Stage 5 C ROP in Special situations Optimizing the Results

IN 5 MIN

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AMERICAN ACADEMY OF OPHTHALMOLOGY®

International Classification of Retinopathy of Prematurity, Third Edition

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Purpose: The International Classification of Retinopathy of Prematurity is a consensus statement that creates a standard nomenclature for classification of retinopathy of prematurity (ROP). It was initially published in 1984, expanded in 1987, and revisited in 2005. This article presents a third revision, the International Classification of Retinopathy of Prematurity, Third Edition (ICROP3), which is now required because of challenges such as: (1) concerns about subjectivity in critical elements of disease classification; (2) innovations in ophthalmic imaging; (3) novel pharmacologic therapies (e.g., anti–vascular endothelial growth factor agents) with unique regression and reactivation features after treatment compared with ablative therapies; and (4) recognition that patterns of ROP in some regions of the world do not fit neatly into the current classification system.

Design: Review of evidence-based literature, along with expert consensus opinion.

Participants: International ROP expert committee assembled in March 2019 representing 17 countries and comprising 14 pediatric ophthalmologists and 20 retinal specialists, as well as 12 women and 22 men.

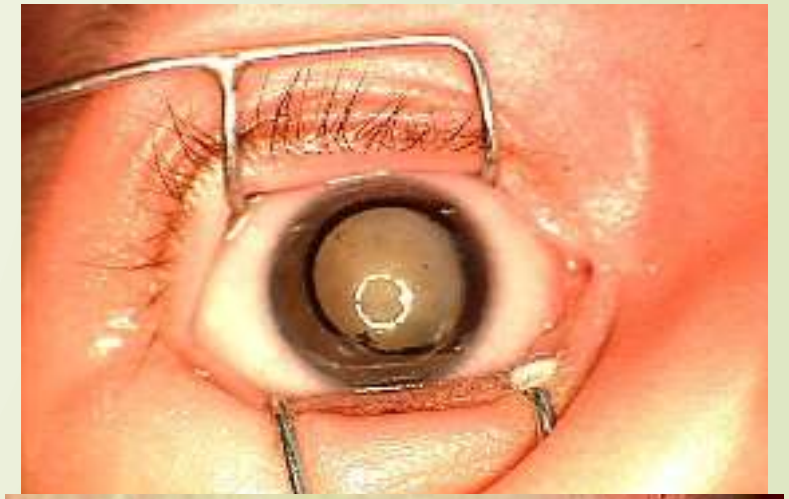
Methods: The committee was initially divided into 3 subcommittees—acute phase, regression or reactivation, and imaging—each of which used iterative videoconferences and an online message board to identify key challenges and approaches. Subsequently, the entire committee used iterative videoconferences, 2 in-person multiday meetings, and an online message board to develop consensus on classification.

Main Outcome Measures: Consensus statement.

Results: The ICROP3 retains current definitions such as zone (location of disease), stage (appearance of disease at the avascular–vascular junction), and circumferential extent of disease. Major updates in the ICROP3 include refined classification metrics (e.g., *posterior zone II*, *notch*, subcategorization of stage 5, and recognition that a continuous spectrum of vascular abnormality exists from normal to plus disease). Updates also include the definition of aggressive ROP to replace aggressive-posterior ROP because of increasing recognition that aggressive disease may occur in larger preterm infants and beyond the posterior retina, particularly in regions of the world with limited resources. ROP regression and reactivation are described in detail, with additional description of long-term sequelae.

Conclusions: These principles may improve the quality and standardization of ROP care worldwide and may provide a foundation to improve research and clinical care. *Ophthalmology 2021;128:e51-e68 Published by Elsevier on behalf of the American Academy of Ophthalmology*

Bilateral Stage 5c in infancy = bilateral blindness= inoperable



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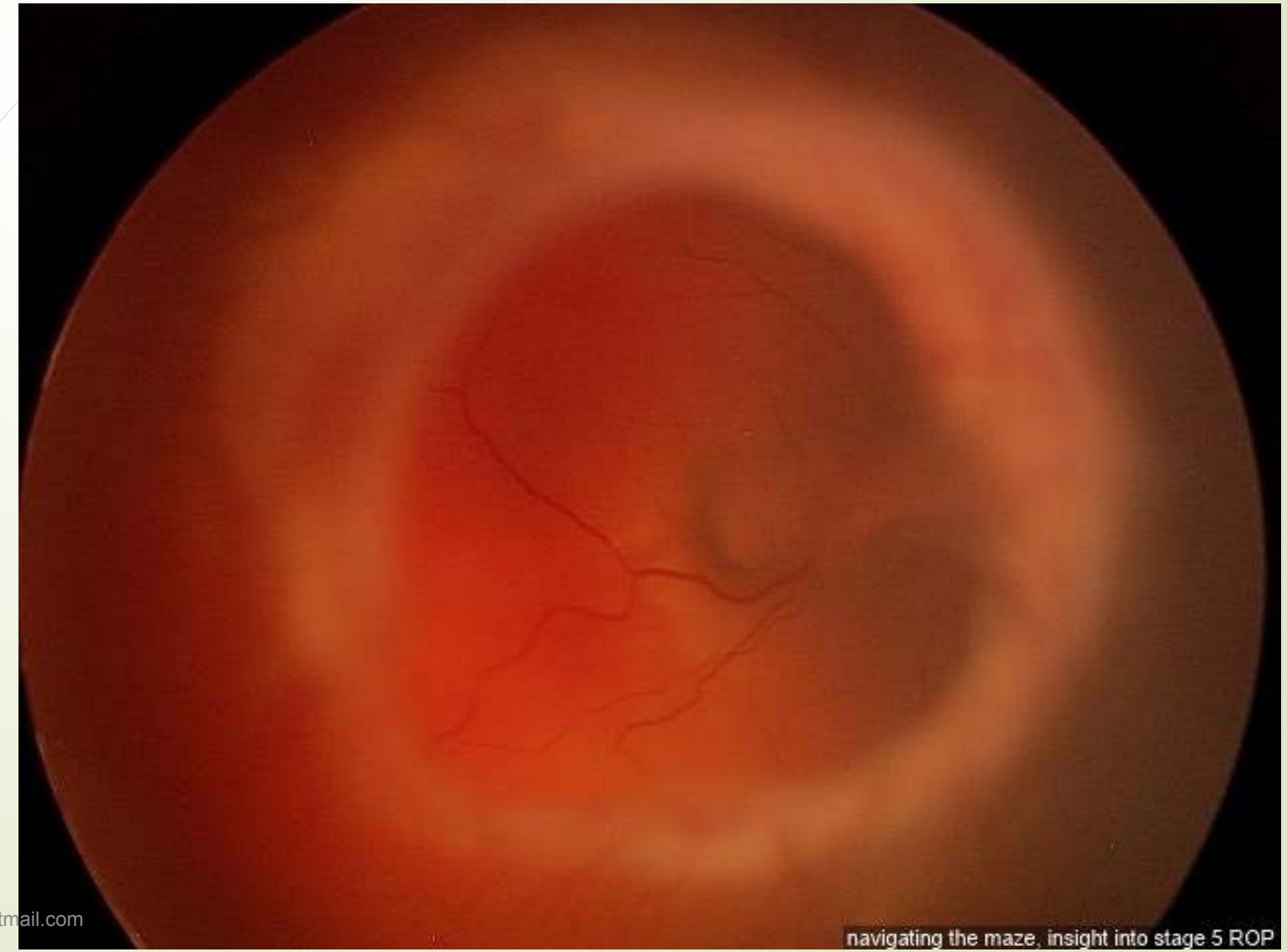
Evolution



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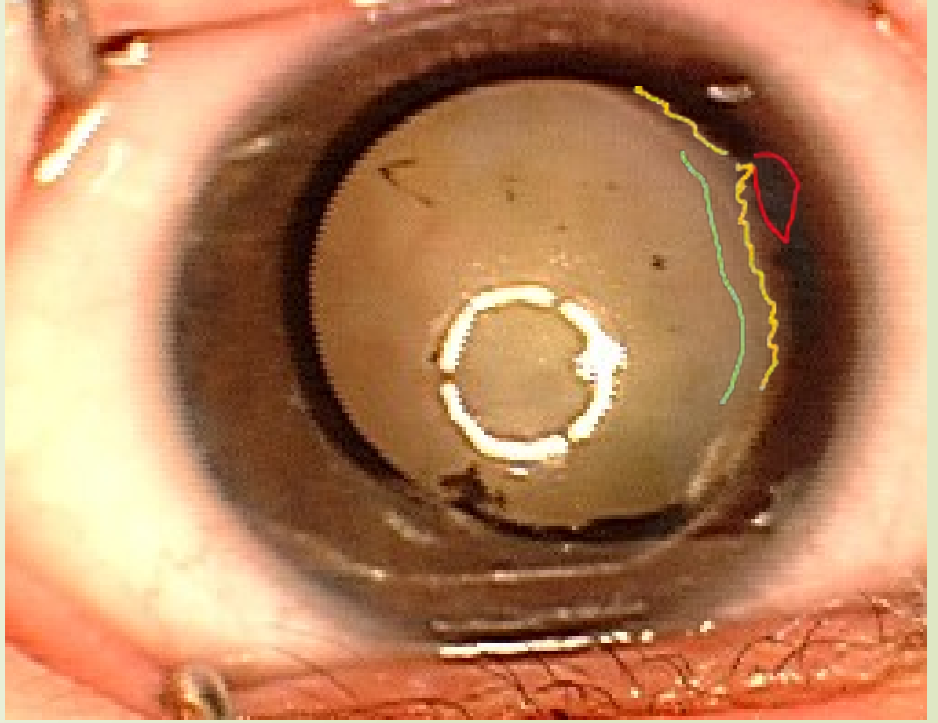
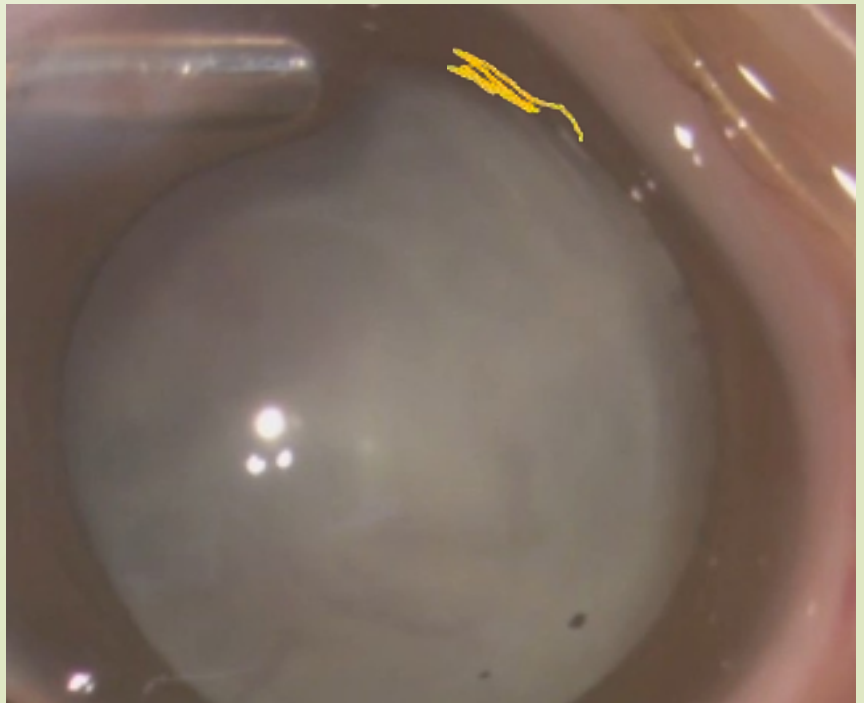
STAGE 5 ROP

- **SURGERY IS DECIDED ACCORDING TO SEVERAL PARAMET**
  - **Evaluation of the cornea:**
    - **Presence of corneal clouding as an indicator of severe ischemia**
    - **Presence of anterior synechiae**
    - **Corneal diameter measurement as an indicator of secondary angle-closure glaucoma or severe microphthalmia.**
  - **Anterior chamber (AC) depth:**
    - **A shallow AC reflects contraction of retro-lenticular fibrous tissue at 360◦ with the bulge of the iris/lens diaphragm forward, or a total retinal detachment in stage 5 ROP with excessive subretinal fluid.**
  - **Presence of posterior synechiae, poorly dilated or irregular pupil with an overlying membrane**

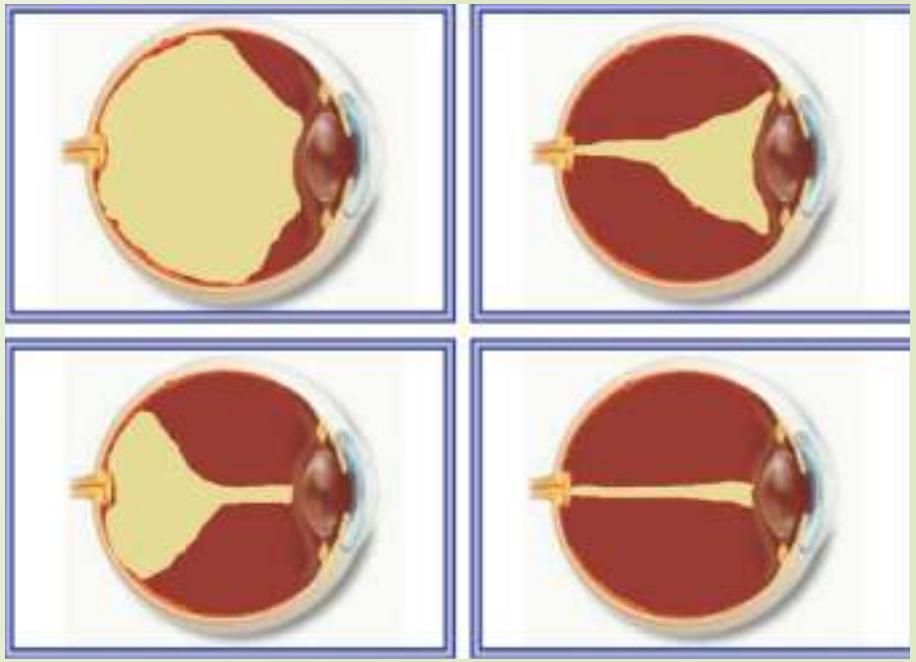
- **Status of the retrolental fibrous tissue:**
  - **In stage 5 ROP, the peripheral fibrous tissue bridges along the CB processes.**
  - **It is important to identify a clear rim between the fibrous tissue and the CB processes**
  - **Retcam photography may help determine that clear rim in presence of a narrow pupil.**



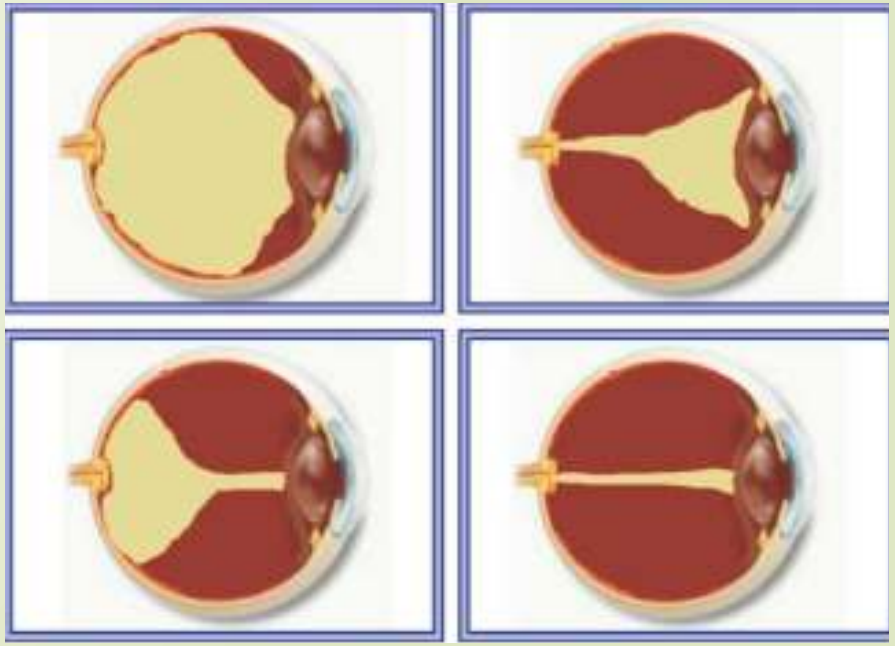


- Ultrasonography is imperative in posterior segment evaluation.
  - Axial length of both eyes.
  - The shorter the axial length the more severe the disease.
    - The axial length of a newborn eye is 16 mm in the 34th gestational week and 17 mm in the 40th gestational week

- Status of stage 5 retinal detachment:
  - Stage 5A, in which the optic disc is visible by ophthalmoscopy (suggesting open-funnel detachment);
  - Stage 5B, in which the optic disc is not visible because of retrolental fibrovascular tissue or closed-funnel detachment



- Additional descriptors of funnel configuration (e.g., open-closed) may be applied if clinically useful.
  - A closed both anterior and posterior funnel tractional retinal detachment
  - An open anterior and closed posterior funnel retinal detachment
  - An open anterior and posterior funnel retinal detachment
  - A closed anterior and open posterior funnel retinal detachment

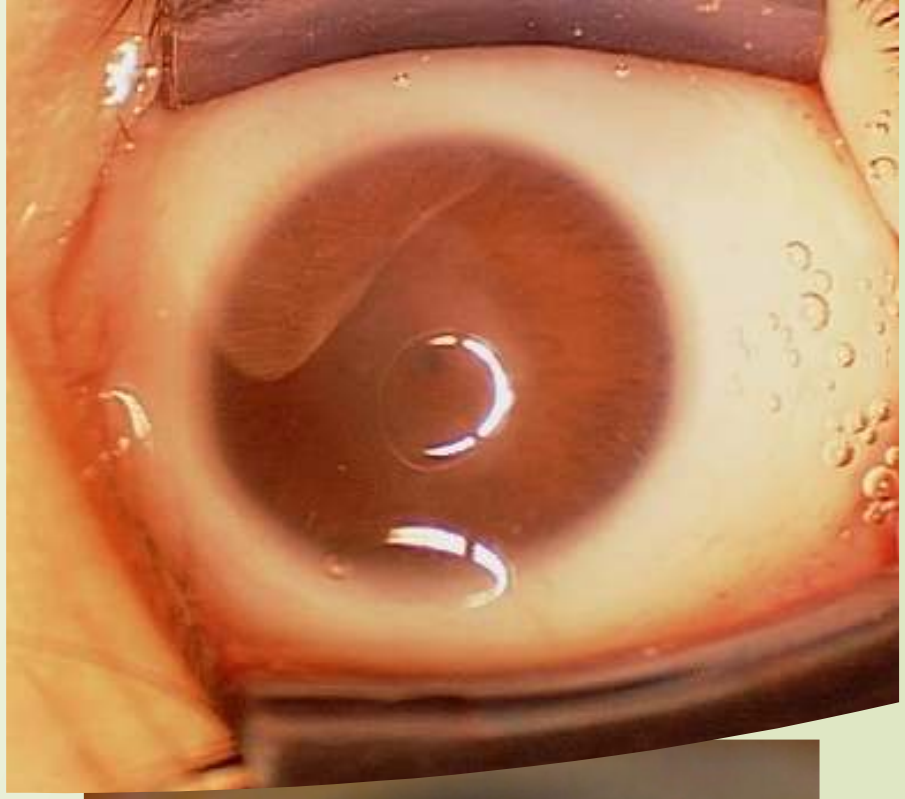


- Status of the subretinal fluid[17]:
  - A clear echolucent subretinal fluid is a good prognostic sign
  - An echodense subretinal fluid indicates presence of hemorrhage or cholesterol crystals. Both findings indicate damaged RPE and if a desperate decision for surgery is taken, one should consider draining the dense subretinal fluid trans-sclerally
- Presence of peripheral retinal loops and cysts.

Our observations in5C

- Posterior synechiae: clock hour

- CORNEAL OPACITY: GRADED
  - GRADE 1 : IRIS DETAILS SEEN
  - GRADE 2 : IRIS DETAILS HIDDEN
  - C: CENTRAL 4-5MM
  - D: PERIPHERAL > 5 MM

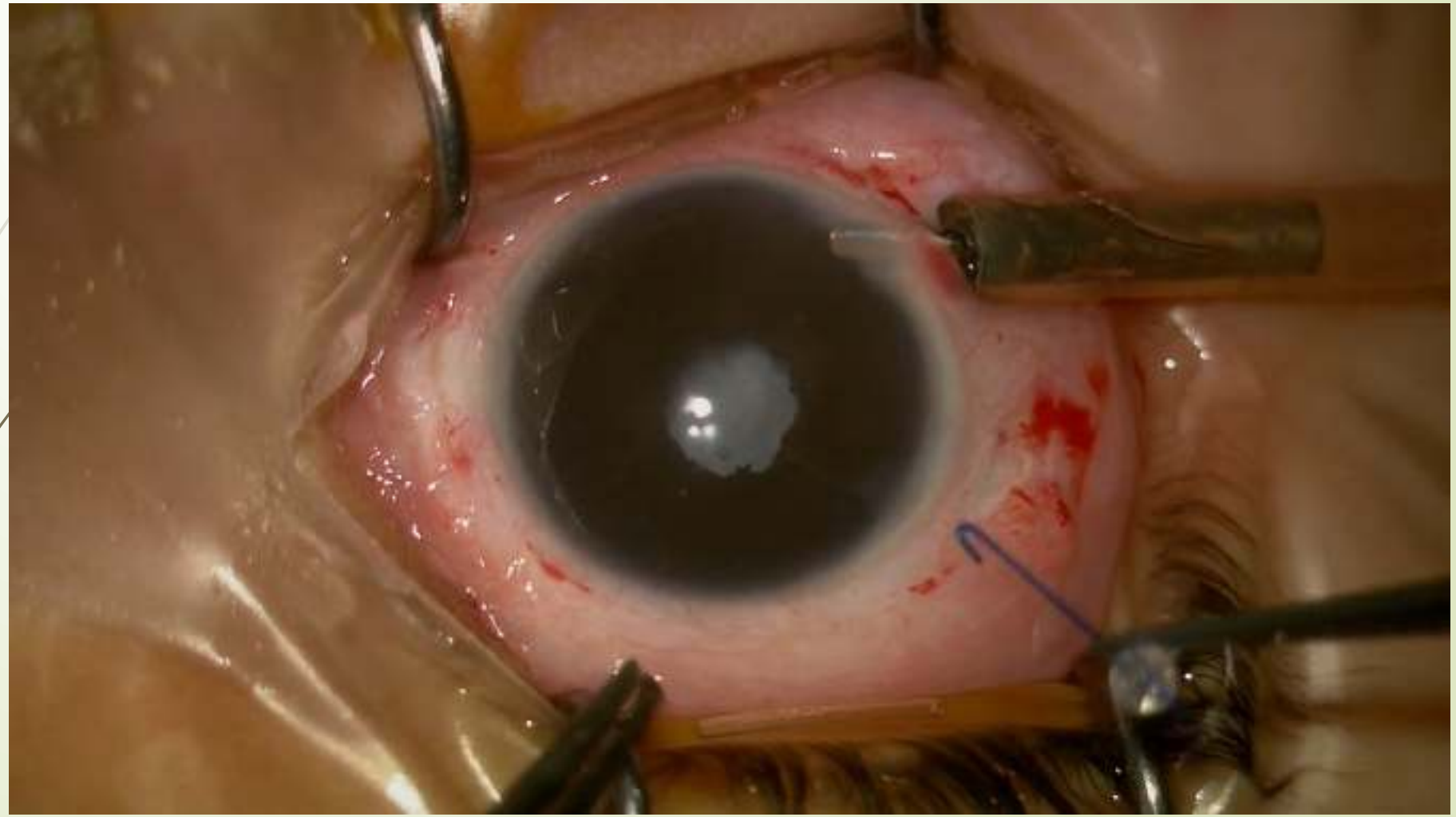


Cases Overview (2016–2024)

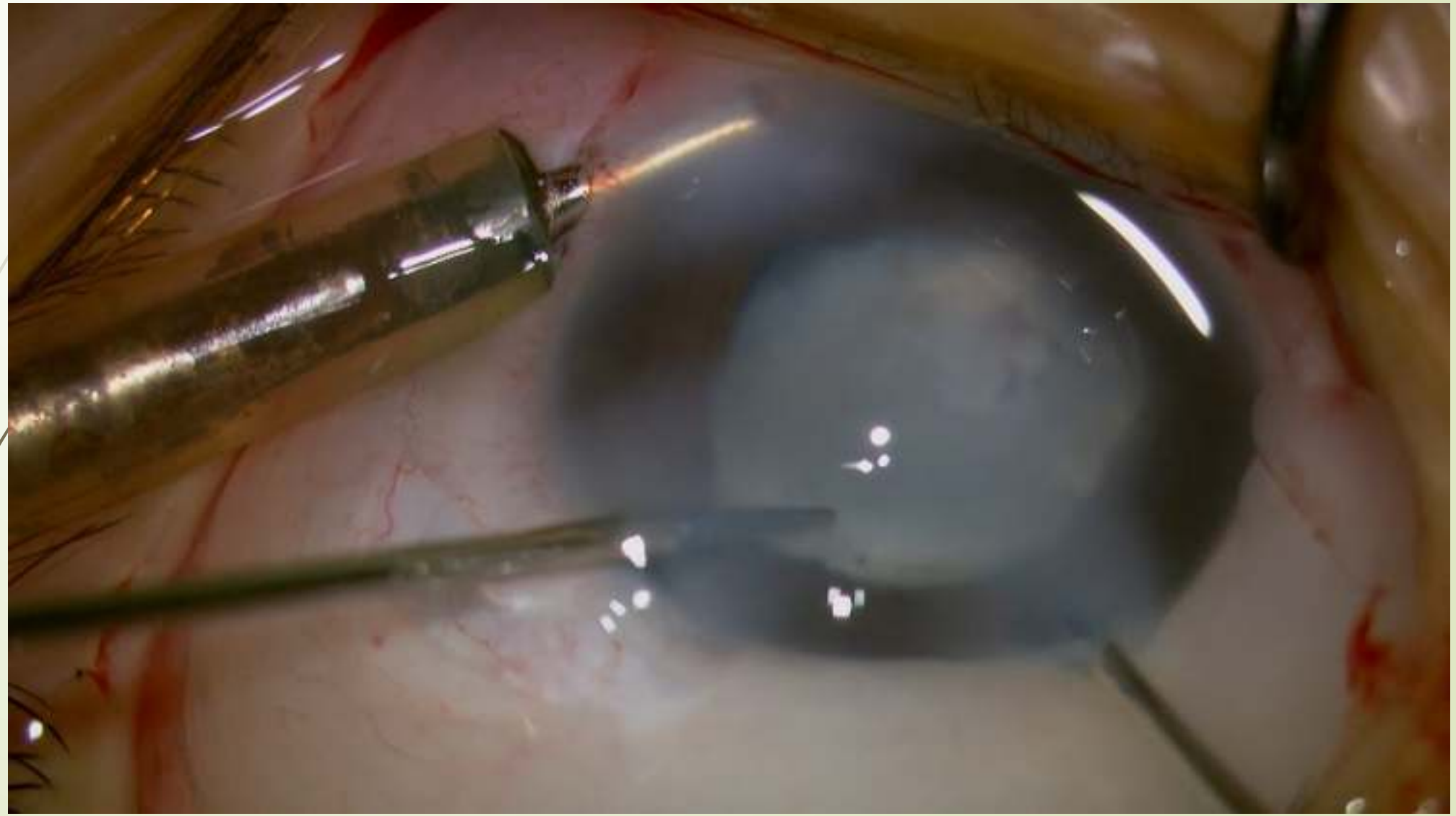
- **Total cases: 46**
- **Corneal opacity: 6 cases (5 cases with Grade1, and 1case with Grade 2)**
- **Hemorrhagic Subretinal fluid: 10 cases**
- **Posterior synechia: All cases.**
- **Membrane dissection:**
  - **15 cases from outside to inside**
  - **31 from inside to outside.**

Surgical techniques:

Iris hooks & removal of membrane from inside to outside



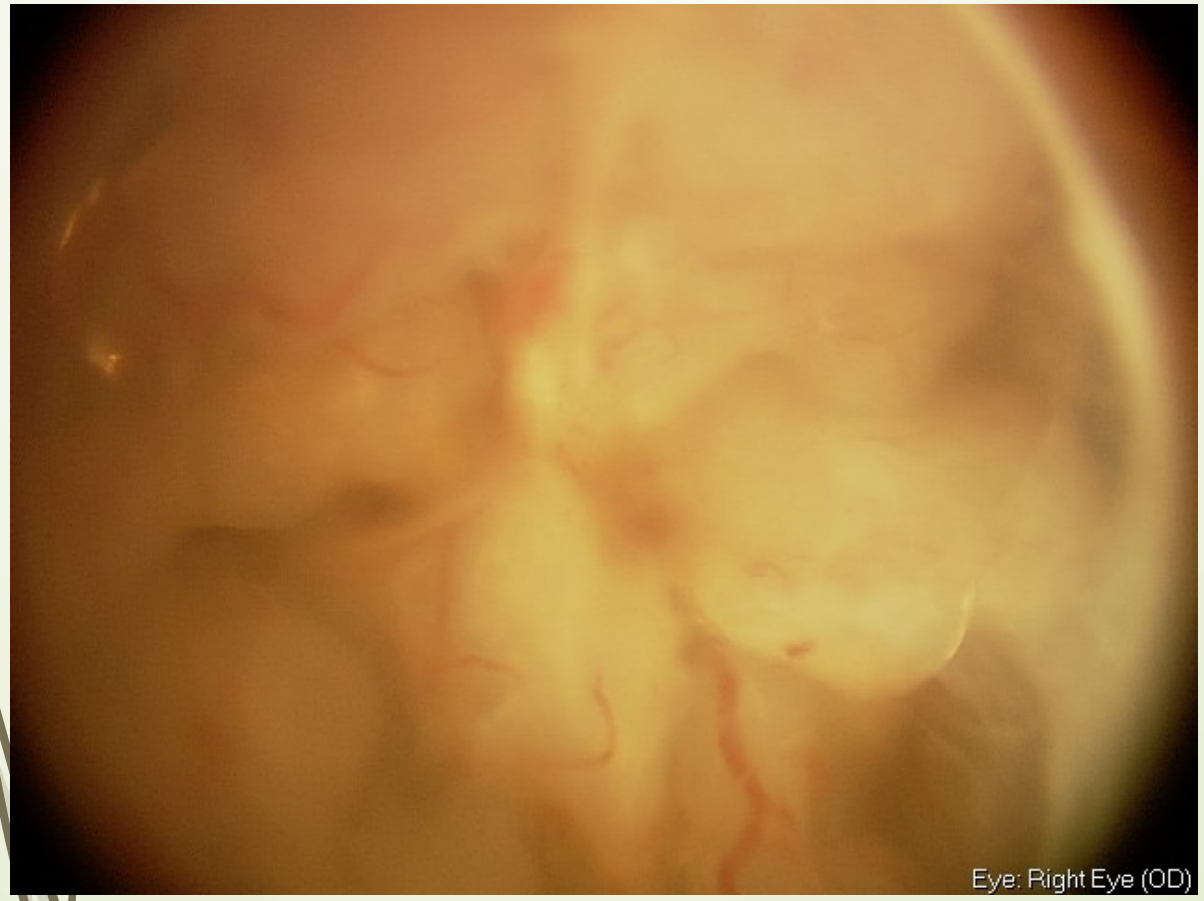
From Outside to inside

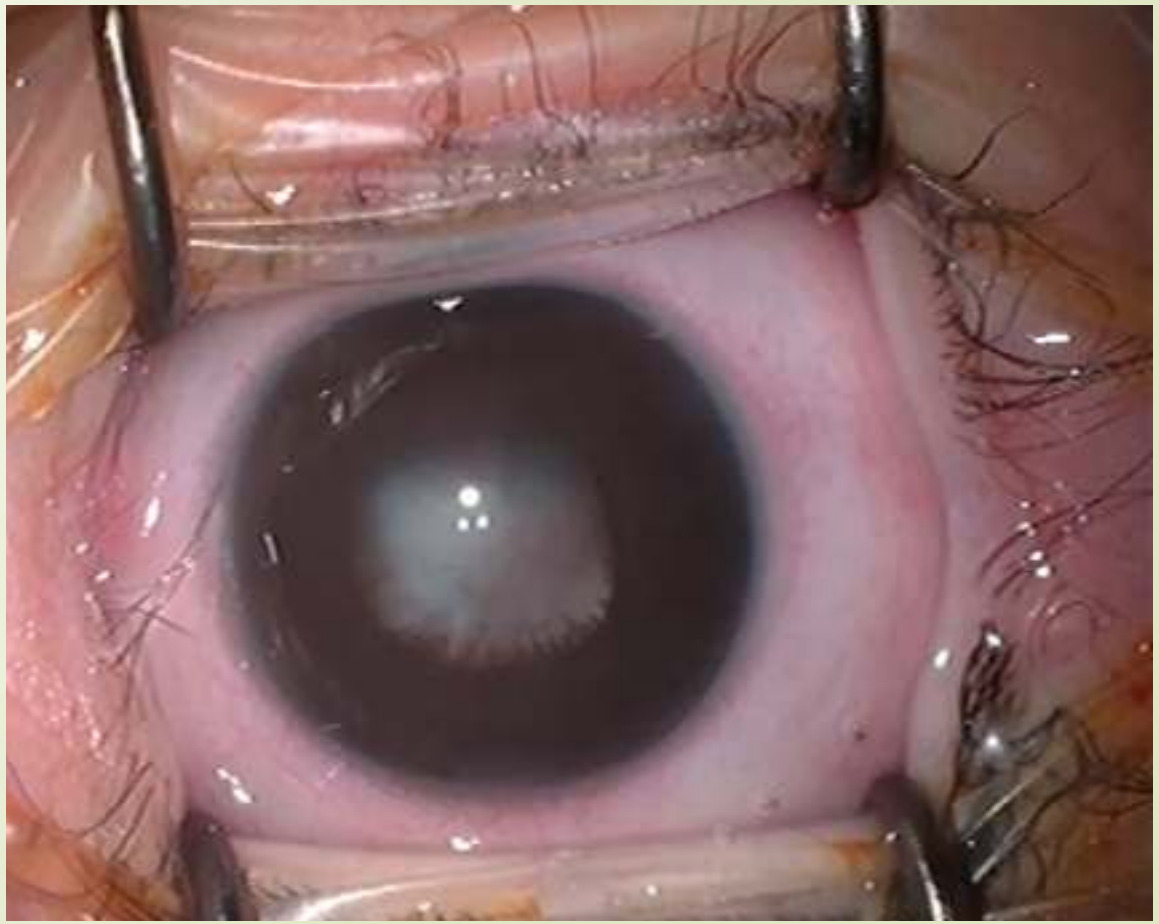


Anatomical Outcomes (46 cases: 5 C)

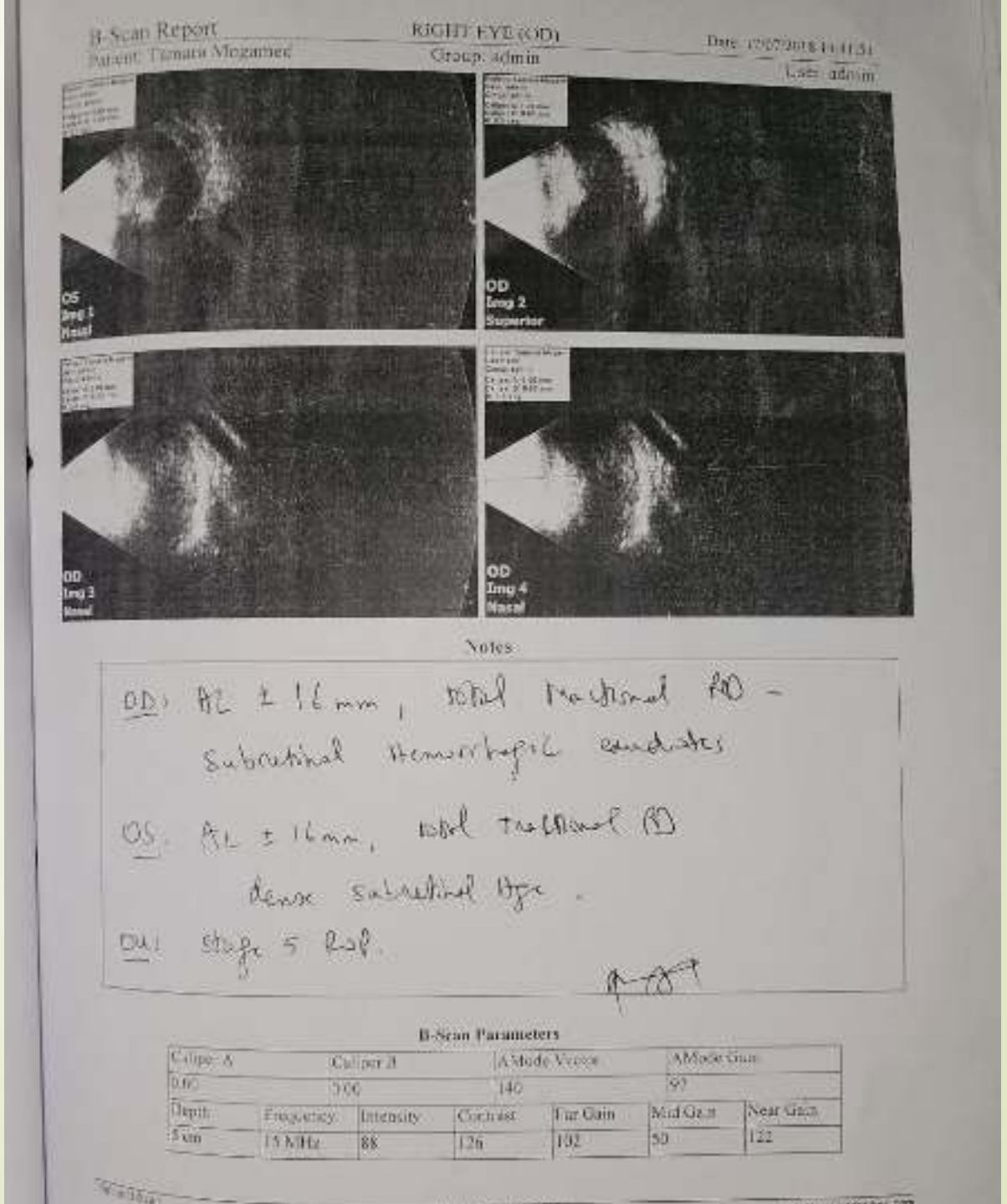
- Central flat retina: 13 cases (28%)
- Open funnel:, 22 cases (47%)
- Flat retina: 1 case. (2%)
- No fundus view: 10 cases (21%)

6months
OD: 5c



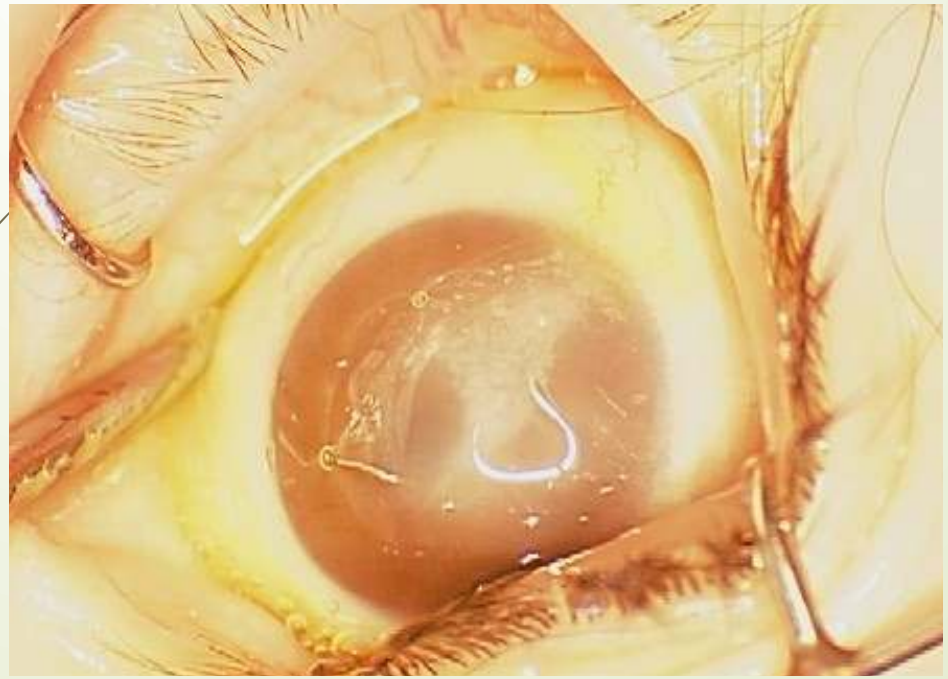


B-Scan

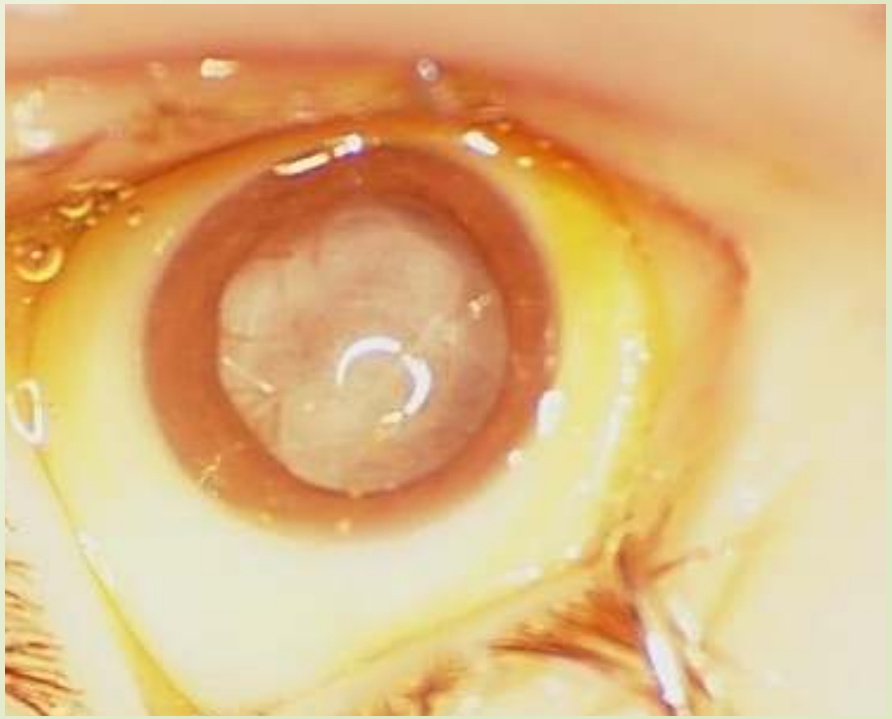

B-Scan Report
RIGHT EYE (OD)
Group: admin
OS
Img 1
Nasal
OD
Img 2
Superior
OD
Img 3
Nasal
OD
Img 4
Nasal
Notes
OD: AL ± 16 mm, total tractional RD -
Subretinal Hemorrhagic membranes
OS: AL ± 16 mm, total tractional RD
dense subretinal bands.
DM: stage 5 ROP.
B-Scan Parameters
Caliper A
Caliper B
AMode Velocity
AMode Gain
0.00
0.00
140
97
Depth
Frequency
Intensity
Contrast
Far Gain
Mid Gain
Near Gain
5 cm
15 MHz
88
126
102
50
122

Z is a 4-year female:
Is it worth it to interfere

OD



OS



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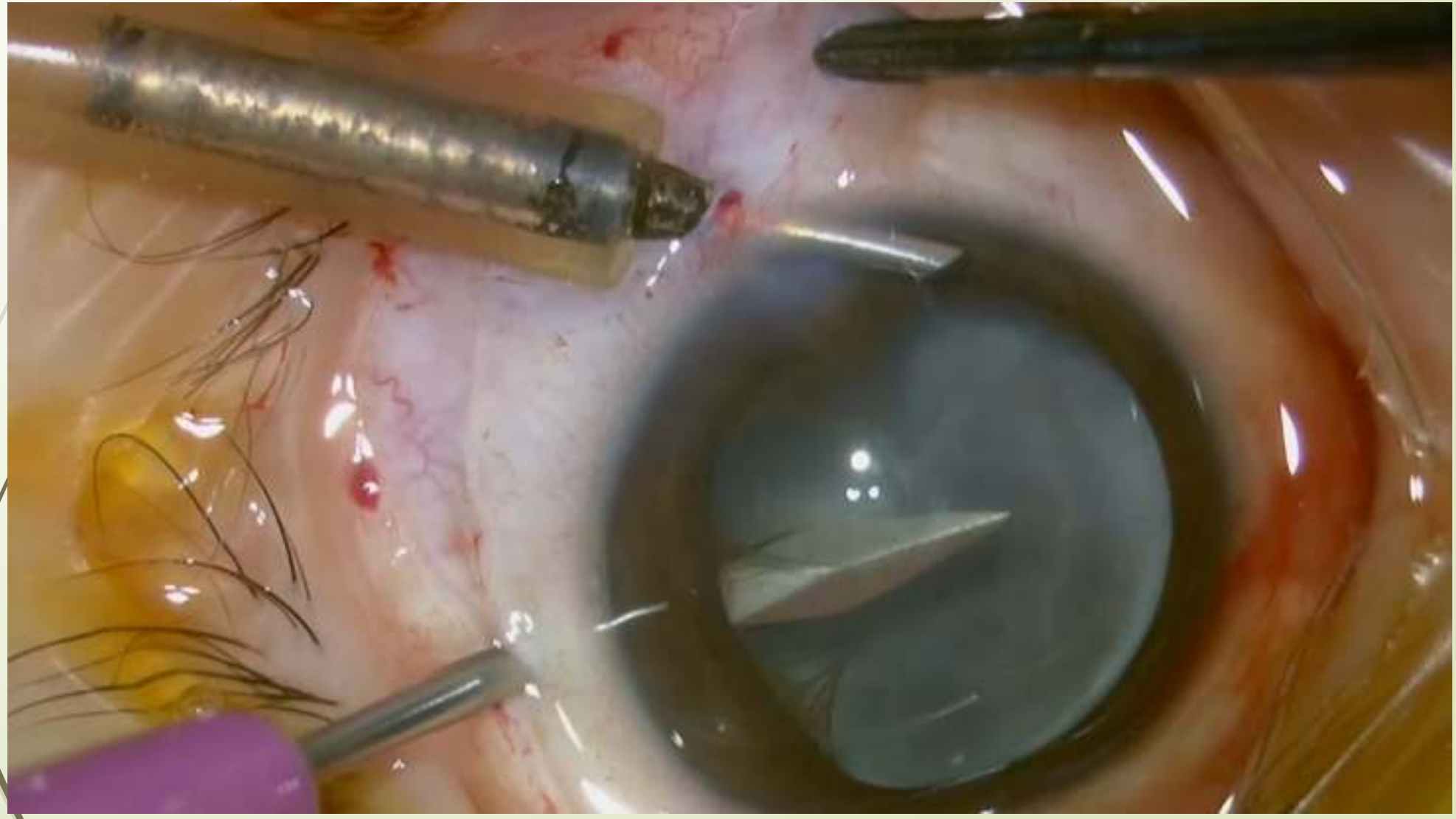
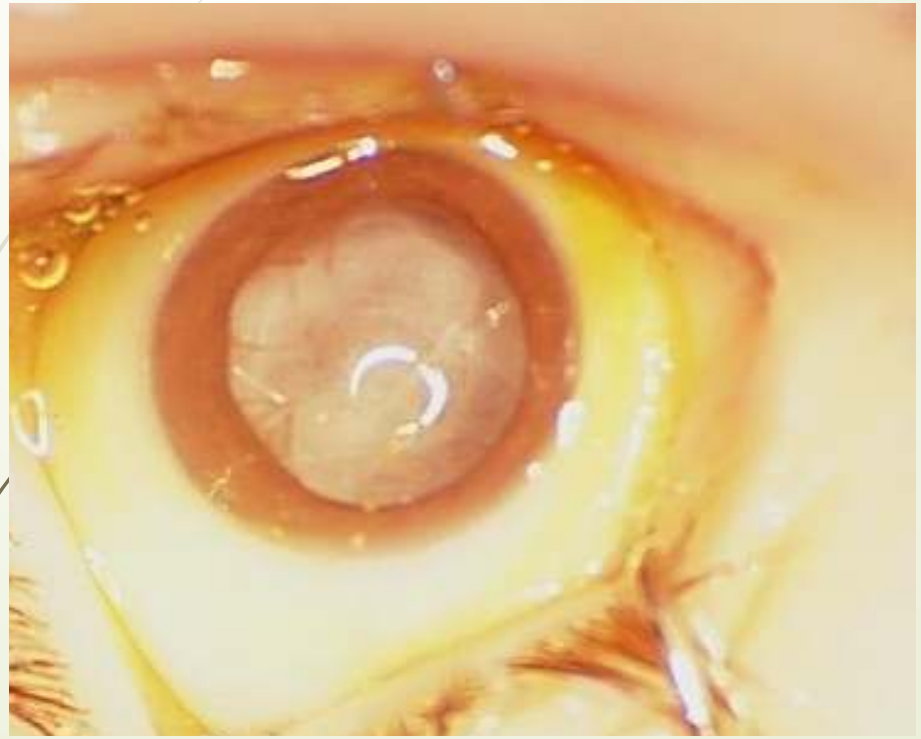
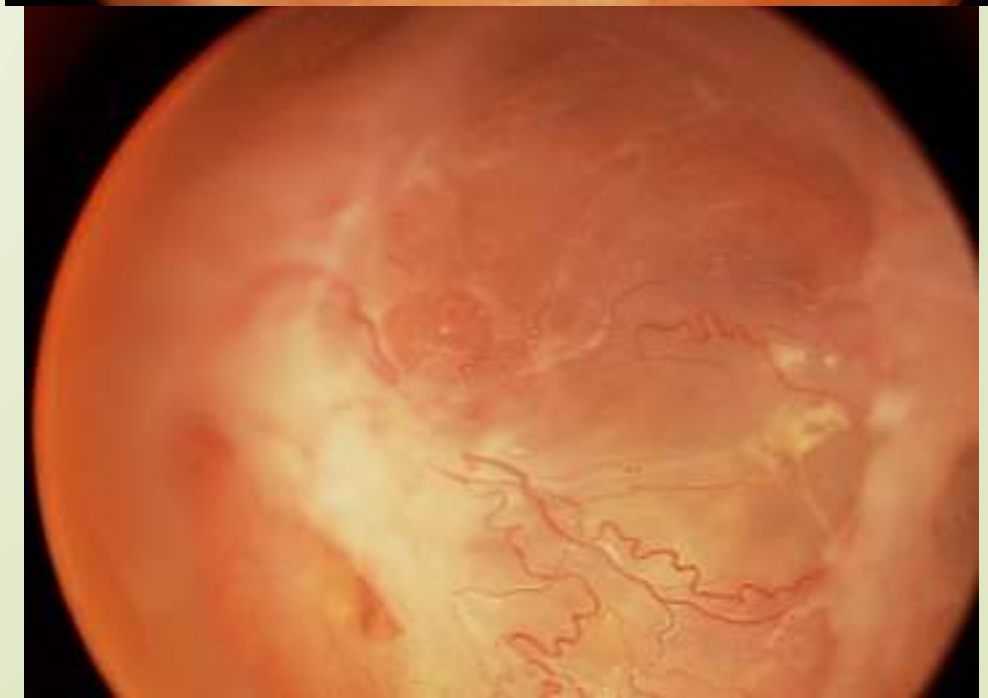
Is it worth it to interfere OS:

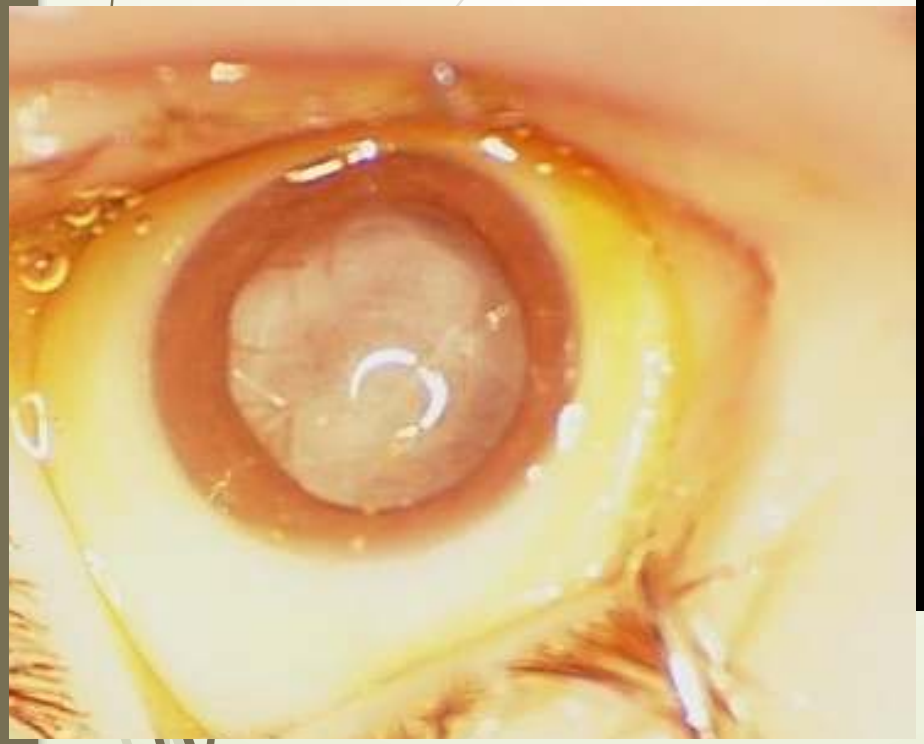


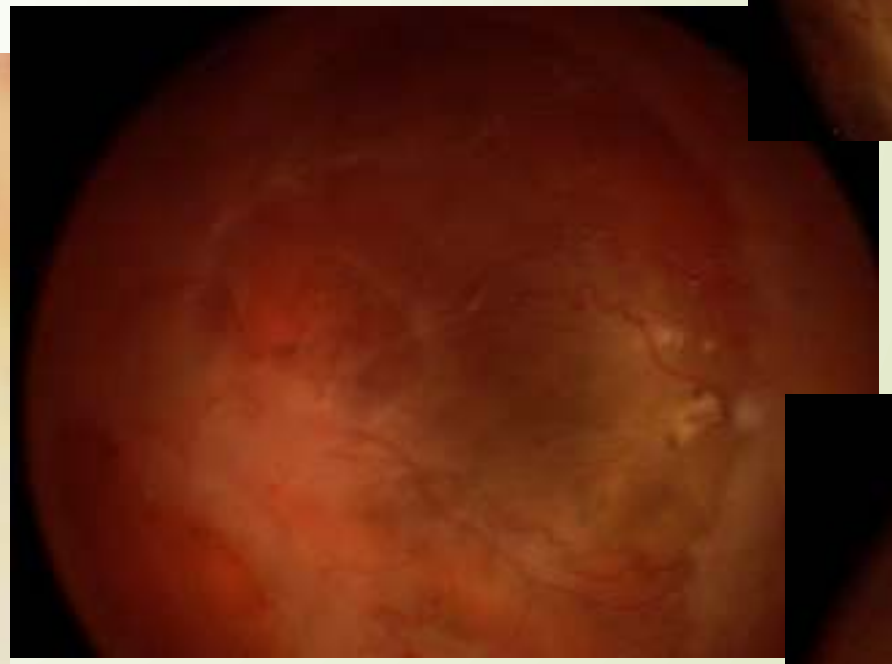
Is it worth it to interfere
OS: 1 month

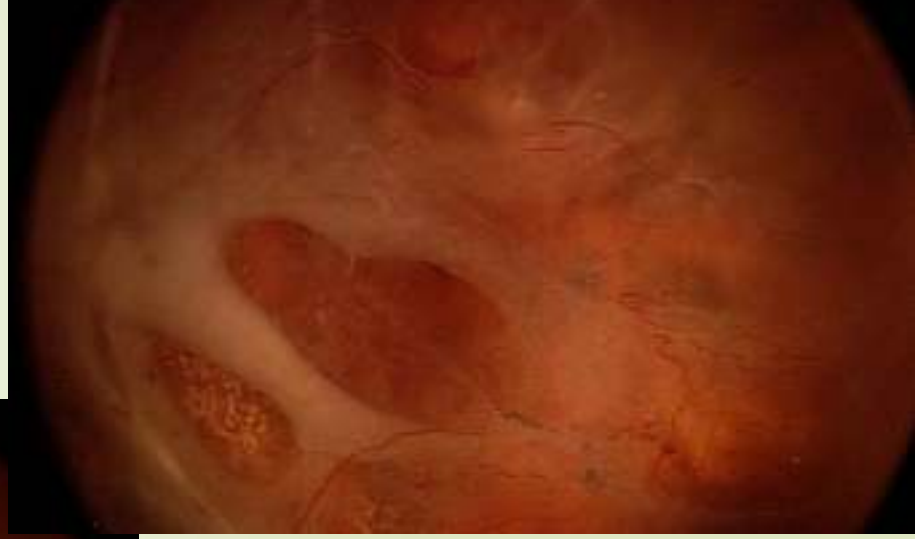


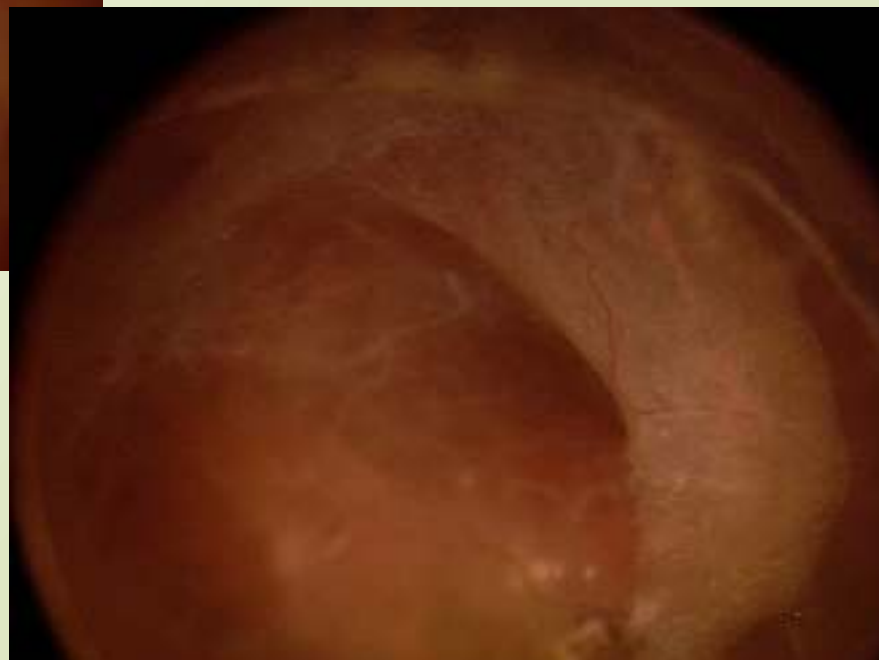


Is it worth it to interfere
OS: 4 months









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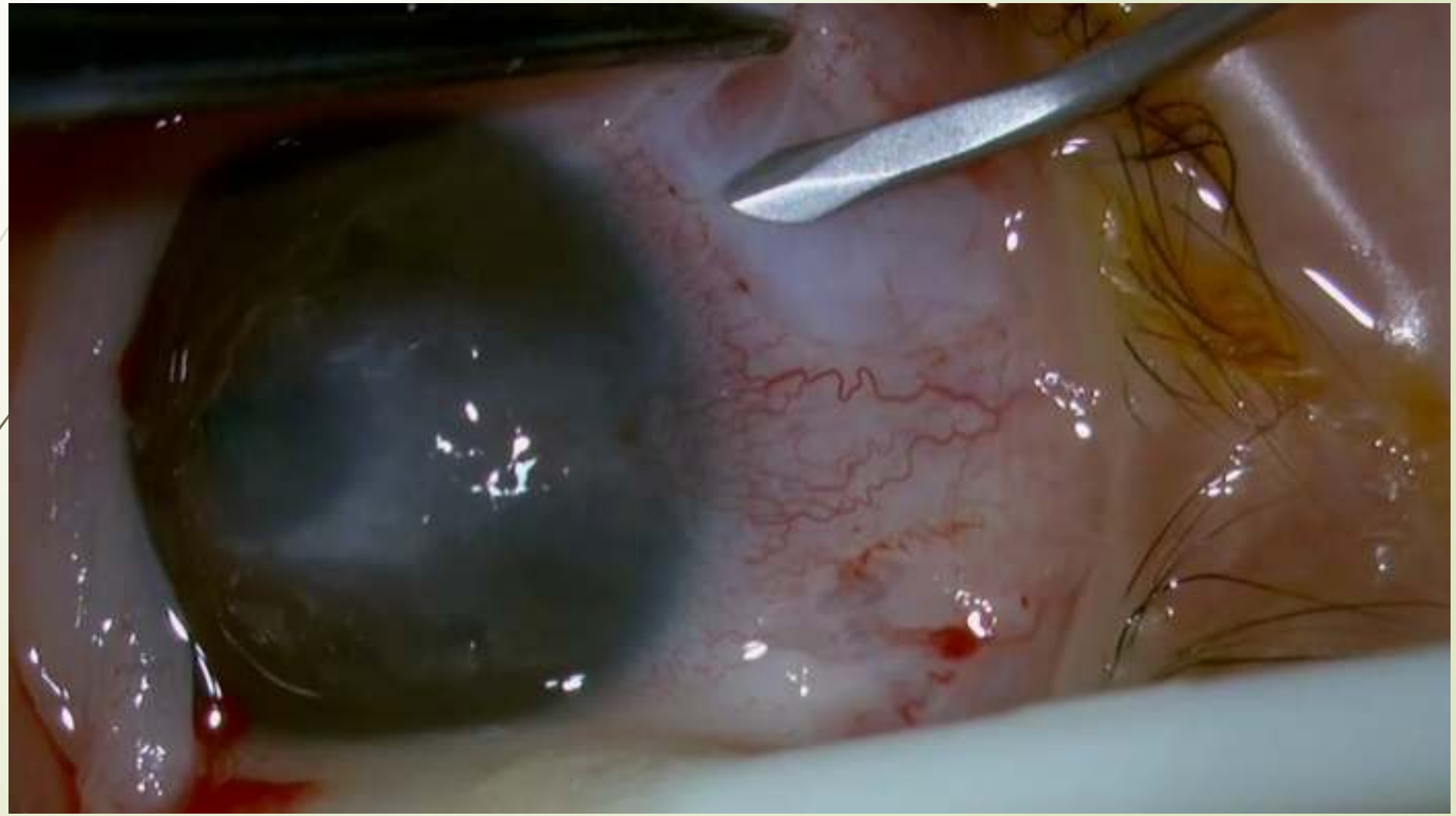
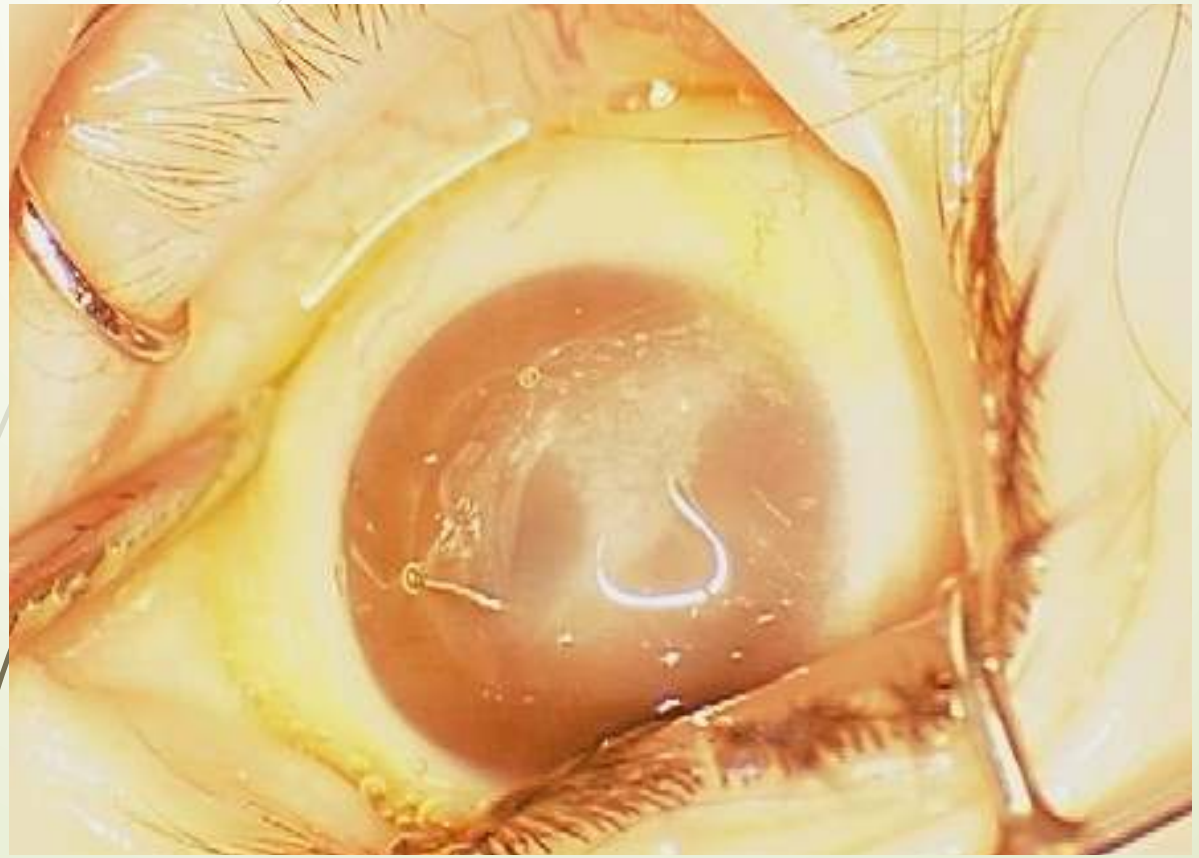
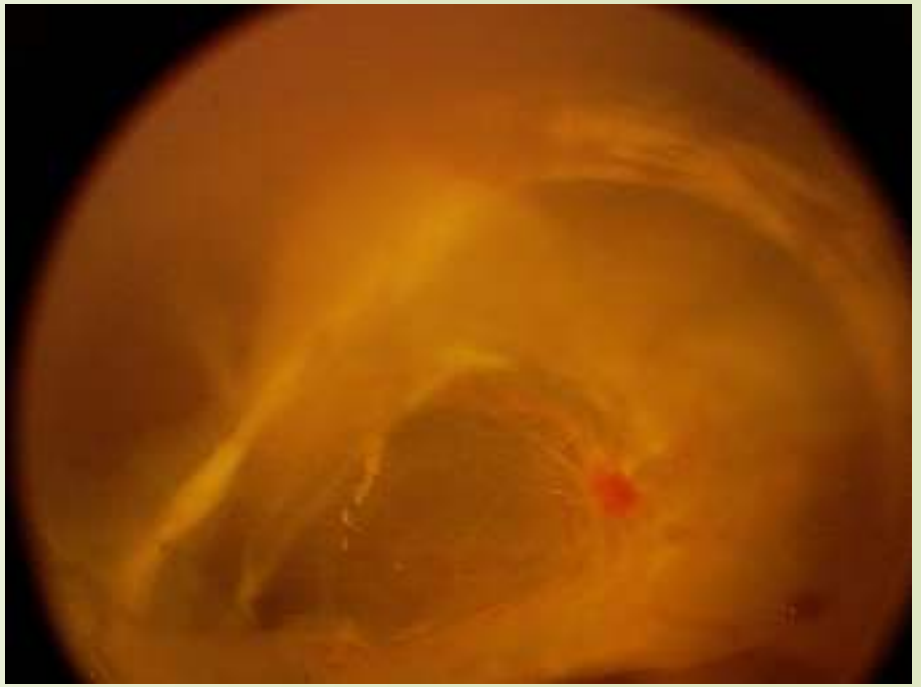
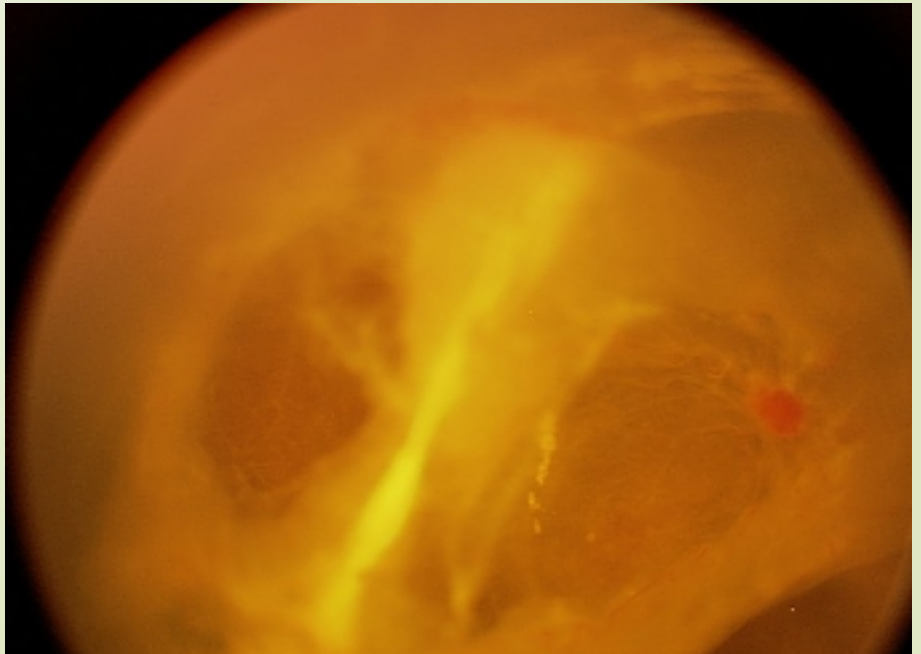
What About OD ??



Is it worth it to interfere OD: 4 months







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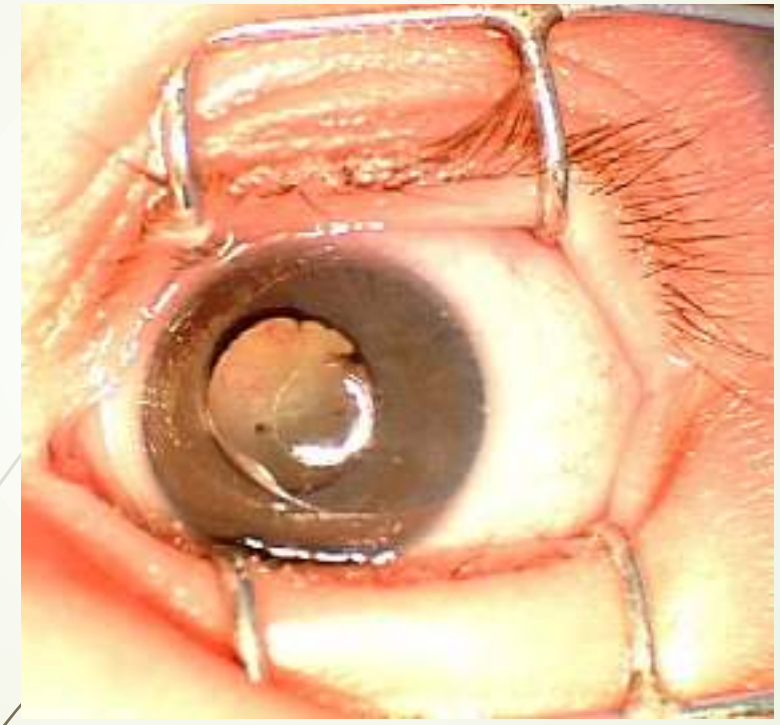
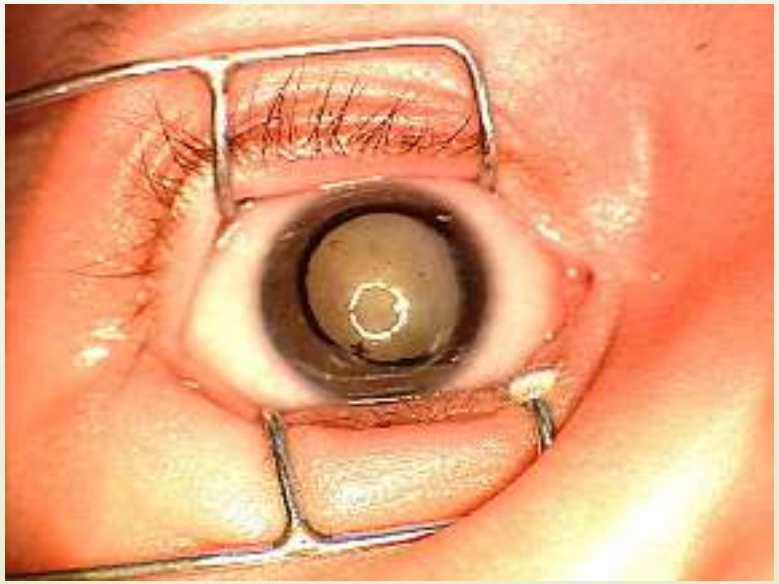
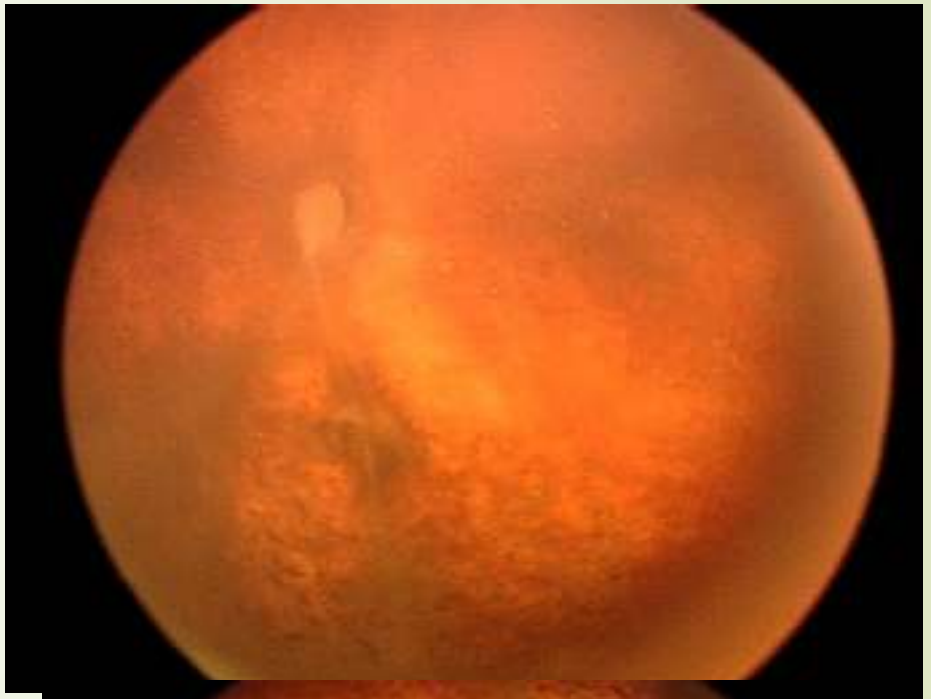
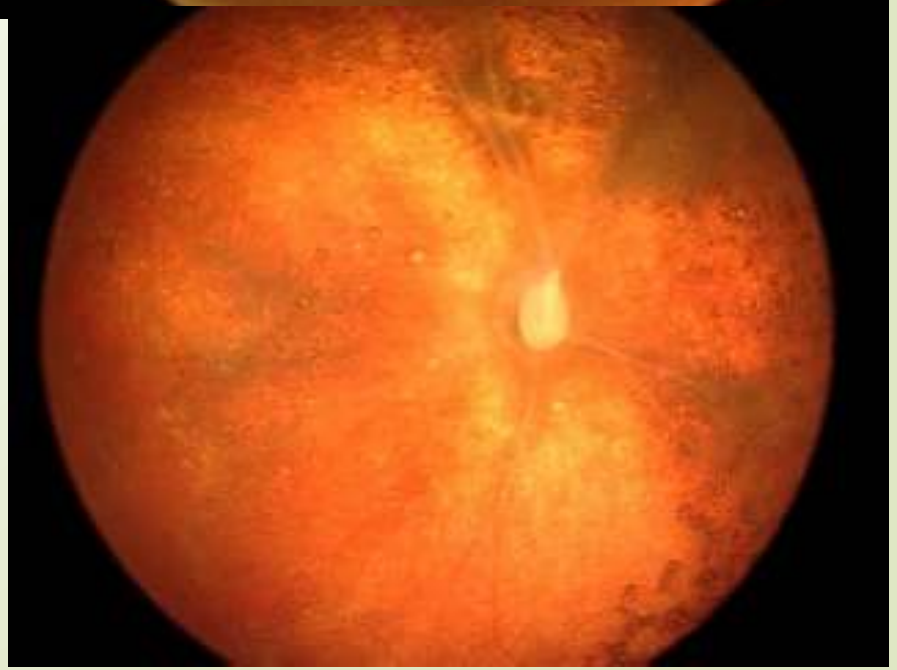
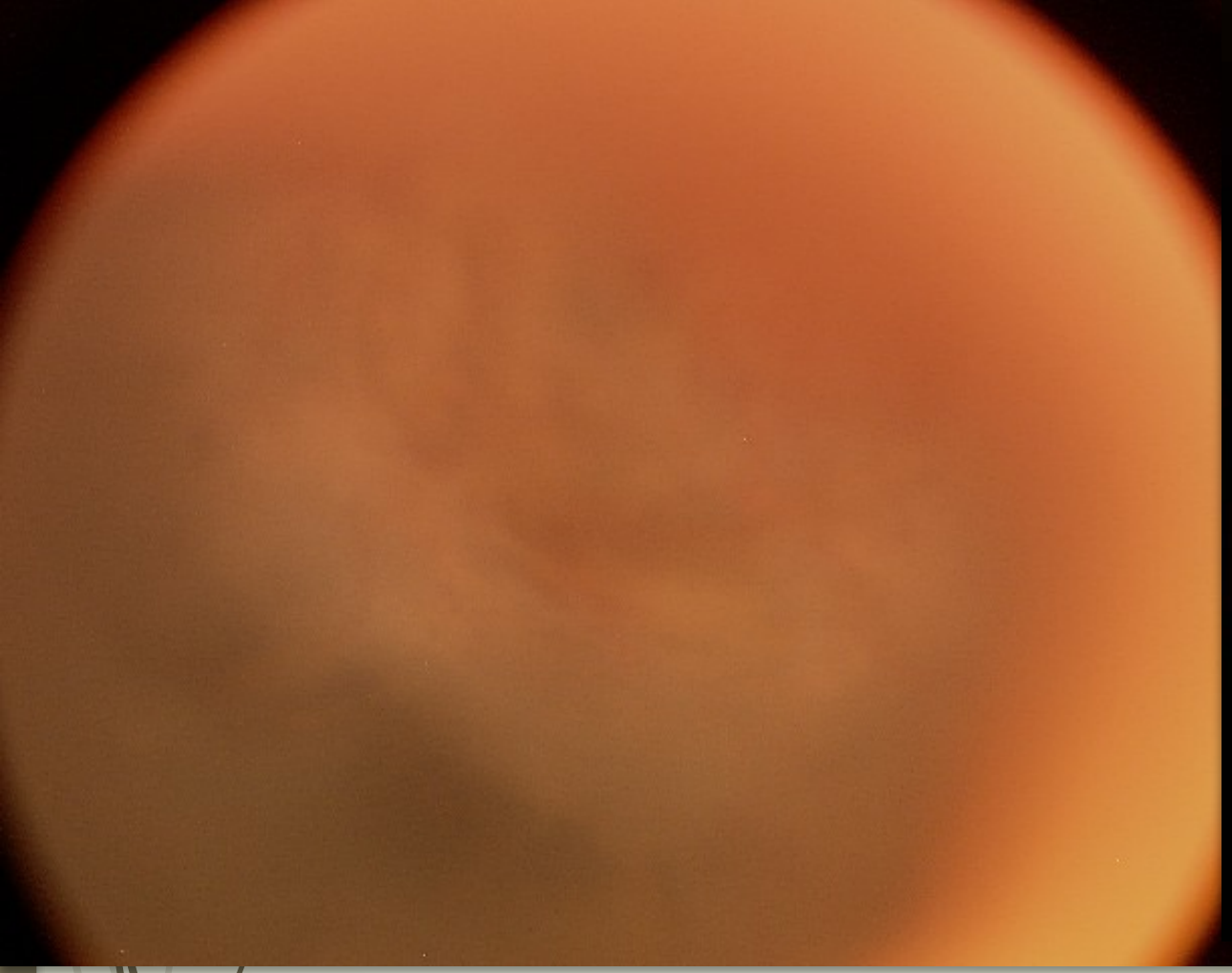
9months
5C

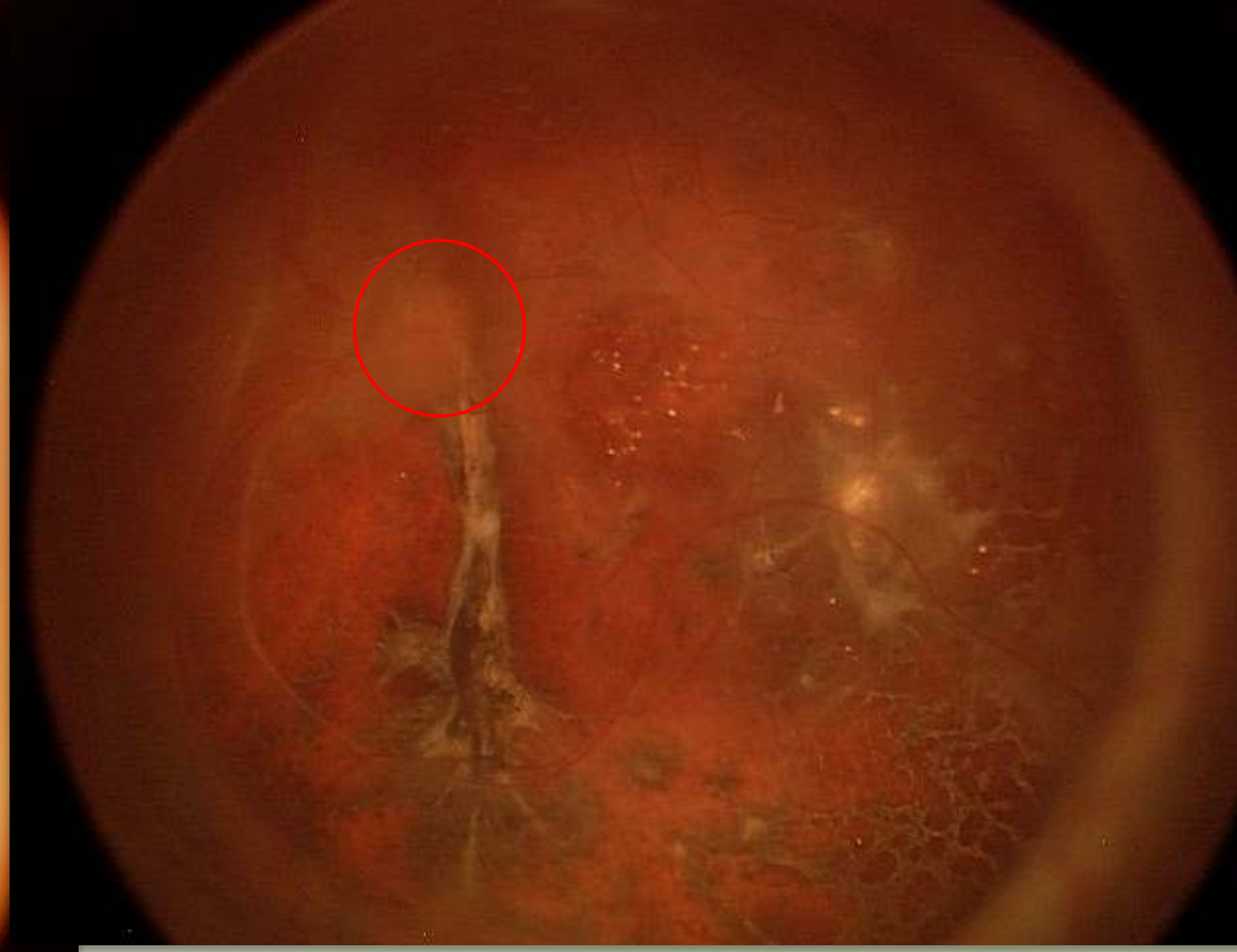




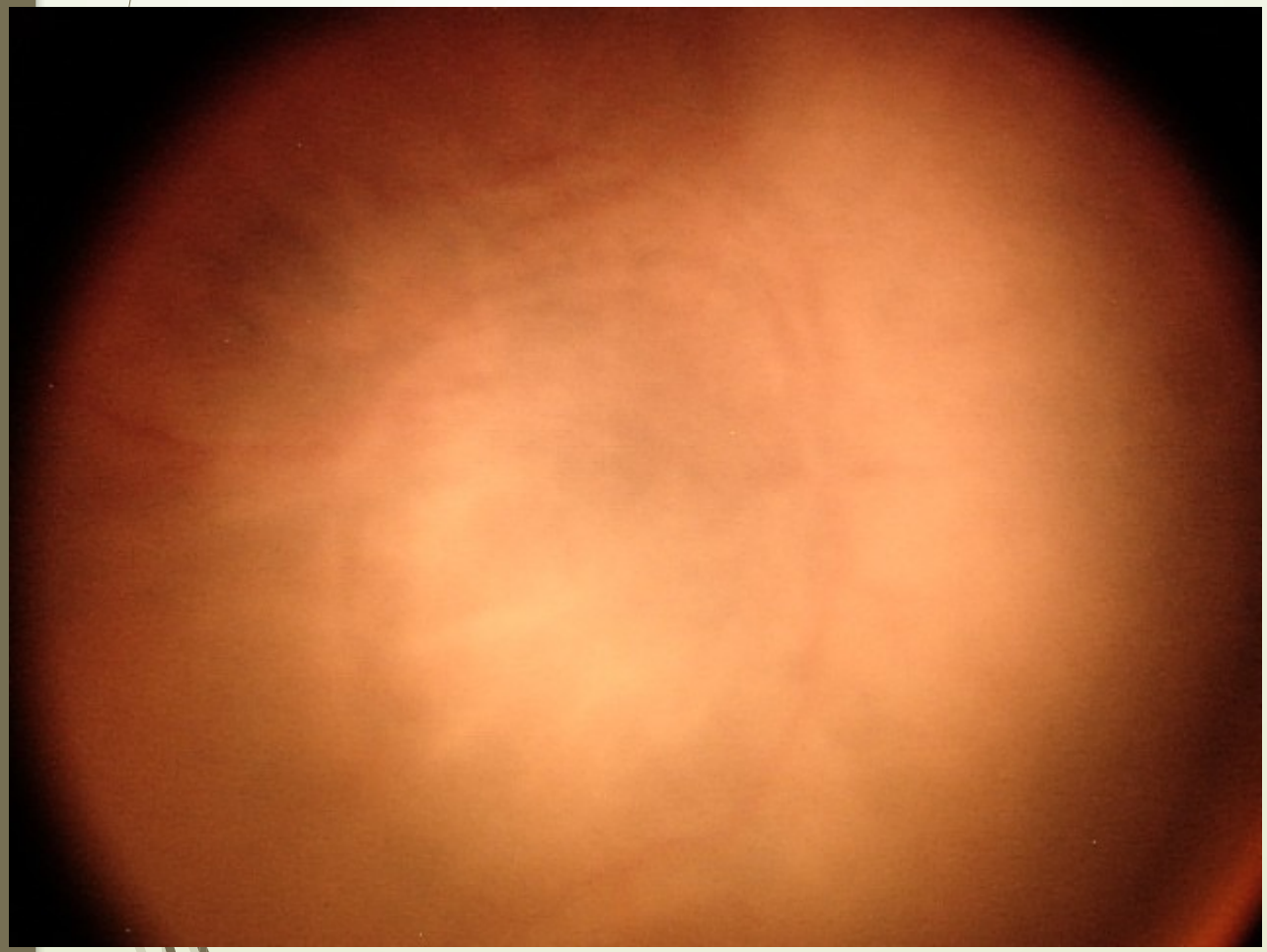


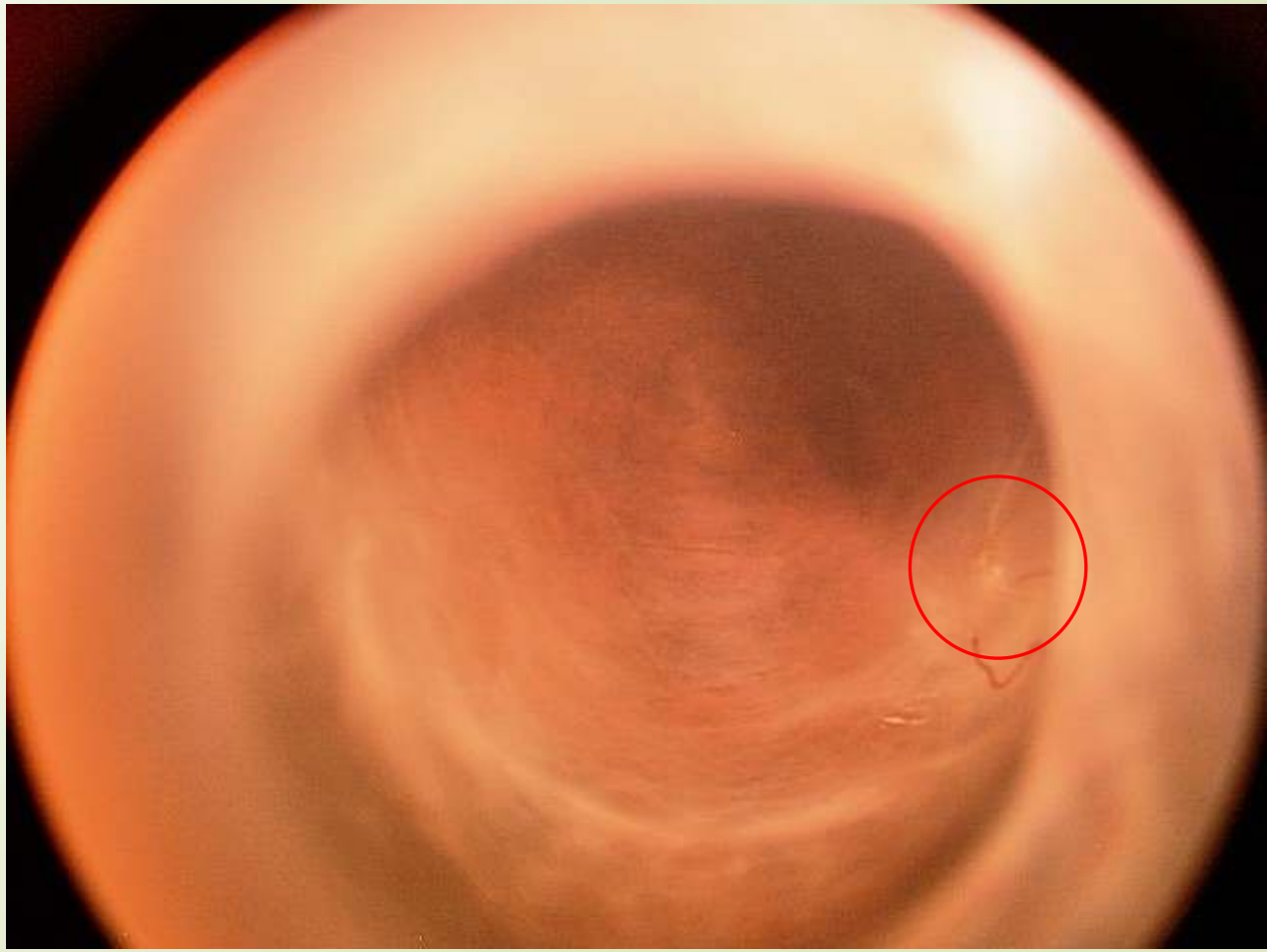




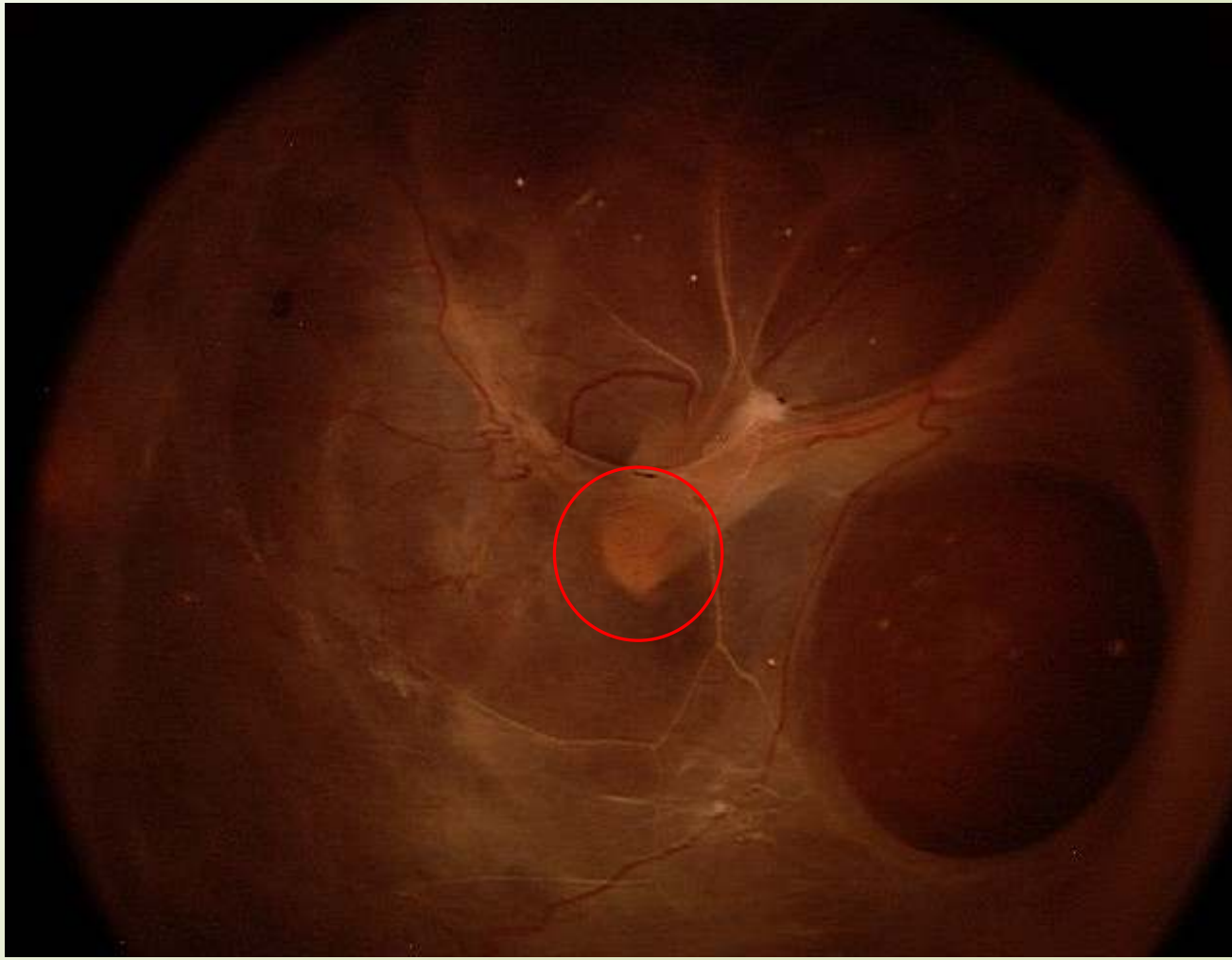


- OS: 5C
- Flat center and periphery

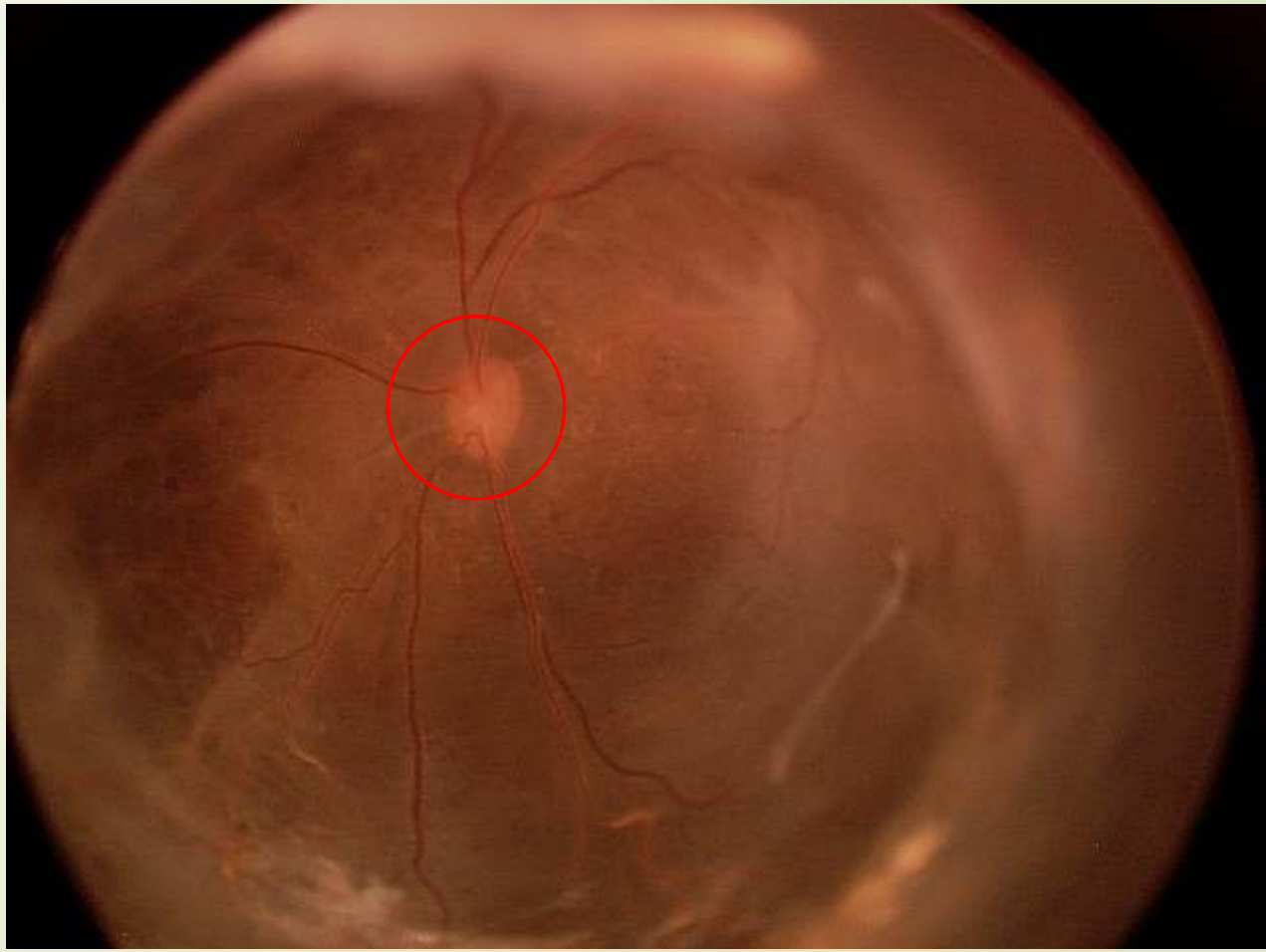




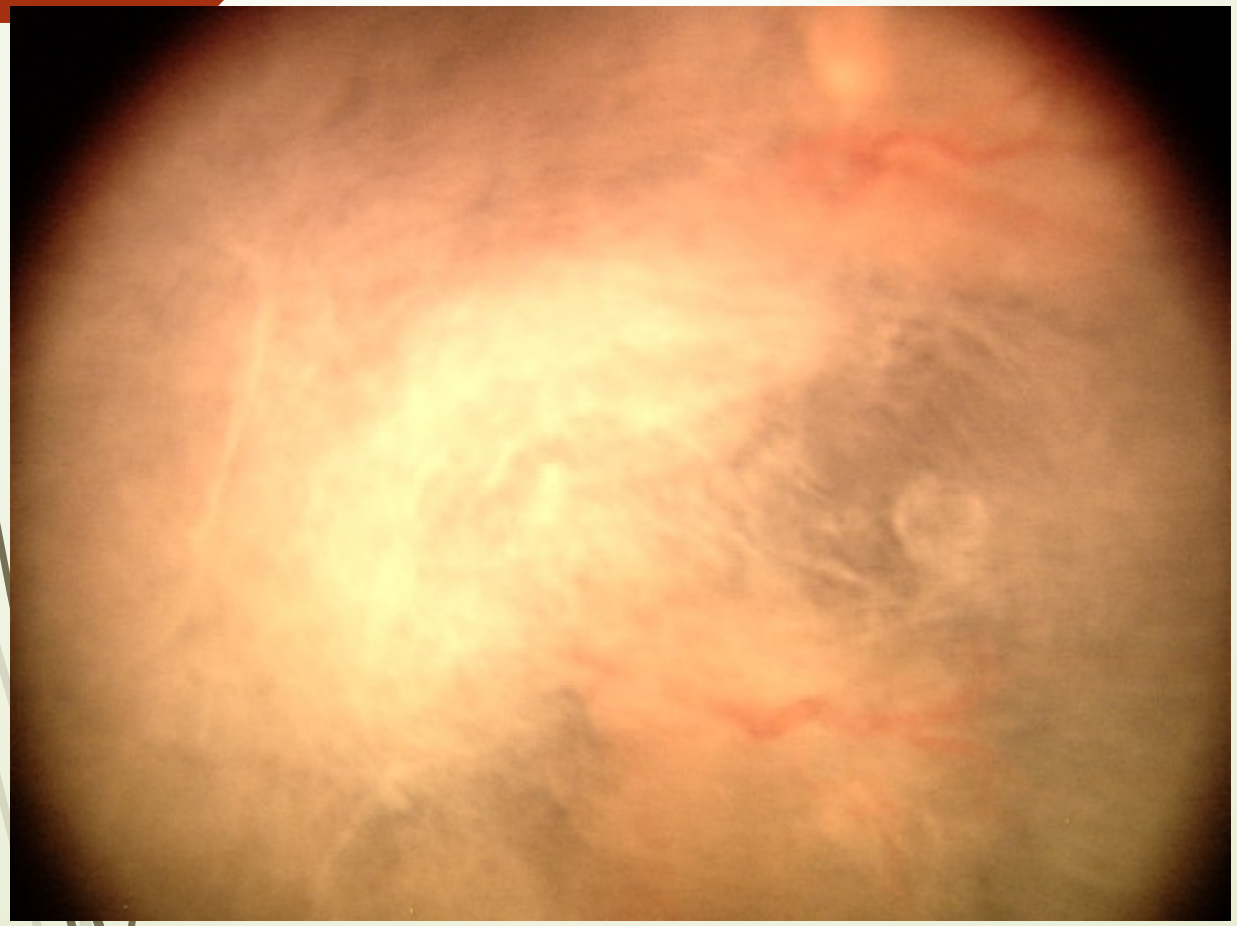
- OD: 5c
- Flat center, peripheral traction

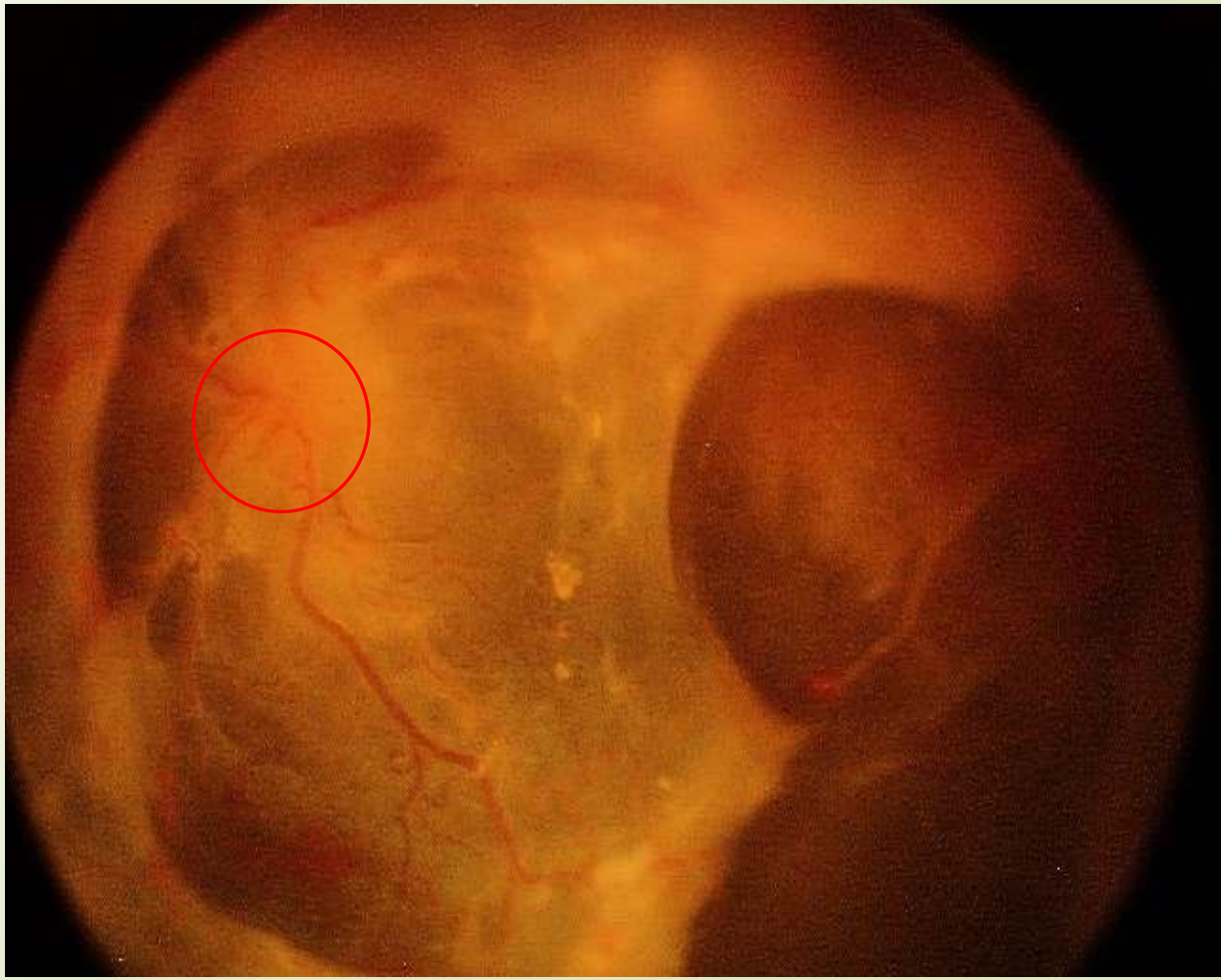


- OS: 5c
- Flat center, peripheral traction



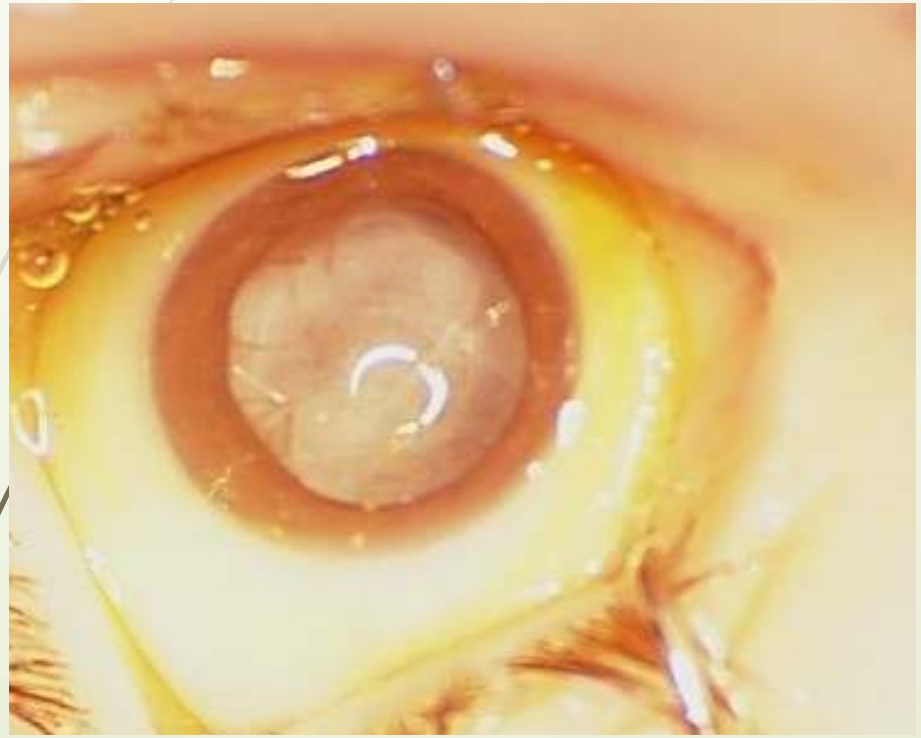
- OS: 5c
- Flat center, peripheral traction

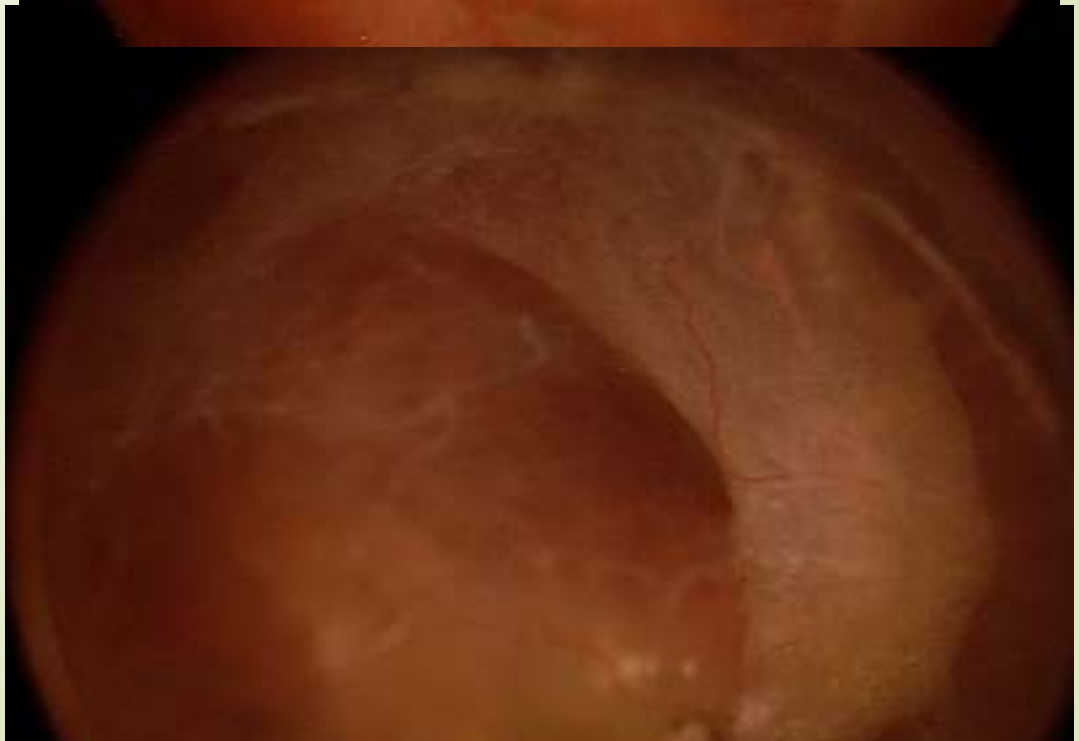




- OS: 5c
- Flat center, peripheral traction, ischemia

Is it worth it to interfere OS: 4 months





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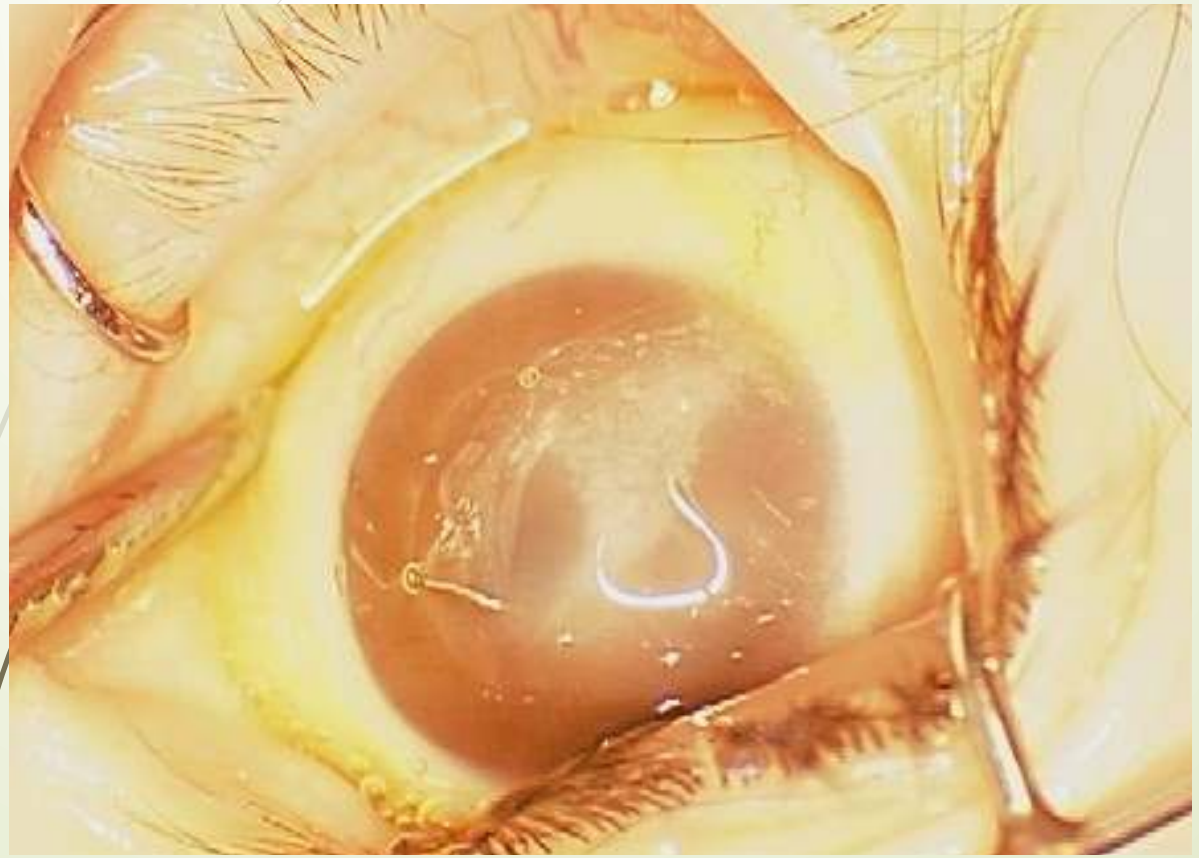
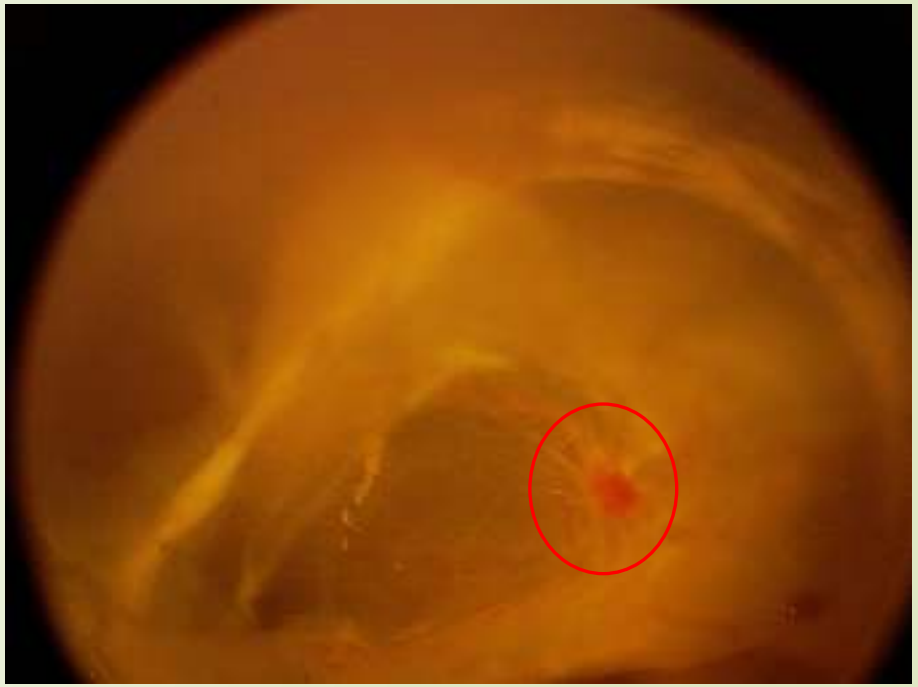
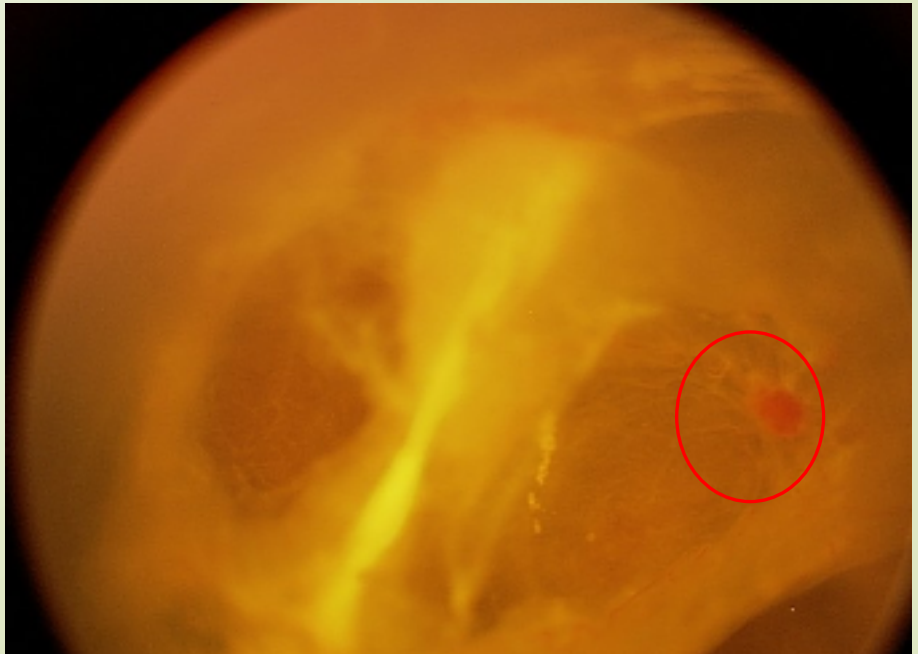
Is it worth it to interfere OD: 4 months







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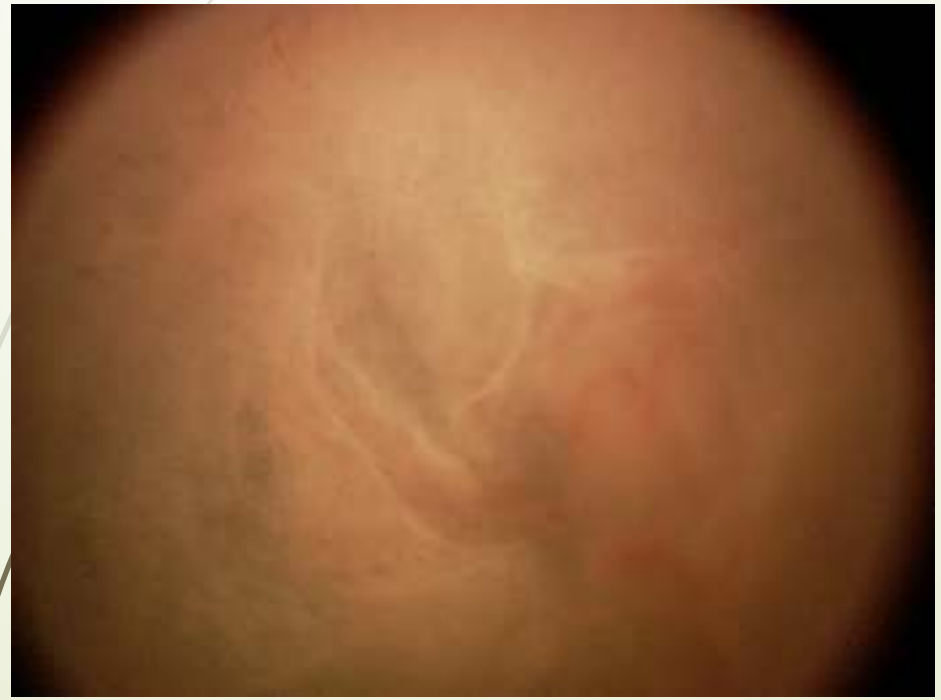
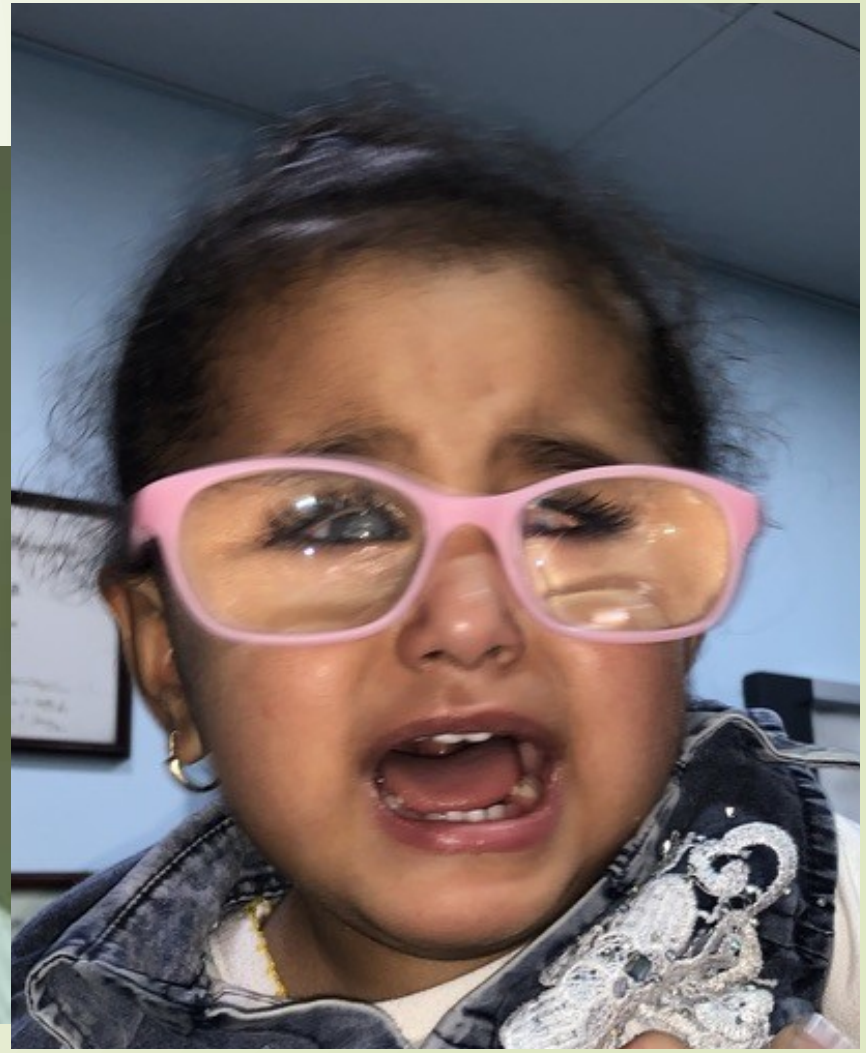
OD: 8 years follow up



Visual Rehabilitation-F up



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Review Article

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Retinopathy of prematurity: A major review and situation analysis in Egypt

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Abstract

Retinopathy of prematurity (ROP) remains a major cause of childhood blindness in developing countries. As childhood and neonatal mortality in Egypt has shown tremendous improvement over the past two decades, it is expected to encounter an increasing number of cases of blindness from ROP in surviving infants unless strict guidelines and cooperation between different involved departments are explicitly set. In this review article, the author highlights the studies conducted and published risk factors, recommends protocols for early diagnosis, and describes management strategies to lessen or prevent blindness related to ROP.

Keywords: Antivascular endothelial growth factor, developing countries, Egypt, laser, retinopathy of prematurity, surgery for stage 4 and 5

Introduction

Retinopathy of prematurity (ROP) represents a significant cause of preventable blindness for children in the developing and developed countries with the improvement of neonatal care. Several countries have adopted screening protocols for early detection and management of preterm infants having this potentially blinding disease. However, research on this issue in Egypt is still in its early stage [1].

Situation in Egypt

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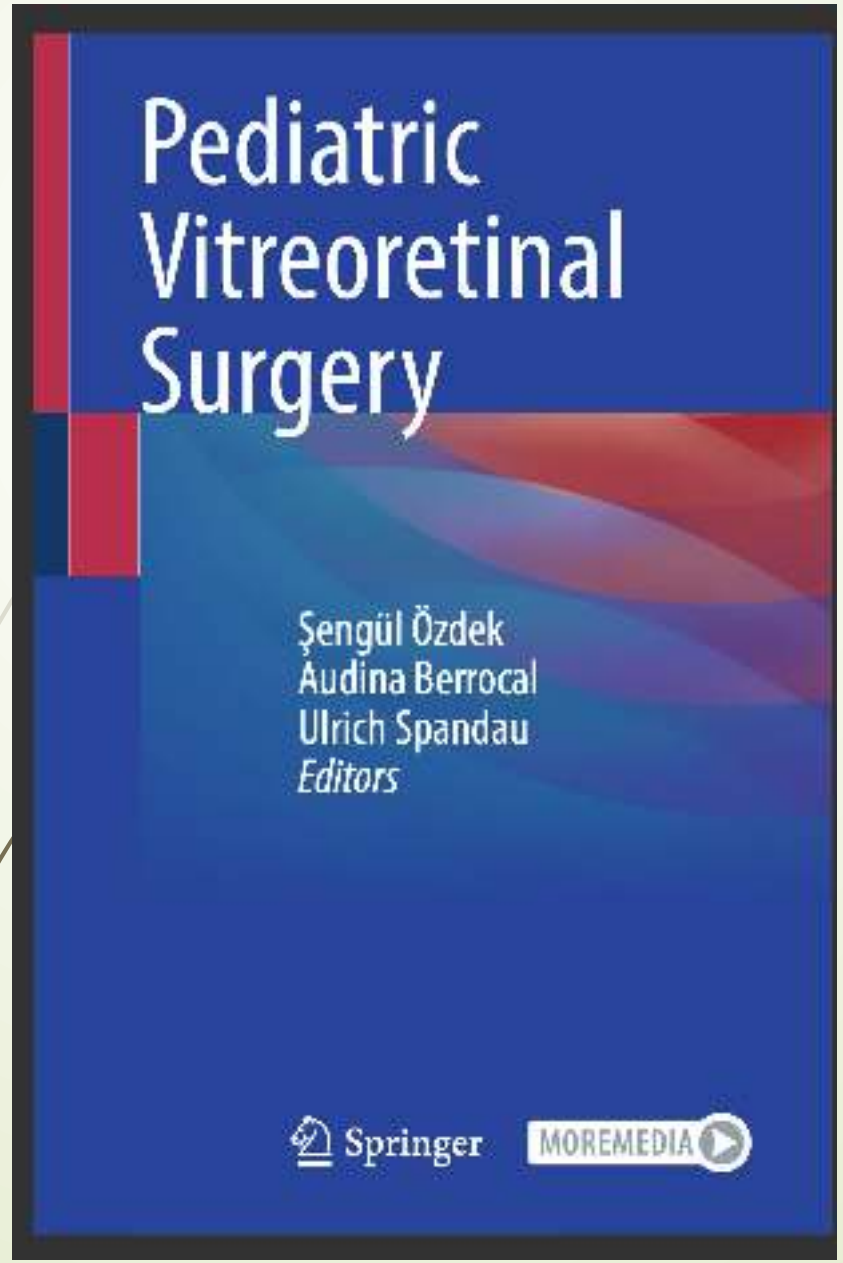
Owing to significant efforts of the health system in Egypt, infant mortality has declined from 40/1000 live births in the

morbidity in these infants. More efforts need to be made not only to reduce the incidence of ROP but also to improve the guidelines to ensure that all babies at risk receive a timely screening examination.

The cost of screening and managing an infant is much lower than the lost productivity cost on the state exchequer. A child having gone blind because of ROP will remain so for 71.3 years (the life expectancy in Egypt, 2015; *http://www.who.int/countries/egy/en/*).

The economic burden of ROP is tremendous. A simple



2023

Complications of Vitreoretinal Surgery for ROP

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Ihab Saad Othman

Abstract

Vitreoretinal surgery for stages 4 and 5 ROP carries a significant number of intraoperative complications. Surgery is not forgiving and bearing the responsibility of defining the visual future of a premature infant or child requires a great deal of expertise in understanding the anatomy of the eye, the severity of the disease with its different presentations and more importantly how to manage intra-operative complications. This is done by proper planning for surgery, using adequate surgical techniques and understanding the basics of intra operative management of surgical complications and proper and swift management of such problems. In this chapter, the intraoperative surgical complications for stages 4 and 5 ROP are discussed in details, how to prevent and manage these complications to get the best outcome.

Keywords

ROP · Stages 4 and 5 · Pars plicata lensectomy · Pars plicata vitrectomy · Lens sparing vitrectomy · Preoperative assessment · Vascular activity management · Intraoperative bleeding · Sclerotomy complications · Posterior hyaloid detachment · Iatrogenic retinal breaks · Ciliary detachment · Semifluorinated silicone oil · Autologous plasmin · Trypan blue

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