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1 Chapter

Objective Structured Clinical Examination in Obstetrics

CASE 1: SEVERE PRE-ECLAMPSIA

Case Summary

Mrs CR in her first pregnancy was admitted with the diagnosis of severe pre-eclampsia. Complete hemogram revealed Hb of 9.8 g/dL, which was 11.6 g/dL 1 week ago. LFT revealed AST = 150 IU/L, ALT = 200 IU/L, alkaline phosphatase = 180 IU/L and LDH = 1,000 IU/L. Platelet count was 85,000/mL.

Q.1 What is the probable diagnosis?

Ans. Hemolysis, Elevated Liver enzymes, Low Platelet count (HELLP) syndrome.

Q.2 How do you diagnose it?

Ans. Presence of hemolysis, elevated liver enzymes and low platelet count in a patient with severe pre-eclampsia.

Q.3 What do you understand by severe pre-eclampsia?

Ans. Severe pre-eclampsia includes:

- BP: > 160 mm Hg systolic or > 110 mm Hg diastolic
- Proteinuria: > 5 g/24 hours
- Onset of acute renal failure
- Oliguria: Urine < 500 mL/24 hours
- Liver enzymes: > 2 times the normal
- Serum creatinine: > 1.1 mg/dL
- Urinary protein: Creatinine ratio: > 0.3
- Pulmonary edema
- HELLP syndrome
- Thrombocytopenia (< 100,000/μL)
- Symptoms due to end organ involvement—headache, epigastric pain, visual disturbances
- Fetal growth restriction.

Q.4 What is the diagnostic criteria for HELLP syndrome?

Ans. The diagnostic criteria include:

- Hemolysis
- AST > 70 IU/L
- Platelets < 100,000/mm³
- LDH > 600 IU/L
- ALT > 70 IU/L
- Serum bilirubin > 1.2 mg/dL
- Abnormal peripheral blood smear (schistocytes).

Q.5 What other investigations should be done for her?

Ans. Other investigations should be done are—coagulation profile, serum uric acid, creatinine, urine analysis and ophthalmoscopy.

Q.6 What is the risk of eclampsia in HELLP syndrome when compared to severe pre-eclampsia?

Ans. Eclampsia is more common in HELLP syndrome in comparison to severe pre-eclampsia.

Q.7 What would be the appropriate management of the case?

Ans. Patient should be managed in a tertiary care center:

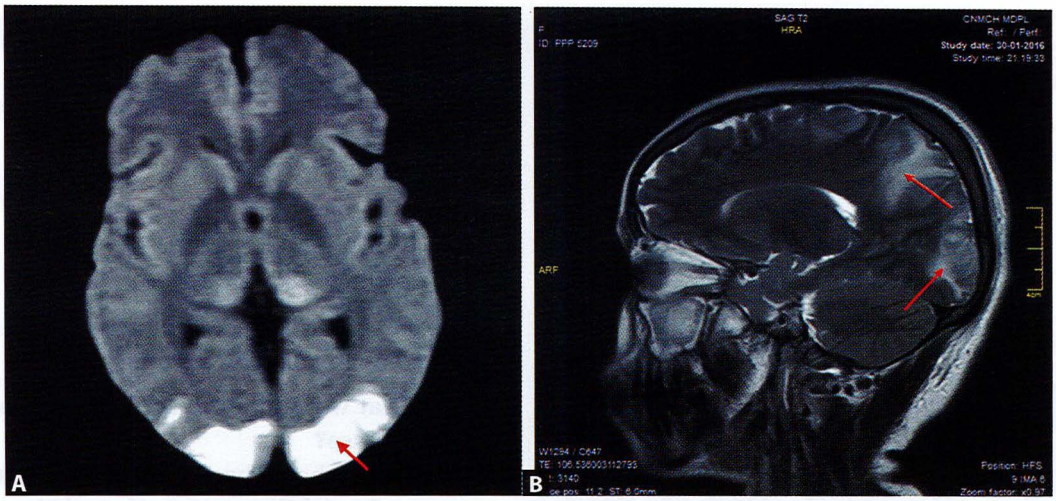
- ***To stabilize maternal condition***
  - Antihypertensive therapy—hydralazine 5 mg IV bolus to be followed by infusion (25 mg in 200 mL normal saline) at the rate of 2.5 mg/hour to be doubled every 30 minutes till the diastolic BP is < 110 mm Hg. Labetalol IV (200 mg in 200 mL of normal saline) at the rate of 20 mg/hour can also be used as an alternative.
  - Antiseizure prophylaxis with $MgSO_4$ (IM or IV regimen).
  - CT or USG of abdomen if subcapsular hematoma of liver is suspected.
  - To correct coagulopathy if any: Fresh (relatively) whole blood transfusion, platelet transfusion if count is < 10,000 mm³.
- ***To evaluate fetal wellbeing***
  - Nonstress test
  - Biophysical profile
  - Doppler flow study of umbilical artery.
- ***Termination of pregnancy (delivery)***
  - Pregnancy > 34 wks → corticosteroid therapy → delivery
  - Pregnancy < 34 wks → corticosteroid therapy → delivery

Q.8 What is posterior reversible encephalopathy syndrome (PRES)?

Ans. Cerebral changes in severe pre-eclampsia and eclampsia have been demonstrated with many neurodiagnostic tests including MRI, cerebral Doppler velocimetry and cerebral angiography (Figs. 1.1A and B). Cerebral pathology in eclampsia is mainly due to ***loss of cerebral autoregulation***. Important findings on MRI are:

- Hypodense areas of diffuse white matter
- Loss of normal cortical sulci
- Cerebral infarction (low attenuation)
- Edema of the occipital lobe
- Cerebral hemorrhage (high density area)
- Acute hydrocephalus.

Posterior reversible encephalopathy syndrome is similar to hypertensive encephalopathy. It is due to reversible cerebral vasoconstriction. Such lesions



Figs. 1.1A and B: MRI of the brain axial and sagittal views showing posterior reversible encephalopathy syndrome (PRES) in a patient with eclampsia. Massive areas of the occipital and parietal lobes show infarction and vasogenic edema. T2 flair lesions are seen (*see* arrows).

may also be seen in frontal lobes, temporal lobes, basal ganglia and thalamus. Occipital lobe edema may cause blindness, although reversible lesions due to cerebral infarctions may show persistent pathology.

CASE 2: COUNSELING

Case Summary

Mrs AK, 26-year-old, married for 1 year is planning to have a baby. She has come to you for counseling about pre-eclampsia. She came to know about the problems of high blood pressure and convulsions during pregnancy, while she was reading the 'Women's Health' magazine.

Q.9 What are the predisposing factors for pre-eclampsia?

Ans.
- Young and elderly primigravidae
- Positive family history (genetic)
- Pregnancy complications—multiple pregnancy, diabetes
- New paternity
- Many others (genetic and immunological).

Q.10 Can you predict pre-eclampsia?

Ans. There are many screening methods. Doppler study (Fig. 1.2) to detect 'notch' in the early diastole wave especially in the uterine arteries, at 24 weeks of gestation can predict the possible development of pre-eclampsia. Other tests like ***Roll over test*** and ***Angiotensin infusion test*** have been tried. Unfortunately, positive predictive value of all these tests is poor.

Q.11 Can you prevent pre-eclampsia?

Ans. Pre-eclampsia is not a totally preventable disease. Use of low-dose aspirin, calcium, antioxidants (vitamins C and E) have been tried in the high-risk groups to reduce the onset of severe disease.

Q.12 Can you predict and prevent eclampsia?

Ans. Eclampsia may present in atypical ways though in majority it is preceded by severe pre-eclampsia. So, effective management of pre-eclampsia is the only way to prevent eclampsia.

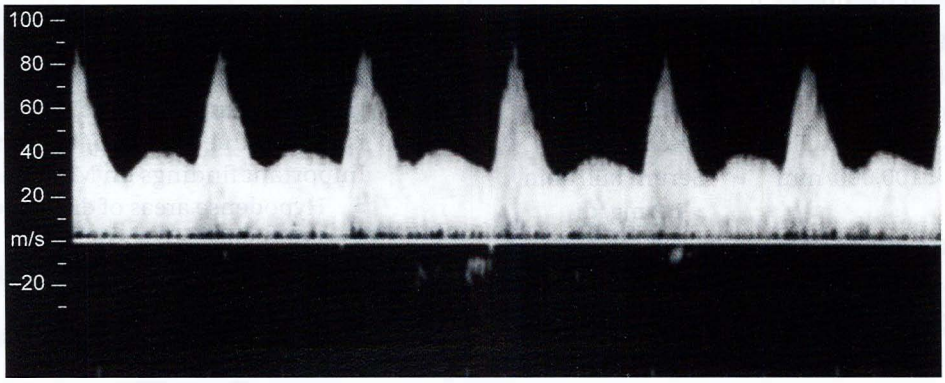


Fig. 1.2: Flow velocity waveform (Doppler velocimetry) of the uterine artery at 26 weeks of gestation. This shows early diastole 'notch'. Presence of this notch and elevated resistive index (RI) or pulsatility index (PI) at advanced weeks of gestation indicate high uterine vascular resistance and reduced placental blood flow. This is thought to be due to failure of trophoblastic invasion of the spiral arteries.