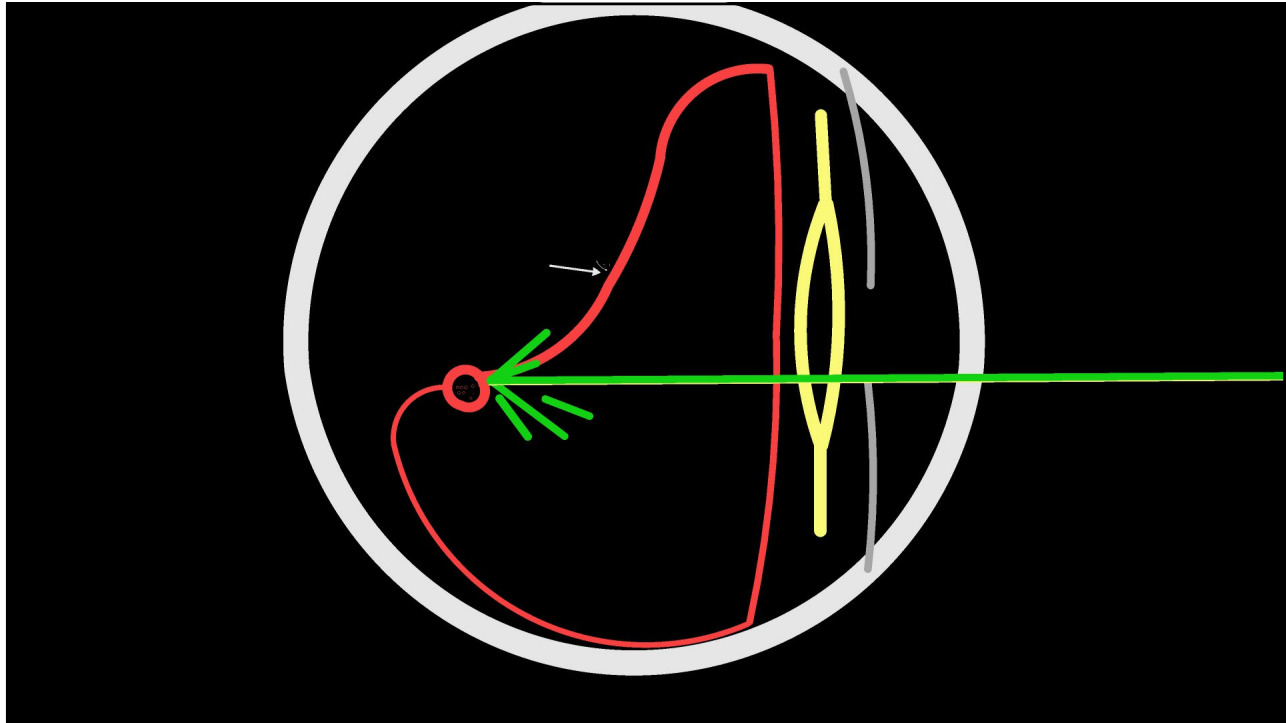
M-OTOMY+MF [me]

https://www.youtube.com/watch?v=_gcrhhesC1I

Weiss +m-otomy

<https://www.youtube.com/live/zrAQJOmq97I>





Billing/Coding

H43.113 Vitreous membranes and strands, bilateral
Other

Diagnostic (CD) 10

Codes

H43.891, H43.399 Other vitreous opacities

H43.811, H43.819 Vitreous degeneration

3

67031: Severing of vitreous strands, vitreous face adhesions, sheets, membranes, or opacities (laser surgery, one or more stages).

Allowables usually \$300-\$400

All Insurances have paid except Community Care

EXPECTATIONS+COUNSEL+PROTOCOL

1 WK PO FIRST EYE

3 MO RE-EVAL

UPTO 3 TX- IF NOT SATISFIED, VITRECTOMY CONSULT

>LFT is not a 100% tx... try vitrectomy if looking for that

>With 1-3 sessions, most are 60-90% improved

>Some claim 100%

>Some 99%

>Those 20-50% still glad they did it

>Possible to have no improvement, rare

>Possible to have worsening, very rare and explain

>Other new floaters could develop later, but not the weiss etc.

>If no PVD yet, prepare them for future

EFFICACY
OPHTH. LX HANDBOOK

EFFICACY--VITREOLYSIS STUDY DATA

The recently published paper by Shah and colleagues (JAMA, July 2017) was the first randomized placebo-controlled trial evaluating the safety and efficacy of LFT using advanced NAYAG technology specifically designed for laser-based floaters treatment. This study involved 52 eyes of which 36 patients were treated with the Reflex Technology platform (Ellex Medical, Australia). The study concluded that 54% of patients in the NAYAG laser group experienced *complete* improvement. (Changed to 9% of patients in the control group. The NAYAG laser group also showed greater improvement in day 10 post visual disturbance score than the control group. Improved symptoms were reported by 53% of patients in the NAYAG laser group and 0% in the sham arm. Although these were retrograde answers in the NAYAG laser group in terms of efficacy and peripheral % loss, self-efficacy, and dependency, neither group showed changes in best corrected visual acuity. That is important to reiterate emphasis that we cannot use the Snellen chart alone to define if patients are clinically symptomatic.

Thoroughly demonstrated no retinal adverse events in the treatment group although a retinal defect was seen in the control group. This is an important point because the *current* retinal defect is often the *retinal* vitreous infection. According to the American Academy of Ophthalmology, the definition of NAYAG vTROUBLE is the "severing of vitreous strands and opacities with a laser." There is no evidence that the LFT causes traction on the retina. Also, shapiro argue that literature points to an increased risk of retinal defects in patients undergoing NAYAG capsulotomy, therefore the assumption if there must be an increased risk with LFT. It is important to understand that LFT and NAYAG capsulotomy are two entirely different procedures working on different anatomical structures. When breaking the posterior capsulohemorrhagion, there is a transfer of force/energy to the zonules, which is in turn transferred to the attached vitreous base. With LFT, the collagen fibers that are being treated do not have the same connection directly to the vitreous base, and as such the risk of retinal breaks is mutually less. There also have been no reports of increasing retinal detachment after LFT. The lens was not directly hit at the time or the procedure.

Some studies point to a psychological or adaptive component to floaters. Doctors may say the lens did not have an effect, but rather there was a placebo effect or neuroadaptation. The Shah study addresses that issue as subjects in the study did not know whether they were in the treatment group or control group. There was a significant difference in patient satisfaction between the control group and the treatment group. This study showed significant subjective improvement in the treatment group, however, there were some who still noticed symptoms. This study was not designed for a follow-up treatment session. It is important for doctors to realize that multiple sessions are common, the placebo or neuroadaptation is occurring in such a small area, thus, it is not able to always separate floaters in one session.

Another paper recently published demonstrated NAYAG Laser vitreolysis decreased the amount of vitreous floaters seen on color fundus imaging and improved related symptoms according to the NEI VFQ-25 responses. Thirty-two patients (32 eyes: 13 men and 19 women) with symptomatic vitreous floaters were enrolled in this study (mean age 59.4 years). All study patients were followed up for six months. Following the laser vitreolysis, there was a statistically significant improvement in both the mean visual function ($p = 2.97$, $p = 0.0003$) and visual disturbance ($p = 3.97$, $p = 0.0003$) ($p = 0.0003$). Distance visual function did not show statistically significant difference after the laser ($p < 0.0003$, $p = 0.0003$). Color fundus photography did reveal vitreous opacity improvement or over time in 93.7% of study eyes (partial improvement in 37.5% and total improvement in 56.2% of study eyes). During the follow-up period, recurrence of vitreous floaters, no new retinal breaks, no vitreous hemorrhage, and adverse events were not observed.

In 2019, we presented a paper at the American Academy of Ophthalmology meeting in San Francisco, CA. The study included 130 patients (mean age 61 years, range 28-82 years) who underwent LFT with the Ultra Q Reflex system (Ellex Medical, Australia). Patient satisfaction was assessed with a 1 to 10 self-rated scale, with higher values indicating greater patient satisfaction, as well as a VFIQ-25. Not indicating whether they were satisfied with improvement in daily functioning. Information on complications was recorded for all patients. We found 91% of patients stated that they were satisfied with improvement in daily visual functioning. The total average degree of improvement was 5.5 out of 10 (after multiple sessions in some patients). Patients with a Weiss ring required 12 sessions to sufficiently separate the floaters as compared to 12 sessions in patients with amorphous clouds. The number of laser shots to sufficiently separate amorphous cloud floaters was 564 shots as compared to 186 shots for Weiss rings. Power settings also varied depending on floaters type with the UltraQ setting at 5.8 mJ (range 2.9-9 mJ). Best results and higher patient satisfaction scores were notably seen with solitary Weiss rings versus amorphous clouds. The adverse event profile included 2 phakic floaters that were hit by IOP spikes, and one retinal hemorrhage. The 2 phakic floaters were hit in the 10-15 50 cases of argon experience) before we appreciated the importance of using the laser at low power in the oblique position 10 view. The posterior capsule and appreciate the distance of the floaters from the lens (Fig. 10, 15). The retinal hemorrhage occurred due to the fact the vitreous was in focus at the same time as the floaters. It was not the laser that was dangerous or involved, rather the vitreous was in focus at the same time as the floaters and therefore the laser should not have been fired at a floaters. That moment the 3 IOP spikes occurred in post-NAYAG capsulotomy patients where the amorphous clouds were right behind the lens. Increased intraocular pressure, rather than number of shots. Therefore, we recommend the number of shots to 100 or less if the floaters are close to the lens in post-NAYAG capsulotomy. Patient 10 had a retinal hemorrhage the day after a 10-hour TPO procedure.

At ASCRS 2017, we also presented a meta-analysis of all consecutive patients who underwent NAYAG laser vitreolysis for the treatment of symptomatic floaters, and had at least one 10-hour post-LFT follow-up. This retrospective study included 1272 procedures performed in 630 patients in 10 different cases of the Ultra Q Reflex NAYAG laser was employed to separate floaters. As a range point of 5 mJ per laser shot was used with an average of 564 shots per treatment session. Patients with both amorphous clouds and solitary Weiss ring type of floaters were included. For adverse events were recorded comprising seven cases of intraocular pressure (IOP) spikes, two cases of hitting the phakic lens (Figure 10, 15) and one retinal hemorrhage (this included the adverse events from the 10-hour cases in the 2016 paper). The paper represented a total adverse event rate of 0.8%. Patient with IOP spikes were placed on topical antihypertensive medications, and the retinal hemorrhage was 100 was 10 mm Hg. One of the phakic patients subsequently required retinal surgery and achieved a corrected visual acuity of 20/20. The other patient, whose lens was hit in the periphery, is still being observed. The case of retinal hemorrhage resolved in three months with no long-term negative effects. There were no inflammatory issues, floaters, no AC or vitreous cell at floaters seen. No exacerbation of diabetic retinopathy nor progression of epiretinal membrane or cystoid macular edema was seen. Postoperative regimen for all cases included IOP checks immediately after the procedure, at one week, and at one month. No anti-inflammatory drops or topical antihypertensive medications were given. Postoperative, one month, and three-month macular optical coherence tomography were obtained on all patients.

MEDIA

GOOD VISUALS+UNIQUE CASES

30 Y/O girl w/ptsd-panic at night from weiss

Thank you card with "changed my life"

Microbiologist who was miserable... vitrectomy first eye, just as happy [visually] with second eye getting LFT, much happier to not go through surgery.



Asteroid Case Success

Asteroid+PVD membranotomy



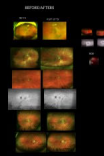
PCO rem in ast



<https://www.youtube.com/watch?v=4wzqAVxExCI>

Paul singh weiss

rod



video gallery below:

https://www.youtube.com/live/BZ7sWdp_Vy8 example very close to retina-moses

<https://www.youtube.com/live/TkK1-jc3mx0> weiss +m-otomy +panoptix

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Asteroid Case



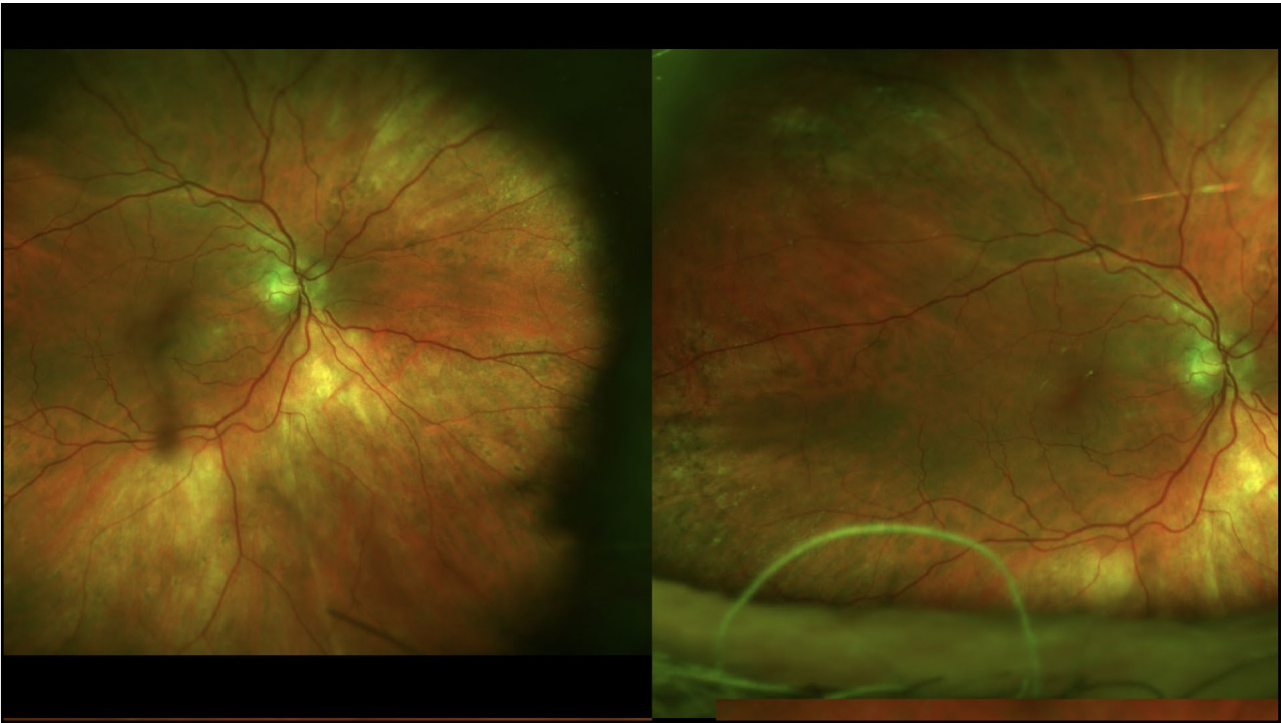
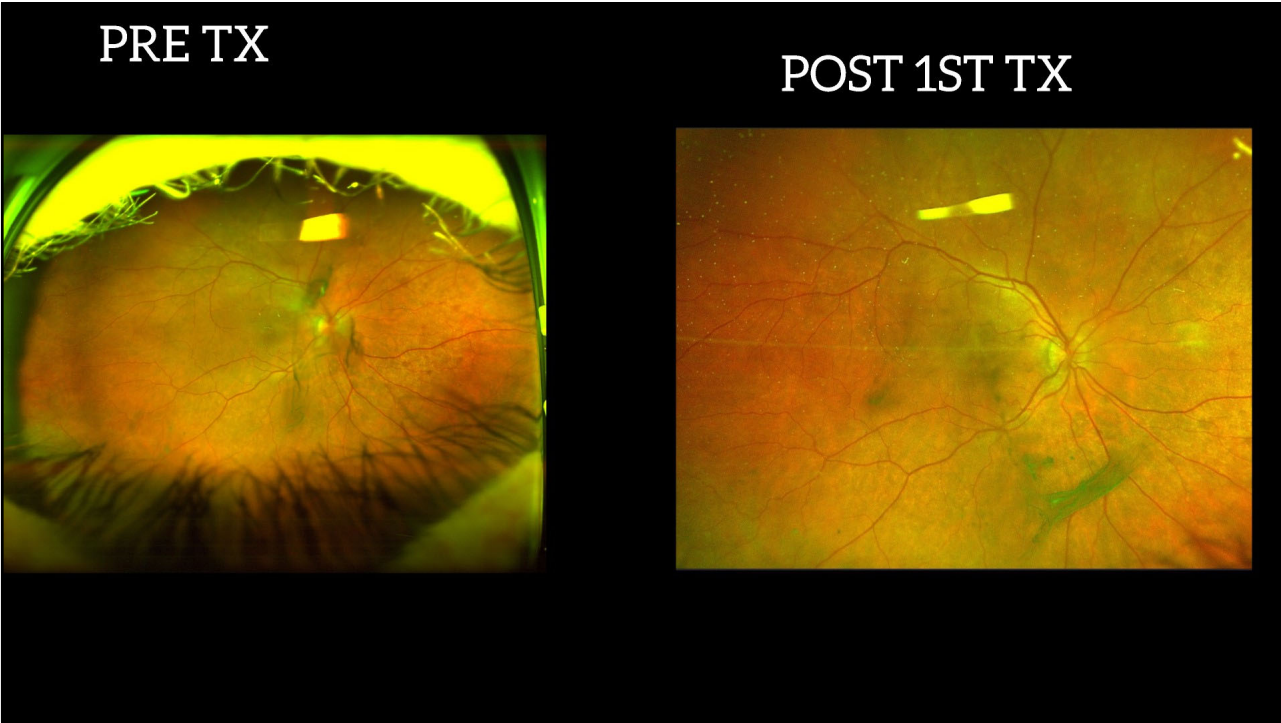
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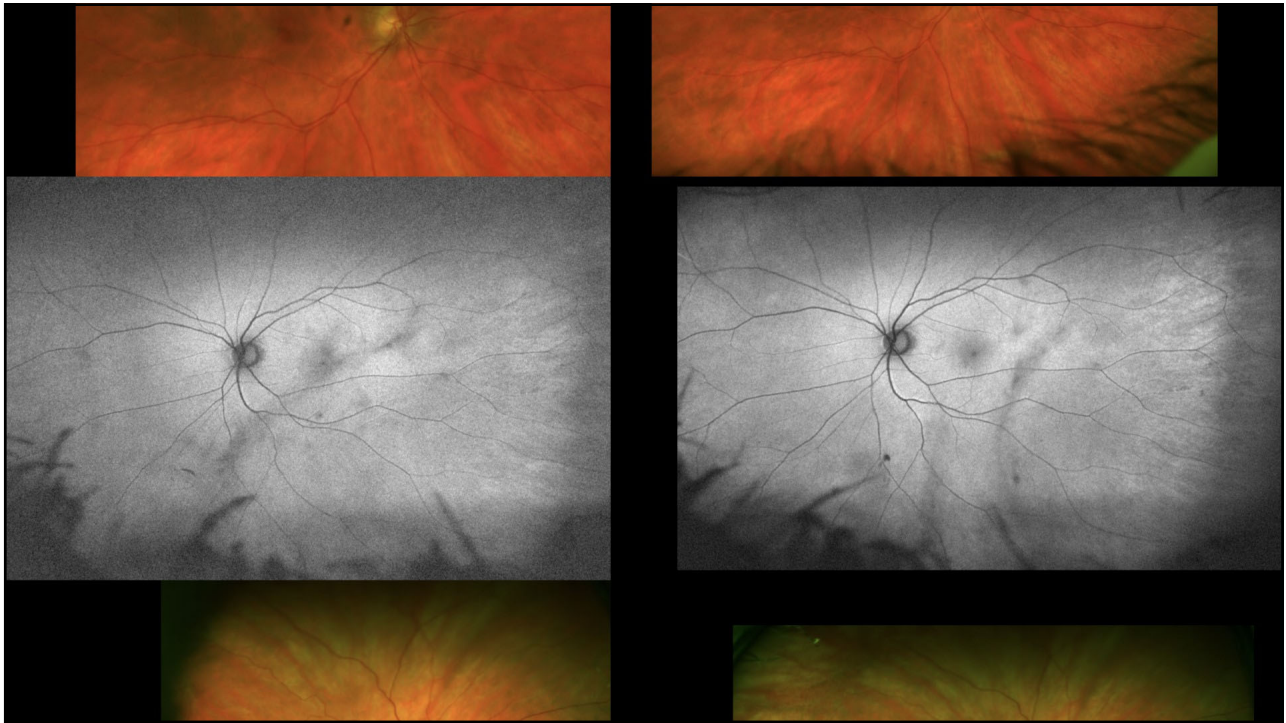
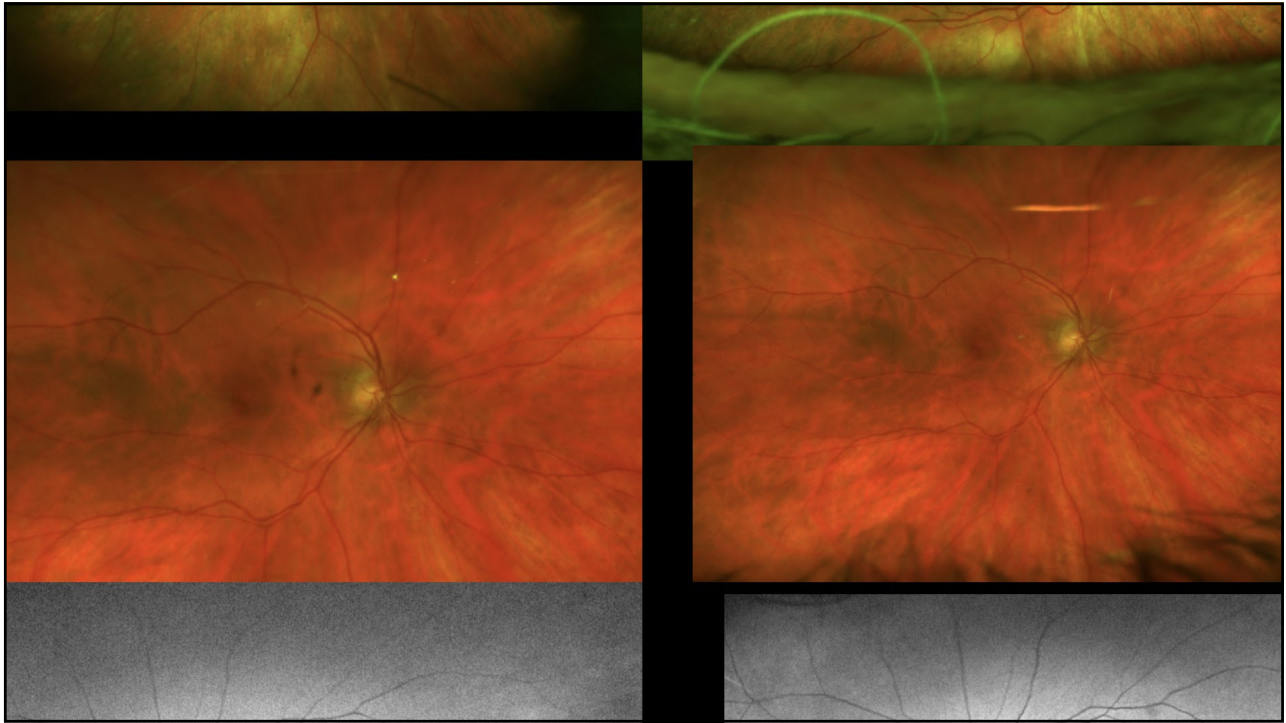
Paul singh weiss

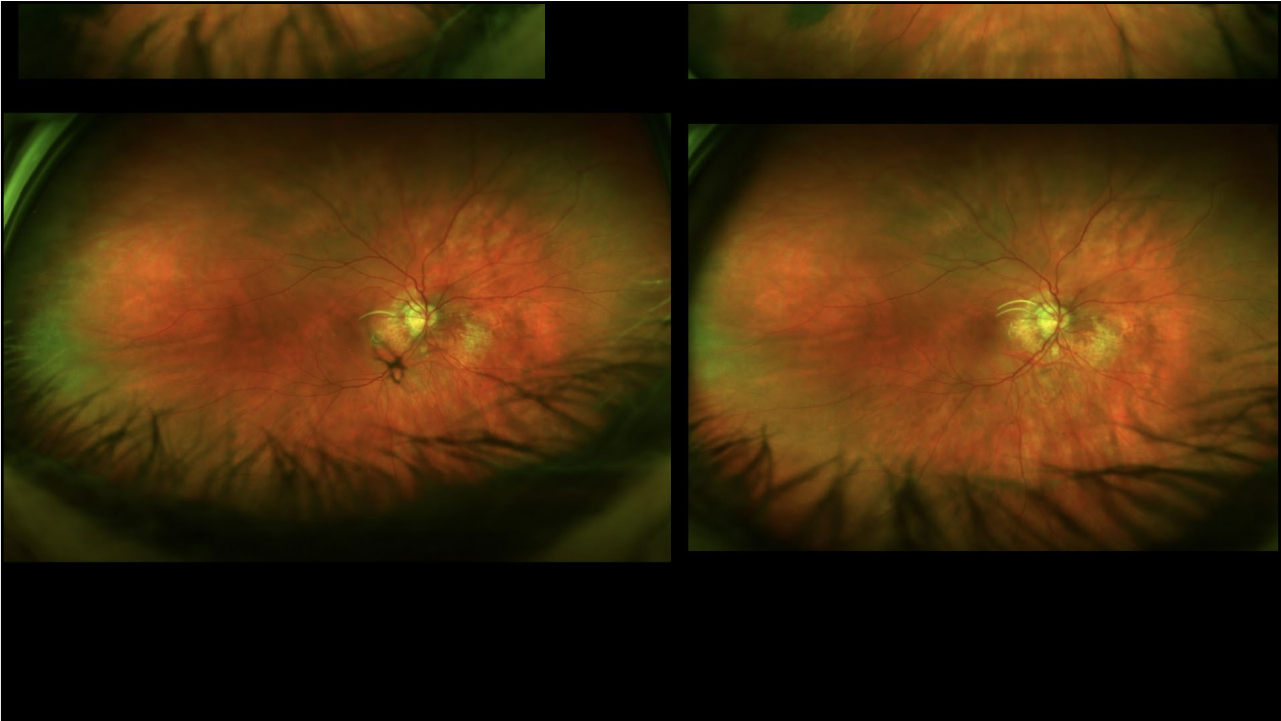
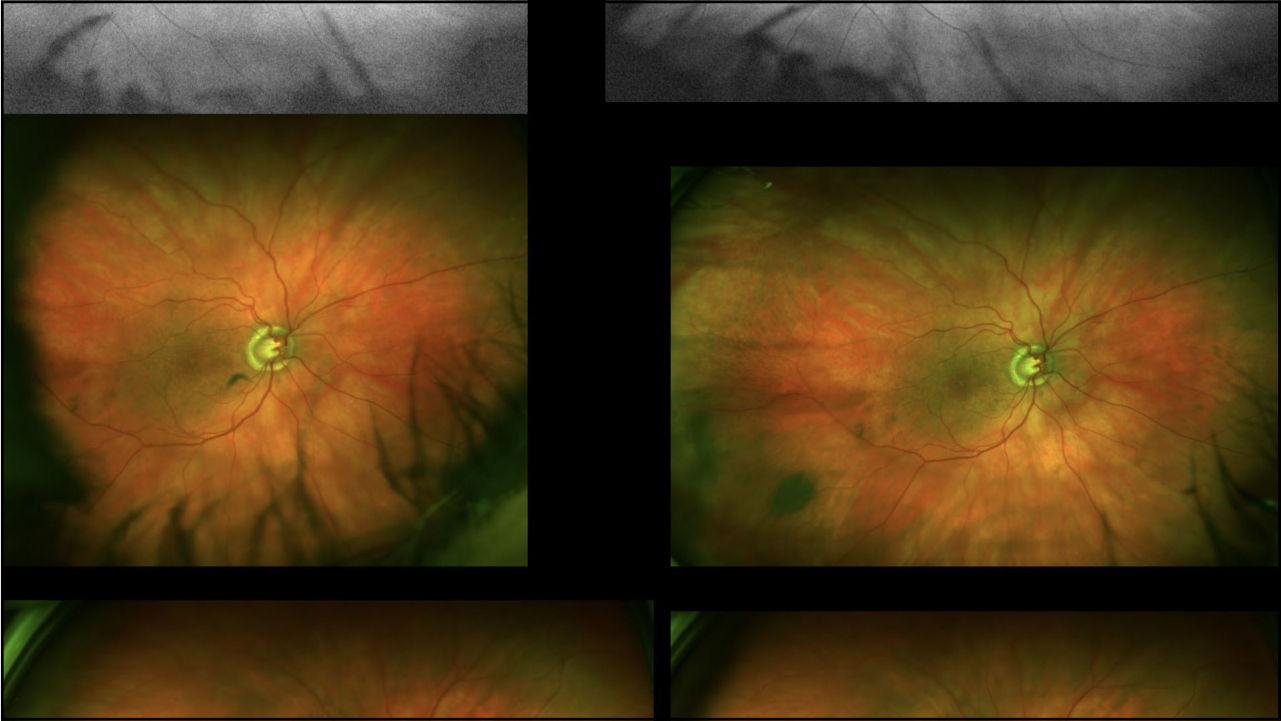
video gallery below:

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<https://www.youtube.com/live/TkK1-jc3mx0> weiss +m-otomy +panoptix



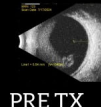
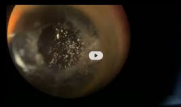




Asteroid Case Success

Asteroid+PVD
membranotomy

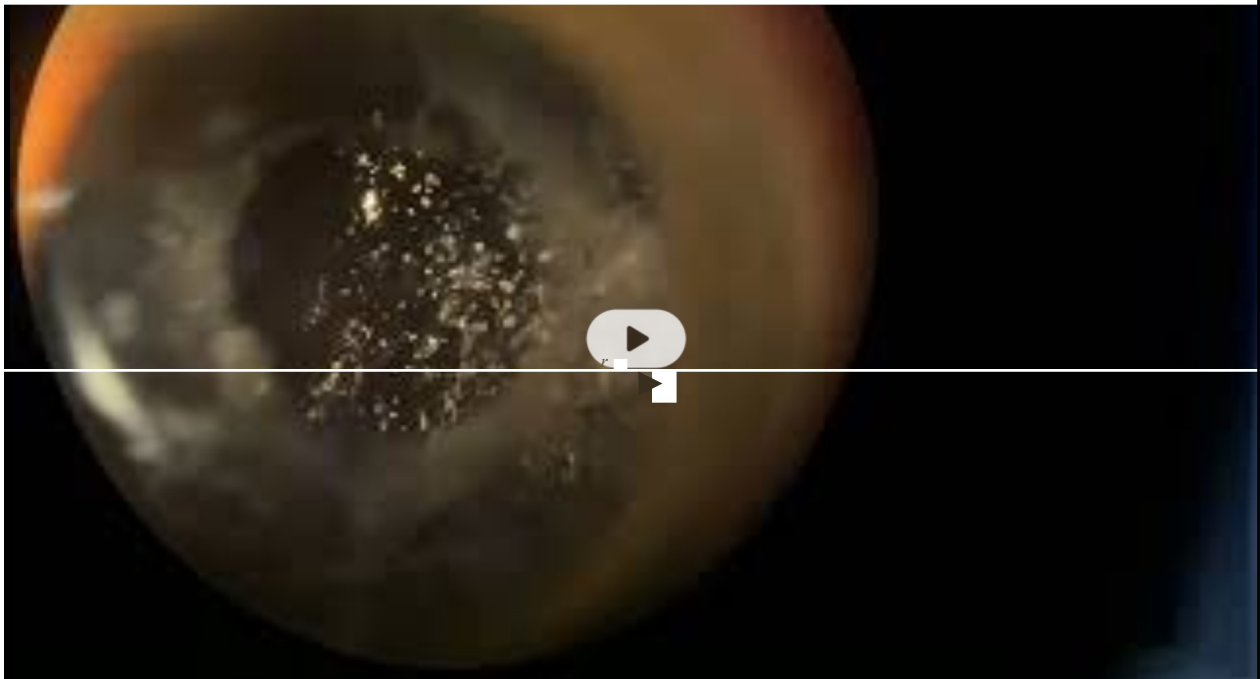
<https://www.youtube.com/live/Hjor3j38l7E?rco=1>



PRE TX



POST MEMBRANOTOMY



30 Y/O girl w/ptsd
panic at night from
welss

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vitrectomy first eye, just as happy [visually]
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MEDIA

GOOD VISUALS+UNIQUE CASES

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Microbiologist who was miserable...

membranatomy
me

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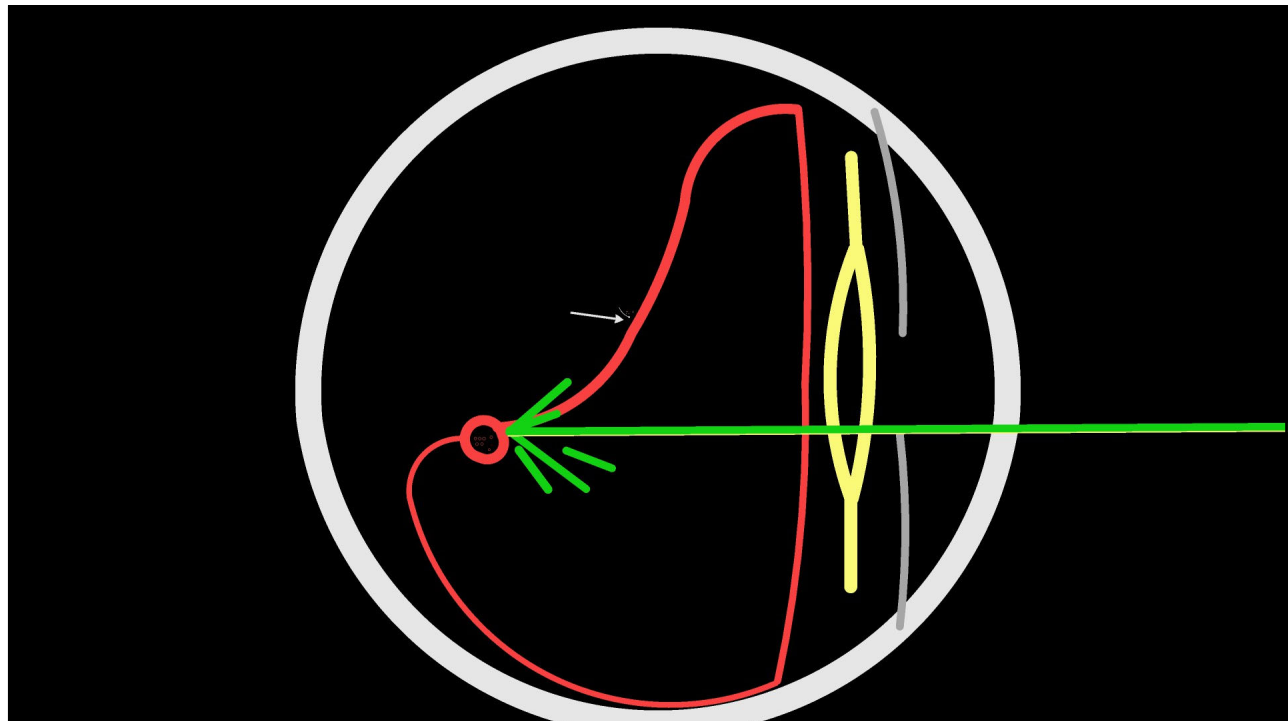
Witten+BB

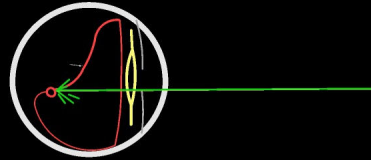
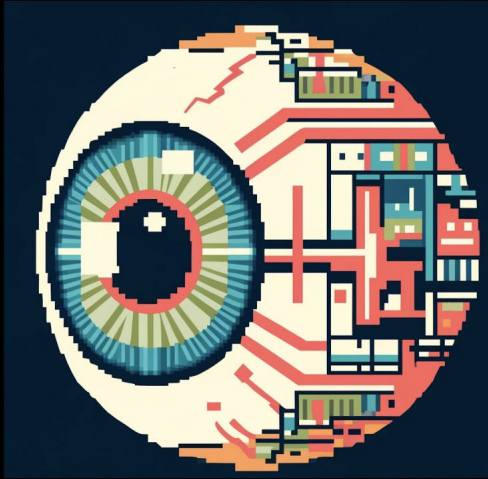
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+panoptix

<https://www.youtube.com/watch?v=4...>

Paul singh

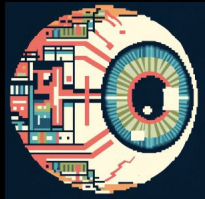
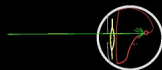




LASER VITREOLYSIS

THE END .

LASER VITREOLYSIS



"Progress comes from doing the unconventional."

Robert Machemer
[INVENTOR OF VITRECTOMY]