

1

### Mark Dunbar: Disclosure

- Optometry Consultant/Advisory Board
  - Carl Zeiss
  - Allergan
  - Regeneron
  - Genentech
  - Tarsus
  - Orasis

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**1981**  
With support of Miami Lighthouse for the Blind, Norton breaks ground for a new eye institute on March 26.

**1988** Dr. Edward W.D. Norton recruited from Boston to start an Ophthalmology program as part of the University of Miami

3

**1976**  
The 220,000-square foot Anne Bates Leach Eye Hospital opens its doors. At the dedication ceremony, the Institute's former home becomes the William L. McKnight Vision Research Center.


4

**1966**  
J. Donald M. Gass M.D. - Pioneered the use of intravenous fluorescein angiography for the diagnosis of retinal disease  
Regarded as one of the top retinal specialists of the 20<sup>th</sup> Century

5

**April 20, 1970**  
Dr. Robert Machemer performed the worlds 1st Pars Plana Vitrectomy on a Miami Patient – an achievement that has earned him the title "father of modern retinal surgery"


6



**1976**  
Douglas R. Anderson, M.D. – Discovered that elevated IOP impairs axonal transport in the optic nerve in glaucoma

**1984**  
Richard K. Parrish II, M.D. – Introduced the drug 5-Fluorouracil (5-FU) to prevent the growth of scar tissue following glaucoma filtering surgery (trabeculectomy).

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**1989**  
Paul F. Palmberg, M.D., Ph.D., coins the term "target pressure" in the American Academy of Ophthalmology's Guide to Glaucoma treatment to halt or slow glaucoma.

**Coins the term "Target Pressure"**

8



**2006**  
Philip J. Rosenfeld, M.D., Ph.D. - introduces use of bevacizumab (Avastin) for the treatment of retinal diseases including usage for age-related macular degeneration, diabetic retinopathy and other venous occlusive disease.

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**Good Housekeeping Seal of Approval**

**1994**  
Bascom Palmer Eye Institute is named the #1 eye hospital in the country by U.S. ophthalmologists surveyed by Good Housekeeping magazine.

And a trend is born!

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**A Tradition of Excellence!**


**Bascom Palmer Eye Institute**  
**#1 in Eye Care in the U.S.A. for 20 times**  
**20 consecutive years**




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**Bascom Palmer and Optometry**

- Don Hoffer – 1<sup>st</sup> Optometrist hired in 1974
- Charles Pappas – the 2<sup>nd</sup> Optometrist hired (1974)
- Director of Optometry for over 30 years



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### Bascom Palmer and Optometry

- OD Residency and Externship in the early 1980's – ended due to political pressures
- 1980's-1990's – OD's hired as Staff Optometrists – "pseudo-residency"
- 1994 – OD residency and externship reestablished - 27 years ago
  - Over 130 OD residents

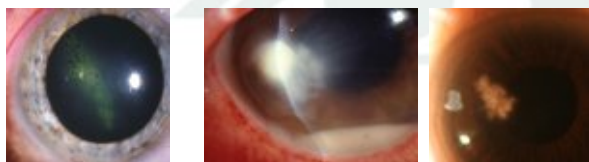
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### ANTERIOR SEGMENT

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### Differentiating Corneal Pathology

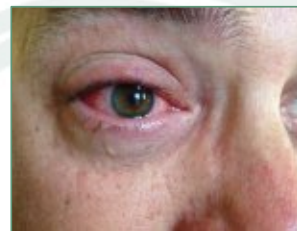
- Inciting event
  - Bacteria, fungus, virus
- Bodies immune response



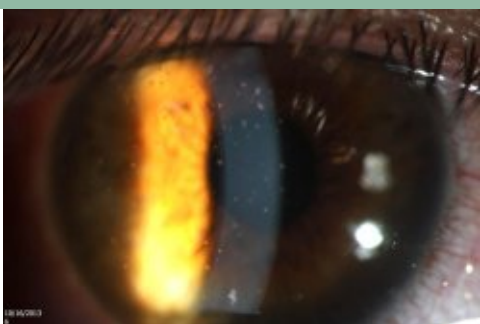
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### Chris: 40 y/o White Male

- Felt something fly into his eye 1 week earlier while on an airboat ride in FL
- Used Tobramycin for 2-3 days
- Then switched to PF q 2-3 hrs



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What is going on?

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What do you think they have?

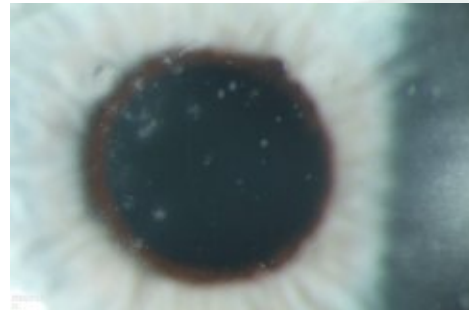
- A. No Clue?
- B. Microsporidia
- C. Acanthamoeba
- D. Thygesons
- E. Herpetic

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SM: 23 y/o Rookie Pro Football Player

- Noted redness, pain, irritation and photophobia LE X 1 week
- Soft CL wearer
- Had spent several days in the Bahamas fishing and doing a lot of boating
  - Rinsing off with freshwater from the boat water tank
- In training camp and having difficulties
- VA: 20/30

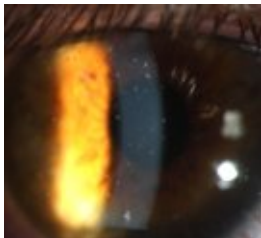
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Strikingly Similar Presentation

Optometrist



Football Player



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SM: 23 yo Rookie Pro Football Player

- Nonspecific Keratitis
- Culture and confocal microscopy obtained

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### SM: Rookie Pro Football Player

- Suspicion of Acanthamoeba
  - Based on history
  - Based on Confocal microscopy
- Started on
  - Baquicil (polyhexamethylene) gtts q2h
  - Chlorohexidine q1h
  - Vigamox q2h
- Asked to return in 2 days

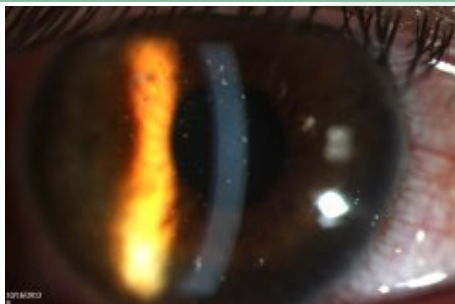
25

### His Course

- Returned to training camp and August 2-a-days
- Had steady improvement
- Was cut on the last day of training camp

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Back to Chris



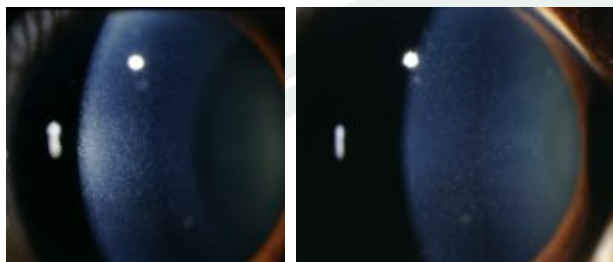
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### Dr. Chris: Microsporidia

- Intracellular protozoa
- Coarse epithelial keratitis
- Conjunctival reaction minimal
- Tx - none effective
  - lubrication, sulfa?, fumigillin



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### What Do You Do If You Are Not Sure?

#### The Scenario

- Unilateral red eye
- Pain and photophobia
- Keratitis
  - Suspicious for a dendrite

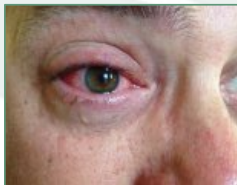


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### What Do You Do If You Are Not Sure?

#### Determine

- Is there a preauricular node and follicles?
- Corneal sensitivity?
- How does it stain – RB is hugely important



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### What Do You Do If You Are Not Sure?

#### Your Options

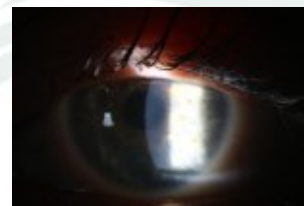
- Wait a day
- Treat as if it were HSV

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### 39 yo Nurse at UM

- Blurred vision in the LE for 2 weeks
- 2 days ago had an episode of **distorted vision in the LE for ~ 30 minutes** – went away on its own
  - Not accompanied by pain or any discomfort
- Soft CL wearer
- BCVA: RE 20/20; **LE 20/80**

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### Thygeson's SPK

- Numerous round or stellate areas of coarse, gray, slightly elevated intraepithelial opacities
  - Resemble subepithelial infiltrates, but are more superficial, duller in color, and less organized
- Mild to moderate FBS
- Tearing and occasionally photophobia

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### Thygeson's SPK

- Its thought to be caused by a chronic **subclinical viral infection** affecting the deeper layers of the corneal basal epithelium.
  - Opacities represent corneal mononuclear cell infiltrates consistent with a viral entity
- Studies have implicated a varicella virus, possibly herpes zoster, as well as Chlamydia

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### Thygeson's SPK

- Demonstrate variable central staining with NaFl
- Tends to run a chronic, remittent course
- May experience exacerbations
- Bilateral in nature, but can be asymmetric or involve only one eye at a time

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Mary 49 yo White Female  
TeleMedicine Visit 1 Day Earlier

HPI: Mary is a 49 y.o. female who presents for telemedicine evaluation of the following issues(s):

Mycopic - uses contact lenses daily

First episode March 2020 where she felt as though she scratched her cornea with her contact lenses. Due to start of Covid was not able to be seen until May 2020.

At that time told herpes/shingles OD

Great improvement with Latanoprost and Acyclovir after few days.

Most recent episode 2 weeks ago and was seen by cornea specialist at Baptist and started on Invektys OD and Acyclovir. Here for second opinion.

Has only occurred OD

Invektys 2-3x day OD

Acyclovir 500 mg TID

#### Base Eye Exam

##### Visual Acuity (Snellen - Linear)

Right Left

Dist AC CF at 9'

Dist OD 20/20 -1

Dist OD 20/20 -1

Correction: Contacts

Tonometry (Tonopen, 1:59 PM)

Right Left

Pressure 23 23 ICL

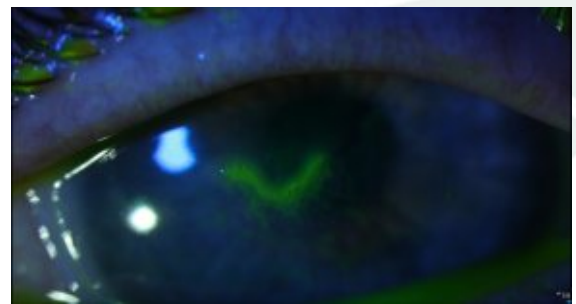


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Do you refer it or treat it yourself?

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#### Progress Notes

Dunbar, Mark T., OD

##### Assessment

- 1) Most likely HSV epithelial keratitis RE
  - Has had multiple recurrences over past 16 mo
  - Most recent episode started ~ 2 weeks ago
  - Seems to be induced by stress and possibly sunlight
  - Currently using Valtrex AND Lotoprednol
  - Last 3 episodes she has been on Lotopred
- No infiltrate
- Smaller dendrite nasal

##### Plan

- 1) Photo today
- 2) Stop steroid
- 3) Continue with Valtrex tid
- 4) RTC Thurs

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### Herpes Simplex Infections

- Most common corneal infection in USA
  - Approximately 500,000 people affected -NEI 1993
- Up to 80% of pop have HSV 1 antibodies
- Primary infection usually occurs in children
  - Cutaneous infection
  - Generalized illness
- Most HSV in eye represent recurrent infection
  - Recurrent disease occurs in ~ 25% in 1 yr, 33% 2<sup>nd</sup> yr

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### Herpes Simplex Infections

- Leading infectious cause of corneal blindness in the U.S.
- 500,000 Americans have had some form of ocular infection with HSV
  - Almost 100% of people in the US > 60 harbor HSV
- 20,000 new primary cases are diagnosed in the U.S. each year
- An estimated **28,000 relapses** per year in the U.S.

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### HSV

- HSV is a double-stranded DNA virus that causes disease after direct contact with skin or mucous membranes by virus-laden secretions from an infected host
- Once in the tissue, the virus spreads from the site of the initial infection to the **neuronal cell bodies**, where it can lie dormant for years until reactivation occurs

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### HSV: Risk Factors for Reactivation

- Stress, illness, menses, immunosuppression, sun exposure, fever, and trauma, though these were not born out by the Herpetic Eye Disease Study
- The most significant risk factor for HSV keratitis is a past history of ocular HSV
- The recurrence rate for HSV may be as high as 25% in the first year and 33% by the end of the second year

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## HSV Epidemiology

- Global: World-wide
- **HSV-1:** oropharyngeal sores (children), keratitis
  - Most commonly acquired by children
  - Most adults are seropositive
  - Only a small proportion have recurrences

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## HSV

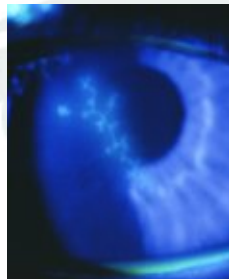
- Characterized by **primary outbreak** and subsequent **reactivation**
- Primary outbreak is typically mild or subclinical
- After primary infection, the virus becomes latent in the trigeminal ganglion or cornea
- Stress, UV radiation, and hormonal changes can reactivate the virus



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## HSV

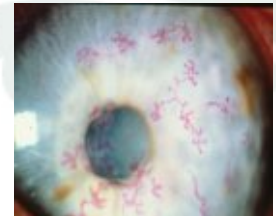
- Blepharoconjunctivitis
- Epithelial Keratitis
  - Dendrite
  - Geographic
- Stromal Keratitis
  - Immune Stromal Keratitis (IST) vs Necrotizing
- Endotheliitis



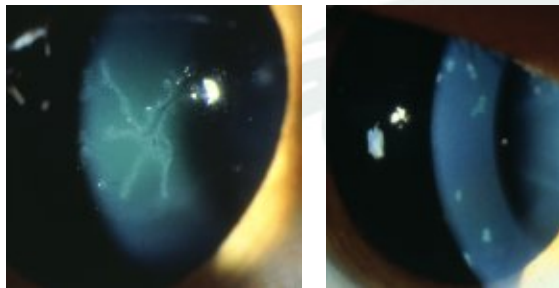
51

## HSV Dendritic Keratitis

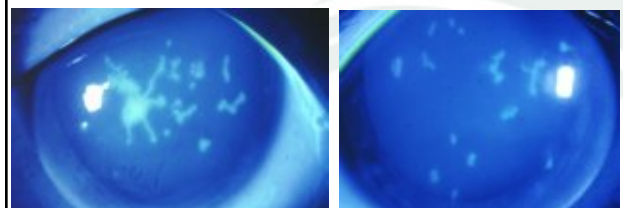
- Thin, linear, branching ulcerative lesion
- Terminal bulbs
- Heaped-up edges
- Decreased corneal sensitivity
- Central stains with NaFl, edges stain w rose
- Work up usually not necessary
- Geographic ulcers -> larger amorphous defect



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## Management HSV Epithelial Keratitis

- Debridement
  - Removes infected cells
  - Faster resolution, less scarring
- Topical antiviral
  - Viroptic (Trifluridine)
  - Zirgan (Ganciclovir gel)
- Oral antiviral
  - Zovirax (Acyclovir)
  - Valtrex (Valacyclovir)
  - Famvir (Famciclovir)



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HSV CATEGORY	COMMON NOMENCLATURE	TREATMENT
Epithelial Keratitis	<ul style="list-style-type: none"> <li>• Dendritic Keratitis</li> <li>• Geographic Keratitis</li> </ul>	Antiviral (topical or oral) or debridement
Stromal Keratitis without ulceration	<ul style="list-style-type: none"> <li>• Interstitial Keratitis</li> <li>• Immune Stromal Keratitis</li> </ul>	Topical steroid + oral antiviral prophylaxis
Stromal Keratitis with ulceration	<ul style="list-style-type: none"> <li>• Necrotizing Keratitis</li> </ul>	Oral antiviral in therapeutic doses + topical steroid
Endothelial Keratitis	<ul style="list-style-type: none"> <li>• Disciform Keratitis</li> </ul>	Oral antiviral in therapeutic doses + topical steroid

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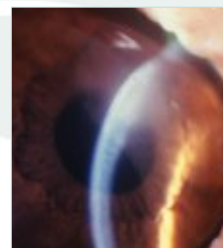
## Oral Antiviral Agents for HSV Keratitis

Agent	Treatment Dose	Prophylactic Dose
Zovirax (Acyclovir)	400 mg five times daily	400 mg twice daily
Valtrex (Valacyclovir)	500 mg three times daily	500 mg once daily
Famvir (Famciclovir)	250 mg three times daily	250 mg once daily

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## Stromal: Immune Stromal Keratitis

- Inflammatory response to viral antigen in stroma
- Focal, multifocal, diffuse stromal opacities
- Disc-shaped stromal edema
- Interstitial keratitis (IK)
  - Stromal neovascularization
    - Ghost vessels
    - HSV most common cause



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## HSV Recurrence Rates

- 10% at 1 year
- 23% at 2 years
- 36% at 5 years
- 60% at 20 years

Liesegang TJ, Melton LJ, Daly PJ, et al. Epidemiology of ocular herpes simplex. Natural history in Rochester, Minn, 1950 through 1982. Arch Ophthalmol. 1989; 107(8):1160-1165.

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## HSV: Recurrent Disease

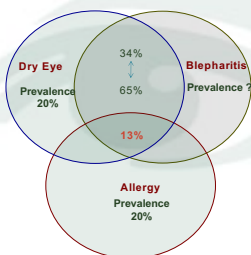
- HEDS: Low dose oral acyclovir reduces recurrences of ocular disease **by half** and orofacial recurrences by 50%
- A retrospective analysis found beneficial effects of oral acyclovir persisted even when the drug was taken for **18 months or longer**

Uchao UBC, Rezende RA, Carrasco MA, et al. Long-term acyclovir use to prevent recurrent ocular herpes simplex virus infection. Arch Ophthalmol. 2003;121(12):1702-1704.

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### The Spectrum of Ocular Surface Disease

- Overlap between dry eye, blepharitis and allergy
- Often co-exist
- Difficult when making treatment decisions

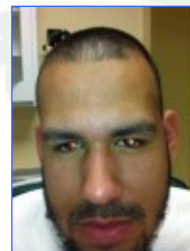


1. M.A. Lemp, oral presentation OSD Summit Meeting, 2008

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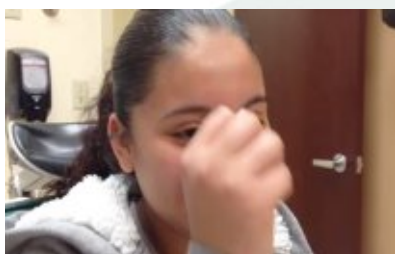
### 23 y/o Hispanic Male

- Itching and discharge
  - Doesn't use any gtts
- VA: 20/20 OU
- Normal exam
- Dx: SAC?



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### Constant mucous discharge



63

### Mucus Fishing Syndrome

NIES P. McCULLEY, MD, MARY BETH MOORE, MD, ALICE Y. MATOIRA, MD

**Abstract:** Twenty-five patients are described with a variety of external ocular diseases including keratoconjunctivitis sicca, blepharitis, and allergic conjunctivitis, who presented with persistence of symptoms of irritation, foreign body sensation, and apparent excessive mucous production, with mild conjunctival inflammation despite appropriate treatment of the underlying disease. All patients were found to have evidence of trauma to the conjunctival epithelium due to mechanical removal of the excess mucous from the surface of the globe or inferior cul-de-sac. The surface irritation created by the mechanical damage led to a further increase in mucous production, creating a cycle that we have termed mucus fishing syndrome. Cessation of this behavior coupled with ongoing therapy of the underlying disease led to resolution of signs and symptoms in all patients. (Key words: blepharitis, conjunctival epithelium, keratoconjunctivitis sicca, mucus, ocular surface disease, rose bengal, vital stain.) Ophthalmology 92:1282-1285, 1985.

64



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### Mucous Fishing Syndrome

- Cascading cyclic characterized by continuous extraction of mucous strands
- Initiated by ocular irritation
- Ocular surface cells produce excess mucus, in response to irritation
- "Snow balling" cycle begins when the pt extracts ("fishes") excess mucus from the ocular surface
  - Causes further irritation and a more discharge

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### Mucous Fishing Syndrome

- Treatment includes eliminating the initiating element
- Educating the patient not to touch the eye when extracting the excess mucus
- Artificial Tears - Mucolytic agent
- Antihistamine-mast cell stabilizer

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### Isiah: 9 y/o Black Male

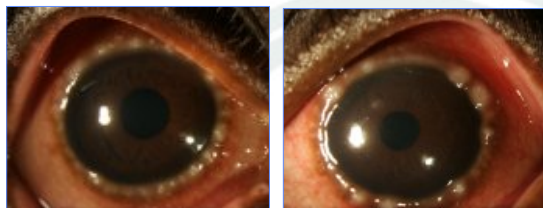
3/4/2010

- Itching and irritation L > R
- Seasonal
- Worse the last month

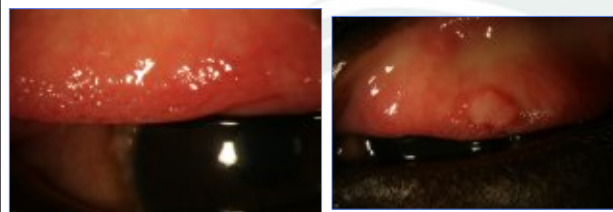


68

Isiah: 9 y/o Black Male  
3/4/2010



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70

Isiah: 9 y/o Black Male  
3/4/2010

- Diagnosis -> Severe limbal vernal keratoconjunctivitis (VKC)
- Management:

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What steroid would you use?

- A. FML
- B. Pred Forte
- C. Lotoprednol (Lotomax)
- D. Durezol
- E. I wouldn't use a steroid

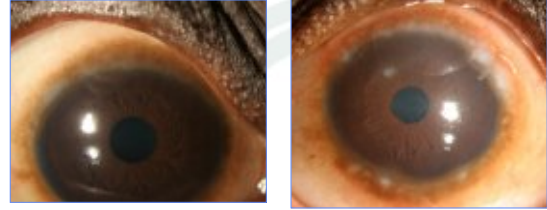
72

Isiah: 9 y/o Black Male  
3/4/2010

- Diagnosis -> Severe limbal vernal keratoconjunctivitis (VKC)
- Management:
  - Lotemax qid OU
  - Pataday qd
  - RTC 2 wks

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2 Wks Later: 3/23/2010



Eyes feel much better

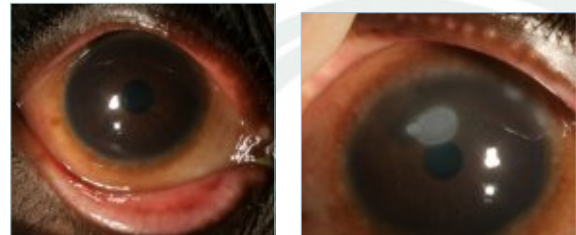
74

Isiah: 9 y/o Black Male  
3/4/2010

- Impression: Doing much better!
- Plan: Continue Pataday qd
- Decrease Lotemax to tid
- RTC 2 wks

75

2 Wks Later  
4/7/2010



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Now What?

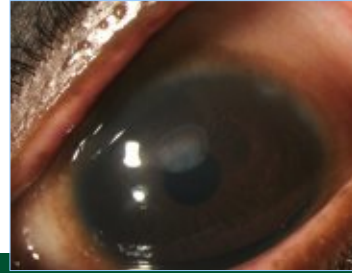
78

### Now What?

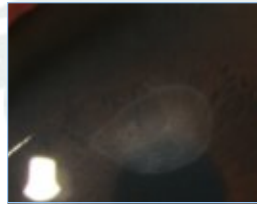
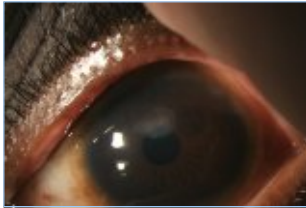
- Increase Lotemax to qid
- Continue with Pataday qd
- Add "Systane Free" 4-5 X per day
- RTC – 1 wk
- 1 wk later – about the same – RTC 1 wk

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1 Wks Later: 4/21/10  
(2 wks after last photos)



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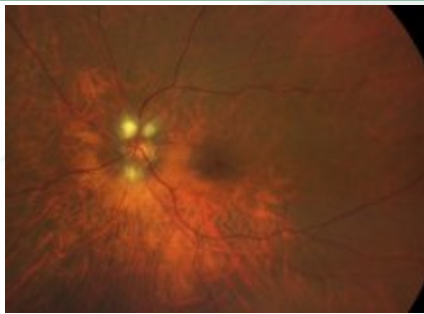
Feels much better!  
Shield ulcer has  
completely re-epithelialized

81

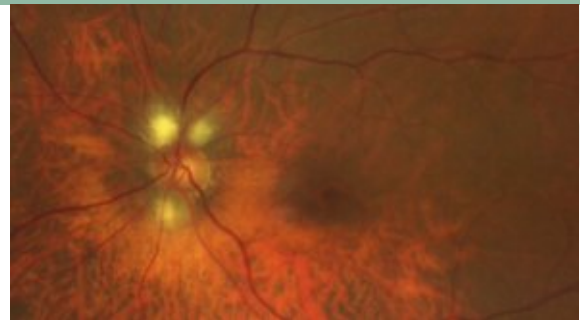
**POSTERIOR SEGMENT**

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75 yo Physician  
LE achy  
Temporal lobe tenderness  
20/20



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## HPI

## Eye Pain

In left eye. This started 2 months ago. Characterized as ache. Symptoms occur: intermittent. Associated symptoms include Negative for red eye, irritation, blurred vision, itching, and red and/or swollen lids. Since onset it is stable.

## Comments

Patient here for a complete eye exam.

Complaining of some dull pain and discomfort in the LE for the past 2-3 months. Vision is not affected. Also some temporal lobe pain on the L side.

Had an issue with vertigo: Saw ENT and had MRI done a few months ago

C/o: Patient reports blurry vision OU, difficulty reading, discomfort, dryness and occasional pain OS>OD.

No floaters or flashes.

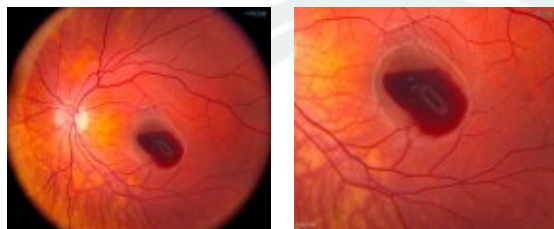
85

## Next Case

“A Closed Mouth Gathers No Feet”

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20 yo College Student:  
Woke up with blurred Vision in his LE



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## What is the Diagnosis?

- A. Choroidal neovascular membrane
- B. Retinal arterial macroaneurysm (RAM)
- C. Valsalva retinopathy
- D. BRVO

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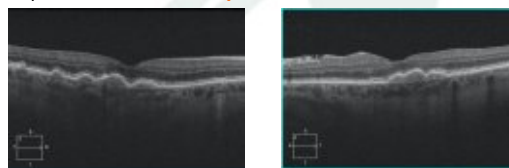
## Valsalva Retinopathy

- Valsalva occurs when a person tries to **exhale air forcibly** with a **closed glottis** (windpipe) so that no air goes out through the mouth or nose
- Sudden increase in intrathoracic or intra-abdominal pressure occurs as a result of this forced exhale
- Valsalva maneuver occurs from various day-to-day activities that cause straining such as coughing, sneezing, vomiting, exercise, blowing on musical instruments, among others<sup>1</sup>.

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## 76 yo White Male

- Followed for Intermediate AMD and mild cataract RE, pseudophakia LE
- April 2019 **20/25 each eye**

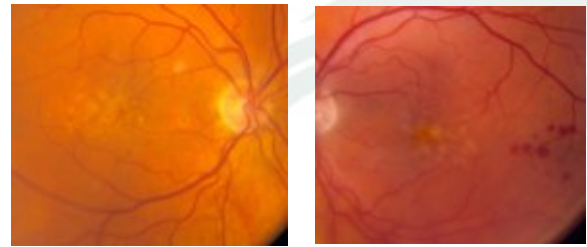


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## Thanksgiving Day (2019) MVA in Orlando

- Rear ended at high speed
- Loss of consciousness
- Airlifted to hospital doesn't remember much
- Hit his head on steering wheel/dash
- Blurry vision in the RE since the accident
- 1<sup>st</sup> week of December
  - Laceration on his forehead
  - RE: 20/150 LE: 20/25

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94

Diagnosis?

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### Progress Notes

#### Impression

- 1) Puffer-Like Retinopathy (vs Commotio) R > L  
MVA 6 days ago (Thanksgiving) - rear ended - no directed ocular trauma but significant laceration on forehead  
Noted immediate blurred vision RE -> today 20/150 (was 20/30 6 mo ago)  
OCT/OCTA shows central low flow ischemia and inner retinal hyper-reflective area involving fixation and superior
- 2) Intermediate dry AMD - no evidence of CNV
- 3) Incipient cataract RE, pseudophakia LE
- 4) Operculated retinal hole LE

#### Plan

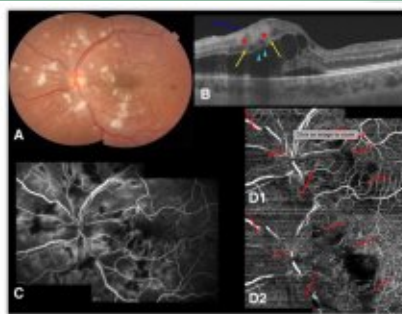
- 1) Observe
- 2) Retina 1 week
- 3) Visual field on arrival

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### Putcher's Retinopathy

- Occlusive microvasculopathy associated various forms of trauma, including **cranial trauma** and **thoracic compression**
- Loss of vision of varying severity Occurring hours to days after the trauma
  - Central or paracentral scotoma
- The fundusoscopic findings include:
  - Whitening of the retina
  - Multiple cotton wool spots
  - Bleeding of different sizes

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### Putcher's Retinopathy

- Ischemia involving the inner retinal layers during the acute phase
- OCT can show hyper-reflective and thickened inner retinal layers
  - Sign of ischemia in the inner retinal circulation
- OCTA: shut down of both the superficial and deep capillary network
  - Correlates with the hyper-reflectivity of inner retinal layers
- Outer retina photoreceptor disruption with loss of photoreceptor segments in the acute phase
  - difficult to visualize due to inner retinal ischemia

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### Pathogenesis poorly understood

- Increase in the thoracic pressure leads to a **reflux in the venous system** leading to endothelial damage
  - This results in incompetence of the microvascular circulation and subsequent occlusion and ischemia
- Ischemia from air or fat emboli
  - Possibly from the thorax

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Jeff: Long and Winding Road

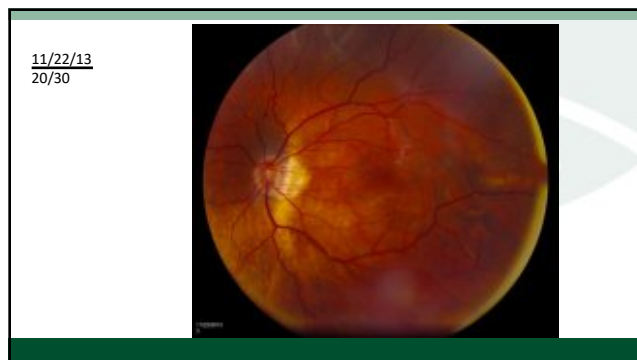
101

Jeff: mid-50's Attorney, High Myopia

**Hx of RD Repair in both eyes: RE: 1985 LE 1989**

- Never recovers vision in the RE
- He is followed through the 90's with a progressive NS and declining Va ~ 20/70
  - 1 eyed patient and reluctant to have CE
- Eventually has CE/IOL 90's-early 2000's and does well
  - VA 20/25 low refractive error

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**Jeff: High Myopia and VMT**

3/11/19

- Feels Vision is slightly worse, increase in distortion

Base Eye Exam	
Visual Acuity (Snellen - Linear)	Right Left
Old VA	20/30 20/30
Tonometry (Tonopen, Goldmann)	Right Left
Pressure	14 15

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**Jeff: (66 yo) High Myopia, Pseudophakia and VMT**

5/11/20

- Notes a paracentral defect in the LE X 2 weeks  
– Starting to invade the central vision: VA: 20/150

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**Progress Notes** Dunbar, Mark T., OD (Optometrist) • Optometry

**Impression**

- ERM and myopic macular traction with CME LE  
Progression from March 2019:  
Was 20/30 and now 20/150  
Sx especially worse in last 2 weeks
- Hx of pathologic high myopia
- Repair of RD OU (1985 and 1989) (Clarkson)  
LP vision RE due to dense cataract and disciform scar
- Pseudophakia LE

**Plan**

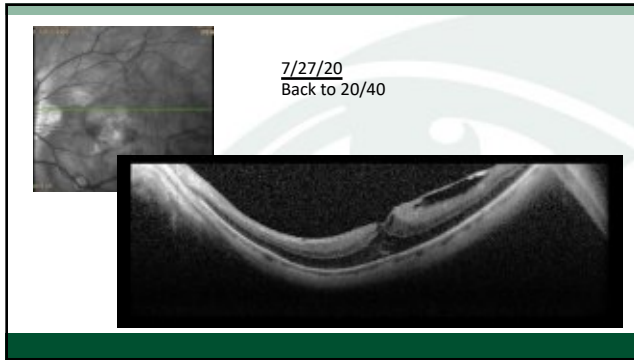
- Seen with Dr. Sridhar - recommends hybrid visit in 2 weeks  
Discussed possibility of PPV now or wait to see natural history  
Pt wants to reassess in 2 weeks but understands the likelihood of PPV

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**Hybrid Visit**

5/26/2020 Feels his vision has improved: now 20/70

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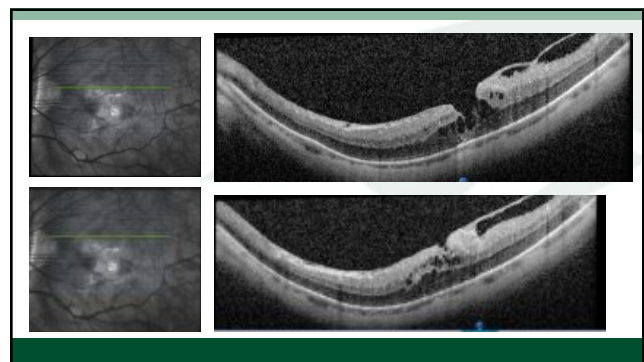
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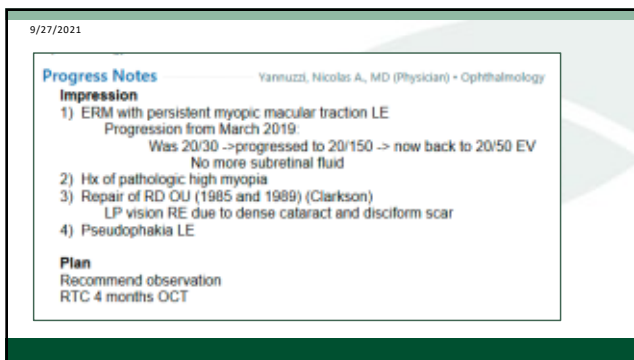
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111



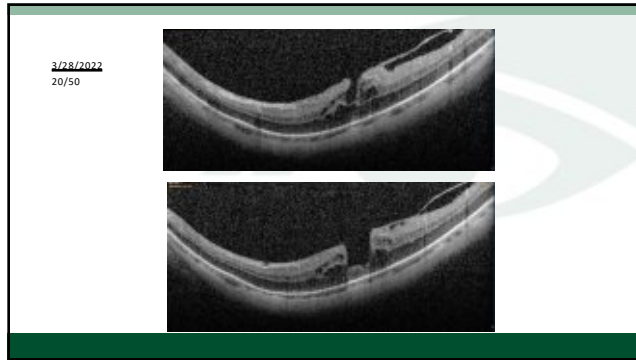
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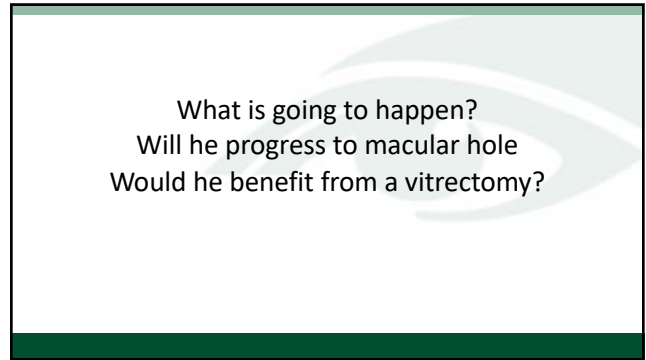
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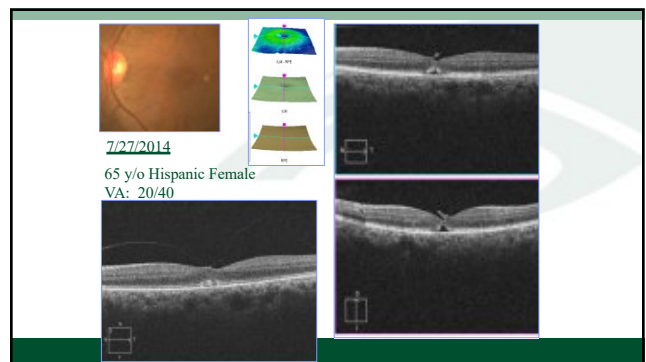


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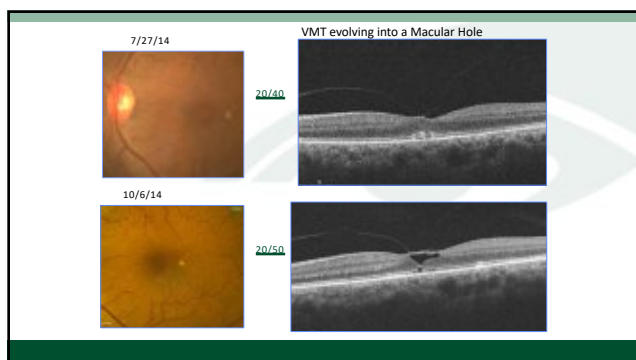
### Myopic Macular Retinoschisis

- Seen in 9% of highly myopic eyes with posterior staphyloma
- 50% progress to macular hole formation or macular detachment within 2 yrs
- Caused by rigidity of ILM that induces traction

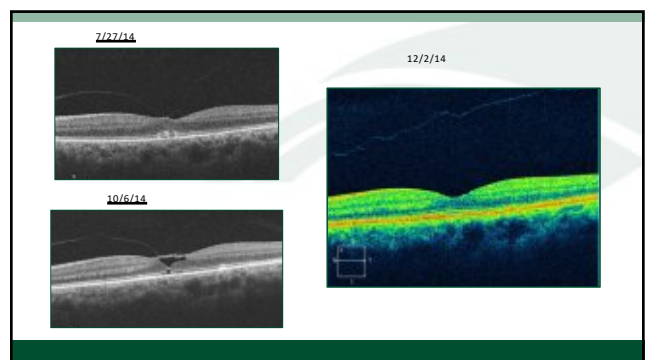
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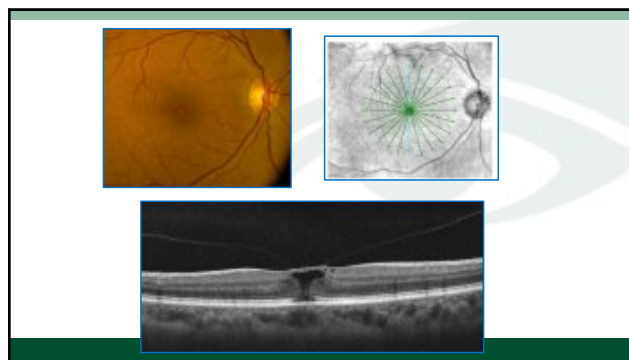
120



## VMT

- Seems to be more cases of VMT then ever before
- Likely due to more primary care OD providers have OCT's
  - Being diagnosed more

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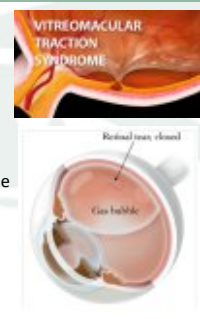
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## Pneumatic Vitreolysis

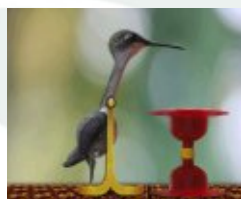
- Non-surgical option for VMT
- C3F8 gas injected into the vitreous
- Success of releasing the VMT > 80% of the time
  - But C3F8 can last up to 10 weeks
- SF6 (shorter acting gas) only worked 50-60% of the time
- Room air injected would release 10-20% of the time



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## Drinking Bird Technique

- Patient will bob their head (and torso) up and down after gas injection
  - 1 minute out of every hour the patient is awake
- By going up and down, that gas bubble will roll across the macula and hopefully potentiate the release of the vitreomacular traction
- This technique puts the gas bubble on the area of pathology and rocks it back and forth to help improve the chances of the VMT releasing



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## Pneumatic Vitreolysis with Perfluoropropane for Vitreomacular Traction with and without Macular Hole

- 46 pts enrolled in Protocol AG; 35 enrolled in Protocol AH randomized to PVL vs. Sham Injection
- Protocol AG showed an 18 of 23 (78%) central VMT release rate at 24 weeks
- Protocol AH showed central VMT released in 33 of 35 (94%) eyes at 24 weeks
- Higher-than-expected complication rate in both trials
  - Combining studies, 7 of 59 eyes (12%) that received PVL developed rhegmatogenous RD (n = 6) or retinal tear (n = 1)

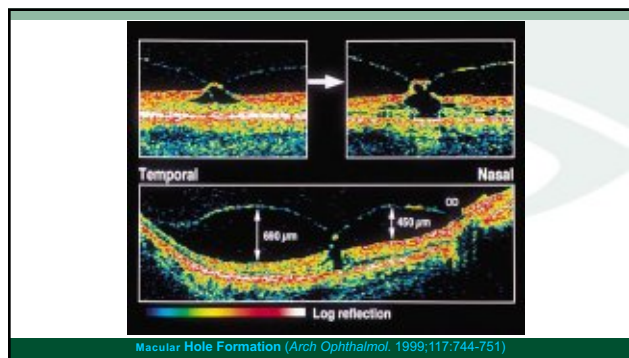
Ophthalmology May 2021

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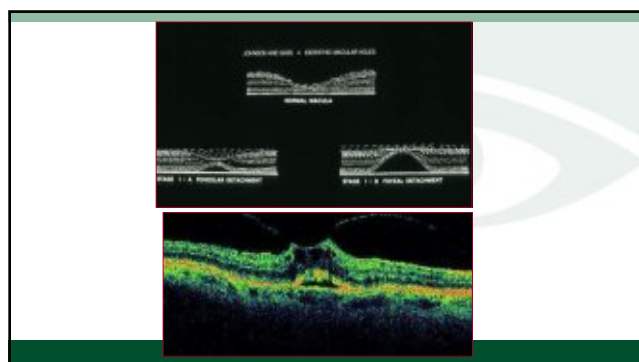
### Idiopathic Macular Holes

- VA 20/400 to 20/60
- 1/3 DD full thickness round hole
- Surrounding cuff of fluid
- Yellow deposits in the base of the hole
- Translucent operculum (anterior) 50%
- May have associated ERM (10-20%)

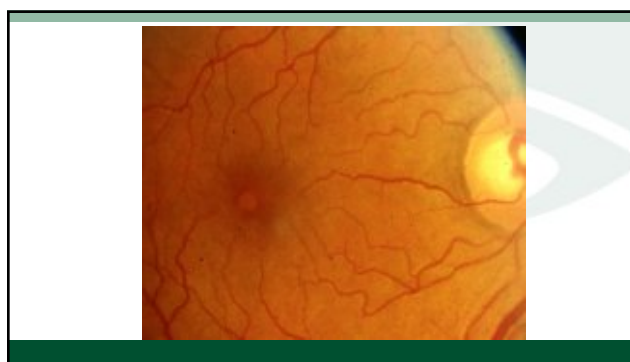
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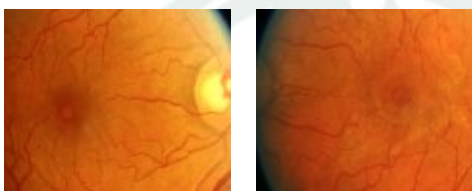
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### 72 yo Female Mountain Climber Training to climb Mt. Everest!

Poor VA LE X 3 yrs  
New Sx ↓RE X 3 wks



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### Will Eye Problem Stop Her Pursuit of Mt. Everest?

A 72-year-old female mountain climber was training for one last climb up Mount Everest when she noticed a relatively rapid decrease in vision in her right eye over a week. She had scaled the legendary giant once before and now wanted to be the oldest female ever to reach its summit. She was greatly concerned that she would not be able to fulfill this dream because she had also had poor vision in her left eye for the last two years.

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### Macular Holes Loss of Vision

- Loss of neurosensory retinal tissue
- Rim of subretinal fluid around the hole (microdetachment)



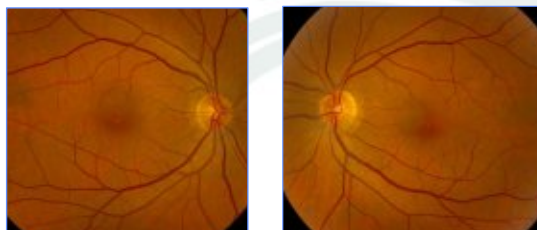
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### Leonardo: 57 y/o Hispanic Male

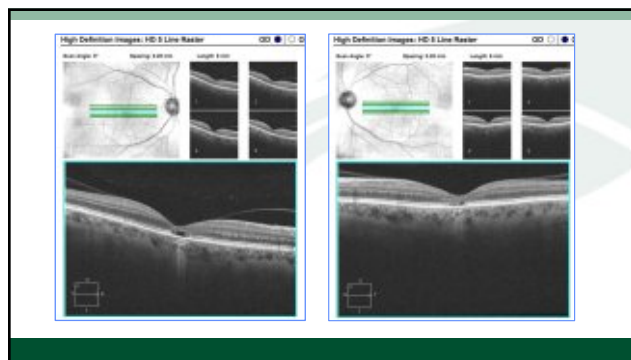
- “Routine” exam
- Has had poor vision for ~ 25 yrs or so
- VA: 20/70 RE; 20/60 LE
- CVF: FTFC OU
- Pupils: ERRL – No APD
- SLE – Tr NS

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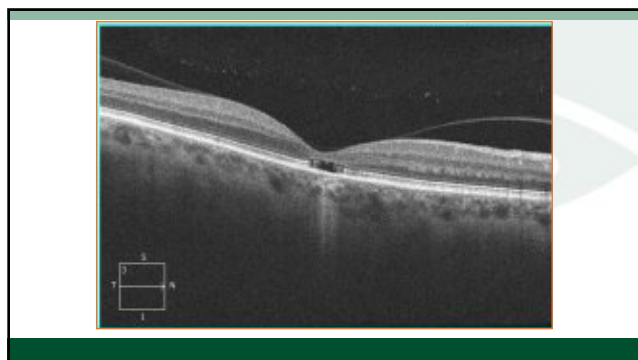
### Leonardo



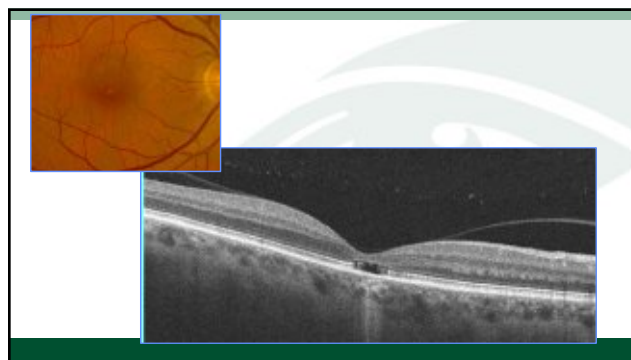
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### What is Leonardo's Diagnosis?

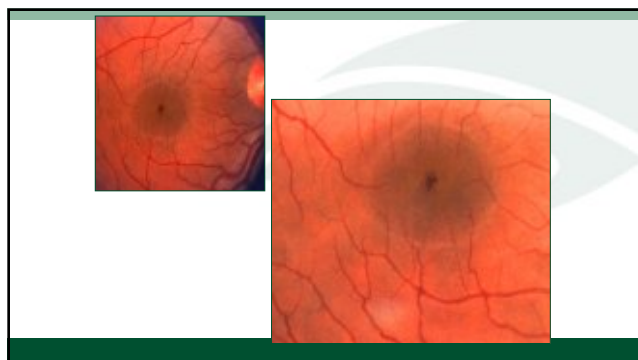
- A. Cone dystrophy
- B. Solar maculopathy
- C. AMD with central geographic atrophy
- D. Chronic CSR

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### Diagnosis?

- Cone Dystrophy  
 Return for ERG, Color Vision Testing  
 Returned – all testing normal!  
 D-15 Farnsworth – 100% correct  
 ERG normal

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### Solar Retinopathy in a Hospital-Based Primary Care Setting

Journal of AOA, October 1999, 69;10:625-636.

- ♦ 26 eyes of 20 patients were seen over a 26 month period
- ♦ VA 20/25 or better
  - ♦ 85% were 20/20
- ♦ 75% Male
- ♦ 60% had a history of sun gazing
- ♦ 15% looking at welding light s protection
- ♦ 15% substance abuse

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