Be Sure Not To Miss These Diagnoses

March 1, 2020 online section of 10 hour course

Elliott Myrowitz, O.D., MPH
A WIT-D approach to avoiding mistakes

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Financial Disclosure

- I have no financial disclosures
A Witty (WIT-D) Approach to Avoiding Mistakes

- W = what is worst thing (identify it, rule out)
- I = Information (test as you can for worst thing, in or out)
- T = tell someone (tell patient and others)
- D = document (if not in chart = did not do it?)

Reference: Carolyn Buppert  OMIC, gold sheet 4(6) 2002
61 y/o M, moderate cataracts

- Visually significant with reduced ADL
- Diagnosed with DM II, 1 year ago
- Few scattered dot hemorrhage
- Macula appears normal
What does this image depict?
Actual online quiz
What does this image depict?

Ammonia burn - 7% (1030 votes)

Arcus senilis - 48% (6697 votes)

Diabetic cataract - 14% (1985 votes)

Rubeosis iridis - 31% (4348 votes)

Answer: Rubeosis iridis. Total votes: 14,060
A more prominent example of a serous finding not to be missed
Four Neuro-ophthalmic Emergencies You’d Prefer Not To Miss

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Vice Chair for Clinical Strategic Planning
Director of Oculoplastic Surgery and Neuro-ophthalmology
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Overview

1. Cranial Nerve Palsy
2. Myasthenia Gravis
3. Papilledema
4. Giant Cell Arteritis
Cranial Nerve Palsy
CN VI

Esotropia which worsens when looking in the direction of the involved eye
CN IV
CN III
Bonus Points
3rd Nerve Palsy

- **Etiology**
  - Aneurysm
  - Trauma
  - Ischemic
    - Diabetes and hypertension
  - Decreased levator function
- **Associated findings**
  - Ocular motility abnormality
  - Dilated pupil
How concerned should you be?

Complete, pupil not involved, and vasculopath

Observation?

Partial, pupil involved, and non-vasculopath

MRi with MRA or CTA

Consider Conventional angiogram if above normal
Abnormal Extraocular Motility
Fatigue

Time: 0

Time: 30 seconds

Time: 1 minute
Ice test

BEFORE

AFTER
Myasthenia Gravis

- Autoimmune disease
  - Antibodies block neuromuscular junction
- History
  - Variability: daily and diurnal
  - Usually bilateral
  - Diplopia
  - Weakness
    - *Breathing*
    - *Swallowing*
    - Upper extremity: drying hair, reaching top shelf
    - Lower extremity: stairs
- Examination
  - Levator function decreased
  - Fatigue
  - Ice test
  - Antibodies
  - Tensilon test: inhibits acetylcholine esterase
Papilledema

1. Aqueductal Stenosis
2. Tumor
3. Blood, Protein, Venous Obstruction
Papilledema

?definition?
### Edematous Nerve

<table>
<thead>
<tr>
<th>Papilledema</th>
<th>Inflammation/Infarct</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Visual Acuity</strong></td>
<td><strong>Visual Acuity</strong></td>
</tr>
<tr>
<td>✗ Normal</td>
<td>✗ Decreased</td>
</tr>
<tr>
<td>✗ Decreased</td>
<td>✗ Highly Variable</td>
</tr>
<tr>
<td>✗ Chronic</td>
<td>✗</td>
</tr>
<tr>
<td>✗ Macular heme/exudate</td>
<td>✗</td>
</tr>
<tr>
<td><strong>Field</strong></td>
<td><strong>Field</strong></td>
</tr>
<tr>
<td>✗ Enlarged blindspot</td>
<td>✗ Abnormal (any pattern)</td>
</tr>
<tr>
<td><strong>SVP</strong></td>
<td><strong>SVP</strong></td>
</tr>
<tr>
<td>✗ Absent</td>
<td>✗ May be present</td>
</tr>
<tr>
<td><strong>Bilateral (usually)</strong></td>
<td><strong>Unilateral or Bilateral</strong></td>
</tr>
</tbody>
</table>
Why Is It An Emergency?

- Intracranial Mass
- Impending Visual Loss
Unknown: 47 yo with headache
24 hours later
Idiopathic Intracranial Hypertension (IIH)

- Diagnostic Criteria
  - Increased ICP
  - Normal neuroimaging (small ventricles)
  - Normal CSF composition

- Symptoms
  - Headache, nausea/vomiting
  - Transient visual obscurations (TVO)
  - Diplopia (due to 6th nerve palsy)
  - Pulsatile tinnitus
IIH: Visual Loss

- Peripheral field
  - Progressive constriction
- Enlarged blind spot
  - Distortion of adjacent retina
- Central visual loss
  - Advanced constriction
  - Edema/hemorrhage/exudate
25% will have visual loss >20/200
IIH: Management

- Observation
  - Visual field
  - Color vision
  - Disk photo comparison
- Weight loss
  - Minimal (6%) may help
- Medication
  - Acetazolamide
  - Furosemide
- Surgery
  - Nerve sheath decompression
  - Shunting
  - Gastric bypass surgery
  - Temporary management
    - Repeated LP
    - Corticosteroids
Case

- An 82 year old female
- Vision loss in the right eye two weeks ago and one day ago noticed decreasing vision in the left eye as well.
- She complains of temporal headache, scalp tenderness, and jaw pain after chewing.
- Normal CBC, an ESR of 99 mm/hr, and a CRP of 2.7 mg/dl (normal <0.5).
- Her visual acuity is 20/200 in the right eye and CF in the left.
- No relative afferent pupillary defect.
- Slit lamp exam is unremarkable.
Non-arteritic Vs. Arteritic

- Segmental
- More hemorrhages
- Usually crowded

- Diffuse
- More pallor
- Not-necessarily crowded
Giant Cell Arteritis (GCA)

- 5 to 10% of AION cases
- Mean age: 70
- Gender M:F = 1:2

- Systemic symptoms
  - Scalp tenderness/headache
  - Jaw/tongue claudication
  - Malaise/fatigue
  - Joint/muscle pain
  - Weight loss
  - “Occult temporal arteritis”
    - without systemic symptoms
    - 20%
  - TVO may precede event
Unknown
Laboratory

- **ESR**
  - Mean 70 mm/hr
  - Normal in 15%
  - Rises with anemia (Hct/nl x ESR)
  - Rises with age
    - Women: (age+10)/2 and Men: age/2

- **CRP** (elevated ESR and CRP 97% specific)
Biopsy

- Within one week of starting steroids
- 3 to 9% false negative
- Unilateral vs. bilateral: controversial
Facial Nerve Injury: A Complication of Superficial Temporal Artery Biopsy

MICHAEL K. YOON, JONATHAN C. HORTON, AND TIMOTHY J. MCCULLEY
Disc edema with visual loss.

- **When to be concerned**
  - Age >65
  - Any age with characteristic symptoms/findings

- **What to do**
  - Immediate referral to neuro-ophthalmologist
  - Send to emergency room
  - Document
Closing

1. Cranial Nerve Palsy
   - Could be an aneurysm

2. Myasthenia Gravis
   - Systemic involvement can be fatal

3. Papilledema
   - Could be a tumor, can be blinding

4. Giant Cell Arteritis
   - Blindness is imminent
Divisions of Neuro-ophthalmology and Oculoplastic Surgery