

Retinal Detachment Surgery After Large Posterior Capsulotomy With Nd:YAG Laser

Financial Interest : None

Yoshihide Nakai, MD

Yuko Shono,MD Kyoko Bessyo,MD

Case:

A 69 year-old male.

Chief complaint: Visual impairment and visual field impairment in the right eye.

Present illness: Two years ago: PEA/IOL
(at another hospital)

One year ago: Posterior capsulotomy
with YAG Laser (at another hospital)

Previous four months: Floaters were found in the right eye,
lower visual field defect.

The patient had noticed lower visual field impairment as well as abnormal central vision which brought him to our clinic.

Initial Findings

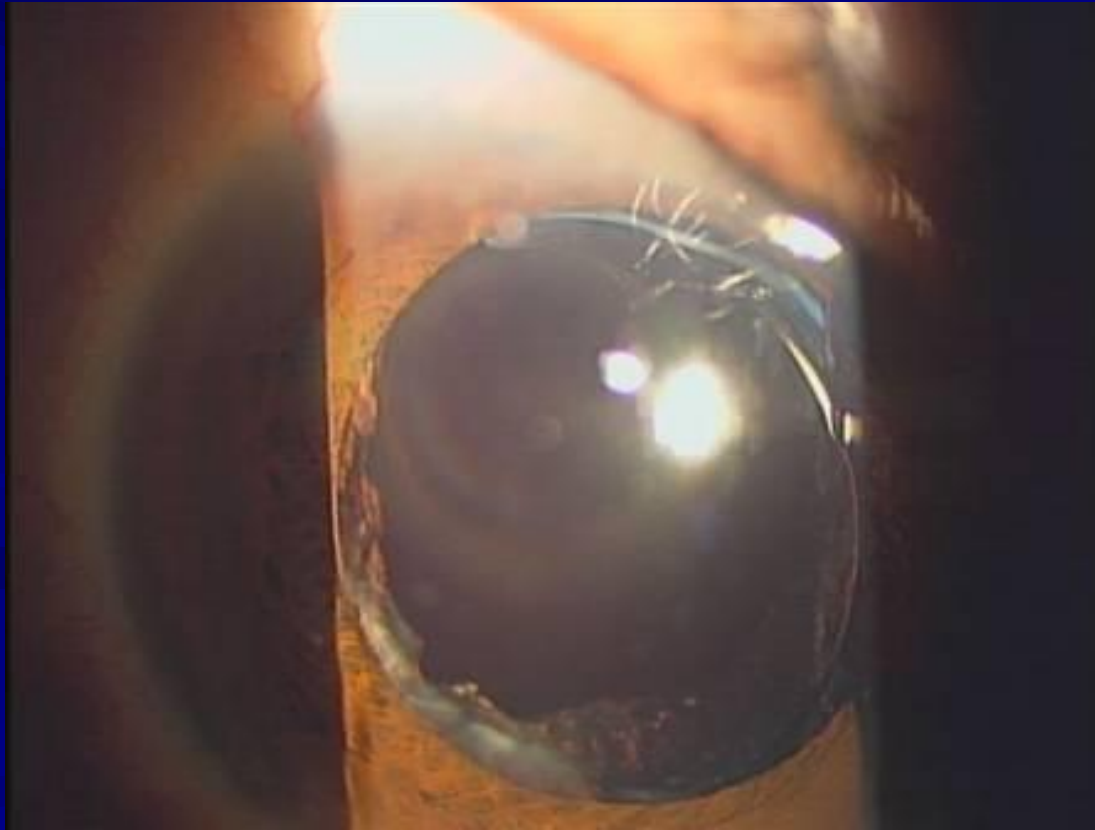
Visual acuity : OD 0.1 (20/100 × -1.25 D +cyl -0.75 D Ax160°)

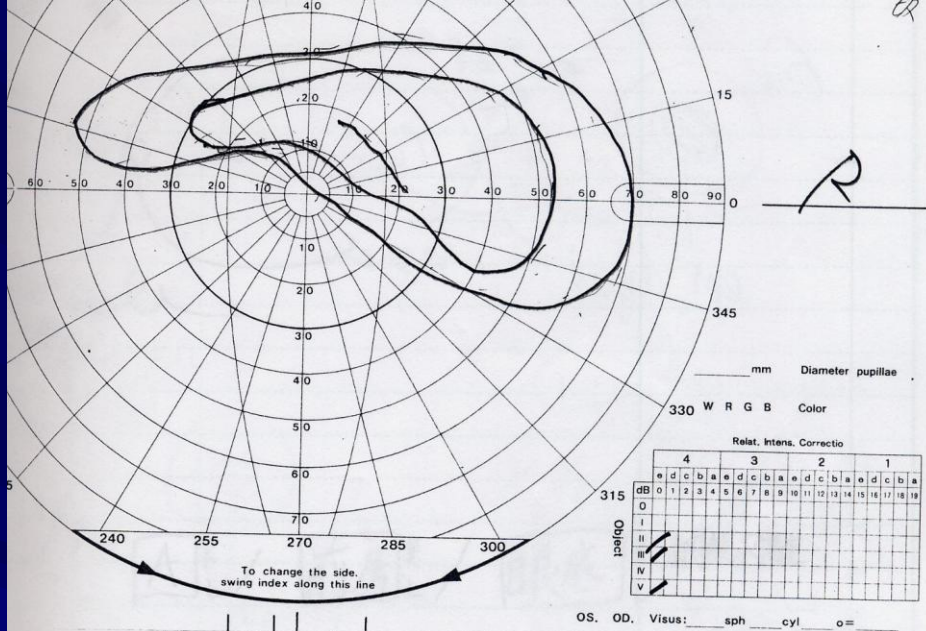
OS 0.6 (20/20 × -1.25 D +cyl -1.25 D Ax140°)

Fundus in the right eye: Retinal detachment, lower visual field defect in the right eye.

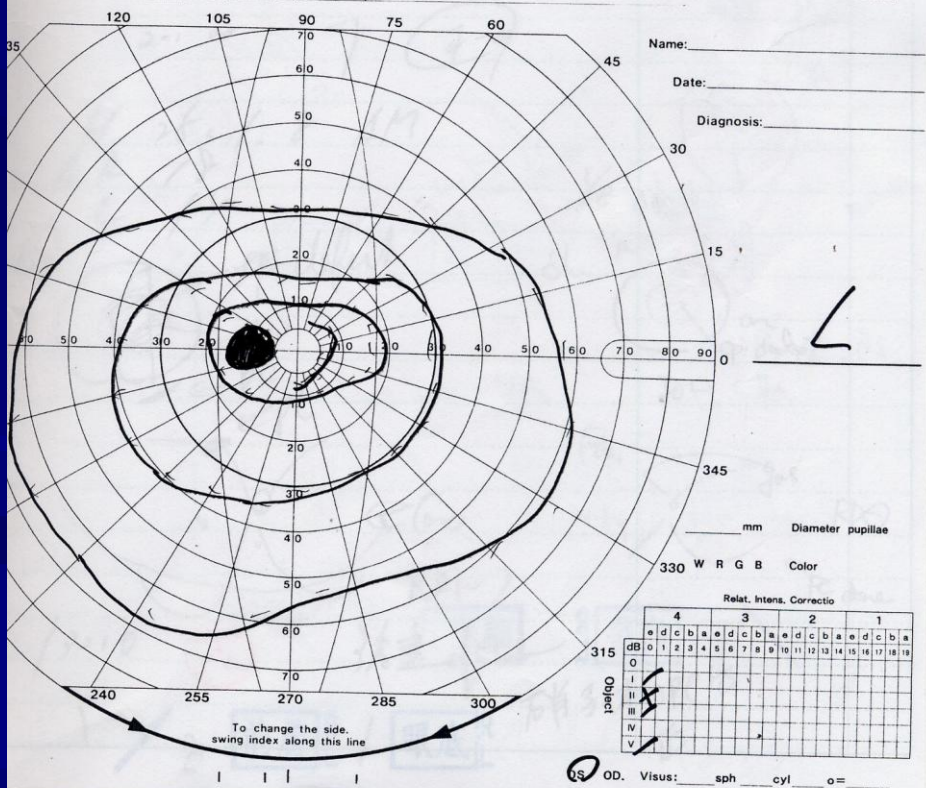
Axial length: OD 29.13 mm, OS 28.31 mm (IOLs in both eyes)

Large posterior capsulotomy with Nd: YAG Laser.





OS, OD, Visus: sph cyl o=

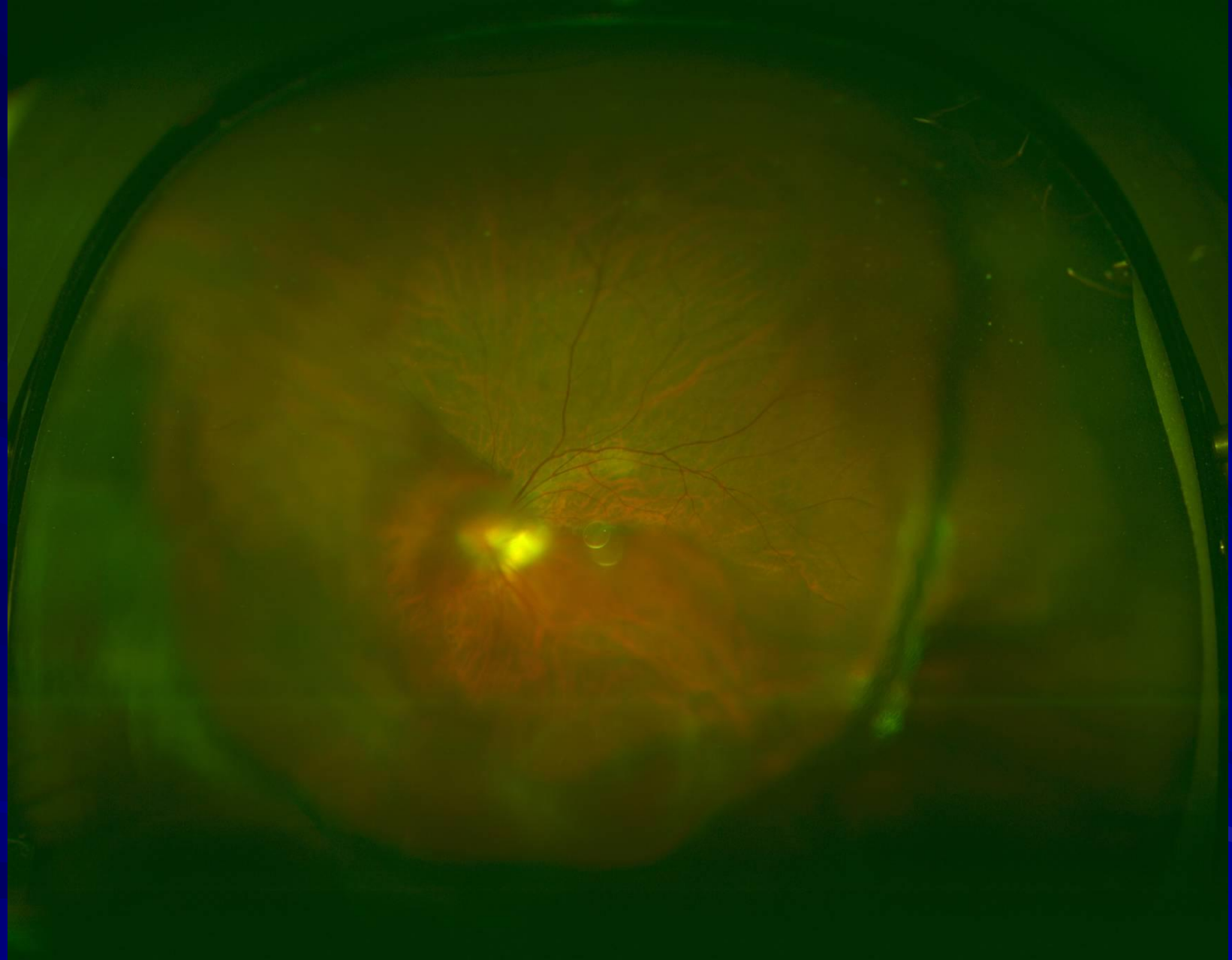


OS, OD, Visus: sph cyl o=

Visual field in the right eye:
Lower visual field defect.

Fundus in the right eye:
Retinal detachment in the upper part.



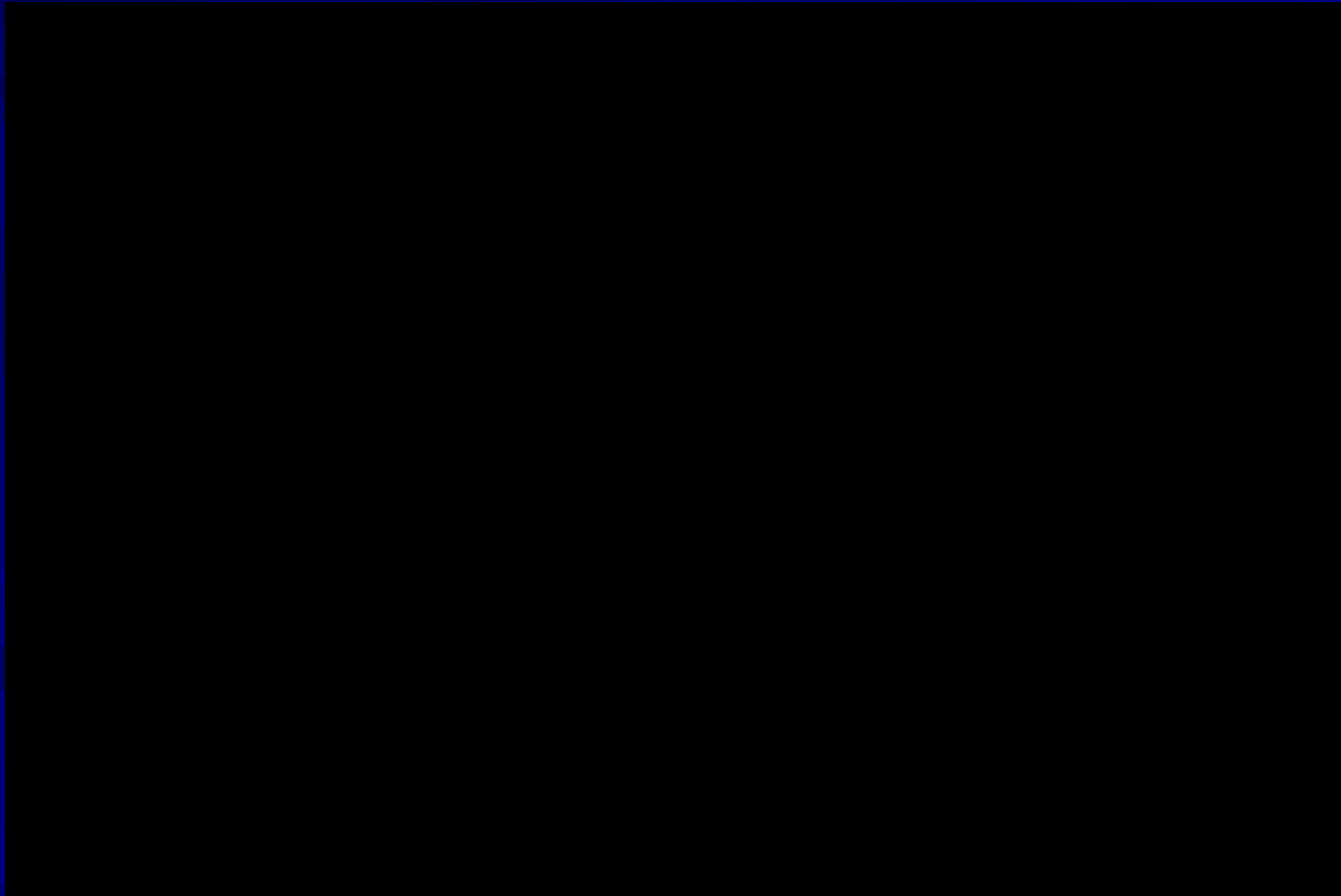


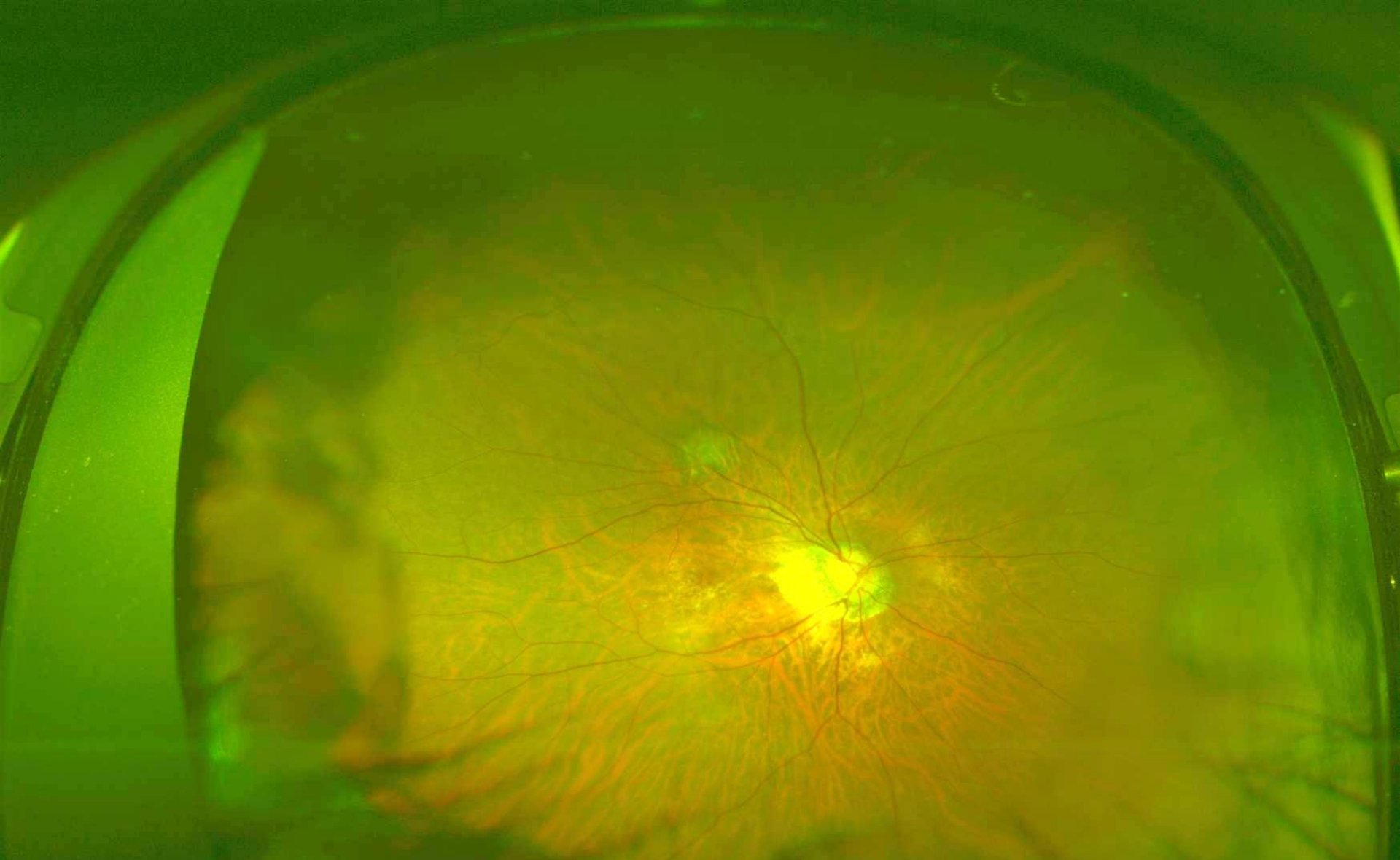
IOL displacement in the left eye. No retinal detachment.

Vitreotomy using a 25 gauge vitreous cutter.

Vitreous opacity and degeneration associated with breaks in the upper temporal areas.

Fluid-air exchange was followed by intraocular laser surgery and SF6 gas injection.





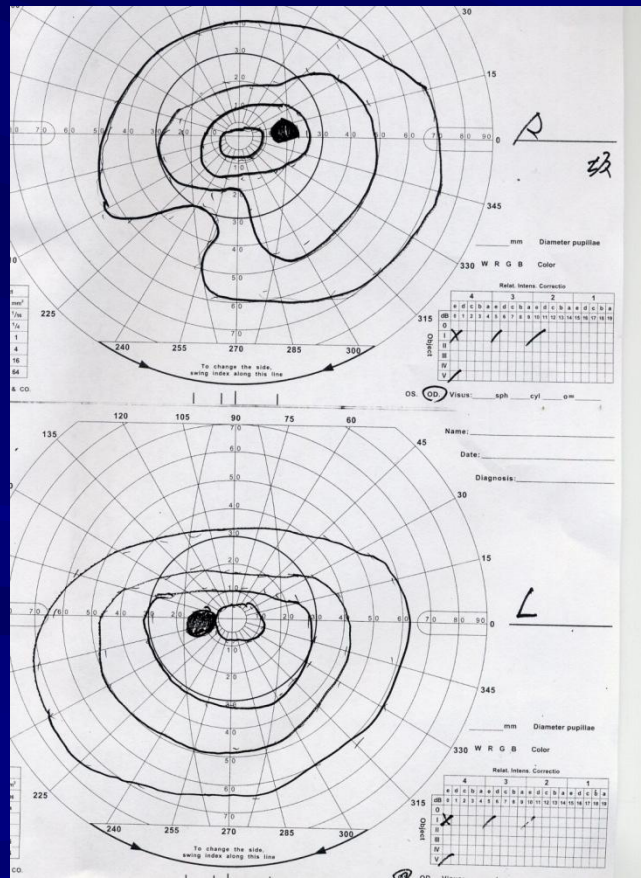
Fundus images using Optos 200 Tx was used for retinal reattachment at one month after surgery.

Three months after surgery.

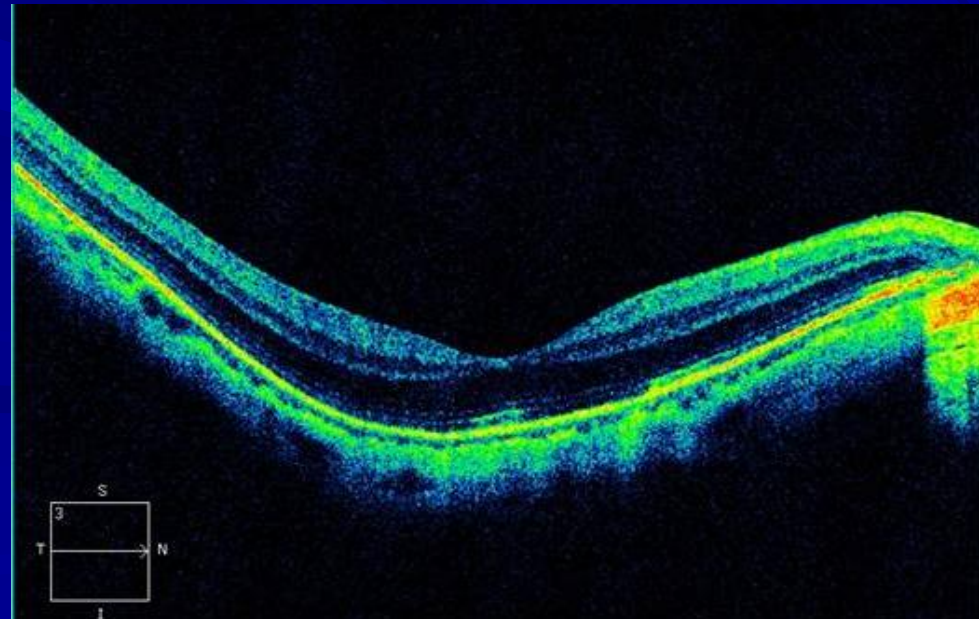
Visual acuity : 20/40 (20/25 \times -1.75 D)

Intraocular pressure (IOP): 14 mmHg

Fundus: The retina was reattached and remained in good condition.



The macula was restored.



Mechanisms of retinal detachment developed after posterior capsulotomy with Nd: YAG Laser

(1) Physical changes of the vitreous body caused by Nd: YAG Laser.

Disruption of the anterior vitreous surface caused by Nd: YAG Laser.

→ Forward movement of the vitreous body.

→ PVD, vitreous traction.

(2) Biochemical changes of the vitreous body caused by Nd: YAG Laser.

Enhancement of vitreous liquefaction due to shock waves produced from Nd: YAG Laser.

→ PVD, vitreous traction.

Macular thickness developed after posterior capsulotomy with Nd: YAG Laser. Seyhmus Ari et,al.
Ophthalmic Surg Lasers imaging.43:395-400,2012

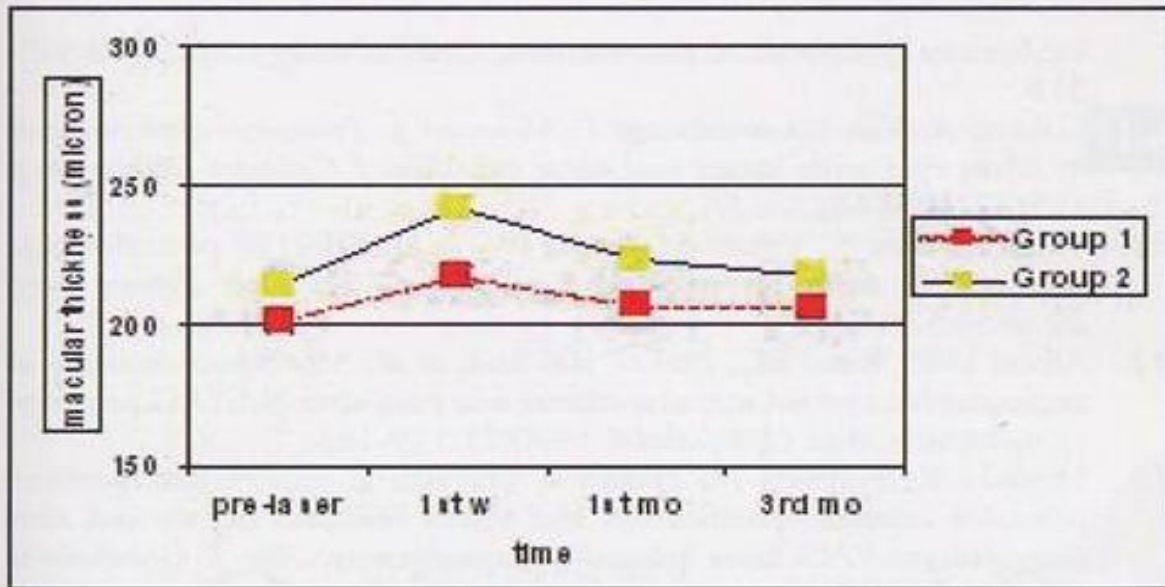


Figure 3. The changes in macular thickness at preoperative evaluation and postoperatively at 1 week, 1 month, and 3 months in groups I and II. The figure shows a sharp increase in macular thickness at 1 week and a sharp decrease at 1 month following Nd:YAG laser posterior capsulotomy in both groups. Macular thickness was higher in group II than in group I.

Group 1: Total energy
14 - 80 mj Mean 58 mj

Group 2: Total energy
84 - 200 mj Mean 117
mj

Macular thickness increases with greater total energy.

Measures and Summary

(1) Small posterior capsulotomy should be the preferred method.

Gardner et al. (1985): No retinal detachment among the first 100 eyes underwent posterior capsulotomy of 3.7 mm or less in diameter.

Winslon et al. (1985): Less complications in posterior capsulotomy of smaller areas.

(2) To reduce the total energy level of Nd: YAG Laser
Keates et al. (1984): Mean total energy of 101 mj.