A Drowsy Pregnant Lady With Persistent Headache

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Introduction

Acute neurological conditions are commonly seen in emergency department with a broad differential diagnosis. The symptoms may vary with headache affecting people with an estimated global prevalence of 47% in adults.

Case Report

A 27 years old G5P4 at 23 weeks of gestation, unbooked unscreened presented with generalized headache for 1 week associated with 2 days history of fever. She also had 10 episodes of vomiting and neck pain. There was associated altered mental status and slurred speech for 1 day. There was no body rashes, no upper respiratory tract symptoms or ear discharge, no history of fitting and no history of recent travelling. She had no history of preeclampsia or other pregnancy-related complications. Past medical and surgical history was non contributory. She is a non smoker and non alcoholic.

Physical examination showed that she was drowsy with GCS of E3V5M6. She was febrile with temperature of 39.0 °C. BP was 134/72 and HR was 118 bpm. She had slurred speech associated with neck stiffness. She also had bilateral eyes horizontal nystagmus and left eye isolated 6th nerve palsy (Figure 1). Pupils were 3mm bilaterally and reactive to light. Fundoscopic examination showed no papilloedema. She was normotonia with all 4 limbs power of 5/5. However, reflexes were brisk and Babinski withdrawal. Other systemic examinations were unremarkable.

Laboratory investigations revealed leukocytosis of 23.0 x109 white blood cells/L. Other blood parameters were normal. Urinalysis showed proteinuria of 3+. The initial diagnosis was to rule out cavernous sinus thrombosis. However computed tomography venography(CTV)(Figure 2) showed no evidence of thrombosis. Magnetic resonance imaging(MRI)(Figure 3) showed isolated subtle signal change involving bifrontal cortex which may represent hypoxic-ischemic change with possible cause including meningitis. Otherwise there was no MRI evidence of thrombosis. Lumbar puncture was then performed and revealed opening pressure of 31 cm H²O. Cerebrospinal fluid (CSF) analysis results as shown in Table 1.

Patient was treated as bacterial meningitis with intravenous rocephine 2g BD for 2 weeks in which she responded clinically with complete neurology recovery and subsequently discharged well.

Figure 1. Photo with permission from patient demonstrated left eye 6th nerve palsy when patient looked to left

Opening Pressure (5-20 cm H²O)	31
FEME : Appearance Total Cell (<5 cell/mm³) Polymorphs (%) Leucocytes (%) Basophils (%) Globulin	 Clear & colourless 47 10 90 (lymphocytes) 0 Positive
Biochemistry : Glucose (2.5-3.5 mmol/L) Protein (0.18-0.45 g/L) CSF : Serum Glucose Ratio (0.6)	 1.4 1.54 0.25
AFB	Nil
Indian Ink	Negative
Culture & Sensitivity	No growth

Table 1. Lumbar Puncture Investigation Results

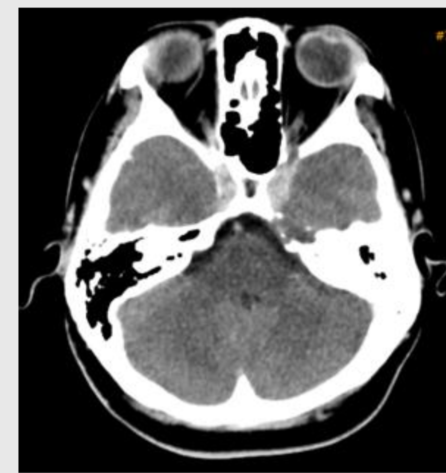

Figure 2. CTV showed no evidence of thrombosis

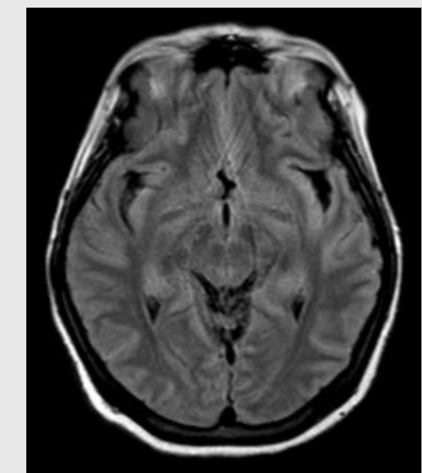

Figure 3. MRI brain showed isolated subtle signal change involving bifrontal cortex which may represent hypoxic-ischemic change

Discussion

- The differential diagnosis of headache in pregnancy(Table 2) are broad due to physiological changes induced by pregnancy, ranging from benign to life-threatening conditions.
- Pre eclampsia is defined as pregnancy induced hypertension (BP >140/90 mm Hg) after 20 weeks of gestation with associated proteinuria (>0.3g in 24 hours), or development of HELLP syndrome. Headache is a common presenting feature along with visual disturbances and edema. In this case, patient remained normotensive throughout admission. Blood parameters were normal. Hence pre eclampsia was ruled out.
- Cerebral venous thrombosis(CVT) usually presents in the 2nd and 3rd trimesters in pregnancy. The risk is increased in pregnancy due to pregnancy induced hypercoagulability state. The clinical syndrome is variable with headache being the most commonly reported initial symptoms. Other common symptoms include focal neurologic deficit, vomiting or seizure, depending on the territory of affected vessels. The diagnosis of CVT is based on neuroimaging with classic CT findings of empty delta sign. However, MRI is imaging modality of choice. In this case, negative findings of both CT and MRI ruled out cerebral venous thrombosis.
- Bacterial meningitis is a life-threatening emergency with a case fatality rate of 14.3%. Headache is the most common symptom followed by fever. Other features include neck stiffness and altered mental status. Diagnosis is based on cerebrospinal fluid results obtained by lumbar puncture. An elevated opening pressure with raised CSF protein and low CSF glucose in this case is suggestive of bacterial meningitis. Clinical response of patient towards completion of 3rd generation cephalosporin also supports the diagnosis.

Life Threatening	Non Life Threatening
Pre eclampsia/Eclampsia	Tension headache
Cerebral venous thrombosis	Migraine
CNS tumour/infection	Sinus headache
Subarachnoid hemorrhage	Benign intracranial hypertension
Ischemic stroke	

Table 2. Causes of Headache in Pregnancy

Conclusions

Acute neurological illness in pregnancy can represent a diagnostic challenge. There are important considerations regarding the differential diagnoses and imaging options. A systematic approach and a multidisciplinary team including neurologist, obstetrician and radiologist are essential to improve outcomes.

References

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