


ND Academy of Family Physicians- Ophthalmology Presentation

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Bismarck, ND
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No Financial Disclosures

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Eight Point Eye Exam

- Visual acuity
 - Wear glasses or contacts
 - Stand approximately 20' from the Snellen chart
 - Test eyes individually
- Confrontation visual fields
 - Right eye then left eye
 - Have patient look at nose
 - Fingers showing 1,2,5 in all quadrants
- Relative afferent pupil defect

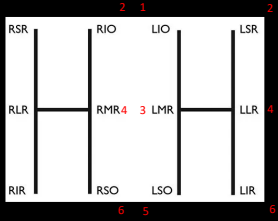
Cranial Nerve II

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Eight Point Eye Exam

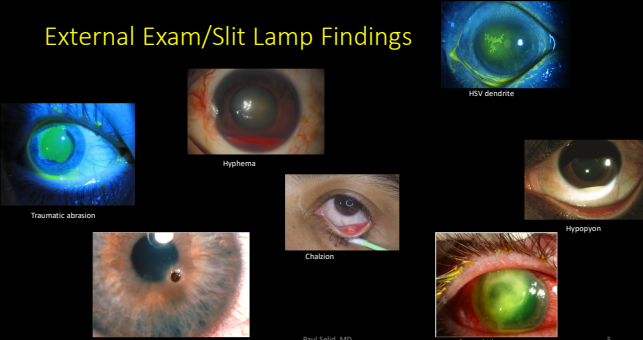
- Extraocular motility
 - CN III, IV, VI
- Eye pressure
- External Exam
 - CN V, VII
- Slit lamp exam
- Funduscopy Exam



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External Exam/Slit Lamp Findings



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Case 1

- 74 yo male. Pain with yawning
- Same day blood work
 - ESR 29 (0-37)
 - Platelets 188,000 (150-450,000)
- Two days later, diplopia, mild headache, pain with eye movement
- No afferent pupil defect
- Mild limitation in left eye infraduction
- DDx: GCA, Myasthenia, Thyroid eye disease, orbital pseudotumor, orbital tumor

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2 days later, symptoms worse

- Optic nerve exam reveals disc edema
- Labs repeated
 - ESR 18
 - CRP 68 (0-9.9)



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Presumed Giant Cell Arteritis!!

- **START STEROIDS!**
- **PREDNISON 80mg/day PO**
- Temporal artery biopsy ASAP (not emergent)

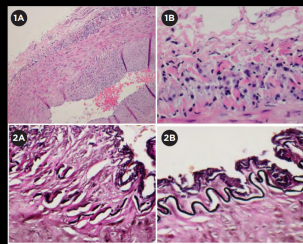
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Biopsy results

- Confirmatory for GCA
 - Inflammation of all layers of arterial wall (1A)
 - Multinucleated giant cell (1B)
 - Fragmented internal elastic lamina (2A)
 - Intact internal elastic lamina of other parts of the artery (2B)



American Academy of Ophthalmology - EyeNet, August 2023.

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GCA

- Do not want to miss
- Think older patients (55+)
- Non-specific symptoms most notably **jaw claudication, scalp tenderness, fatigue, malaise, anorexia, headache, neck pain, blurry vision, amaurosis fugax, diplopia, eye muscle strain**
- **Elevated inflammatory enzymes (ESR, CRP)**
- Low platelets
- **START STEROIDS (FIRST), THEN GET BIOPSY**
- Long term steroids needed
- **Tocilizumab**, IL-6 receptor antagonist, can be used as maintenance therapy

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Case 2

- 61 year old male
- History of HTN, hyperlipidemia
- Presents with headache and diplopia
- Vision is okay outside of diplopia, including confrontation
- Right APD, right upper eyelid ptosis, right adduction deficit but left abduction is normal

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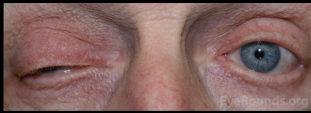
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Third Nerve Palsies

- Ptosis
- Limitations in ad-, supra-, infra-ductions. Abductions normal
- Pupil Sparing vs Pupil Involving

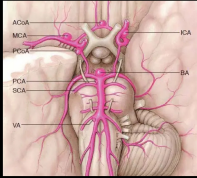


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Third Nerve Palsies

- Pupil involving third nerve palsy means EMERGENT neuroimaging to look for aneurysm. Send to ED!!
- Pupil sparing third nerve palsies may not be required for those >50 years especially with vascular risk factors



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Case 3


- 2 year old boy presents with right eye turning in
- No family history of eye problems
- No history of glasses
- Had normal eyes when he was younger
- Has never seen an eye doctor

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Case 3

- On Exam




https://www.williams.org/disease_condition/retinoblastoma/

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Leukocorias

- White Reflex
- All newborns should have red reflex check within 2 months




<https://aapos.org/bovine/leukocoria>

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Differential-leukocorias

- Cataract
- Retinal Detachment
- Retinopathy of prematurity
- Retinal vascular anomaly
- Intraocular tumor (retinoblastoma)
- Anisometropia (refractive error difference between two eyes)

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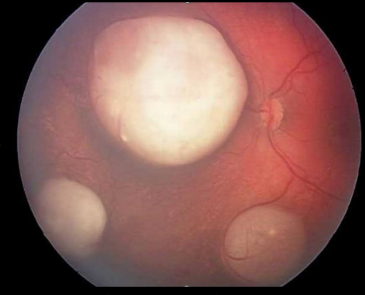
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Send for dilated eye exam

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https://www.willkays.org/disease_condition/retinoblastoma/

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Retinoblastoma

- Don't miss
- Hints of retinoblastoma are **+ family history, leukocoria, and strabismus**
- Mostly sporadic (no family history)
- If bilateral, more likely to transmit



https://www.willkays.org/disease_condition/retinoblastoma/

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Case 4

- 68 year old, Sunday, smoking outside a bar, realized he couldn't see anything out of left eye
- No pain

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Exam

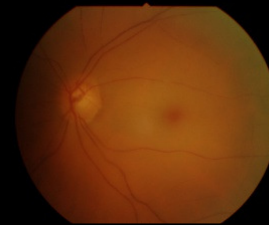
- Normal general exam. Alert and orientated
- Vision
 - 20/30 right eye
 - Hand motions left eye
- Left APD
- Extraocular motility normal
- Confrontation visual fields normal right eye; diffusely abnormal left eye

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Dilated Eye Exam



<https://www.klao.org>

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Central Retinal Artery Occlusion

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Retinal Artery Occlusion (branched vs central)

Risk Factors

1. Older
2. Male
3. Smoker
4. Hypertension
5. Diabetes
6. Cardiovascular disease
7. Hypercoagulable state

Differentiate From

- Giant Cell Arteritis (consider ESR/CRP/CBC), urgent steroids and temporal artery biopsy (for patients > 50)
- For patients < 50, consider hypercoagulable workup

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RAO

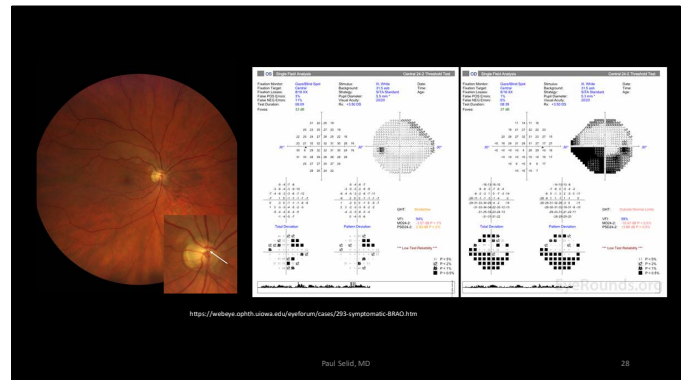
- Treat as a stroke (evaluate heart and carotids)
- Only around 2.2% risk of stroke 14 days before and 14 days after RAO
- No tPA
- May lower eye pressure or perform ocular massages

Chodnicki, Ophthalmology 2021.

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<https://www.eyeweb.com/eye/eye-forum/cases/293-symptomatic-BRAO.htm>

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Case 5

- 52 year old, wakes of with left eye blurry vision, mostly inferiorly
- No pain
- Hx of HTN, obstructive sleep apnea

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Exam

- General and neurologic exam normal
- Eye exam:
 - VA
 - 20/20 right eye
 - 20/70 left eye
 - Left eye with APD
 - Inferior field loss on confrontation

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Lab work

- Same day blood work
 - ESR 15 (0-37)
 - CRP 0.9 (0-9.9)
 - Platelets 230,000 (150-450,000)
- Less likely GCA
- Need dilated eye exam

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EyeRounds.org

EyeRounds.org

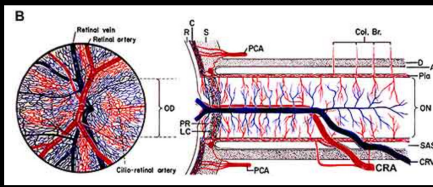
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Non-arteritic ischemic optic neuropathy

- Due to presumed hypotension at the optic nerve head

Hayrey <https://www.eyepath.uic.edu/eyeforum/articles/NAION/>

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NAION

- Treatment
 1. Avoid nocturnal hypotension
 1. -adjust timing of medications
 2. ?Aspirin
 3. ?Early corticosteroids
 - adjust timing of medications

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Case 6

- 72 year old male, presents with 1 day of double vision when driving and watching TV. He denies double vision when reading. No pain. No vision loss
- If he covers either eye, the diplopia goes away. The double images are mostly horizontally separated
- Past ocular history is significant for glasses and history of cataract surgery
- Past medical history: diabetes, hypertension, hyperlipidemia, former smoker, coronary artery disease s/p stenting

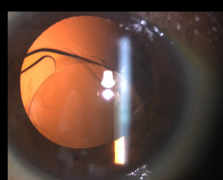
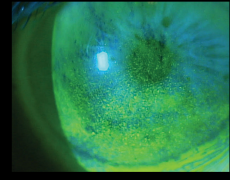
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Monocular vs binocular

- Monocular: diplopia persists when the *un*affected eye is closed but resolves when the affected eye is closed
 - Dry eye, cataract, dislocated lens, refractive error

<https://www.eyeworld.org/2022/spontaneous-lens-dislocation/>

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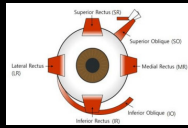
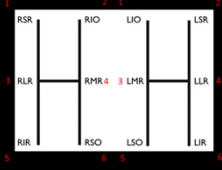
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- **Binocular:** diplopia resolves with either eye closed
- How are the images separated?
 - Horizontally, vertically, obliquely
- How does distance affect the diplopia?
- Any history of strabismus/amblyopia?
- Pain?

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- Exam
 1. Pupils-Normal
 2. Eye movements—small left abduction deficit
 3. Other cranial nerves-Normal
 4. Direct ophthalmoscopy-Normal

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Localizing Diplopia

1. **Supranuclear:** Vestibulo-ocular reflex intact (VOR)
 - Parkinson's, progressive supranuclear palsy, vergence dysfunction, etc
2. **Nuclear (3,4, 6th)**
3. **Internuclear**
 - Internuclear ophthalmoplegia
4. **Infranuclear**
 - 3,4, 6th nerve palsies
5. **Neuromuscular junction/muscle**
 - Orbital disease (thyroid orbitopathy), myasthenia gravis

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Our patient


- Older patient, with vascular risk factors, who has binocular diplopia horizontally separated and a small abduction deficit on left gaze
- Detailed testing reveals ecotopia worse in distance versus up close
- Most likely, this represents an ischemic 6th nerve palsy

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Case 7

- 78 year old, presents with 2 days of pain and right forehead rash
- Right eye blurry vision
- Had chickenpox as a child
- Never vaccinated for zoster



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Herpes zoster ophthalmic (HZO)

- The eye form of herpes zoster (HZ, “shingles”)
- 10-20% of all HZ
- Range of eye problems include:
 - Eyelids (vesicles, entropion, ectropion)
 - Conjunctiva/episcleral (cicatrizing changes)
 - Cornea (epithelial, stromal, or endothelial)
 - Uveitis/Retinitis/Optic neuritis
- Acyclovir, valacyclovir, famciclovir essential

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HZO keratitis/uveitis

- If HZO is affecting the cornea or in the eye, it is possible prolonged (>1yr) antivirals will be recommended
 - Typically valacyclovir 1g daily PO

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Vaccination for HZ

- American Academy of Ophthalmology recommends recombinant zoster vaccine (Shingrix) for immunocompetent adults 50 years of age and older
- Do not vaccinate in active HZO, but safe to do so when controlled

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Varicella vaccination

- 1995-
- Two vaccinations
 - 12 months and 4 years old
- Less wild type infections
- Less periodic exposures to varicella for the community
- ?risk of HZ
- HZO is definitely more common in younger patients (20 year olds)

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Thank you!

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