When A Headache Is A Real Headache!

Critical Issues in School Health

March 29, 2012
Karen Santucci, M.D.
Associate Professor of Pediatrics
Section Chief
Pediatric Emergency Medicine
Yale Children's Hospital

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

Disclosures...no financial...

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
- 3 year old girl with headache, vomiting and cranial nerve findings
- 8 year old boy with a headache and seasonal allergies
- 10 year old boy s/p kidney transplant with headache and fever
- 3 year old boy who hit his head on his toy chest
- 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 your office 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
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?

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

Neurofibromatosis

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
Sexually Assaulted!
( another story too )
• 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

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!
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!
19 Year Old Boy with Kidney Transplant, Fever and Headache

- H.S. Student from Trumbull
- Young man with autologous kidney transplant being transferred from Saint V’s with a fever, Tmax 103° F
- Had dilaudid 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

3 Year Old Boy Who Hit His Head on a Toy Chest

- Previously well
- Hit his temple at 1600
- No LOC
- No STS
- Eats dinner 1800
- Throws twice up in bathtub 1900
- Again in Norwalk Hospital's ED waiting room 2000
- Seems tired
- CT scan

Epidural Hematoma
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!
- Differential?

Stroke......

- 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

1. CHI...worsening headache
2. Neurocutaneous findings, don't forget a thorough physical exam
3. VP shunt, pregnancy test if post-menarchal
4. Winter, vomiting, headache, others also "sick", think CO
5. Connecticut, Rhode Island, CN palsy...Lyme
6. Headache wakes you from sleep! Worry!
7. Immunocompromised host, headache, fever...infection
8. Brain freeze...trigeminal nerve
9. Delayed onset of vomiting, headache after CHI...epidural
10. Children can also have strokes (risk factors)