Five diagnoses you cannot afford to miss

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I have no financial interest in the contents of this talk

I will not be discussing any off label uses of drugs

On July 20, 1969, I was 5 years old, the moon landing was on tv....
Overview: Lee’s “A”s: The five chances to save the life of your next neuro-ophthalmology patient

1. Arteritis (Giant cell)
2. Apoplexy (Pituitary)
3. Abscess (Mucor)
4. Aneurysm (pupil involved third nerve palsy)
5. Arterial (carotid or vertebral) dissection

Temporal arteritis does NOT have to involve the temple

The artery on the side of my head hurts

I have GCA

Beware any head pain in elderly

- Face pain
- Neck pain
- Eye pain
- Ear pain
- Tongue pain
- Jaw pain
- Headache
### Initial symptoms in GCA (n = 100)

<table>
<thead>
<tr>
<th>Symptom or Complaint</th>
<th>Presenting Symptoms</th>
<th>Finding at Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>32</td>
<td>68</td>
</tr>
<tr>
<td>Polyarthritis</td>
<td>29</td>
<td>39</td>
</tr>
<tr>
<td>Fever</td>
<td>26</td>
<td>42</td>
</tr>
<tr>
<td>Visual symptoms without loss of vision</td>
<td>7</td>
<td>30</td>
</tr>
<tr>
<td>Headache, malaise, fatigue</td>
<td>6</td>
<td>60</td>
</tr>
<tr>
<td>Tenderness of earaches</td>
<td>6</td>
<td>27</td>
</tr>
<tr>
<td>Myalgia</td>
<td>4</td>
<td>70</td>
</tr>
<tr>
<td>Weight loss, anorexia</td>
<td>2</td>
<td>60</td>
</tr>
<tr>
<td>Jaw clausication</td>
<td>2</td>
<td>46</td>
</tr>
<tr>
<td>Permanent loss of vision</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Tongue clausication</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Neck pain</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Vascularity on angiogram</td>
<td>1</td>
<td>NA</td>
</tr>
<tr>
<td>Stiffness of hands and wrists</td>
<td>1</td>
<td>NA</td>
</tr>
<tr>
<td>Decreased temporal artery pulse</td>
<td>NA</td>
<td>46</td>
</tr>
<tr>
<td>Erythronous, nodules, swollen arteries</td>
<td>NA</td>
<td>23</td>
</tr>
<tr>
<td>Central nervous system abnormalities</td>
<td>NA</td>
<td>15</td>
</tr>
<tr>
<td>Synoptis</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Dysphagia</td>
<td>NA</td>
<td>15</td>
</tr>
<tr>
<td>Limb clausication</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

And the MRI of head was normal.....

**WHY?**

There are five things to remember about acute visual loss in the elderly

- One is GIANT CELL ARTERITIS....
- And the **other four** are Giant Cell Arteritis
Holiday Headache

- 22 y/o woman
- Severe headache
- 20/50? Effort (blurred vision)
- Fundus normal OU
- HVF: “unreliable”
- Friday 4:45 PM

Perform a confrontation field

- Beware acute bitemporal field loss
- “Unreliable HVF” = “I have no visual field on this patient!”

Life threatening diagnosis?

9-1-1
EMERGENCY ONLY
URGENCES SÉRIEUSES
Pituitary apoplexy

- Acute onset
- Usually severe headache
- Bitemporal hemianopsia
- Apoplexy can kill (8%)
- Hypopituitarism (cortisol)
- Emergent scan

Acute ophthalmoplegia in a diabetic

- 35 y/o WM with diabetes
- History of diabetic ketoacidosis
- Complete left ptosis
- Acute onset almost complete left sided ophthalmoplegia
- What should be the evaluation?

Life threatening diagnosis?

- 9-11
Case from Iowa

- 76-year-old woman with acute myelogenous leukemia (AML)
- Induction chemotherapy (day 13)
- Two day history of worsening right-sided periorbital swelling & erythema

http://webeye.ophth.uiowa.edu/eyeforum/cases/108-Orbitorhinocerebral-Mucormycosis.htm

Is this orbital inflammatory pseudotumor? Tolosa Hunt?

- Wicked good pearl: Don’t give patients who are immunosuppressed the diagnosis of autoimmune disease!

Intraoperative endoscopic photos showing pale, necrotic tissue

http://webeye.ophth.uiowa.edu/eyeforum/cases/108-Orbitorhinocerebral-Mucormycosis.htm
And the MRI of head was normal.....

**WHY?**

You need contrast. Distinctive sign = sinus enhancement!

Aspergillosis of orbital apex

http://webeye.ophth.uiowa.edu/eyeforum/cases/108-Orbitorhinocerebral-Mucormycosis.htm

What happens if you don’t give contrast?....

My house at NIGHT!!!

What is Fat suppression ("fat-sat")? technique

- T1 weighted signal
- Increase contrast (light and dark) between structures
- Fat is “too bright” on T1

No fat suppression

Can you tell if this nerve is enhancing?
And the MRI of head was normal.....

**WHY?**

What’s wrong with this picture?
- 60 y/o diabetic man
- New onset ptosis right
- Right adduction, elevation, & depression deficit
- 45 exotropia (XT)
- Diagnosis: “Ischemic third nerve palsy”
- Plan: “Return 6 weeks”

Tell your technicians....
- If the patient’s complaint is diplopia or ptosis or....
- If you have to lift a ptotic lid to put in the dilating drops then....
- STOP, come get the doctor before dilating
Acute pupil involved third n. palsy
Life threatening diagnosis?

Rule of the pupil
- A pupil involved third nerve palsy
- Aneurysm of posterior communicating artery until proven otherwise

And the MRI of head was normal.....

WHY?

You need an “A” (angiogram) to find an “A” (aneurysm)
- CTA (computed tomographic angiogram)
- MRA (magnetic resonance angiogram)
- DSA (digital subtraction catheter angiogram)

There is no “A” in “MRI”
CTA: R posterior communicating a. aneurysm

Acute painful anisocoria after car accident

Life threatening diagnosis?
As if death weren’t enough….

And the MRI of head was normal.....

WHY?

Summary

- List five potentially life threatening diagnosis in neuro-op
- Define “rule of the pupil”
- Define best imaging study for the 5 dx
- Show key clinical or radiographic features for the above 5 dx
What does your “list” look like?

1. Acute HA in elderly with visual loss: Arteritis
2. Acute orbital apex syndrome in DM: Abscess
3. Acute painful anisocoria (big pupil): Aneurysm or (small pupil: Horner syndrome) Arterial dissection
4. Acute painful bitemporal Apoplexy
5. Acute painful homonymous: Arterial dissection

Bottom line: It's your job

End with a philosophical question & two really quick cases
Why are you here... because you believe as we all do that you can....?

On July 20, 1969, I was 5 years old, the moon landing was on tv....
“Houston” was the first word spoken from the moon

April 1970: “Houston, we’ve had a problem”—Jim Lovell

Houston is home to JSC NASA

Jim Lovell
Half the spacecraft panel lost

Most of the computing power was human brains at NASA

Apollo fuel cell

It was human brain power that brought Apollo 13 home....
Thanks for your time & attention

- Andrew G. Lee, MD
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