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Is it Glaucoma? How to Discern Glaucoma from its Mimicking Differentials

Description: "In this lecture, we will review common mimickers of glaucoma and identify strategies (including examination and testing techniques) to arrive at the correct diagnosis. We will discuss both benign and life-threatening mimickers."

Course objectives

1. Describe benign glaucoma mimickers, such as large nerves and myopia
2. Describe dangerous glaucoma mimickers, such as stroke or tumor
3. Discuss testing and exam techniques that can differentiate glaucoma from its mimickers

>Large optic nerves

- Case 1:
    - 25M
    - Here for routine eye exam / glasses
    - No fam hx of eye problems, no hx of trauma, not on steroids
    - IOP 17/16
- On exam, large cup to disk
    - Similarly cupped I/S/N/T
    - No notching
    - Healthy pink nerve tissue 360
    - The nerve itself is very large!
- Does size matter?
    - The same amount of nerve tissue spread around a larger circumference will appear more cupped
    - Average size is 1.7-1.8mm
    - Large is >2.0-2.2mm
- How to measure
    - Hard way:
        - >Vessels at edge of disc measure ~150um
        - >Figure out how many vessels it would take to cross the nerve

        - >Do lots of math
    - Easier way:
        - >Measure with the light beam of the slit lamp (just like you do for corneal ulcers/abrasions)
        - >CAUTION: this only works with a 60D lens for 1:1 ratio
        - >With a 90D, you have to multiply your measured height x1.3
    - Easiest way:
        - >Look at everyone's nerve
        - >Once you've looked at enough nerves, you'll notice when one seems bigger than average
- What to do if you suspect large nerve
    - The same thing you do for anyone else if you think they have glaucoma: get an OCT RNFL and HVF
        - >The RNFL should be totally normal!
        - >The HVF should be full!
        - >The eyes are generally symmetrical

>Myopia

- Case 2
    - The same thing you do for anyone else if you think they have glaucoma: get an OCT RNFL and HVF
    - >The RNFL should be totally normal!
    - >The HVF should be full!
    - >The eyes are generally symmetrical
    - The nerve is tilted with significant PPA
    - C/D ~0.8
    - RNFL looks thin.. is it the PPA or glaucoma?
- Two tests to help in myopic eyes
    - Crescent moon sign
    - Horizontal Raphe

>Quadrantanopia

- Case 3
    - 68M
    - Hx of HTN, T2DM
    - Here for decreased peripheral vision
    - Appears to be dense IN arcuate change on left eye… but you can see with both fields together that it's actually a quadrantanopia

- Always look at visual fields together to look for quadrantanopia
- Send these people to the ER for stroke/tumor workup!!
- CAUTION: they may ALSO have glaucoma.. May need to track with RNFL rather than HVF

>NAION

- Case 4:
    - 72M
    - Hx HTN, T2DM
    - Noticed part of his vision is gone
- On HVF and RNFL, looks like severe inferior glaucoma
- But on exam, small C/D and superior pallor
- When to suspect a neuro problem instead of glaucoma
    - Less cupped than would be expected for degree of field loss
    - Optic nerve pallor > cupping
    - Progression of field loss is rapid
    - VF pattern respects the vertical midline

>Disc Drusen

- Case 5
    - 30F
    - Hx of "something weird with her optical nerve"
    - Here to establish care
    - RNFL without thinning or even full
    - HVF may have defect
- Disc drusen become more obvious with age
- They can cause visual field defects
    - They follow the shape of the nerves
    - Can look very similar to an arcuate defect
    - Generally are quite stable, but can slowly progress
    - May be high risk for NAION because the drusen may crowd the disc
- Testing to do
    - 3D-ST-OCT
    - FAF
    - B-scan
    - (can see obvious ones on CT sometimes – not a good method, but kind of fun)

>Junctional scotoma

- Case 6
    - 74 M
    - HTN, T2DM, etc
    - Here for decreased vision in left eye
- Visual field showing central defect in one eye and ST defect in the other
- Retina normal
- Causes of junctional scotoma
    - Tumors: Pituitary adenoma, Meningioma, Metastatic tumor
    - Demyelinating disease: MS
    - Vascular event: stroke, pituitary apoplexy
- Send to ER for head scan!!

>Retinitis Pigmentosa

- Case 7
    - 43M
    - Complains of bad night vision and decreased visual field
    - Has hx of family members going blind
- Testing
    - HVF showing constriction of visual field
    - RNFL thinning
- Exam
    - Nerve looks waxy, thin
    - Dilated exam is important!!! Will have bone spicules in peripheral retina
- Send for clinical trials and low vision services!