Unexplained visual loss in seven easy steps

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Seven steps in unexplained visual loss

1. Insure visual loss = actual chief complaint
2. Complete eye exam every time (no shortcuts)
3. Special effort to detect subtle causes of visual loss
4. Formal visual field if unexplained symptoms
5. Special tests (e.g., MERG, OCT, fluorescein angiography, neuroimaging if indicated)
6. Rule out optic neuropathy or hemianopsia
7. Rule out ORGANIC and prove non-organic BEFORE labeling someone as such
Step 1: Chief complaint = “blurred vision” is not sufficient!

- What do you mean by blurred?
- One eye or both?
- Central or side vision or both?
- Double vision?
- Jumping eyes? (nystagmus)
- Processing of visual information?

Step 2: Complete eye exam

- By complete I mean….complete (don’t use short cuts in your neuro-op patients!)
- Check relative afferent pupillary defect yourself
- Check color vision & visual field
- Ophthalmoscopy
  - High magnification & high clinical suspicion
Main Causes For No APD In Unilateral Visual Loss

- Macular disease (e.g. macular hole)
- Media (cataract, refractive)
- Making it up (non-organic)
- Missed it (look again!)
- *Bilateral optic neuropathy & retrogeniculate etiologies = normal pupil
Complete eye exam

- Slit lamp biomicroscopy
  - Look after dilation
  - Beware oil droplet cataract
  - Look for posterior subcapsular cataract
  - Match lens opacity to visual acuity
  - Retroillumination

Look at lens & grade opacities
(“NSC/PSC = 20/30” or ≠ “20/30”)
Step 3: Rule out things you don’t want to end up sending to your neuro-ophthalmologist

• Oil droplet cataract or subtle posterior subcapsular cataract
• Refractive error, keratoconus
• Epiretinal membrane, cystoid macular edema, macular hole, geographic atrophy of retinal pigment epithelium

Step 4: Formal visual field

• “Unreliable” visual field is the same information as NO visual field performed
• Confrontation visual field = minimum
• Media & refractive etiologies rarely produce field defects
• Any respect of vertical meridian significant
**Full Eight Point Exam**

- Formal visual field (even if 20/20)
- Homonymous & bitemporal hemianopsia may have 20/20 acuity
- Retrochiasmal disease will have NORMAL structural eye exam (no RAPD, no optic atrophy)
- Normal eye exam does not r/o pathology

**Look At The Macula**

- Subtle macular lesions can be missed without high magnification and high suspicion (e.g. macular hole, cystoid macular edema)
- “WNL” should mean “within normal limits” NOT “WE NEVER LOOKED’
Step 5: OCT in Unexplained visual loss? Is it retina or optic nerve?

- Macular edema or macular hole
- Epiretinal membrane
- Cystoid macular edema or subretinal fluid
- Vitreous traction on macula or optic nerve

OCT can see better than me

Epiretinal membrane
Macular hole
Vitreomacular traction
Serous fluid under retina
Cystoid macular edema
Determination of Pallor vs No Pallor

OCT can see better than me
Consider Ancillary Testing

• Fluorescein angiography/OCT
  – If I see something funny in the macula
• Electrophysiology if it “smells like retina”
  – Big blind spot with normal peripapillary retina
  – Ring scotomas
  – Photopsias
  – Diffuse retinal arteriolar narrowing

20 y/o WF with acute loss of visual field RE & photopsias
Is this optic neuritis?
What does a ring scotoma look like on HVF?

Multifocal Electroretinogram (MERG)

- Focal electrical response of photoreceptors and bipolar cells
- Does not detect ganglion cell or axonal response (at present)
Multifocal Electroretinogram

MERG: Normal
Step 6: Rule out optic neuropathy

- Look for subtle signs of optic neuropathy
  - Decreased color vision
  - Relative afferent pupillary defect
  - OCT abnormal
  - Mild disc pallor or disc edema
  - Abnormal visual field
- If you miss a non-optic nerve cause for visual loss (PSC, ERM, refractive) it is no big deal
- If you miss an optic neuropathy it could be a big deal (compressive optic neuropathy)
Step 7: Prove non-organic before labeling patient non-organic

- Non-organic = preferred term
  - Outdated terms or terms which imply psychologic motivation (hysterical, malingering)
- Do you really know they are faking?
- Do you know their motivation?
- They might be organic with overlay!

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Follow up 2010

- Pt: “You don’t remember me do you Dr. Lee?”
- Me: “Well,…I um….sure…maybe”
- Pt: “I had lung cancer & you found it thru my eye”
- Me: “Really”
- Pt: “Yeah, you wrote it up in a journal”
- Me: “Oh, yeah, sure, now I remember. How are you, why are you coming today?”
- Pt: “I just wanted to tell you that I was still alive and it is been 14 years, so thanks.”

Longest known survivor

Long-Term Survivor of Paraneoplastic Optic Neuropathy

Small cell lung cancer carries a very poor long-term prognosis. In a survey performed at the Mayo Clinic from 1979 to 2003, the 5-year survival rate was only 9% (1). In addition, to our knowledge, the longest published survival duration for paraneoplastic optic neuropathy secondary to small cell lung cancer has been 8 years (2). We wish to provide an update on a patient previously reported by one of us (A.G.L.). In the Journal in 1999 (3) who remained 14 years later without evidence of tumor recurrence and believed to be in clinical remission. The earlier detection of the tumor from her neuro-ophthalmologic examination followed by timely systemic treatment may have contributed to her favorable outcome. To the best of our knowledge, she is the longest survivor of paraneoplastic optic neuropathy secondary to small cell lung cancer. At the time of her diagnosis, she underwent surgery, chemotherapy, and radiation therapy and was followed to be in remission at the last follow-up. The patient, a 73-year-old white woman, was last seen in the neuro-ophthalmology clinic on July 28, 2016. She was complaining of blurred vision in the left eye that had worsened since sustaining a fall on March 1, 2010. She was seen by her neurologist who obtained a brain MRI that showed no focal lesion. In March 2010 showed no evidence of recurrent or metastatic disease. The patient returned to the Methodist Hospital after 10 years of follow-up to specifically report on her progress and survival from small cell carcinoma of the lung.

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Thank you for your time & attention