Glaucoma Grand Rounds: What was done wrong?

COPE #45911-GL

Robert E. Prouty, O.D., FAAO
Omni Eye Specialists
Denver, Co
RProuty@DrMyii.com

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
- OHx: 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

<u>YOUR</u> 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)

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)

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

BIBLIOGRAPHY

* Adler,Francis; Robert Moses M.D. editor: Adler's Physiology of the Eye, Seventh edition, Mosby, pgs 200-201, 227-254, 280, 286, 405

* Duane, Thomas; Clinical Ophthalmology, Harper & Row, Vol. 3

* Lewis, Thomas O.D.; Fingeret, Murray O.D.; Primary Care of the Glaucomas, Appleton & Lange, 1993

* Ophthalmology Times, Special Supplement; Avanstar Communications, Inc., Feb 1996

* Kass MA, Heuer DK, Higginbotham EJ, Johnson CA, Keltner JL, Miler JP, Parrish II RK, Wilson MR, Gordon MO, for the Ocular Hypertension Treatment Study Group: "The Ocular Hypertension Treatment Study: A Randomized Trial Determines that Topical Ocular Hypotensive Medication Delays or Prevents the Onset of Primary Open-Angle Glaucoma" *Arch Ophthalmol.* 2002; 120:701-713

* Quigley HA, Enger C, Katz J, Sommer A, Scott R, Gilbert D. "Risk factors for the development of glaucomatous visual field loss in ocular hypertension" *Arch Ophthalmol.* 1994; 112:644-649

* Strutton DR, Walt JG. "Trends in glaucoma surgery before and after the introduction of new topical glaucoma pharmacotherapies" J Glaucoma 2004;13(3):221-6

* Craig JE, Ong TJ, Louis DL, Wells JM, "Mechanism of Topiramate-induced Acute-onset Myopia and Angle Closure Glaucoma" *AJO* 2004; 137 (1): 193-195

* Tham CY *Ocular Surgery News Europe/Asia-Pacific Edition* August 2005. Dr. Tham can be reached at University Eye Center Administration Office, Room 703A, 7/F, Administration Block, Queen Mary Hospital, 102 Pokfulam Road, Hong Kong, China; +852-2855-3788; fax: +852-2816-7093