Approach to Non-Organic Visual Loss

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Functional Visual Loss

Definition:

The symptomatic and measured loss of vision that is unassociated with an identifiable lesion of the visual pathways.

Other Terms: hysteria, hysterical visual loss, malingering, non-physiologic visual loss, psychogenic visual loss, Munchausen syndrome, conversion disorder, non organic visual loss.
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Epidemiology

Somatic manifestations of psychogenic origin are prevalent in all fields of medicine
- 10% of visits to family physicians

Estimated that 0.5-5% of patients presenting to ophthalmologists with visual loss were functional (non-organic)

However, 53% of patients with evidence of functional visual loss had coexistent organic disease
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Ophthalmic Manifestations:

* Persistent visual acuity loss and visual field loss
* Ocular motility abnormalities
* Pupils and accommodation
* Eyelid position and function
* Pain syndromes

Others:

- Transient visual acuity loss
- Visual illusions and hallucinations
- Hypersensitivity or aversion to light
- Geometric patterns, bright colours, moving objects
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Thomson (1985) categorized patients into four groups:

- **Deliberate malingerer**
  - malicious intent
  - deliberately feigns visual loss

- **Worried Imposter**
  - exaggerates visual loss
  - worried of actual disease

- **Impressionable exaggerator**
  - certain something is wrong
  - wants to be sure nothing is missed

- **Suggestible Innocent**
  - convinced of blindness/VF loss
  - complacent of symptoms
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Evaluation

Observation:

- Have a high suspicion!
- How does the patient negotiate the room?
- Appropriately anxious?
- General mannerisms
- How were they with front staff?
- Sunglasses sign
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Evaluation

History:

• Past and present complaints
• General health
• Medications
• Prior surgeries or ophthalmic evaluations
• Patient’s verbal description of symptoms
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Evaluation

Ophthalmologic Examination

Complete ocular examination must rule out organic cause...

- Best corrected visual acuity (retinoscopy if necessary)
- Colour vision testing
- Visual field analysis
- Pupillary size and reactivity determination
- Ocular motility
- Slit lamp biomicroscopy
- Tonometry
- Ophthalmoscopy
- “Special Tests”
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Approach to Patient with Persistent Visual Acuity Loss

Three different forms of visual acuity loss:

1) binocular NLP vision
2) monocular NLP vision
3) binocular reduced vision
4) monocular reduced vision
## Functional Visual Loss

### Approach to Patient with Persistent Visual Acuity Loss

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Monocular Acuity Loss</th>
<th>Mild to Moderate Binocular Acuity Loss</th>
<th>Marked Binocular Acuity Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Getting patient to &quot;see normally&quot; without realizing it</td>
<td>Fogging, Polaroid test, Duochrome test, Pupil-splitting prism test</td>
<td>Snellen Chart manipulation, Optical aids</td>
<td>None</td>
</tr>
<tr>
<td>II Demonstrating Inconsistency</td>
<td>Pupillary reactions, Ophthalmoscopy, Stereopsis, Base-out prism test</td>
<td>Optical aids, Near-Far discrepancies, Potential Acuity tests, Stereopsis</td>
<td>Threat, Mirror Movement, Optokinetic stimulus, Ambulation, Proprioceptively mediated tasks, Innappropriate affect</td>
</tr>
<tr>
<td>III Using Objective Measures</td>
<td>Swinging-light pupil test, Visual evoked potentials, Electroretinography</td>
<td>VEP, ERG</td>
<td>VEP</td>
</tr>
</tbody>
</table>

Functional Visual Loss

Approach to Patient with Monocular Visual Acuity Loss

**Strategy I:** Getting the patient to report normal visual acuity without realizing it

- good strategy for monocular visual acuity loss
- provides direct evidence of feigned visual loss
- patient must be suggestible and led to believe that the acuity in the “good eye” is being tested
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Approach to Patient with Monocular Visual Acuity Loss

**Strategy I:** Getting the patient to report normal visual acuity without realizing it

**FOGGING**

- covertly place before the "normal" eye a high convex or astigmatic lens (which blurs the image for that eye)

- will not work if the patient closes only one eye at a time
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Approach to Patient with Monocular Visual Acuity Loss

**Strategy I**: Getting the patient to report normal visual acuity without realizing it

**POLAROID TEST**

- Use polarized spectacles to view a special (Project-O-Chart) slide
- Some letters invisible to the right eye and others invisible to the left eye
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Approach to Patient with Monocular Visual Acuity Loss

**Strategy I:** Getting the patient to report normal visual acuity without realizing it

**DUOCHROME TEST**

- Red spectacle over one eye, green spectacle over the other
- Some letters invisible to the right eye, others invisible to the left
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Approach to Patient with Monocular Visual Acuity Loss

**Strategy I:** Getting the patient to report normal visual acuity without realizing it

**PUPIL-SPLITTING PRISM TEST**

1) 5-diopter prism base down splitting the pupil of the normal eye (creating monocular diplopia)
2) Cover “bad eye”
3) Begin reading letters at bottom of the chart
4) Simultaneously slide prism down (centered on the pupil) and uncover the “bad eye” (patient should now be viewing chart with “bad eye”)
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Approach to Patient with Monocular Visual Acuity Loss

**Strategy II:** Demonstrating inconsistency between subjective test results

**PUPILLARY REACTIONS**

- **Swinging-light pupil test**
  - normal response may exclude asymmetric optic neuropathy

- **However...**
  - Subtle afferent pupil defects can be overlooked
  - Bilateral optic neuropathy with asymmetric visual acuity
  - Normal pupillary reactions do not exclude foveal causes of visual loss not amblyopia
Functional Visual Loss

Approach to Patient with Monocular Visual Acuity Loss

**Strategy II:** Demonstrating inconsistency between subjective test results

**STEREOPSIS**

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**Table 13-1 Relationship of Visual Acuity to Stereopsis**

<table>
<thead>
<tr>
<th>Visual Acuity in Each Eye</th>
<th>Average Stereopsis (Arc Seconds of Image Disparity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20/20</td>
<td>40</td>
</tr>
<tr>
<td>20/25</td>
<td>43</td>
</tr>
<tr>
<td>20/30</td>
<td>52</td>
</tr>
<tr>
<td>20/40</td>
<td>61</td>
</tr>
<tr>
<td>20/50</td>
<td>89</td>
</tr>
<tr>
<td>20/70</td>
<td>94</td>
</tr>
<tr>
<td>20/100</td>
<td>124</td>
</tr>
<tr>
<td>20/200</td>
<td>160</td>
</tr>
</tbody>
</table>

Strategy II: Demonstrating inconsistency between subjective test results

BASE-OUT PRISM TEST

- Patient fixates the 20/20 line
- Introduce a 5-diopter base-out prism over the “bad eye”
- Observe for inward deviation of that eye (expected if eye is foveating)
- Remove prism and observe refixational movement
- Can rule out a substantial central scotoma in the “bad eye” (visual acuity must be at least 20/50)
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Approach to Patient with Mild to Moderate Binocular Visual Acuity Loss

• Strategy I maneuvers are not useful in patients who have symmetrical visual loss in both eyes

• Strategy II (uncovering inconsistencies) works best uncovering mild to moderate binocular visual loss
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Approach to Patient with Mild to Moderate Binocular Visual Acuity Loss

SNELLEN CHART MANIPULATION

• Display the smallest letters first (20/10 line) and proceed upwards

OPTICAL AIDS

• 0.12 diopter lens, pinhole

NEAR-FAR DISCREPENCIES

• Compare performance distance and near
• Allow person to move closer to chart (note whether improvement is appropriate for shorter testing distance)

POTENTIAL ACUITY TESTS

• Potential acuity meter, pinhole occluder
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Approach to Patient with Severe Binocular Visual Acuity Loss

• Combination of Strategy II (uncovering inconsistencies) and Strategy III (objective measures) work best

THREAT
• Briskly wave your hand toward patients eyes (avoiding air current on the cornea)

MIRROR MOVEMENT
• 6 inches from eyes, rotated side to side
  • Seeing reflection causes irresistible urge to move the eyes

OPTICOKINETIC STIMULUS
• Rotate drum or tape 6 inches from eyes
  • Observe for nystagmus
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Approach to Patient with Severe Binocular Visual Acuity Loss

AMBULATION

- Patients with severe organic visual acuity loss lead with their hands, take short steps, and walk cautiously
- Psychogenic visual acuity loss: go out of their way to collide with obstacles, lurch forward, and avoid serious harm to themselves

PROPRIOCEPTIVELY MEDIATED TASKS

- If proprioception intact, patient should be able to touch outstretched fingers and should be able to sign their name legibly
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Approach to Patient with Severe Binocular Visual Acuity Loss

VISUAL EVOKED POTENTIALS

- Objective testing of visual pathway
- Fakers may defocus or look away from the target enough to degrade the signal
- False positives and negatives present

ELECTRORETINOGRAPHY

- Valuable tool for detecting widespread retinopathies with normal appearing fundi
- Multifocal ERG sensitive to focal disorders
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Approach to Patient with Persistent Visual Field Loss

Patterns of Visual Field Loss:

- Visual Field Constriction
- Monocular Temporal Hemianopia
- Bitemporal Hemianopia
- Binasal Hemianopia
- Homonymous Hemianopia
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Approach to Patient with Persistent Visual Field Loss

Visual Field Constriction:

• most common pattern of psychogenic visual field loss

• organic causes to rule out:
  - diffuse outer retinal disorders
  - optic neuropathies
  - bilateral visual cortex disorders with macular sparing
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Approach to Patient with Persistent Visual Field Loss

Visual Field Constriction:

TESTING AT TWO DISTANCES

• Test visual field at 1m then 2m
• Organic: borders of field will expand (funnel vision)
• Psychogenic: borders will not expand (tunnel vision)
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Approach to Patient with Persistent Visual Field Loss

Visual Field Constriction:

FIGURE 11-5. Testing for tubular visual fields with the tangent screen. A. The field is tested at one meter with a 9-mm white object and the results marked on the screen with chalk. B. When the patient with organic visual field loss is moved to 2 meters from the screen and the stimulus sized doubled (18-mm white) the field expands to twice the size. C. The patient with functional visual loss demonstrates tubular fields as the field does not expand as the testing distance is increased from 1 to 2 meters and the target size is doubled.
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Approach to Patient with Persistent Visual Field Loss

Monocular Temporal Hemianopia:
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Bitemporal Hemianopia:

POSTFIXATIONAL BLINDNESS

- patient fixates on small target (1/3m)
- display finger *beyond* target
- organic: finger invisible within the absent temporal fields
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Approach to Patient with Persistent Visual Field Loss

Binasal Hemianopia:

PREFIXATIONAL BLINDNESS

- patient fixates on small target (1 m)
- display 2nd target *in front of* 1st target
- organic: finger invisible within the absent nasal fields
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Approach to Patient with Persistent Visual Field Loss

Homonymous Hemianopia:

- psychogenic homonymous hemianopia is difficult to expose
- fortunately, a rare manifestation of non-organic visual field loss
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Summary of Techniques to Identify Psychogenic Visual Field Loss

Visual Field Constriction
  *Test at two distances*

Monocular Temporal Hemianopia
  *Compare monocular and binocular fields*

Bitemporal Hemianopia
  *Postfixational Blindness*

Binasal Hemianopia
  *Prefixational Blindness*
Functional Visual Loss

Management of Patients Diagnosed With Functional Visual Loss

• rule out organic disease and repeat examination if necessary

• differential diagnosis to consider:
  amblyopia
  optic neuropathies
  retinal degenerations
  cortical visual loss
  keratoconus
  paraneoplastic syndromes
  AZOOR

• avoid ordering expensive, misleading, or low-yield tests
Management of Patients Diagnosed With Functional Visual Loss

- Management will depend on the underlying psychiatric and behavioral disturbance (N.B. Not all patients are malingering)

- Simple reassurance is effective. Stress a good prognosis. “Most people with this kind of trouble find that their vision gradually gets better, and I expect the same for you”
- Give the patient “a way out”
- Follow up appointments are important
Prevalence of Organic Neuro-ophthalmologic Disease in Patients With Functional Visual Loss

JENNIFER A. SCOTT, MD, AND ROBERT A. EGAN, MD

Am J Ophthalmol 2003

<table>
<thead>
<tr>
<th>Patterns of FVL</th>
<th>Patients (%)</th>
<th>COD (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NL VF/poor acuity</td>
<td>71/133 (54)</td>
<td>52/71 (73)</td>
</tr>
<tr>
<td>Constriction</td>
<td>52/133 (39)</td>
<td>32/52 (62)</td>
</tr>
<tr>
<td>Crossed</td>
<td>39/133 (29)</td>
<td>24/39 (62)</td>
</tr>
<tr>
<td>Spiral</td>
<td>30/133 (23)</td>
<td>19/30 (63)</td>
</tr>
<tr>
<td>Central scotoma</td>
<td>13/133 (10)</td>
<td>13/13 (100)</td>
</tr>
<tr>
<td>Convergence spasm</td>
<td>29/133 (22)</td>
<td>12/29 (41)</td>
</tr>
<tr>
<td>Ptosis</td>
<td>4/133 (3)</td>
<td>3/4 (75)</td>
</tr>
<tr>
<td>Blepharospasm</td>
<td>2/133 (2)</td>
<td>0/2 (0)</td>
</tr>
</tbody>
</table>

COD = concurrent organic disease; FVL = functional visual loss; NL VF = normal visual field.