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Royal Palm Hall  
Campinas - SP  
Brazil

# HYALOIDECTOMY FOR TREATMENT OF SUBHYALOID HEMORRHAGE WITH ND-YAG LASER: A SUCCESS CASE

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## PURPOSE:

To describe a case of Hyaloidectomy with Nd-YAG Laser as a quick and less invasive treatment for subhyaloid hemorrhage secondary to proliferative diabetic retinopathy.

## METHODS:

Case report.

## RESULTS:

A 57-year-old female patient, Caucasian, married, related a sudden decrease in visual acuity in the left eye without improvement in the condition for 4 months.

## MEDICAL HISTORY:

- Proliferative diabetic retinopathy;
- *Diabetes mellitus* type 2;
- Panretinal photocoagulation in both eye.

## VISUAL ACUITY:

OD: -1,00 (20/25)

OS: Hand movement (HM)

## BIOMICROSCOPY:

Clear conjunctiva, transparent cornea, phakic, trophic iris, anterior chamber formed, no anterior chamber reaction in both eyes.

## FUNDUS PHOTO:

Images.

1



2

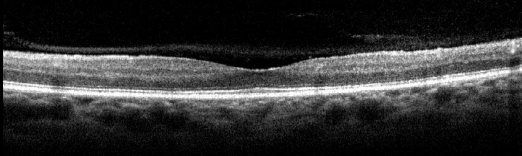


### RETINOGRAPHY (1 and 2):

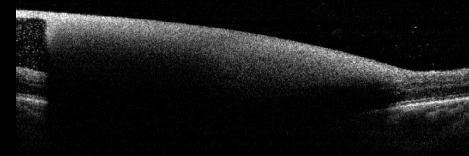
In the right eye (1) it's possible to observe laser spots close to the arches, with the presence of retinal neovessels in the upper nasal and lower nasal quadrants.

In the left eye (2), in addition to the laser spots, we observed the presence of retinal neovessels in the superior temporal arch and the presence of a massive pre-retinal hemorrhage in the form of a level occupying almost the entire macular region.

3



4



### OPTICAL COHERENCE TOMOGRAPHY (OCT):

In the B-scan examination of the left eye in the macular region (4), we observed the presence of a sub-hyaloid hyperreflective area with posterior overlap corresponding to the area of hemorrhage. It is important to note that the adjacent retina is normal, not demonstrating an area of subretinal hemorrhage.

### CONDUCT:

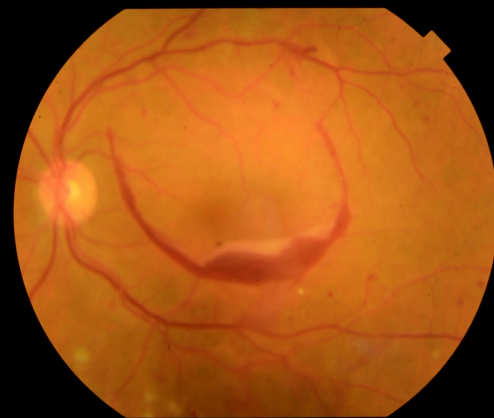
- Nd-YAG LASER pulse duration of 2–3ns with a spot size of 10  $\mu\text{m}$   
Centralis® (Volk Optical Inc., Mentor, OH, USA)



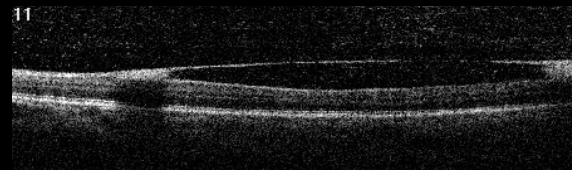
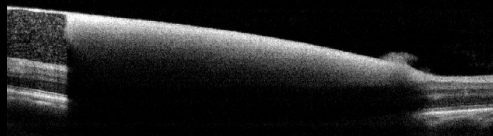
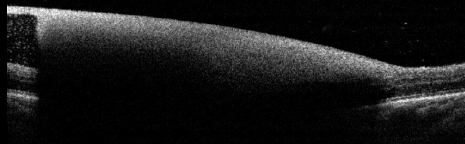
(HM)



(CF 30cm)



(20/25)



## DISCUSSION AND CONCLUSION:

YAG laser hyaloidectomy is a non-invasive and safe procedure.

It consists of creating an opening in the hyaloid membrane, allowing the blood trapped between the hyaloid and the retina to drain into the vitreous.

This rapid resolution of the hemorrhage improves the visual prognosis.

Different mechanisms, such as vasoproliferative diseases (such as ischemic retinal venous thromboses or diabetic retinopathy), vascular anomalies (such as retinal macroaneurysms) or rare pathologies (such as leukemia or Terson syndrome), can cause preretinal hemorrhages. Furthermore, a Valsalva maneuver can also be a common trigger, as increased intra-abdominal/intrathoracic pressure can lead to an increase in cranial pressure and, consequently, intraocular venous pressure.

## REFERENCES:

1. Rennie CA, Newman DK, Snead MP, Flanagan DW. Nd:YAG laser treatment for premacular subhyaloid haemorrhage. *Eye (Lond)* 2001;15:519–524. doi: 10.1038/eye.2001.166.
2. Heichel J, Kuehn E, Eichhorst A, Hammer T, Winter I. Nd:YAG Laser Hyaloidotomy for the Treatment of Acute Subhyaloid Hemorrhage: A Comparison of Two Cases. *Ophthalmol Ther.* 2016 Jun;5(1):11-20. doi: 10.1007/s40123-015-0043-1. Epub 2015 Dec 22. PMID: 26693725; PMCID: PMC4909670.
3. O'Hanley GP, Canny CL. Diabetic dense premacular hemorrhage. A possible indication for prompt vitrectomy. *Ophthalmology.* 1985;92:507–511. doi: 10.1016/S0161-6420(85)34014-9.

In this case specifically, we opted for Hyaloidectomy because it was a young patient, with a 4-month history of vision of hand movement, with no improvement after 1 dose of Anti-VEGF.

The patient must continue to undergo outpatient and clinical monitoring of her diabetic retinopathy, as well as the risk of opening a macular hole after the traction exerted during the Hyaloidectomy procedure, which has already been widely reported and discussed in the literature.

Finally, I highlight the importance of studying and discussing each case of pre-retinal hemorrhage in order to seek the correct management of your patient, based on the underlying pathology, vision of the contra-lateral eye, need for rapid recovery of vision with the aim of opt for the most appropriate treatment, be it hyaloidectomy, posterior vitrecomia with use of gas buffer (SF6 or C3F8), Anti-VEGF or injection of tissue plasminogen activator (tPA).