

Location: Emergency room

Vital signs: B.P: 140/80 mm Hg; P.R: 70/min; R.R: 18/min; Temp: 36.0C.

C.C: Headache

HPI:

A 50 yr old white female presents to E.R for sudden onset of severe headache developed over the past two hours. She took ibuprofen without any relief. She describes the pain all over her head, but more on the left temporal region. Pain is 10/10 in severity, constant, non-radiating, associated with nausea, but no vomiting. She also noticed some visual changes and photophobia. She denies any fever, chills, and weakness or numbness of face or extremities. There is no loss of consciousness. She says that she's been having tension headaches for the past few years but describes this as "completely different and the worst headache in my life". PMH: depression, chronic tension headaches. Allergies: None. SH: Quit smoking, alcohol, and excessive caffeine intake. Lives with husband. FH: No FH of aneurysms or stroke. Medications: Fluoxetine 20 mg Po QD and Ibuprofen 400 mg TID PRN.

How do you approach this patient?

This is a 50 yr old WF who has a H/O depression and chronic tension headaches presented with completely different, sudden onset severe headache associated with nausea and visual changes.

D.D:

Migraine headaches
Subarachnoid hemorrhage/Stroke
Temporal arteritis
Acute congestive glaucoma
Tensions headache (less likely)
Sinusitis (less likely)

Order physical exam:

General
HEENT/Neck
Lungs
Heart
Abdomen
CNS
Extremities

Results:

Patient is in severe pain. HEENT: PERRLA, EOMI (extra ocular muscles intact). Neck stiffness is present. Mild tenderness over the left temporal area is present. No sinus tenderness. No papilledema. No visual field defects noted. CNS: Completely normal. Rest is normal.

Order:

IV access, stat
IV Toradol (ketorolac), stat
ESR, stat
CT head (without contrast), stat

Discussion:

Indications for CT head in patients with headache are:

1. Occurrence of severe new onset headache even in a patient with H/O chronic headache and previously normal CT
2. Sudden onset of severe headache in any patient of >50 yr. age

3. Presence of focal neurological findings

Results:

ESR is WNL

CT head demonstrate evidence of subarachnoid hemorrhage. No midline shift.

Patient is still in mild to moderate pain

*In this case if the CT scan does not show bleeding, you should order lumbar puncture and the fluid should be sent for xanthochromia. But, the option of xanthochromia is not available in software.

Order:

Admit in ICU

Continuous cardiac monitoring

Pulse oximetry, every 2 hours

NPO

Complete bed rest

Urine output

Neurochecks, every 1 hour

CBC with diff, stat

BMP, stat and daily

EKG, 12 lead, one time (for baseline)

PT/INR, stat

PTT, stat

Transcranial Doppler (For baseline) - Not available in software

Neurosurgery, consult, stat

Normal saline, IV, continuous

Acetaminophen with codeine (Percocet), oral, continuous for pain

Stool softener (Docusate), oral, continuous

Nimodipine, oral, continuous for 21 days

Omeprazole, oral, continuous

Pneumatic compression devices

Discussion:

Based on the above findings, the most likely diagnosis in this patient is subarachnoid hemorrhage (SAH). SAH can occur even with normal CT scan. If the index of suspicion is very high, such as in patients with neck stiffness or other meningeal signs, lumbar puncture should be performed. Lysis of RBC and subsequent conversion of Hb to bilirubin occurs over a period of time and turns the CSF yellow. Presence of this xanthochromic supernatant is classic for SAH. ST, T wave changes similar to cardiac ischemia may be seen on ECG. Serum electrolytes should be obtained at the time of admission and at least once daily, as they are more prone to develop hyponatremia ('cerebral salt wasting syndrome') in the first two weeks. Vasospasm remains the leading cause of morbidity and mortality in these patients. Transcranial Doppler (TCD) ultrasound assessment of the proximal middle, anterior, posterior cerebral arteries, and basilar artery flow is very helpful in predicating the vasospasm.

Treatment:

Patients should be placed in ICU, and kept NPO, with complete bed rest. Stool softeners and mild laxatives are useful to prevent straining. Control the headache with acetaminophen plus codeine. Stress ulcer prophylaxis should be given with either H2 blockers or PPIs. Patients should have pneumatic compression stockings applied to prevent the DVT. Management of blood pressure is important in patients with SAH. Uncontrolled hypertension causes more bleeding. On the other hand, decreased blood pressure can cause cerebral hypoperfusion resulting in infarction. The goal is to keep the systolic blood pressure 120-140 mm Hg. IV labetalol is the drug of choice if the blood pressure is high. Cerebral hypoperfusion is treated with IV NS bolus, and vasopressors. Patients with uncontrolled blood pressure should have intra arterial and central venous line. The use of prophylactic antiepileptic medications in patients with SAH is highly controversial. Hyponatremia should not be treated with free water restriction. IV NS with salt supplements is enough to treat hyponatremia. However, sometimes 3% hypertonic saline may be needed. Because of the risk of 'central pontine

myelinolysis', hyponatremia should be corrected slowly. Acute hydrocephalus is a complication of SAH. Patients should be frequently examined, and if necessary ventriculostomy should be performed.

Once the medical management has been established and the patient is stable, a standard 4-vessel angiogram should be performed.

Further management is beyond the level of this exam.

Primary Diagnosis:

Headache

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