

When A Headache Is A Real Headache!



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Disclosures...no financial...

But I do like Clinical Forensic Medicine and I will one day work for the Federal Bureau of Investigation

Santucci Files



Objectives

- To review, in a case based fashion, the presentations of school children with acute headaches of potentially life threatening etiologies.
- To refresh our memories on some clues to the diagnoses based on the presentation: onset, duration, frequency, and associated signs and symptoms of the headache.
- To derive at least one take home message from each case presented.
- To keep you awake and intrigued throughout!

Sometimes the Etiology is Clear!



Sometimes the Etiology is Less Clear



Archived Cases

- 15 year old boy with a closed head injury
- 11 year old boy with a headache and behavioral change
- 10 year old girl with a headache and a V-P shunt
- 3 year old girl with a headache and vomiting
- 17 year old girl falls in the snow
- 4 year old girl with headache, vomiting and cranial nerve findings
- 8 year old boy with early morning headaches
- 19 year old boy s/p kidney transplant with headache and fever
- 16 year old girl with altered mental status and headache

15 Year Old Boy with a Closed Head Injury

- Previously well African-American male
- Pick-up game of basketball in the school gym
- While running full speed, hits the side of his head on a wall



Continuation

- No LOC, no vomiting, brought to the ED and seems sluggish with dilated pupils
- Grandpa called
- Brings him to the Pediatric ED
- Seems depressed
- Social Work Consult
- Denies bullying...has a headache...discharged home



And then....

- Headache worsens
- Vomits several times
- Becomes less responsive
- Anisocoria
- Intubated



Stabilized and goes to CT



Progression

- Neurosurgery
- Evacuation
- Stabilization
- Full Recovery
- But Whew!
- Teaching Points: CHI, Location on Head, Lucid Period, Depressed Affect, Worsening Headache, Vomiting.....



11 Year Old Boy with Headache and Behavioral Change



- Family reports he was FINE!
- Sudden onset of psychotic symptoms at school
- Speaking nonsensical
- Acting strangely
- Acting out
- Not himself at all..911 called and transported to Yale
- Social Work consulted
- Child Psychiatry consulted
- Wait a minute! Medical causes of acute psychosis.



Acute Psychosis

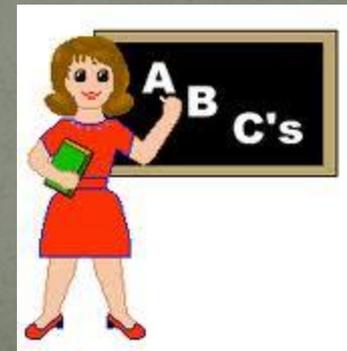
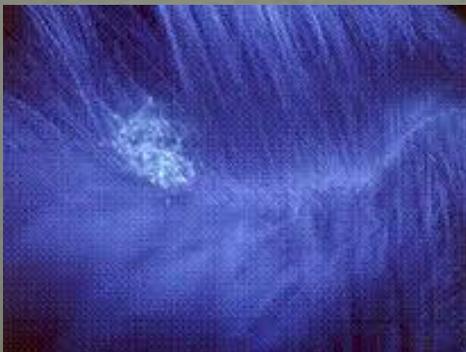
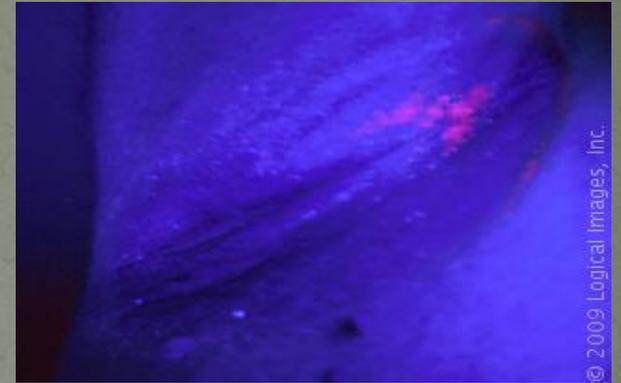
- Hypoglycemia
- Cerebral Hypoxia
- Drug Toxicity
- Drug-Related Syndromes
- Drug-Induced Psychosis
- CNS Abnormality
- SLE (Systemic Lupus Erythematosus)
- Electrolyte Disturbance
- Any clues on the physical exam?



Physical Exam/Wood's Lamp



More? (remind me to tell you about a Wood's Lamp Story)



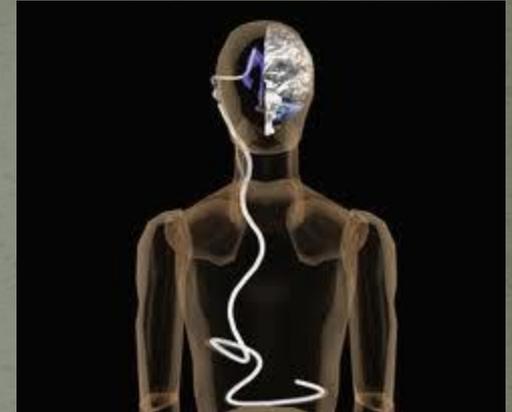
Neurofibromatosis



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10 Year Old Girl with Headache and V-P Shunt

- An African American female was transported from her parochial school to our ED because of headache and vomiting for two days
- No fever, no history of trauma, no sick contacts
- Past Medical History: VP shunt placed after birth, 2° hydrocephalus, developmental delay (in 1st grade)
- Coloring happily in exam room
- Differential Diagnosis?



Differential Diagnosis

- Shunt malfunction
 - Shunt failure
 - Shunt occlusion
 - Shunt infection
 - Shunt something
 - Early gastroenteritis
-
- Consult neurosurgery...plan on a Shunt Series and CT of her brain

Radiology calls and asks for you!



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Sexually Assaulted!

- She had no idea
- Developmental level of a 6 year old
- Now 19 weeks gestation
- Social Work
- Police
- Obstetrics/Gynecology
- Child Psychiatry
- Her Pediatrician
- The Aunt

3 Year Old Girl with Headache and Vomiting at Daycare

- January, dad brings her in to the ED with a low grade temp, N/V, no diarrhea “yet”, mildly dehydrated. Ø PMHx, IUTD, Ø Allergies
- Mother home with headache, nausea, vomiting
- PE: T 38.0, HR 150, RR 24
- Pale, tired appearing, dry lips, clear lungs, soft abdomen, no rash.
- Much better after a few hours and hydration
- Animated, eating a popsicle...
- But then!



You ask just a few more questions



Carbon Monoxide Poisoning

Clues:

Winter month

“Sick” contacts

Smaller organisms with faster metabolic rate=more symptomatic

Symptoms improve when taken out of the environment

17 Year Old Girl/Super Storm Sandy

- 'Hit her head while sledding'
- Tripped over a tree root **9 days** earlier, fell into snow
- No loss of consciousness
- No vomiting
- Worsening headache
- Could not go to school
- PMD referred her to the PED for evaluation
- 118 kg, miserable, preferred the dark, looking concussed, vomits once in ED (ondansetron, decide to scan)

Progression

- CT scan: no ICH
- Decide to admit and observe
- House is full, delay, feels better, wants to leave
- Okay.....
- Three days later she returns with worsening headache, vomiting, difficulty walking and diplopia
- Meet her at triage, has hand over one eye, and is miserable.....



IIH: Idiopathic Intracranial Hypertension

- Pseudotumor Cerebri
- Headache papilledema and vision loss
- No longer considered 'benign'
- 1-2/100,000
- Higher incidence in obese females
- LP: Opening Pressure?
- Pathogenesis unknown
- Treatment: carbonic anhydrase inhibitors, weight loss



4 Year Old Girl with Headache Vomiting and Cranial Nerve Findings

Previously well little girl

- Five day history of vomiting, headache and weight loss
- She complains that she sees two of everything
- Afebrile, mildly tachycardic, normotensive
- Lives in Rhode Island
- No recent travel
- August
- No sick contacts
- No pets
- Lives in Connecticut!





Lyme Disease and Cranial Nerve Palsy



8 Year Old Boy with Early Morning Headache and Seasonal Allergies

- Sent in by School Nurse
- Wakes up in the middle of the night with headache
- No history of trauma
- No fever
- No neurologic deficits
- 3 year old has better balance and heel to toe
- Speak to the resident: CT
- Mock you!

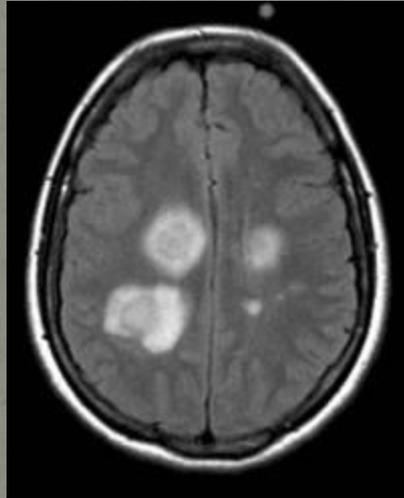
Intracranial Mass



19 Year Old Boy with Kidney Transplant, Fever and Headache

- High School student
- Young man with autologous kidney transplant being transferred from an OSH with a fever, T_{max} 103° F
- Had Hydromorphone PTA, sleepy, VSS: HR 90, RR 18, BP 118/70
- ED is busy
- Awakens with a right facial droop, dysarthric
- Activate Pediatric Stroke Alert
- CT...
- MRI....
- Holy Cow!

Intracerebral Abscesses



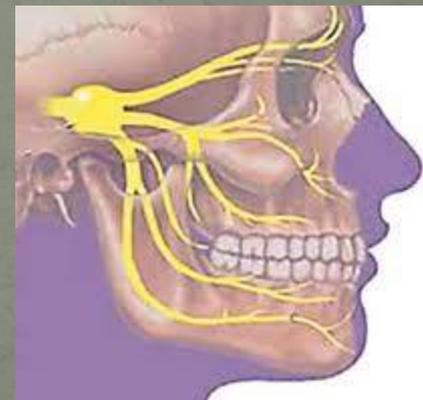
Just for Fun

- Why do you get “brain freeze”?



Sphenopalatine Ganglioneuralgia

- “cold stimulus headache”
- Something cold touches the roof of your mouth
- Nerve response
- Rapid constriction and swelling of blood vessels
- Referred pain to the head
- Conducted via the **Trigeminal Nerve**
- Pain lasts 10-20 seconds



16 Year Old Girl with Altered Mental Status and Headache

- Spent the day at her boyfriend's
- Transported by EMS at 3 am
- “Malingering” “probably on something”
- Smokes
- Occasional alcohol
- Yes sexually active
- But don't worry! On OCPs!
- **Bias.....**
- Differential?



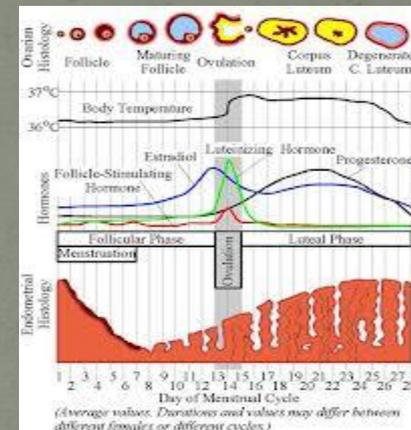
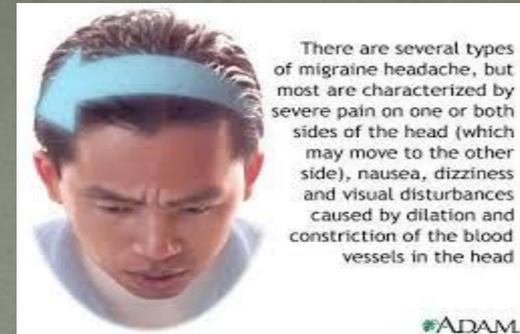
Differential

- Migraine
- Substance Abuse
- ETOH
- Infection
- CHI
- Stroke
- Malingering
- Depression



Migraine

- Abdominal pain, nausea, or vomiting with headache
- Hemicrania
- Throbbing, pulsating pain
- Complete relief after brief rest
- An aura (visual, sensory or motor)
- History: in one or more family members



Migraine Management

- Education
 - Abortive: Triptans
 - NSAIDs and Acetaminophen
 - Sumatriptan plus Naproxen
 - Antiemetics
-
- Prophylactic: Cyproheptadine, Beta Blockers, Valproate, Topiramate



Stroke.....

CLUES

- Altered mental status
- Dysarthria
- Weakness (focal neurologic findings)
- Risk factors: smoking, oral contraceptives, family history
- If CT scan without contrast unremarkable don't stop there!
- MRI/MRI
- Consult Neurology, safety precautions



Take Home Messages



- CHI...worsening headache..Epidural
- Neurocutaneous findings, don't forget a thorough physical exam
- VP shunt, pregnancy test if post-menarchy
- Winter, vomiting, headache, others also "sick", think CO
- Connecticut, Rhode Island, CN palsy...Lyme
- Headache and obesity think IIH

Take Home Messages



- Headache **wakes** you from sleep! Worry!
- **Immunocompromised** host, headache, fever...infection
- Brain freeze...trigeminal nerve
- **Migraines**
- Children can also have **strokes** (risk factors)

Thank You!

