Clinical Pathological Case
ACOEP 2012

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Emergency Medicine Resident
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History

  - Onset: 2 weeks ago
  - Location: Frontal
  - Character: Sharp & Throbbing
  - Radiation: None
  - Severity: Moderate
  - Timing: Intermittent

Associated Symptoms: Diplopia and Photophobia
History

- Headache resolves with Advil

- 30 pound weight gain over the past year

- UTD with immunizations
History

- Past Medical Hx: Denies
- Family Hx: Denies
- Surgical Hx: Denies
- Social Hx: Denies ETOH or Drug Abuse, Lives with parents
- Medications: Denies
- Allergies: NKDA
Review of Systems

- Denies fever, chills, cough, nausea, vomiting, chest pain, shortness of breath, myalgias or neck stiffness.
- Denies previous history of headaches.
- Denies recent travel.
- Complains of frontal headache, diplopia and photophobia.
Physical Exam

- **VITALS**: T: 98.2 F BP: 128/72 P: 72 RR: 18 Oxygen Saturation: 97% on RA

- **GENERAL APPEARANCE**: Well-developed, well nourished, alert, cooperative, no acute distress, generally well appearing.

- **HEENT**: mild right-sided esotropia, conjunctiva clear, no nystagmus. No papilledema. TMs clear, mucous membranes good color.

- **NECK**: - JVD, no neck tenderness.

- **LUNGS**: Clear to auscultation bilaterally, no wheezes, rales or rhonchi.
Physical Exam

- **HEART**: Regular rate and rhythm, no murmurs, galls or rubs.

- **ABDOMEN**: soft, non-tender, non-distended, bowel sounds x 4, no rebound, no guarding.

- **EXTREMITIES**: no clubbing, cyanosis or edema. 2+ radial pulses bilaterally.

- **SKIN**: no rashes noted.

- **NEURO**: right-sided abducens nerve palsy, muscle strength 5/5 in bilateral UE and LE. Sensation intact in bilateral UE and LE. Finger to nose normal, normal gait, cerebellar function intact.
Labs

- CBC with Differential
  - WBC: 7.3
  - RBC: 5.10
  - H&H: 12.3/37.3
  - MCV: 73.2 MCH: 24.0
  - RDW: 15.4

- Platelet Count: 240
- Lymph: 29.9 %
- Mononuclear: 5.2 %
- Neutrophil: 63.1 %
- Basophil: 0.5 %
- Eosinophil: 4.6 %
Labs

• **BMP**
  - Na: 138
  - K: 3.4
  - Cl: 104
  - CO2: 28
  - Glucose: 100
  - BUN: 5
  - Cr: 0.68
  - Ca: 9.5

• **Coags**
  - PT: 12.4
  - INR: 1.1
  - PTT: 33

Beta HCG: Negative
CT Brain
Transfer

- Patient was transferred to a pediatric emergency department for further diagnostic workup.
What Is Your Diagnosis???
Introducing

Faculty Discussant:

Dr. Joseph Dougherty, D.O.

Ohio Valley Health System
Clinical Pathological Case Diagnosis
ACOEP 2012

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CT Brain

- No acute intracranial abnormality.

- No intracranial hemorrhage or mass effect.
MRI Brain

- The ventricular system is normal in size, shape and configuration.
- There are no intracranial mass lesions, and there is no mass effect or midline shift.
- No abnormal fluid collections.
Intracranial MRV

- The major intracranial venous structures demonstrate normal flow-related enhancement.

- There is no MRV evidence for deep venous sinus thrombosis.
Lumbar Puncture

- Elevated Opening Pressure of 35 cm H2O.
- Normal CSF.
15 year old African Female

- **CC:** Frontal headache, 2 weeks.
- **Sx:** Diplopia & Photophobia.
- **PE:** Right-sided Esotropia
- **LP:** Elevated opening pressure
- **Brain Imaging:** Negative
- **Dispo:** Admitted to pediatric facility with...
Diagnosis

Idiopathic Intracranial Hypertension (IIH)

- Increased intracranial pressure
- Normal CSF
- Absence of tumor
- Not a benign disorder
Epidemiology

- Annual incidence is 1-2 per 100,000 population.

- Higher incidence in obese women between 15 and 44 years.

- Males and children whom are not overweight affected too.
Associated Conditions

- Systemic Diseases
- Hereditary Conditions
- Vitamin Deficiencies
- Medications
Pathogenesis

- Exact Pathogenesis unknown

Theories:

- Abnormalities of cerebral venous outflow tract
- Increased CSF outflow resistance
- Increased abdominal and intracranial venous pressure
- Sodium and water retention
- Abnormal Vitamin A metabolism
Signs & Symptoms

- Headache
- Transient Visual Obscurations
- Pulsatile Tinnitus
- Photopsia
- Retrobulbar pain
- Diplopia
- Sustained Visual Loss
- Neck Stiffness
Signs & Symptoms

- Headache is the most common presenting symptom.
- Nausea and vomiting.
- Exacerbated by changes in posture, sneezing or coughing.
- Improves with rest or NSAIDs.
Exam

- Papilledema
- Visual Field Loss
- Abducens Nerve Palsy
- Cranial Nerve Deficits
Differential Diagnosis

- Mass-Tumor, Abscess
- Hydrocephalus
- Cerebral venous thrombosis
- Choroid plexus papilloma
Diagnosis

Modified Dandy Criteria:

- Increased ICP: headache, transient visual loss, tinnitus, and papilledema.
- No other neurologic abnormalities or impaired level of consciousness.
- Neuroimaging study that shows no etiology for intracranial hypertension.
- No other cause of intracranial hypertension.
- Elevated intracranial pressure with normal CSF.
Neuroimaging

- MRI is the test of choice.

- If MRI contraindicated, CT Brain.
Lumbar Puncture

- If neuroimaging negative, perform LP.

- During LP, measure opening pressure and evaluate CSF cell count, glucose and protein.

- Upper limit of normal opening pressure in adults is 20 cm H₂O. Pressures can be as high as 28 cm H₂O if patient is curled up in lateral decubitus position.

- In young children, upper limit of opening pressure is 25 cm H₂O.
Prognosis

- Can last months to years.

- Slow, gradual onset.

- With treatment, gradual improvement and stabilization.

- Permanent vision loss, major morbidity.

- Fulminant IIH, experience visual loss within a few weeks of symptom onset.
Treatment

- 2 main goals: improve symptoms and preserve vision.

- Weight Loss

- Medications

- Other Treatments
Surgical Treatment

Indications:

- Failed medical treatments
- Visual field defects
- Visual Acuity loss
- Intractable headaches
- Noncompliance

Surgical Procedures: Optic nerve sheath fenestration and CSF shunting.
Back to Our Patient

- Hospital Course: Diagnosed with IIH
- Encouraged to lose weight
- Discharged on Diamox 250mg BID x 1 week then 500mg BID (total of 274 days)
- Follow up with Neurology and Ophthalmology
Thank You!
References


References


