Glaucoma Grand Rounds:  
What was done wrong?  
COPE #45911-GL

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Case I:

Case History:
- 60 Y/O white female
- CC: Presents for glaucoma update and assess of vision
- MHx: DM, Hypothyroid, HTN

Her story starts in 2000
- 49 Y/O white female presents for not seeing well from the OD
- MHx: DM, HTN, Thyroid
- OHx: KCN (Diagnosed in 1996)

- Manifest refraction:
  - -6.25 -3.75 X 094 sph 20/70
  - -9.25 -2.50 X 095 sph 20/60
- Pupils, EOM & Ant seg: WNL
- Tapp: 14 mm Hg OU
- DFE: Mac clear, lacquer cracks noted without NVM, peripheral lattice OU, C/D 0.15 OU with tipping

Differential diagnosis:
Case II:
- 79 Y/O white female
- MHx: HTN, Thyroid
- OHx: Cat surgery OU Spring 2000
- VAs: 20/30 OU
- Pupils, EOM & VF: Grossly WNL
- SLE: WNL with stable pseudophakia
- Gonio: 4+ with CBB visible 360°
- Tapp: 20/18 OD/OS mm Hg OU
- DFE: Mac, vessels & periphery clear C/D ratio 0.5V/0.7H OD / 0.7 OS +ISNT OD / ? ISNT OS

Differential diagnosis:

Case III:
Case History:
- 63 yo WM referred for glaucoma evaluation in November 2001
- OHE: Negative
- MHx: Systemic hypertension
- Meds: Zestril (ACE inhibitor) and terazosin (peripheral acting alpha blocker)
- FHx: Unremarkable
- VA: 20/30- OU
- Pupils: PERRLA no APD
- EOM's full and VF grossly FTFC

Pertinent findings:
- SLE: Unremarkable with only 1+ nuclear sclerosis noted
- IOP is 23/22 OD/OS
- DFE is unremarkable with C/D 0.25 OU. Macula, vessels and periphery are WNL.
- VF, GDx & OCT are shown

Differential Diagnosis:
Case IV:

Case History:
- 59 yo WF presents for eval of glaucoma with “superior binasal VF loss”
- MHx: Negative
- Meds: None
- FHx: None
- OHx: LASIK OU ‘99
- VAsc: 20/20 OU
- Pupils, EOM’s, confrontational fields WNL

Pertinent findings:
- SLE: Mild SPK OD – moderate SPK OS
  Lids, conj & iris clear
- Tapp: 11/12 OD/OS
- Gonio: 4+ Open 360°
- Peak Flow: WNL
- Pachy: 512/518 OD/OS
- DFE: c/d 0.4 OU, margins distinct, mild Mac pig changes, crossings WNL, periphery clear
- HVF: Shown OU

Diagnosis & Management:

Case V:

Case History:
- 26 Y/O WF referred with incr IOP and pain OD, OS WNL
- MHx: Neg
- OHx: Episodes of “Corneal Edema”
- Meds: None
- FHx: Neg for Glaucoma
- VA: 20/25 20/20
- Pupils: no APD (sluggish OD)

Pertinent Findings:
- EOM: FROM
- Tapp: 42/15
- SLE: Conj: 1+ inj OD
  Cornea: Clear
  AC: 4+ deep with 1+-2+ fine cells OD only
  MicroHyphema OD only
• Gonio: open to CB OU
• FDT: decr OD
• Fundus: c/d 0.4/0.3 OD/OS, vitreous, vessels & periphery WNL

Diagnosis:

Case VI:

Case History:
• 50 yo WF presents in Jan 2000 for C/D evaluation
• MHx: Htn, acephalgic migraines
• Meds: Atenolol, BCPs
• FHx: COAG (Dad)
• OHx: None
• VA: 20/20 OU

OMD’s Findings 2000:
• Pupils & EOM: WNL
• SLE: Conj, cornea and anterior segment clear
• Gonio: open to TM & CB 360° OU
• Tapp: 17/16 OD/OS
• BP: 120/80
• Fundus: C/D 0.6/0.65 OU, sloped margins temporally OU, no hemes, vitreous, vessels & periphery WNL
• VF: shown

YOUR exam 2002+:
• MHx: Htn, acephalgic migraines
• Meds: Atenolol, BCPs, Alphagan-P bid OU
• FHx: COAG (Dad)
• OHx: None
• VA: 20/20 OU
• Pupils & EOM: WNL
• SLE: Conj, cornea and anterior segment clear
• Tapp: ranges over the years 10-14 mm HG
• Fundus: C/D 0.6/0.65 OU, sloped margins temporally OU, no hemes, vitreous, vessels & periphery WNL
• VF: shown

Diagnosis:
Case Specifics:

Case I:
Differential diagnosis:
- KCN
- Optic atrophy secondary to Pituitary tumor surgery
- Degenerative myopia
Diagnosis and discussion:
- ALWAYS pursue decreased VA
- ALWAYS pursue recent onset strab
- ALWAYS pursue declining VF
Treatment/Management:
- Periodic MRIs
- Monitor ONH & IOP
- Monitor retina
Conclusion:
- Neuro-Oph consult if unexplained

Case II:
Differential diagnosis:
- Chronic narrow angle glaucoma
- LTG/NTG
- Progressive COAG
- Poor compliance with meds
Diagnosis and discussion:
- Patient is now stable but baseline VFs need to be reset for comparison when major intervention is done
Treatment/Management:
- Maintain current meds
- Monitor SLT effects over time
Conclusion:
- Always reset baseline VFs for comparison when major intervention is done
Case III:

Differential Diagnosis:
- Oc Htn secondary to increase CCT
- COAG
- Lid related VF defect
- Learning effect on VF

Short Wave Automated Perimetry VF Analysis:
- “Blue-on-yellow perimetry deficits are an early indicator of glaucomatous damage and are predictive of impending glaucomatous visual field loss for standard White on white automated perimetry”
  - Arch Ophthalmol. 1993;111; no. 5:645-650

FDT
- “In the same way that SWAP may predict Achromatic Automated Perimetry (AAP) visual field loss, Frequency Doubling Perimetry may also detect field loss earlier than AAP “
  - Arch Ophthalmol. 2003;121:1705-1710

Treatment/management options:
- Serial follow-up
- SWAP visual fields
- Initiate treatment prophylactically

Conclusion:
- Treat optic nerves and risk of progression NOT just IOP

Case IV:

Differential Diagnosis:
- Vascular malformation/anomaly
- Meningioma
- Space occupying lesions

The VF MUST add up!

MRI Guidelines:
- If the patient:
  - Cannot see 20/20 and you cannot explain it
  - Has a recent significant VA decr
  - Has sudden onset of diplopia
  - Has a persistent/repeatable/reliable VF defect
  - Has an APD
  - Has unexplained EOM restrictions
Conclusion:
- Visual field/OCT/GDx should add up
- If not, get a MRI

Case V:

Differential Diagnosis:
- Recurrent iritis
- Unknown corneal dystrophy with recurrent edema (Fuch’s)
- Uveitic Glaucoma
- Glaucomatocyclitic crisis

Management options:
- Systemic workup
- Uveitic serology: Negative!! (CBC, ESR, CXR, PPD, VDRL, FTA-ABS)
- Posner-Schlossman Syndrome (Glaucomatocyclitic Crisis):
  - Unilateral involvement
  - Recurrent attacks of mild cyclitis
  - Slight decrease in vision
  - Elevated IOP (usually 30-40 mm Hg) (symptoms usually minimal)
  - Open angles
  - Crisis has a duration from a few hours to weeks and optic nerve and VF are usually normal
  - IOP and exam are normal between attacks
  - Age group: 20-50 yo
  - Usually unilateral (bilateral cases reported)
  - Consider Herpes virus relationships
    - HSK
    - HZK
    - CMV

Treatment:
- Mydriatics and Cycloplegics:
  - Prevent or break posterior synechiae (PS) and help relieve pain of ciliary spasm.
- IOP Suppressants:
  - Beta-Blockers: Historical mainstay of Tx
  - Adrenergics: Brimonidine now very common
  - CAI: Topical or systemic
  - Prostaglandins: ???
- Miotics: avoid!
  - May potentiate uveitis and also lead to Posterior Synechiae.
- Hyperosmotics: i.e. Glycerine or Mannitol may be indicated in the context of acute IOP rise (ACG)
- Consider NSAIDs
- Oral antivirals
Case VI:

Differential Diagnosis:
- COAG
- Narrow angle glaucoma
- Non-compliance

Management options:
- ALWAYS repeat gonioscopy!
- AOA/AAO guidelines state:
  - Gonioscopy should be done “periodically” over the follow-up of the patient

Conclusion:
- Effective & thorough glaucoma evaluation is essential
- NEVER trust another doctor’s gonioscopy
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