


Retinal Imaging and Cases



4/27/19

Midwest Optometric Society
Cincinnati 2019 Seminar
Haroon Chaudhry MD



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I wish I had financial disclosures

2

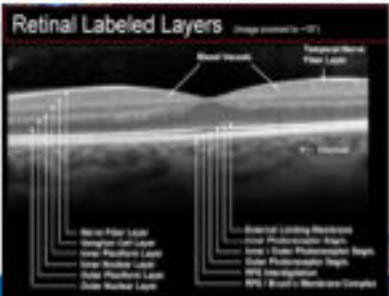

"Any sufficiently advanced technology is indistinguishable from magic."

- Arthur C. Clarke



3


- OCT is a non contact, non-invasive, high resolution study of the eye which correlates very well with retinal histology

4

Overview

- Review of Retinal Cases
 - What types of Imaging to Use
 - How Imaging Helps in Diagnosis
 - How Imaging Helps in Referring
 - How Imaging Helps in Treatment
- A few surgical examples



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Case 1



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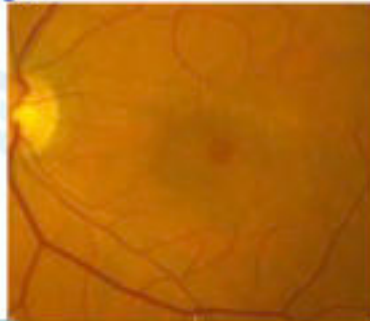
History

- This 56 year old has trouble with his left eye
- He feels that all cookies look like donuts which is frustrating in his line of work
- Vision 20/25, 20/80
- Anterior Exam: Complete absence of eyelids OU



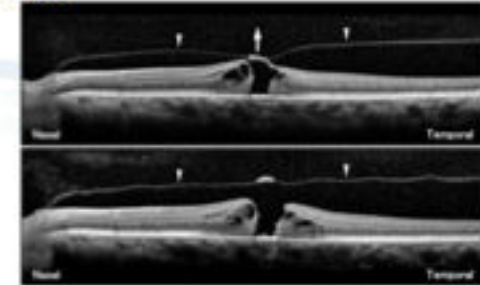
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Images



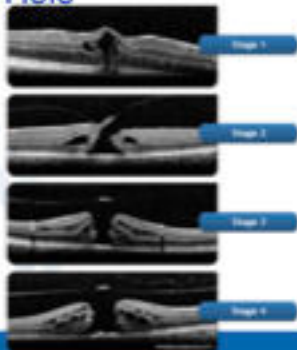
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OCT



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Macular Hole



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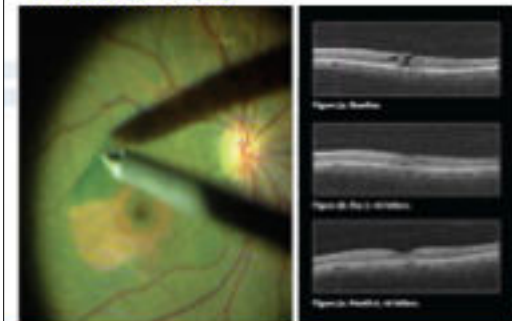
Jetrea vs Surgery

- Jetrea (Ocriciplasmin) a 1 time injection
- Enzymatically cleaves VMT
- No gas bubble, face down or drops
- No cataract and can still do surgery
- Only small holes with VMT
- Elected for surgery
 - 94% vs 40% success rate
- Final vision 20/30



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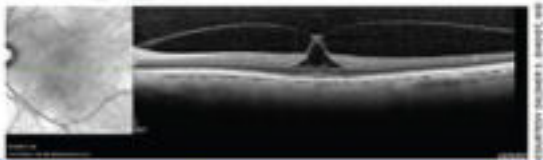
Macular Hole



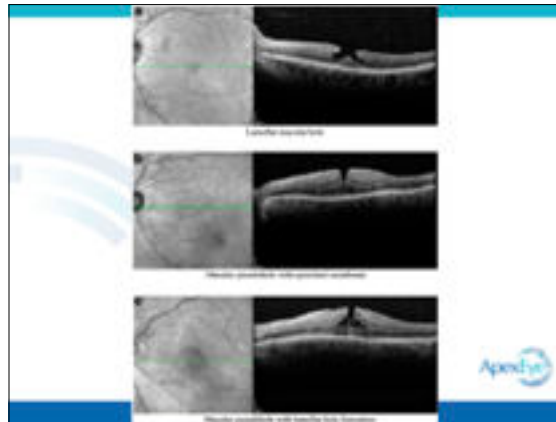
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Pseudohole vs Macular Hole

- With or without ERM
- With or without VMT
- Key difference is IS/OS Layer Disruption
-



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Case 2



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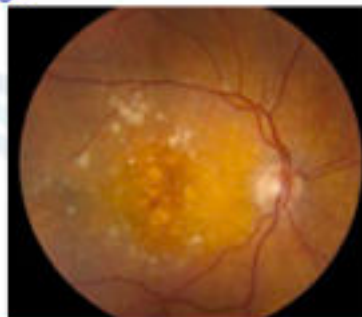
History

- The 87 yo woman in this photo states she has some right eye distortion doing her crossword puzzle for the last for 3 weeks
- Last refraction during Nixon administration
- Vision 20/60, 20/30
- Exam: PCIOL OU



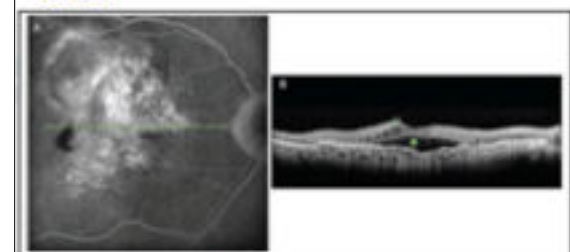
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Image



17

OCT



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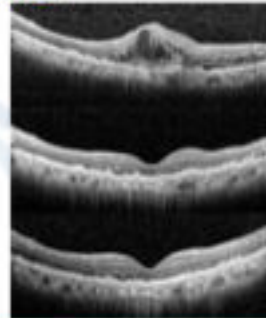
Anti-VEGF

- Avastin not approved but inexpensive
- Lucentis/Eylea approved but expensive
 - Eylea lasts 1.5 to 2x as long
- Only risk is endophthalmitis (1/4000)
 - Ocular flora vs compounding
- Vision 20/40 after 2
 - Injections for years
 - PRN vs Treat/Extend



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Wet ARMD



ApexEye

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Case 3

ApexEye

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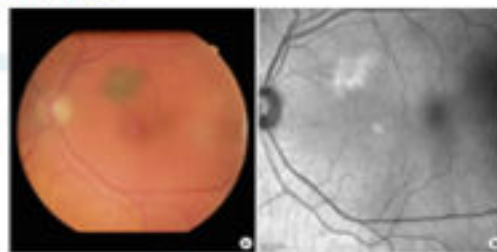
History

- 14 year old boy presents for routine exam with no complaints or worries
- Mom complains he reads too many comics
- Vision 20/20 OU
- Anterior Exam: 2 Iris Nevi
- No uveitis or vitritis



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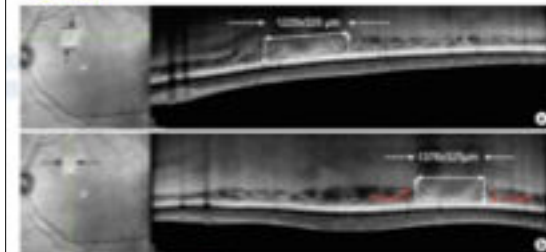
Images



ApexEye

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OCT



ApexEye

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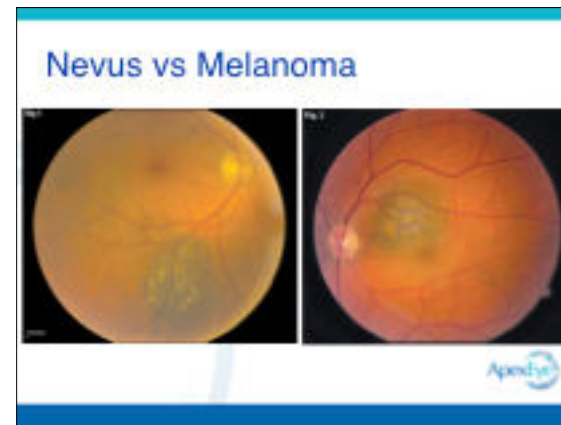
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Nevus vs Melanoma

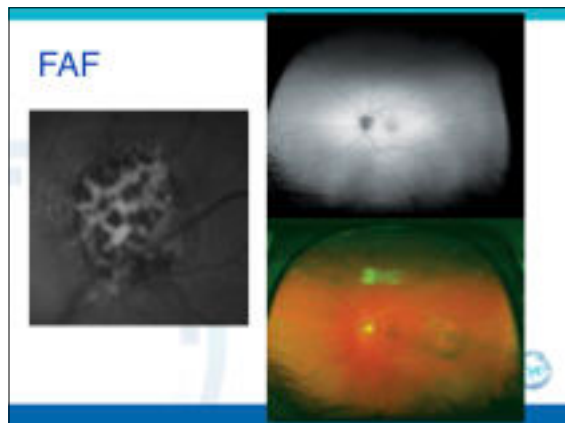
- Incidence 6/100 vs Melanoma 6/1,000,000
- Thickness (2mm)
- Fluid (Subretinal)
- Symptoms
- Orange Pigment
- Margins (3mm from disc)

Apex

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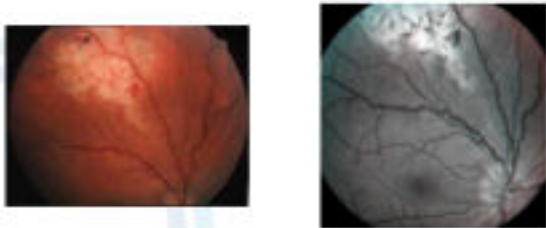
History

- 24 yo woman with h/o Hepatitis and Ulcerative Colitis presents with a painful red right eye x 1 week.
- Vision 20/30 OD, 20/20 OS
- IOP 45 OD, 22 OS
- Anterior Exam
 - OD 1+inj, 1+ cell
 - No vitritis or rAPD

Apex

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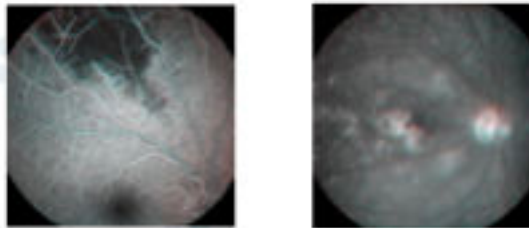
Images



ApexEye

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IVFA



ApexEye

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Acute Retinal Necrosis

- Viral particles infiltrate retina and cause occlusive arteriolitis and vitritis
- HSV or VZV
- Usually immunocompetent
- 2/3 ARN, 1/3 BARN
- Patchy yellowing of retina starts peripheral and spreads posterior
- Become confluent

ApexEye

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ARN



ApexEye

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ARN

- Treat with IV Acyclovir
- Gancyclovir injections 3x/week
- Oral Valacyclovir
- Encephalitis and Dermatitis
- 50-75% develop RD within 3 months
- Prophylactic Laser
- Vitrectomy with Silicone Oil
- Poor prognosis

ApexEye

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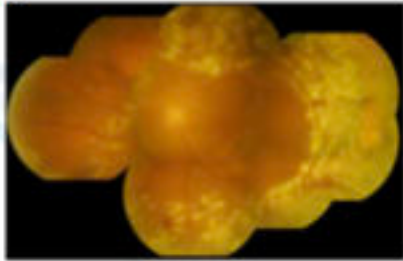
ARN

- Treated with Oral Valtrex 2g TID
- Lesions slowly resolved OD
- No lesions OS (BARN)
- IOP could not be controlled medically
- Ranged from 44 to 68
- Tube put in, IOP better
- Valtrex reduced and vision stable
- Watch close for RD

ApexEye

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ARN



Apexis

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Case 5

Apexis

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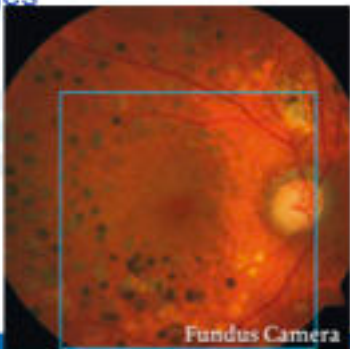
History

- 43 yo male with IDDM complains of blurry vision in right eye
- History of multiple lasers and multiple donuts
- Radiation exposure at work
- Vision 20/70, 20/30
- 1+ Cortical cataracts
- A1C 8.8%



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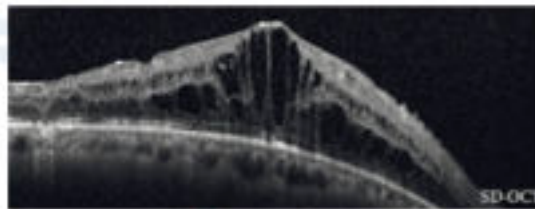
Images



Apexis

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OCT



Apexis

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CSME

- Gold standard is focal laser
- Ineffective for diffuse or foveal ME
- Anti-VEGF options much better
- Not as effective as in ARMD
- VEGF load much higher
- Ozurdex and Iluvien effective
- Longer acting steroids
- Risk of OHTN and Cataract



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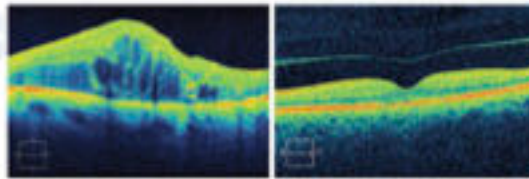
CSME

- Had Ozurdex injection OD
- Vision improved to 20/40
- IOP remained in teens
- Edema recurred in 14 weeks
- Injection repeated
- Visually significant cataract after 2 years and 6 total injections
- Vision 20/30 after CE/IOL



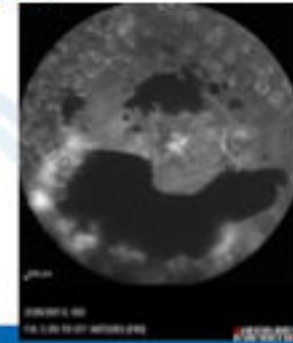
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OCT



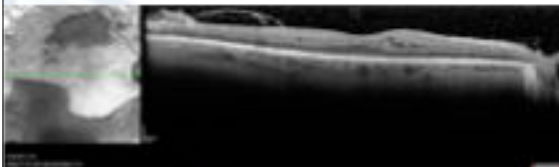
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BONUS!!!



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BONUS!!!



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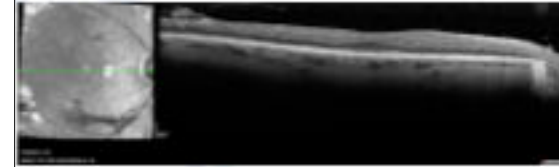
BONUS!!!

- Patient received LIO MiniPulse PRP
 - 20ms Duration
 - 400mW Power
 - 80ms Interval
- Patient received MicroPulse Focal 5%
 - 200ms Duration
 - 400mW Power
 - 200ms Interval



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BONUS!!!




48

Case 6




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History





- 45 yo executive has foggy vision in right eye for 1 week
- He's in your chair when you walk in and insists on examining himself
- He palpates his eyelids and says its 17
- He reads 20/30 OD and says his anterior exam is normal
- He admits he can't check his own retina and hands you the indirect





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Images




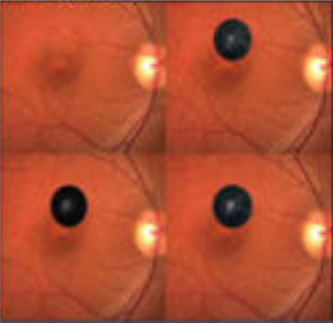
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OCT




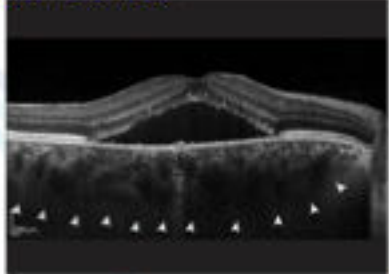
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Central Serous




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Central Serous




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Options

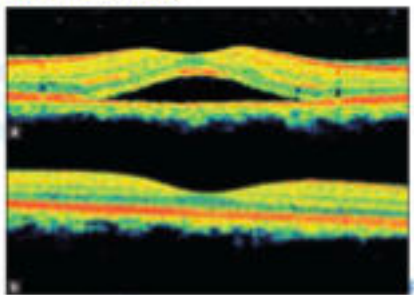



- Over 90% resolve
 - D/C Steroids and reduce stress
- 33% recurrence in either eye
 - Chronic CSR has worse prognosis
- Focal Laser can hasten recovery
 - Does not change final prognosis
- He's too busy to follow up but buys an OCT at his advertising firm



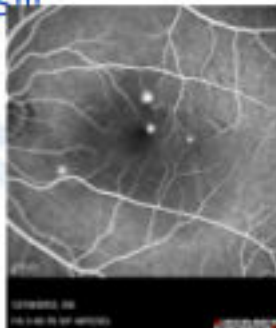
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Central Serous

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BONUS!!!




57


BONUS!!!




58

BONUS!!!

- Patient received MicroPulse Focal 5%
 - 200ms Duration
 - 240mW Power
 - 200ms Interval
 - 100micron Size



59

BONUS!!!





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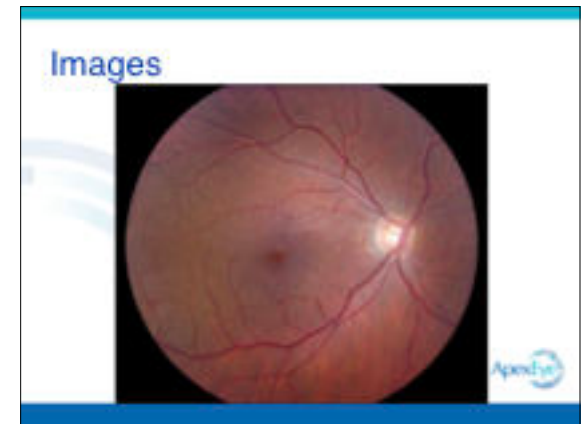
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History

- 66 yo states that recently everything looks really small and greenish in his right eye
- String beans and corn stalks look twisted and crooked
- Vision 20/50, 20/20
- Does not fit in slit lamp



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ERM

- Inflammatory cells respond to macula as vitreous ages and separates
- Tightens to create tension
- Diplopia, Distortion and Macropsia
- 1.1% risk per year
- 2.7% fellow eye
- 82% symptoms improve
- Vitrectomy if desired

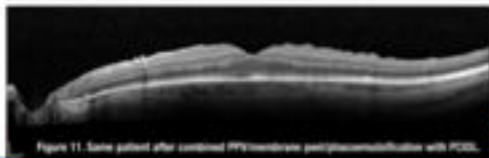
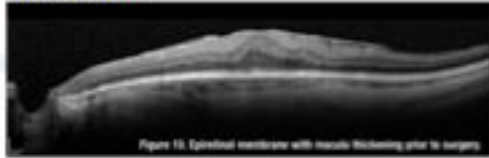


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66

Vitrectomy



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Case 8

ApexEye

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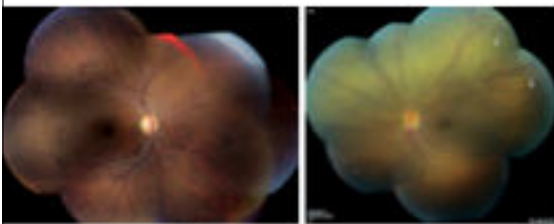
History

- 27 yo man complains of painless vision loss in left eye for four days
- Noticed when reading a magazine
- On chemo for Osteosarcoma
- Vision 20/20 OD, 20/40 OS
- Anterior Exam Normal
- 3+ rAPD OS
- No uveitis or vitritis



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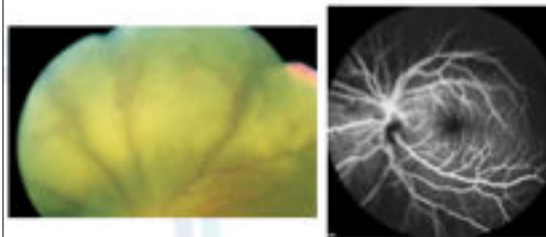
Images



ApexEye

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Images



ApexEye

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Labs

- Uveitis blood workup negative
- Low white count
- Normal Chest X Ray
- HIV negative
- Viral PCR of Vitreous
- Negative for HSV and CMV
- Positive for VZV

ApexEye

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Progressive Outer Retinal Necrosis

- Immunocompromised
 - HSV or VZV, may be CMV
 - No inflammation
- Obliterative retinitis and vasculitis
 - Cracked Mud Appearance
 - Guarded prognosis
- Central to peripheral
- IV, Injection or Oral Antivirals



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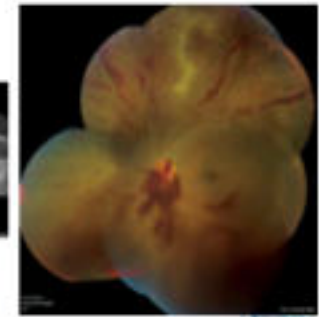
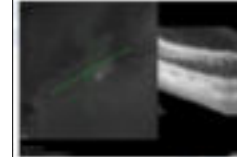
PORN

- IV Acyclovir started
- Intravitreal Gancyclovir and Foscarnet
- Lesions healed but blood persisted
- Final vision 20/80 OS
 - Guarded prognosis
 - No RD OS
- OD remained disease free



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Images



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Case 9



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History

- 61 yo with multiple auto immune conditions presents for first exam
- Has been on a medicine he forgot for which he should get eyes checked
- Vision 20/25 OU
- Exam shows forehead lac and bolts in neck



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Images





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Plaquenil Toxicity


- Mechanism Unknown
- Incidence 0.5%
- Risk Factors
 - Daily dose over 400mg
 - Cumulative dose over 1000g
 - Taking over 5 years
 - Renal, liver or macula disease
 - Over 60 years old

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Plaquenil Screening

- Dilated exam and 10-2 HVF
 - OCT, FAF or mfERG
- Do at baseline
- Repeat testing at 5 years
 - Earlier if high risk
- Annually thereafter
- Stop if toxicity confirmed
 - Won't clear quick so may progress



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Case 10



82

History

- On a Friday at 4:59pm your next patient tells you they have flashes, floaters and a curtain OS for 1 day
- She is a 48 yo monocular myope
- She lost the other eye to fashion
- VA NLP OD, 20/25 OS
 - CVF inferior defect
- Height 5'10"
- Weight 130lbs



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Fundus Photo



84

Images



85

Images



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Macula Status

- If Macula On repair with 24-48 hours
- If Macula Off repair with 10 days
- Success rate after 1 surgery 85-90%
 - PVR
 - New tear
- Goals
 - Relieve traction
 - Remove subretinal fluid
 - Scar around tear



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Surgery

- Offered scleral buckle or vitrectomy
 - Pneumatic not offered due to monocular status
- Elected for vitrectomy with SF6 gas
 - Face down x 1 week
 - No flying to Milan
- VA 20/25 after CE/IOL
- Eye insured for \$1M



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Post Op



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Case 11



- 68 yo WF under a lot of stress lately
- Seeing floaters for 3 days and flashes last night that may be paparazzi!
- Having trouble reading her e-mails
- Large shadow in the vision

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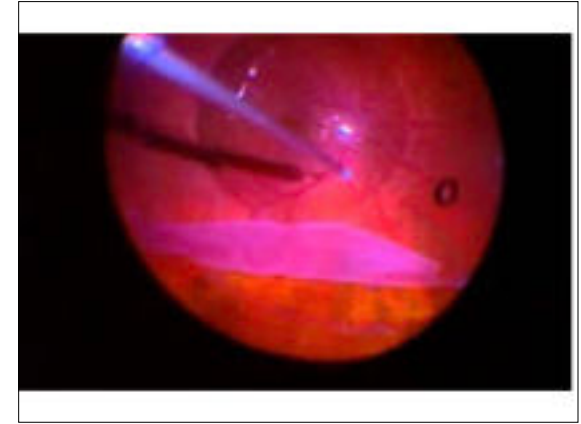


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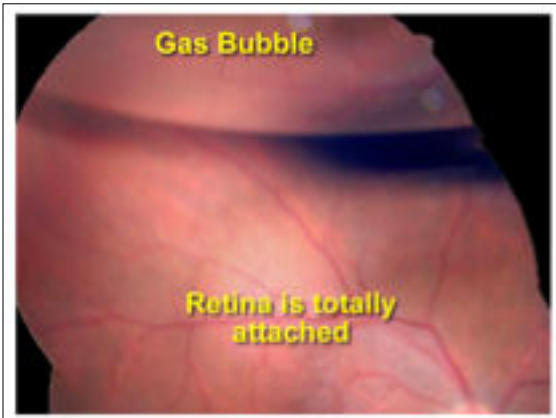
Vitrectomy

- Carefully remove vitreous and relieve traction on torn retina
- Remove other vitreous as well to reduce PVR risk
- Consider scleral buckle for external support
- Laser photocoagulation after retina reattached under air
- Gas or Oil to hold retina in place

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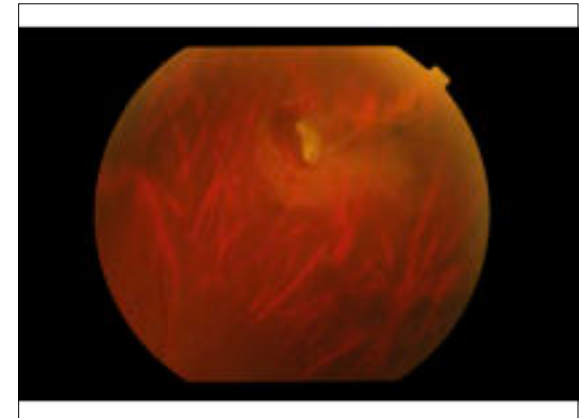
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Case 12



- 70 yo OM also under a lot of stress
- Sees a floater in his vision that is yuuuuuge
- No previous trauma. Had flashes last week

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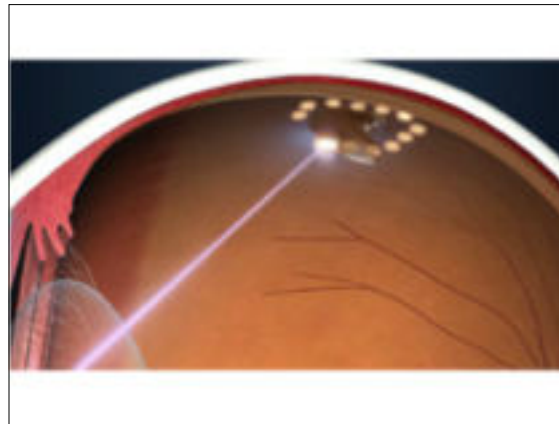


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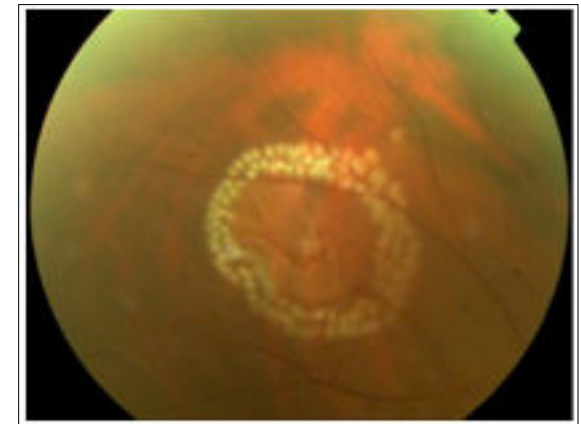
Laser Retinopexy

- Thermal photoocoagulation around retinal tear
- Tear and traction are still present
- Highly successful if no sub retinal fluid
- Can also barricade around fluid but that may break through
- Scleral depression helps to get anterior

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98



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Contact

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- (908) 247-5273



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