THE NEURO-OPTHALMOLOGY PATIENT: NOT YOUR AVERAGE WORKUP

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FINANCIAL DISCLOSURE

• I have no financial disclosures.

THE FIRST IMPRESSION

• Just like dating
• Further workup vs. Not
• Fixable vs. Not

You never get a second chance to make a first impression.
THE HISTORY

- Often extensive
- Cut the fat

VISUAL ACUITY

- Best corrected

FUNCTIONAL VISION LOSS?

- Bottoms up!
- Fogging
- Change the chart
- VER/ERG
EXTRAOCULAR MUSCLES

DIPLOPIA

MONOCULAR
- Closes one eye, still sees 2, 3, 4 etc.
- Most often Refractive!
  - Cataract
  - Corneal issue such as Dry eye
  - Retina
    - ERM - “shadow”
    - Not a Neuro-ophth issue

BINOCULAR
- Closes one eye, double vision goes away
- EOM disturbance
- Cranial Nerve Palsies s/p CVA
- Neuro-ophth issue

CONFRONTATIONAL FIELDS

- Good for bedside, patients unable to complete HVF, and general screening
- Formal HVFs far superior
Humphrey Visual Field

- Can often localize the lesion
- Need for further imaging

The Pupil

- One of the most important parts of the workup
- Real pathology vs. Functional Vision Loss
- Focus on a point in the distance
- Size in light and dark, shape, reactivity

RAPD: Common Causes

- Ischemic optic neuropathy (GCA, microvascular, idiopathic)
- Asymmetric glaucoma
- Trauma
- Compressive
- Infiltrative
- Inflammatory (optic neuritis)
- Retinal disease (macular degeneration, macular scar, diabetic retinopathy)
  - Generally rather minimal RAPD
  - Generally very noticeable macular, retinal pathology
THE APD

RELATIVE AFFERENT PUPILLARY DEFECT (MARCUS-GUNN PUPIL)

<table>
<thead>
<tr>
<th>Normal</th>
<th>Defect</th>
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<tbody>
<tr>
<td>Ambient Light</td>
<td>Normal Constriction</td>
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<tr>
<td>Normal Constriction</td>
<td>Paradoxical Dilitation</td>
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APD OR HIPPIUS?

- Initial reaction
INTRAOCULAR PRESSURE

- OK to check!

GUESS THE DIAGNOSIS FROM THE WORKUP

CASE 1: “LOSS OF VISION X 1 DAY”

- 78 y.o. male
- Woke up with decreased vision in his right eye
- History of HN, DM2, Heart disease (stents), wears a CPAP
- Long list of meds for all of the above issues
CASE 1: "LOSS OF VISION X 1 DAY"

- Vacc OD 20/200    OS 20/30
- Ductions full
- Pupils
- CF/HVF
- IOP wnl OU

ANTERIOR ISCHEMIC OPTIC NEUROPATHY

Arteritic (AAION)
- Acute loss of visual function, One eye in each episode
- Mid-life
- Little or no return of lost function
- Late sectoral or general disc pallor and swelling present at the onset of visual symptoms.

Nonarteritic (NAION)
- Optic disc edema, usually sectoral horizontal
- Flame hemorrhages at disc margin

CASE 2: "LOSS OF VISION X 3 WEEKS"

- 19 y.o female
- Slowly decreased vision as she has been studying for finals, worse in the last 2 days
- No other medical problems
- No meds
CASE 2: "LOSS OF VISION X 3 WEEKS"

- Vasc OD 20/400 OS 20/40
- Ductions full OU
- CF full OU
- Pupils
- IOP wnl
- RH OD 20/20 OS 20/20

Refract!

CASE 3: "LOSS OF VISION X 3 WEEKS"

- 19 y.o female
- Slowly decreased vision as she has been studying for finals, worse in the last 2 days
- No other medical problems
- No meds

CASE 3: “LOSS OF VISION X 3 WEEKS”

- Vasc OD 20/400 OS 20/40
- Ductions full OU
- CF full OU
- Pupils
- IOP wnl
OPTIC NEURITIS

- Clinical diagnosis that is made when a patient presents with
  - unilateral decreased visual acuity
  - pain with eye movement and/or periorbital discomfort
  - RAPD
  - visual field defect
  - optic nerve swelling (35% anterior disc edema, 65% retrobulbar)
- Inflammation along the optic nerve
- Commonly associated with Multiple Sclerosis but, does not have to be
  - Most common C.N involved
  - Inflammatory, Infectious, Infiltrative
  - MRI brain/orbits

CASE 4: “SUDDEN ONSET DOUBLE VISION”

- 69 y.o. female
- First noticed double vision when she was driving yesterday
- History of DM2 on insulin

- Vacs OD 20/30 OS 20/25
- Ductions
- Pupils PERRL, no APD OU
- CF full OU
CRANIAL NERVE PALSIES

CN III
- Oculomotor palsy
- Horner's syndrome
- Pupil involvement
- Parasympathetics to the pupil
- Pupil involved = more likely to be due to compressive lesion

CN IV
- Spasmodic
- Involuntary contractions
- March it out (R-L-R or L-R-L)
- Congenital vs. Acquired
- Head Trauma

CN VI
- 6th Cranial nerve
- Most common motor paralysis
- Deviated CP

Microvascular, Compresive, Infiltrative, Inflammatory

CASE 5: “EYE PAIN AND DOUBLE VISION”

- 32 y.o. male
- Sudden onset sharp eye pain and seeing 3-4 of images for a few minutes, 7-8 times a day
- No medical problems
- No meds

Vasc. OD 20/50 OS 20/50
Ductions
Pupils PERRL, no APD OU
CF full OU
IOP wnl OU
DRY EYE

- Intermittent diplopia
- Monocular

CASE 6: “EYE PAIN AND DOUBLE VISION”

- 54 y.o. female
- Gradual onset dull eye pain, feels as if he can not track images
- No medical problems
- No meds

- Vasc OD 20/40 OS 20/50
- Ductions
- Pupils PERRL no APD OU
- CF full OU
- IOP wnl OU
MYOSITIS

CASE 7: “EYE PAIN AND DOUBLE VISION”

- 32 y.o. Male
- Gradual onset dull eye pain, feels as if he can not track images
- No medical problems
- No meds

CASE 7: “EYE PAIN AND DOUBLE VISION”

- Vasc: OD 20/30 OS 20/40
- Ductions
- Pupils: PERL, no APD OU
- CF full OU
- IOP wnl OU
CAVERNOUS HEMANGIOMAS

• Most Common benign orbital tumor in adults
• Frequent incidental finding on CT or MRI
• Non-infiltrative lesions that exert a slowly progressive mass effect
• Patients often unaware of duration
• Low flow, as opposed to infantile capillary hemangiomas

CASE 8: “DIFFERENT SIZED PUPILS X 2 DAYS”

• 29 y.o. male
• His wife noticed his pupils looked different
• No medical problems
• No meds

• First impression: Smells like a crate of cigarettes

CASE 8: “DIFFERENT SIZED PUPILS X 2 DAYS”

• Vasc. OD 20/20 OS 20/20
• Ductions full OU
• Pupils OD light 3 dark 6 OS light 4 dark 9
• CF full OU
• IOP wnl OU

• First impression
Anisocoria

Horner’s Syndrome
- Physiologic Autonomic
- Damage to the sympathetic pathway
- Common cause: Lung cancer
- Signs: Ptosis (droopy eyelid), miosis, facial anhidrosis (sweat gland denervation), iris heterochromia (congenital Horner’s)
- Pupil reacts normally to light and near

Adie’s Tonic Pupil
- Damage to ciliary ganglion or postganglionic fibers of the short ciliary nerve (parasympathetic pathway problem)
- Usually unilateral, common in females
- The affected eye is dilated and reacts poorly to light (poor direct and consensual response)
- Near reaction is strong, slow, and tonic
- When the patient refixates at distance, the pupil redilates very slowly
- Vermiform movements

Physiologic
- Equal difference in light and dark
- Usually unilaterally

Case 9: “I Can Feel Pulsing in My Eye”
- 55 y/o female
- States she feels her “heartbeat pulse” in her right eye all day
- History of HTN (controlled on meds)
CASE 9: “I CAN FEEL PULSING IN MY EYE”

- Vasc: 20/25 OU
- Ductions full OU
- Pupils PERRL, no APD OU
- CF full OU

First impression:

CORBITAL ROOF DYSGENESIS

QUESTIONS?
REFERENCES

- Atlas of Ophthalmology
- Neuro-ophthalmology. Basic and Clinical Science Course. Section 5. American Academy of Neuroophthalmology

THANK YOU!