If It's in Your Chair…

Cases from a Community Clinic

Jenny Terrell, OD, FAAO, DiplABO
Clinical Associate Professor, UIWRSO

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Expectations & Disclosures

- From this lecture, You can expect:
  - to see some oddball cases (from a 30,000' view)
  - to think critically together
  - (hopefully) to laugh a little and learn a little
- Financial Disclosures:
  - UIWRSO Clinical Associate Professor
  - Alcon, consultant for stude
  - Kala, optometric advisory
  - Katelyn and Lucas

All relevant financial relationships have bee

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Case #1: 61 HM

- CC: blurry, painful OS
- HPI: onset following "complicated" CE 1 yr prior in Mexico
- PMHx: HTN
- Meds: Ukn gtt, Ukn HTN pill

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Case #1: Pertinent Findings

VA	**OD 20/20 OS HM**
IOP	**OD 18mmHg OS 20mmHg**
BP	**152/91**
Pupils	**OS fixed/dilated 7mm; peaked inf-nasal**
SLE	**OD trace NS cataract** **OS K stromal haze, endo striae**
DFE	**WNL (poor view OS)**

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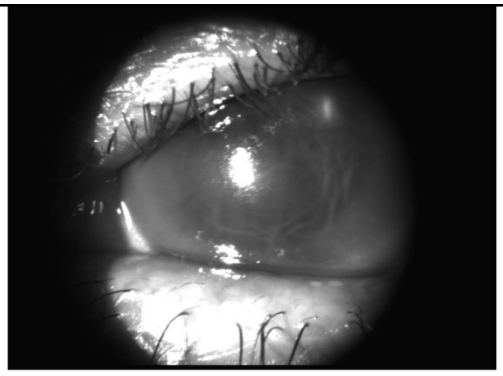

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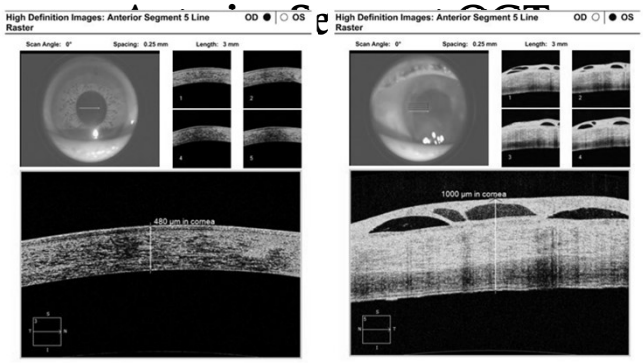

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Case # 1: Assessment/Plan

A: Pseudophakic bullous keratopathy OS (H18.12)

P: Rx prednisolone acetate QID OS
Muro 128 QID OS
Atropine BID OS
RTC 1 mo
Counsel guarded prognosis for visual recovery*

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Case #1: 1 mo follow-up

- CC: Improved pain; blur unchanged
- Pt D/C Muro due to discomfort

VA	**OD 20/20 OS HM(same)**
IOP	**OD 17mmHg OS 26mmHg**
SLE	**OD trace NS cataract OS K dense haze**
DFE	**WNL OD; no view OS**

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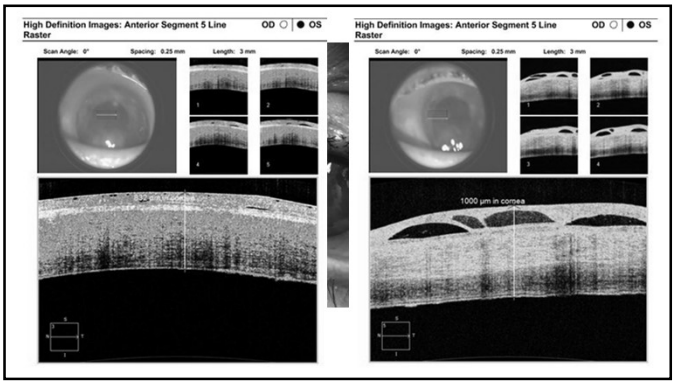

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Case # 1: Assessment/Plan

- A: Pseudophakic bullous keratopathy OS (H18.12)

- P: Begin pred taper QID OS
  Add Betoptic BID OS
  Switch to Muro ung OS
  RTC 1 mo
  Counsel guarded prognosis for visual recovery*

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Case #1: since then…

- Followed regularly, stable VA
- Remains on Muro ung
- IOP mid-teens (no current gtts)

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Pseudophakic Bullous Keratopathy

- Irreversible K edema/opacity following cataract surgery (trauma by appointment?)
- 1-2% of cataract cases
- Risk Factors: older pt, Fuch's, ACIOL, glc, previous surg

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Pseudophakic Bullous Keratopathy

- Topical: steroid, hyperosmotic, IOP lowering, cycloplegic, lubrication, BCL, amniotic membrane
- Surgical: PKP, PTK, CXL
- Systemic L-cysteine?

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OD's role in PBK

- Thorough pre-op (pre-referral) exam
- Counsel pts on risks (esp pts 60+)
- More likely with more phaco time/energy (dense cat)

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Case #2: 65 yo WM

- Transient episodes of ptosis OS?/diplopia x 3 yrs
- Recent onset ptosis OD x 3 months
- Denied HA, jaw pain, scalp tenderness
- PMHx: HTN (1994); peripheral extremity edema
- Meds: unknown HTN med, unknown diuretic

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Case #2: Findings

VA (sc)	**OD 20/25 OS 20/20**
IOP	**OD 16mmHg OS 18mmHg**
Pupils	**Normal, (-) APD**
EOMs	**4+ adduction palsy OU**
MRD	**OD 3mm OS 2 mm**
BP/Pulse	**141/99 78 bpm**
SLE	**Unremarkable**
DFE	**Unremarkable**

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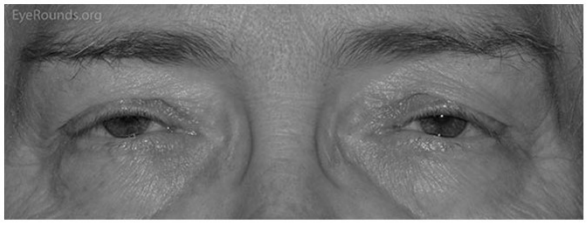

Image credit: https://webeye.ophth.uiowa.edu/

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Case #2: Assessment/Plan

A: Ptosis/diplopia 2' bilateral CN III palsy (H49.03)

P: Refer to Urgent Care for neuroimaging, ESR, CRP, HbA1C

Pirate patch PRN diplopia

RTC 2 weeks

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Case #2: 2 week f/u

- Reports improvement in symptoms
- Diagnosis of Myasthenia gravis 1 week prior (based on findings at Urgent Care)
- Meds: atorvastatin, gabapentin, pyridostigmine

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Case #2: 2 week f/u

VA (sc)	OD 20/25 OS 20/20
EOMs	OD: FROM OS: Underaction of MR in lateral gazes
MRD	OD 4mm OS 3mm

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Case #2: Assessment/Plan

A: Ptosis/diplopia 2' myasthenia gravis (H02.423)
-improving with systemic treatment

P: Continue care with neurology
Continue pirate patch PRN
Consider ground-in prism in 1-2 months
….but he must have felt better because…

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Case #2: 2 years later…

VA (cc)	OD 20/25 OS 20/30
EOMs	OD, OS: FROM
MRD	OD, OS 4mm
BP	139/94
CT	4 Alt XP @ 6m 6 Alt XP @ 40cm

A: Ptosis/diplopia – Resolved

P: Monitor, Rx specs (no prism)

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Myasthenia gravis

- Autoimmune neuromuscular disorder *"grave muscle weakness"*
- Decreased # of ACh receptors ➔disruption of synaptic transmission
- Proposed relation to the thymus (hyperplasia)
- Up to 85% of MG pts, initial symptom is ptosis/diplopia

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Myasthenia gravis

- Prevalence 14-40 per 100,000 in US (on the rise?)
- Onset for women typically in 20s-30s, for men 50s-60s
- Diagnosis made by ACh antibodies in blood, EMG testing
- Treated with cholinesterase inhibitors

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Myasthenia Gravis

- Ptosis more variable than other etiologies
- Classically, ptosis worse in PM
- Fatigue with prolonged upgaze
- Cogan's lid twitch (~75% sensitive)
- Edrophonium (Tensilon) test, ice pack test (~80% sensitive)

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Ice Pack Test

Photo Credit: New England Journal of Medicine

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OD's Role in Myasthenia

- Take ptosis/diplopia seriously
- Urgent referral if CN palsy is pupil-involving!
- Upgaze/ice pack test

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Case #3: 33 yo WM

- Eye pain and vision loss OD over previous months
- Dx at ER with K ulcer; Rx gentamycin and hydrocodone (4 days prior)
- Type 1 DM (dx at 10 yo), poor glycemic control
- Had been dx with DR by outside OD, pt declined referral to retina (2 mo prior)

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Case #3: Findings

VA (sc)	**OD NLP; OS HM NIPH**
IOP	**OD 50, 40, 34** OS 18mmHg**
Gonio	**NVA with synechiaeal closure 360 OD NVA nasal and temporal OS**
SLE	**NVI OU**
DFE	**extensive NVD, NVE with vitreous hemes OD > OS**

**After in-office instillation of Simbrinza, Betoptic, Travatan Z x 3

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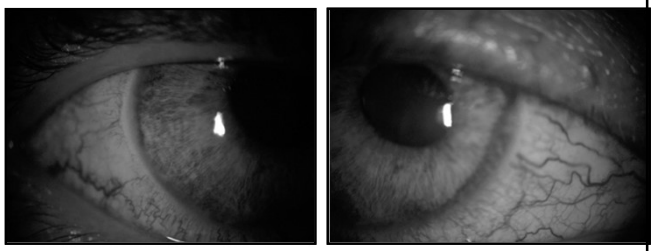
OD



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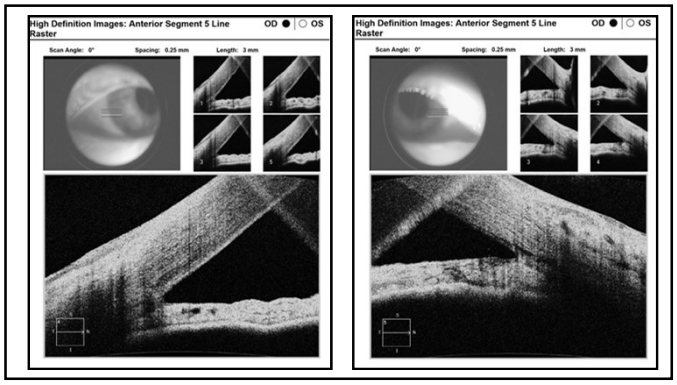

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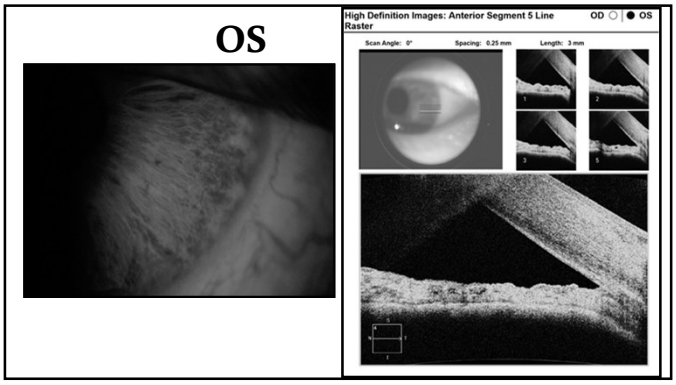

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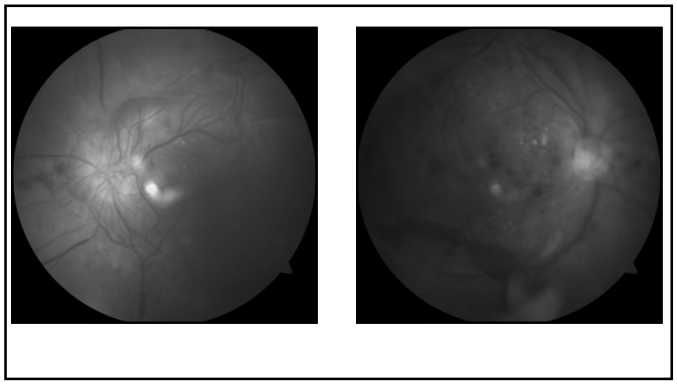

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Case #3: Assessment/Plan

A: Proliferative DR OU (E10.359)
NVG (H40.89)

P: Dispense Simbrinza, Betoptic, and Travatan Z
Advised to proceed with immediate referral to retina

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Case #3: 5 days later

- No change in VA
- Had run out of "eye pain" medication & returned to ER that AM for more meds
- Was given PO and IV pain meds, PO and IV Diamox at ER
- IOP: OD 35, OS 14
- No change in ant or post seg findings
- Pt finally elected to proceed with referral to retina

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Case #3: Management

- Seen by retina 3 days later
- In-office PRP (which pt insisted on stopping mid-procedure due to "extreme pain" despite full lidocaine)
- Retina rec pt to county hospital for glc surg, further tx due to financial status
- Pt lost to follow up

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Diabetes: An American Epidemic

- Estimated 37.3 million adults with diabetes in US
  - 28.7 million diagnosed, 8.5 undiagnosed
- Estimated 96M "prediabetic" (up from 88M in 2018)
- Total direct and indirect estimated costs* of diagnosed diabetes in the United States in 2017 was $327 billion
- Leading cause of new cases of blindness among adults aged 18–64 years.

Source: CDC National Diabetes Statistics Report 2022

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Diabetes: An American Epidemic

- 1st time for direct reporting on socio-economic factors:
- Adults with a family income below the federal poverty level had the higher prevalence for both men (13.7%) and women (14.4%) compared to those above the FPL
- Lower education levels more strongly associated with diagnosed diabetes.

Source: CDC National Diabetes Statistics Report 2022

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Duration and Glycemic Control

- 25% of Type 1 have DR at 5 yrs
- 60% at 10 yrs
- 80% after 15 yrs

- 40% of Type 2 have DR at 5 yrs
- 84% at 10 yrs

- Each 1% ↓ HbA1C = 35% ↓ risk
- Important factor in progression prediction
- Keep A1C below 7%
- Systolic BP under 140=lower risk

www.diabetesforecast.org/2017

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Prevalence of DR by A1C Level

A1C (%)	Any DR (%)	PDR (%)	DME (%)	VTDR (%)
≤ 7.0	18.0	3.1	3.6	5.4
7.1 – 8.0	33.1	6.9	6.3	10.8
8.1 – 9.0	43.1	9.6	7.7	13.6
≥ 9.0	51.2	10.9	12.5	18.4

Source: https://www.ncbi.nlm.nih.gov/pubmed/22301125: Global Prevalence and Major Risk Factors of Diabetic Retinopathy (2012)

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Timing of Retinal Exams

Type 1:

- 5 years after initial dx
- Yearly thereafter

Type 2:

- After initial dx
- As indicated by findings (*at least* yearly)

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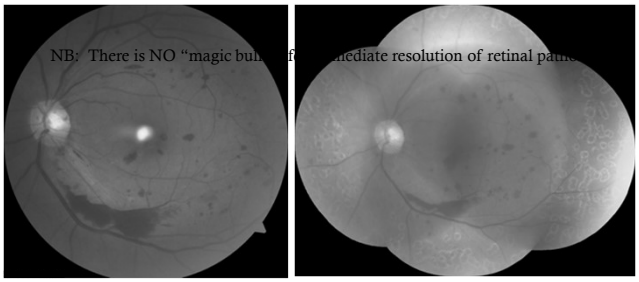
Pre and 5 mos post PRP



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OD's Role in PDR

- Patient expectations!
- Make appropriate referrals!!!
- Understand pt risks

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Case #4: 47 yo HF

- PCP requests exam for DM complications
- Recent dx with DM and HTN
- Glipizide, Metformin, Lisinopril
- HbA1C 7.8

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Case #4: Findings

VA	OU 20/20
IOP	OD 20 mmHg, OS 19 mmHg
BP	105/69
SLE	Unremarkable
DFE	OU scattered hemes, MAs, vessel attenuation OS inf CWS

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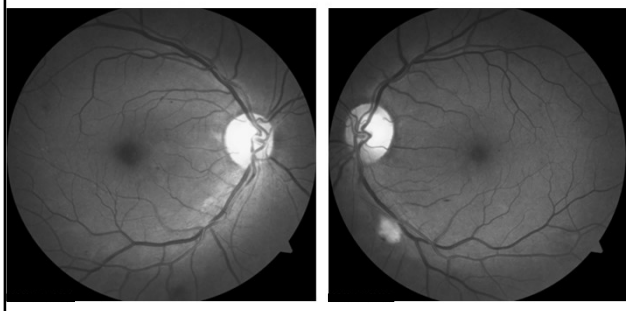

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Case #4: Assessment/plan

A: Moderate NPDR without mac edema (E11.3393)

P: Monitor in 6 months
Follow systemic health with PCP
Glycemic and HTN control

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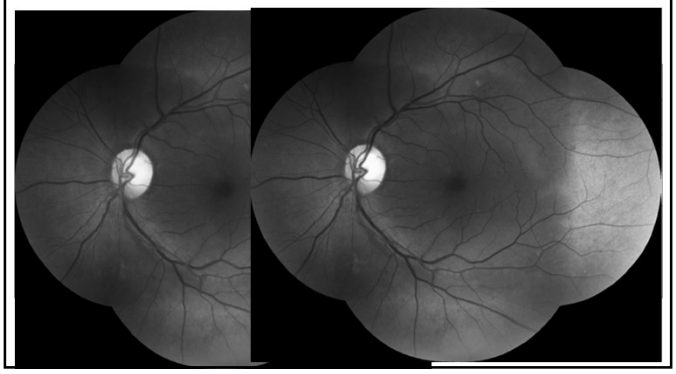

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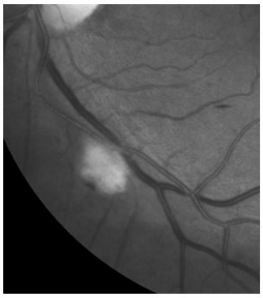
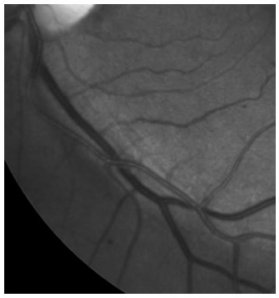


Before…



After…

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More about CWS

- Caused by a variety of conditions
- Smaller, shorter duration in HIV/AIDS retinopathy
- Larger, longer duration in DM, HTN, CRVO
- Represent disruption in axoplasmic flow
- Localized ischemia???
- Cotton Wool "sentinels"

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After…

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Case #5: 38 yo WF

- CC: "sudden loss" in superior half of OD
- HPI: onset within a few hours; has lessened since onset
- PHx: Psoriasis (1993); LASIK (2011); episcleritis (2016); Psoriatic arthritis (2016)
- Meds: Humira, Indomethacin; Lotemax

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Case #5: Findings

VA	**20/20 OU (superior half "blacked out" OD)**
IOP	**12 mmHg OU**
Pupils	**(+) APD OD**
BP	**106/67**
SLE	**Unremarkable**
DFE	**elevation of inferior disc margin and pallor of inferior retina OD; unremarkable OS**

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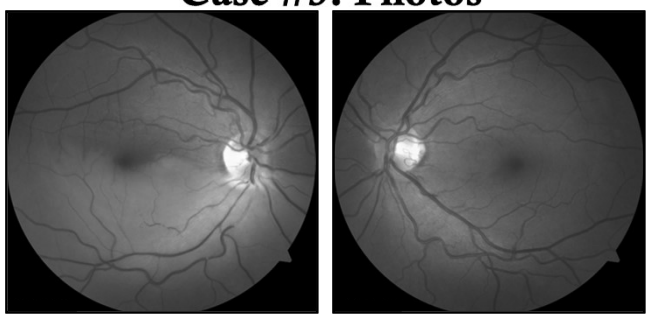
Case #5: Photos



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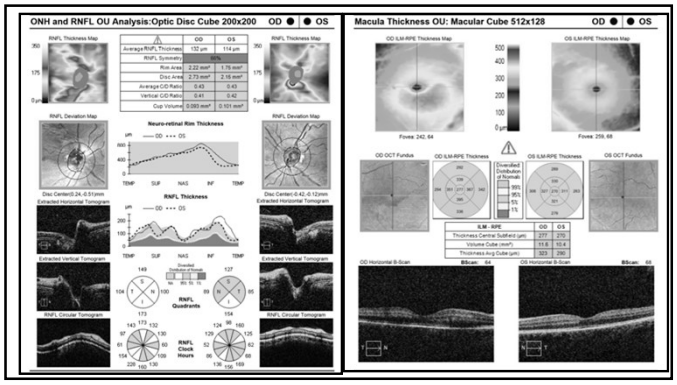

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Case #5: Assessment/Plan

A: Branch retinal artery occlusion OD (H34.231)

P: Refer pt to ER for stat imaging/vascular workup

Pt eventually determined to have PFO and atrial septum aneurysm (repaired 4 mos later)

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Case #5: 7 months later

VA	**20/20 OU (superior half "blacked out" OD)**
Pupils	**(+) APD OD**
SLE	**Unremarkable**
DFE	**disc pallor OD; unremarkable OS**

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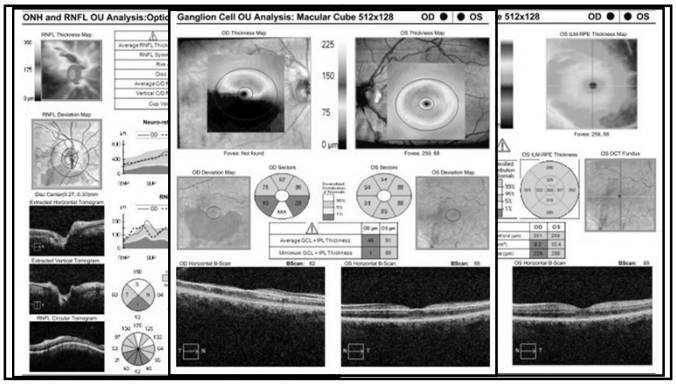

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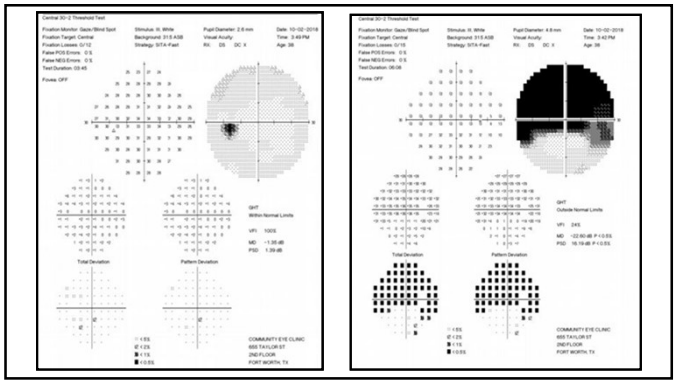

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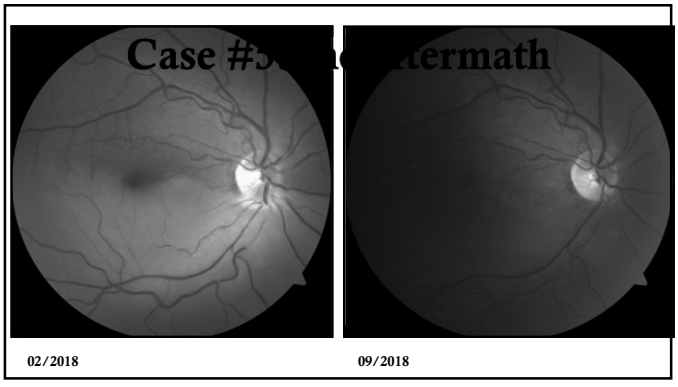

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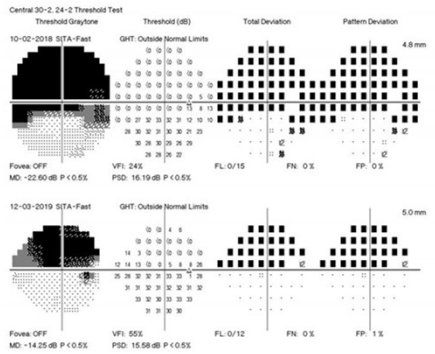

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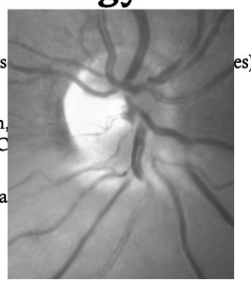
BRAO: Etiology

- Embolic (most common)
  - Emboli visualized in ~60% of cas es)
- Non-Embolic
  - Examples: Migranous vasospasm, conditions (toxo, HZV, Lyme, GC sildenafil)
- Following retrobulbar block for intra



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BRAO: Treatment/General Prognosis

- Time is CRITICAL for retinal perfusion
- Many anecdotal treatment options: AC paracentesis, lower IOP, ocular massage, EECP (?)
- All aimed at dislodging embolus or improving blood flow
- Systemic workup
- Prognosis usually corresponds with presenting VA (starts bad, ends bad vs starts well, ends well)

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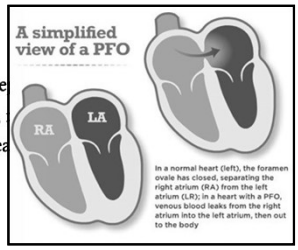
Patent Foramen Ovale

- Congenital heart defect
- Incomplete closure of the interatrial se
- About 25% of the general population,
- Historically: only option was Open hea
- Recent catheter procedures for repair



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OD's Role in BRAO

- Timing is EVERYTHING!!
- Vascular workup!
- Vision Rehab if applicable?

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Case #6: 39 yo HM

- CC: red eye OU and vision loss OS
- HPI: onset 3 mos prior, episodic; FBS when closing OU
- PHx: "PCP says I might have arthritis or lupus" no confirmatory dx; (+) joint pain

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Case #6: Findings

VA	**OD 20/25; OS 20/40 PH 20/30**
IOP	**OD 19mmHg; OS 21 mmHg**
BP	**142/88**
SLE	**Sectoral hyperemia OU (temporal OD, nasal OS)**
DFE	**Disc edema OS >>OD**

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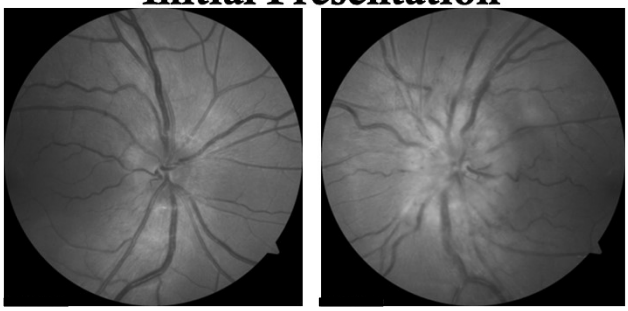
Initial Presentation



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Case#6: Initial Management

A: Disc edema OS > OD (H47.10)
Episcleritis OU (H15.123)

P: Refer for stat imaging to r/o vascular or compressive lesion
Coordinate blood work with PCP
Pred forte QID OU

FINDINGS: No acute cortical infarct or intracranial hemorrhage. The ventricular system is unremarkable without hydrocephalus. No intracranial mass lesions, mass effect, or midline shift. Mild mucosal thickening of the ethmoid air cells. The visualized orbits and remaining paranasal sinuses are unremarkable. The mastoid air cells are clear. The calvarium is intact.

Impression:
IMPRESSION: No acute intracranial abnormality identified.

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6 days later

- MRI, CT, blood work, and LP performed at hospital
- Increased ICP, ESR and CRP
- Pt started IV and PO methylprednisolone

VA	**OD 20/25, OS 20/50 PH20/30**
IOP	**14 mmHg OU**

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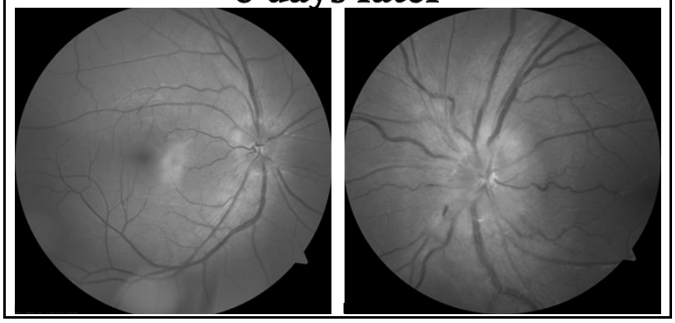
6 days later



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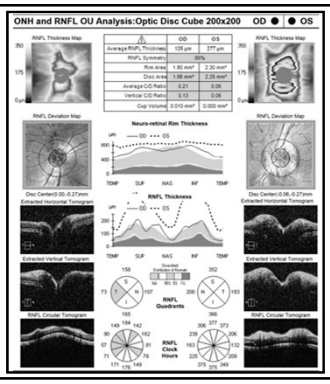

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1 month later

VA	**20/25 OU**
IOP	**OD 14mmHg, OS 16mmHg**

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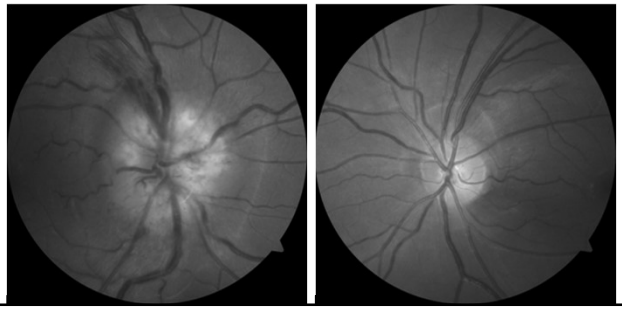
1 month later



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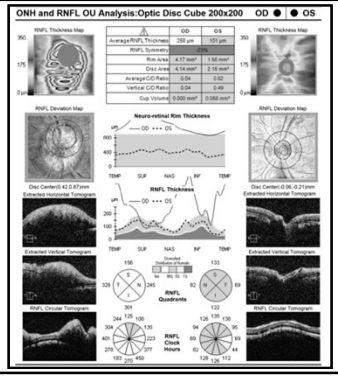

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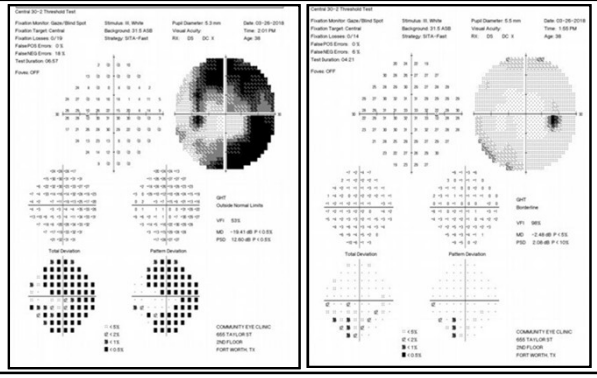

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2 months later

- Coordination of care with multiple providers: PCP, retina, rheumatology
- CRP, ESR elevated, PTT out of range
- Normal results for lupus, ANA, HIV, treponema, TSH, lyme
- Chest Xray clear

VA	**OD 20/30, OS 20/20**
IOP	**15 mmHg OU**

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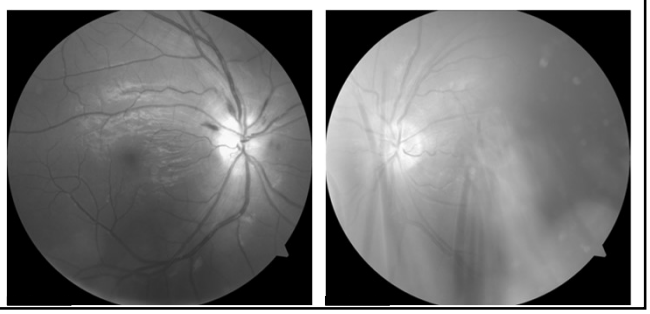
2 months later



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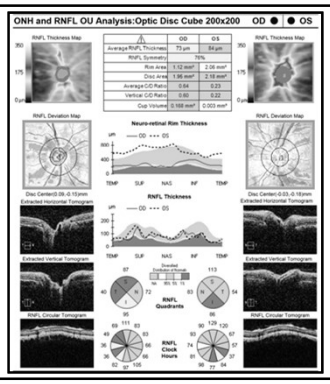

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Case #6: Assessment/Plan

A: Papilledema (H47.13)

Working diagnosis: Relapsing polychondritis (M94.1)

P: Continue PO steroid

Coordinating care for systemic workup/dx confirmation

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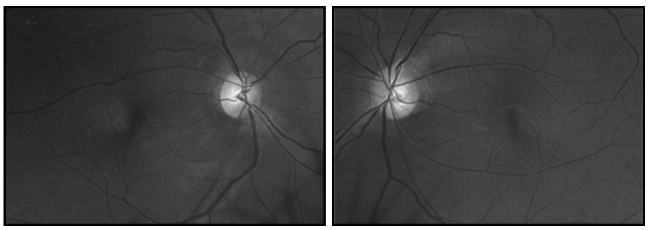
8 Months from Initial Presentation



81

Relapsing polychondritis

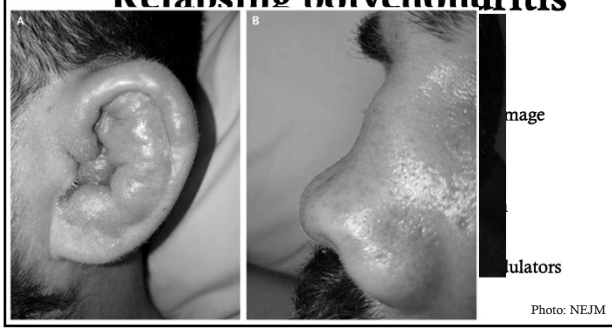


Photo: NEJM

82

OD's Role in Polychondritis

- Similar management to any ONH edema
- Coordination of care
- Understanding autoimmune conditions and their common ocular manifestations
- Sometimes, the hoofbeats *are* zebras?

83

Case #7: 36 HF

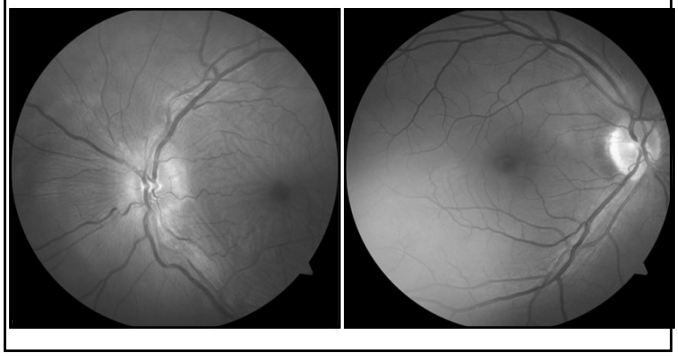
- Worsening blurred VA, f/f, distortion x months
- Reported Hx of RD 6 yrs prior; "treated with oral meds"
- MedHx: Vogt-Koyanagi-Harada

84

Case #7: Findings

VA	OD 20/70 PH 20/25 OS 20/20
IOP	10 mmHg OU
BP	104/47
SLE	Unremarkable OU
DFE	Distortion of retinal architecture in posterior pole "undulation" of retinal tissue OS>OD

85



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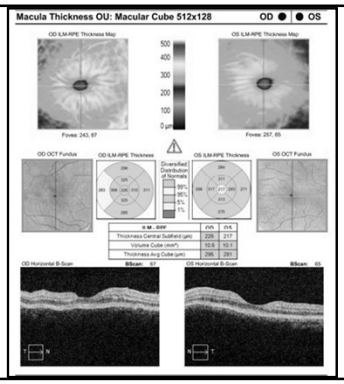


87

Case #7: Assessment/Plan

A: Pseudopapilledema and choroidal folds assoc with VKH (H20.823)

P: Rx 1mg/kg/day po methylprednisone qd x 3 mos

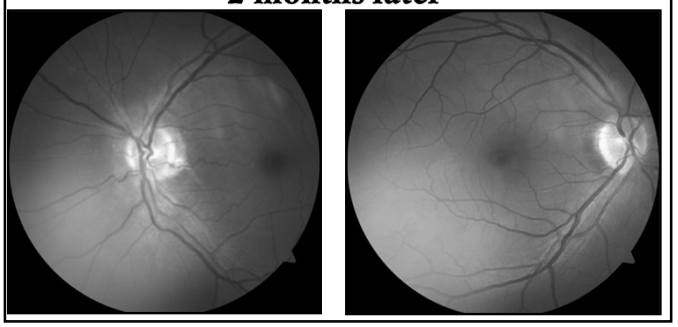
88

2 months later

VA	20/20 OU
IOP	13mmHg OU

89

2 months later

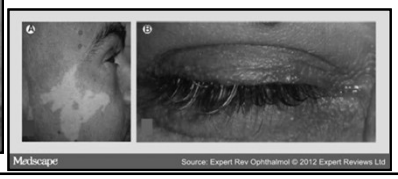


90

Vogt-Koyanagi-Harada (VKH)

- alopecia-poliosis-uveitis-vitiligo-deafness-cutaneous-uveo-oto syndrome
- Chronic inflammation of melanocytes; autoimmune?
- l tissues

Photo: dermnetnz.org



91

VKH

- Active uveitis = often compared to/mistaken for sympathetic ophthalmia
- Perilimbal vitiligo ('Sugiura's sign')
- Retina may have 'sunset glow' appearance 2' depigmentation

92

VKH

- In US, 1.5-6 cases per million pts (more common elsewhere)
- Accounts for ~1-4% of uveitis cases in the US
- Tx with steroids (1-1.5mg/kg/day x 6 mos) or immunomodulators
- Support groups (AARDA, GARD, NORD)

93

OD's Role in VKH

- Coordination of care
- Patient expectations

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Case #8: 29 yo HM

- CC: long-standing distance blur and restricted side vision
- PMHx: Non-contributory
- FOHx: "some retinal problem" (maternal uncle)

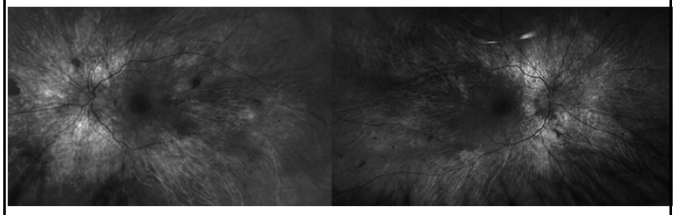
95

Case #8: Findings

BCVA	**OD 20/30 OS 20/20**
IOP	**14mmHg OU**
Pupils	**Normal, no APD OU**
SLE	**Unremarkable OU**
DFE	**Diffuse prominent choroidal vasc, sparing macula OU**

96

Case #8: Optomap



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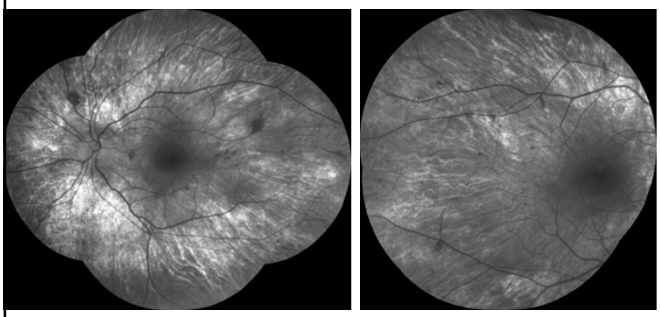

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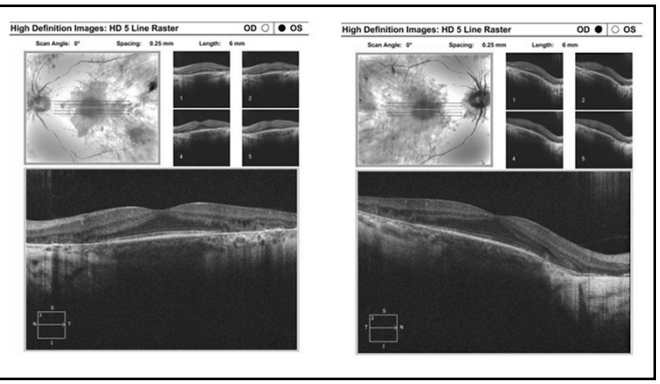


99

Case #8: Assessment/Plan

A: CME without cataract surgery OU (H35.353)
Hereditary retinal dystrophy OU (H31.20)

P: Rx dorzolamide 2% BID OU
RTC 1 mo for HVF 10-2, FAF, and OCT mac OU

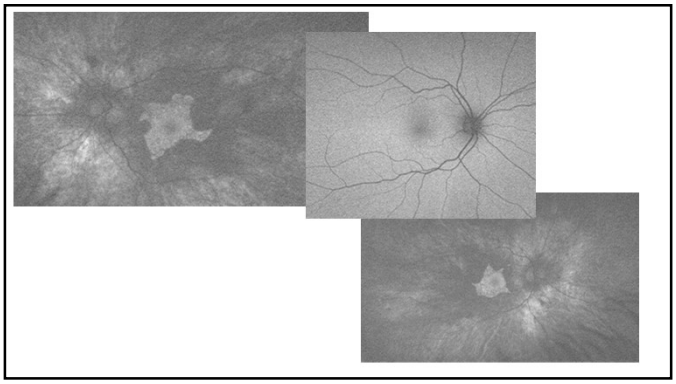
100

Case #8: 1 mo follow-up

- CC: Reports minimal improvement in VA

BCVA	**OD 20/20 OS 20/20**
IOP	**OD 17mmHg OS 16mmHg**

101



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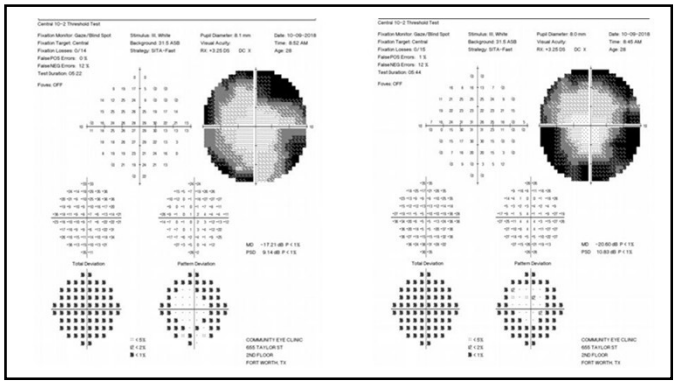

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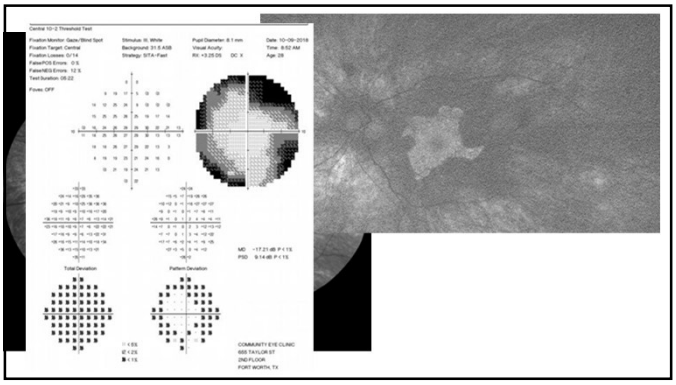

104

Case #8: Assessment/Plan

A: CME without cataract surgery OU (stable)
Choroideremia OU (H31.21)

P: Continue dorzolamide 2% BID OU
Monitor; RTC 4 months
Order genetic testing
Recommend DFE for pt's children

105

RESULT: POSITIVE

One Pathogenic variant identified in CHM. CHM is associated with X-linked choroideremia.

Additional Variant(s) of Uncertain Significance identified.

GENE	VARIANT	ZYGOSITY	VARIANT CLASSIFICATION
CHM	c.799C>T (p.Arg267*)	hemizygous	PATHOGENIC
FSCN2	c.1348C>T (p.Arg450Cys)	heterozygous	Uncertain Significance
PCDH15	c.5818_5820dup (p.Ile1940dup)	heterozygous	Uncertain Significance
PITPNM3	c.503A>G (p.His168Arg)	heterozygous	Uncertain Significance
PRPF8	c.1600-6C>G (Intronic)	heterozygous	Uncertain Significance
RPE65	c.1559T>C (p.Ile520Thr)	heterozygous	Uncertain Significance

About this test

This diagnostic test evaluates 248 gene(s) for variants (genetic changes) that are associated with genetic disorders. Diagnostic genetic testing, when combined with family history and other medical results, may provide information to clarify individual risk, support a clinical diagnosis, and assist with the development of a personalized treatment and management strategy.

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Choroideremia

- Estimated 1 in 50K to 100K people[1]
- X-linked recessive inheritance pattern
- Nyctalopia onset 2nd-3rd decade
- Retain functional central VA into 6th decade, followed by severe peripheral loss

1. NIH: US National Library of Medicine

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OD's Role in Choroideremia

- Counseling on inheritance pattern
- Examination of pt's children
- Genetic testing?
- Vision rehabilitation

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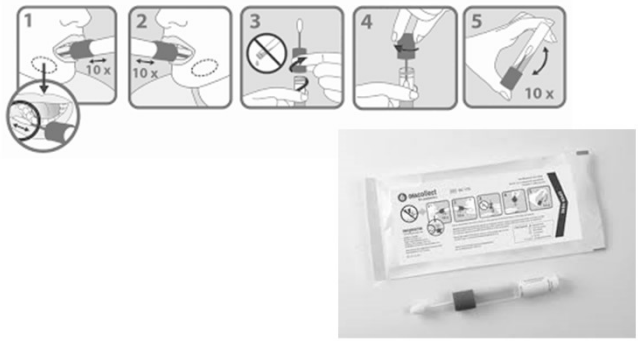
MyRetinaTracker*

- FREE to pt and practice (supported by Foundation Fighting Blindness)
- Panel tests for ~250 mutations known to cause inherited retinal disorders (therapy for 1)
- Complimentary genetic counseling through InformedDNA
- Not appropriate for ARMD or albinism
- Buccal swab testing (kit similar to 23andme, others)
- Register and order test kits at: www.blueprintgenetics.com

*Speaker has NO FINANCIAL INTEREST in this or any other genetic testing labs

109



110

Case #9: 30 yo AAF

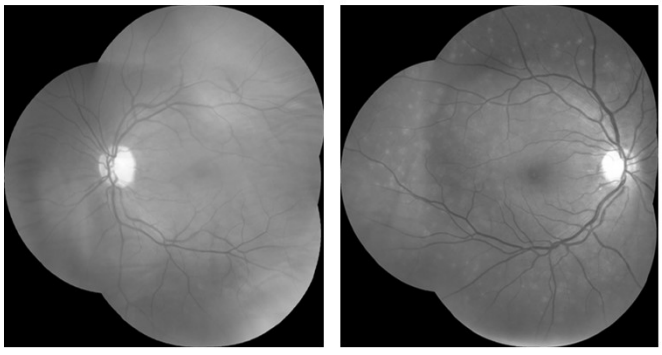
- CC: photopsia in temp field OD x 1 week
- PHx: Non-contributory
- Meds: None
- FHx: Non-contributory

111

Case #9: Findings

BCVA (approx. -4.25 OU)	OD 20/50 OS 20/20
BP	110/67
SLE	Unremarkable
DFE	Scattered, non-elevated white lesions mid-periphery OD

112



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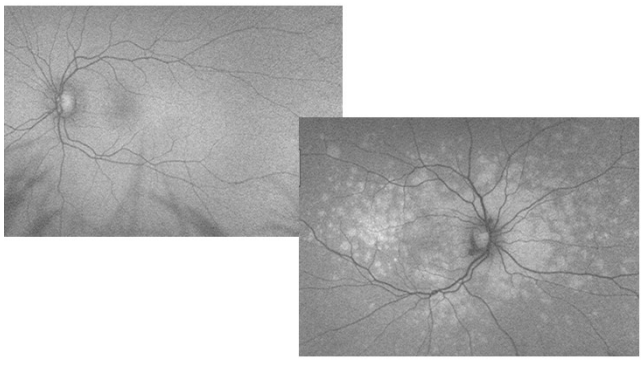

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Case #9: Assessment/Plan

A: Peripheral chorioretinitis/Multiple Evanescent White Dot Syndrome (MEWDS) OD (H30.121)

P: Educate pt on self-limiting nature of disease
RTC 1 week for HVF 30-2

115

Case #9: 1 week follow-up

- Subjectively improved VA

BCVA (approx. -4.25 OU)	**OD 20/25 OS 20/20**
DFE	**OD Lesions improved from previous**

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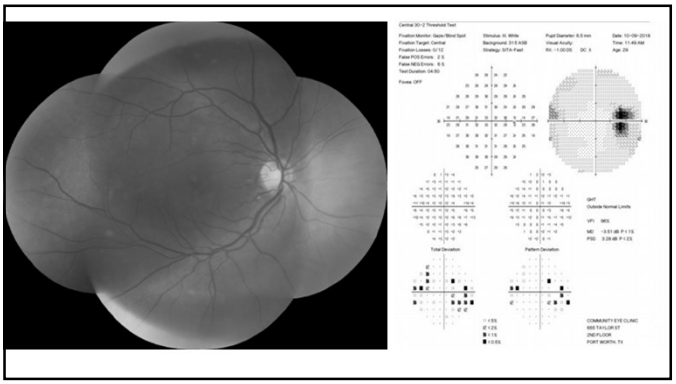

117

Case #9: Assessment/Plan

- A: MEWDS OD (improving)

- P: Monitor
RTC 3 months for HVF 30-2, OCT, photos OU

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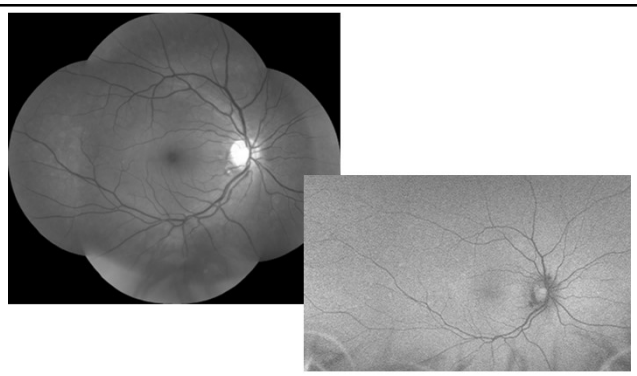
Case #9: 3 mo follow-up

- Subjectively improved VA

BCVA (approx. -4.25 OU)	**20/20 OU**
DFE	**Unremarkable OU**

119



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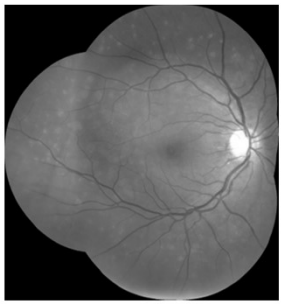
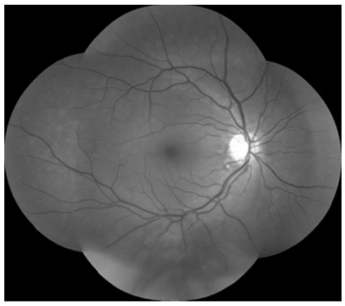


Sept 2018



Dec 2018

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MEWDS

- In the family of 'white dot syndromes'
- Rare (?), unilateral, self-limiting
- Multiple whitish lesions(100-200µm) – outer retina and RPE
- 4:1 female predilection (age range 15-50)
- Presenting symptom often dec VA, paracentral scotoma, or "shimmering" peripheral photopsia
- Often preceded by a flu-like illness, but true etiology not known

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OD's Role in MEWDS

- Don't be scared!
- Appropriate referrals (when necessary)
- Monitor (typically resolves without treatment in 1-2 mos)

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Thank you!

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Thank you!

- Jenny Terrell, OD, FAAO, DiplABO
- jgterrel@uiwtx.edu

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