POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME (PRES) ASSOCIATED WITH ECLAMPSIA: A CASE REPORT

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Abstract

The occurrence of posterior reversible encephalopathy syndrome (PRES) in patients with eclampsia is a rare condition. PRES is a reversible syndrome characterized by headache, seizure, altered mentation and loss of vision associated with white matter changes on imaging. The lesions in PRES are thought to be due to vasogenic oedema, predominantly in the posterior cerebral hemispheres. This study reports a 32-year-old pregnant woman who presented with headache, dimness of vision, right sided weakness and seizure. The MRI of her brain showed abnormal signal intensity in the white matter of the occipital and parietal lobes. She was treated successfully with pregnancy termination, anti-hypertensives, anticonvulsants, and supportive care. It is concluded that early diagnosis is important to prevent permanent neurologic damage and mortality.

Keywords: *Posterior reversible encephalopathy syndrome, eclampsia, brain MRI*

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Introduction

Posterior reversible encephalopathy syndrome (PRES) is a clinico-radiological entity first described by Hinchey, et al.[1,2]. PRES which is also known as reversible posterior leukoencephalopathy syndrome presents with rapid onset of symptoms such as: nausea, headache, altered consciousness, cephalalgia, visual disturbance, cortical blindness, blurred vision, photophobia, hemianopia, and other focal neurologic deficits such as paresis, dysesthesia, or dysphasia as well as seizure[2]. PRES is also a misnomer because the image changes and clinical features may not be limited to the posterior cerebral hemispheres[4]. Also, the reversibility of PRES may be clinically or radiologically incomplete; the condition may be complicated by ischemic or haemorrhagic stroke, and may lead to a chronic seizure disorder or death[5]. The global incidence of PRES is unknown[6]. It has been reported in patients aged 4 to 90 years, most cases occur in young to middle aged adults and death has been reported in up to 15% [7]. PRES occurs in a large array of clinical conditions, predisposing disease, and factors such as toxaemia of pregnancy, arterial hypertension, organ transplantation, autoimmune disease, conditions with renal failure as well as cytotoxic and immuno-suppressive medication[6]. Although the underlying pathophysiological mechanisms are still debated, the main hypotheses imply both endothelial dysfunction and failure of cerebral auto-vasoregulation[3]. Image diagnostics such as CT and MRI of CNS performed on patients with pre-eclampsia and eclampsia, have revealed PRES in several cases. MRI, is the golden standard and CT scan only revealed 50% of the lesions. White matter lesions in the occipital lobes, posterior parietal lobes and posterior temporal lobes are classic findings. Lesions may be seen in the frontal lobes, cerebellum, and pons, but seem to be minor and only visible in addition to injuries in the other brain structures mentioned above[8]. This syndrome is oedema without infusion, so early diagnosis resolves the cause and prevents permanent damage and death. This study describes a case of PRES in association with eclampsia in a 24-week pregnant woman.

Case presentation

A 32 year old multigravida (3 rd gravida) at 23th week of gestation presented with pitting edema of both leg and her blood pressure was 180/120 and admitted into local hospital . She was treated with labetalol hydrochloride and diagnosed as Pre-eclampsia.

One week after, Patient developed one episodes of witnessed generalized tonic-clonic seizure and became unconscious and admitted into our hospital at ICU.

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On admission her BP -160/110 mm(Hg), bilateral pedal oedema, GCS -7/15, fetal movement and heart sound-absent and spontaneous vaginal delivery occurred. Urinalysis revealed 2 + proteinuria , Complete blood count revealed Hb- 11.60g/dL, WBC – 16.25 K/µL, Platelets-100 K/µL, Liver function altered (SGPT-435U/L, SGOT-691 U/L , Bilirubin-3.00mg/dL, Albumin-2.30), Renal impairment (Creatinine-1.58 mg/dL, Urea-56 mg/dL) Reticulocyte % - 4.75, Pro-Calcitonin- 3.35 ng/mL. At this condition patient was treated as a case of Eclampsia with HELLP syndrome with septicemia and Spontaneous abortion. She was treated with Magnesium Sulphate and labetalol hydrochloride and board spectrum antibiotics.

One day after SVD patient developed headache, dimness of vision and right sided weakness. She was found to have an elevated BP of 180/100 mm Hg; rest of the vital signs were within normal limits. An ocular examination revealed a diminution of vision of bilateral eyes to perception of hand movement. Pupils were normally reactive to light and fundus examination was unremarkable. Rest of the cranial nerve examination was unremarkable. Right sided planter- extensor , muscle power – Right hand (1/5), Right leg(2/5), Left hand and leg (4/5) and sensory function was intact all over the body. Cerebellar signs were intact and there was no evidence of meningeal signs such as nuchal rigidity or Kernig's/Brudzinski's sign. MRI brain images revealed hyperintense and FLAIR signal lesions extending beyond the occipital lobes and involved both cerebellar hemispheres. Clinical and radiological findings were assumed to be consisted with PRES. Five days after delivery, her blood pressure was controlled, visual symptoms nearly disappeared and muscle power become 4/5. Meanwhile patient had no episodes of seizures and on seven day after delivery, there was complete recovery and was discharged.

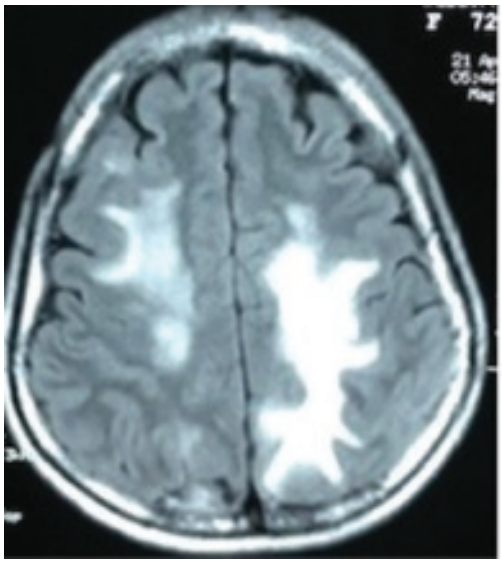

Figure 1 : *MRI of Brain at the time of admission. FLAIR image of MRI Brain: Hyperintense signal involving the white matter in both parieto-occipital regions. More marked in left side.*

After 3 weeks patient came with follow up MRI. Patient clinical condition completely improved and no residual deficit.

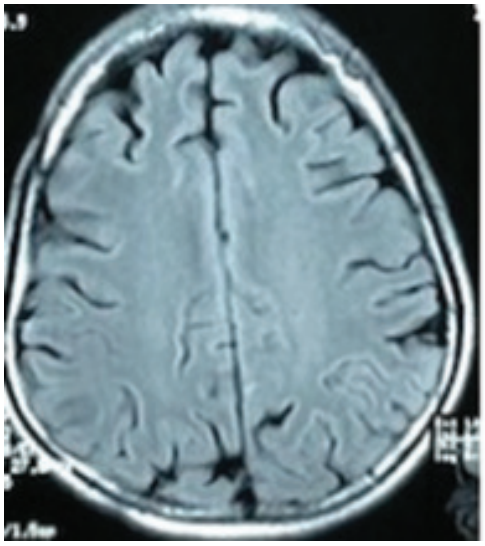

Figure 2: *Follow up MRI of Brain after three week – normal MRI.*

Discussion

Pre-eclampsia and eclampsia are common medical disorders affecting pregnancy with significant maternal and fetal morbidity and mortality.[9] Hypertension and proteinuria are hallmarks for the diagnosis of pre-eclampsia, whereas seizures are typical of eclampsia.[9] Pre-eclampsia/eclampsia usually occurs between 20 weeks of pregnancy to 48 h postpartum.[10] The term late postpartum eclampsia (PPE) is used when eclamptic events occur between 48 h and 4 weeks after pregnancy.[11] A large observational study suggested that late PPE involves about 14% of cases of eclampsia.[11]

A variety of clinical conditions are associated with the development of PRES. Among the reported causes, common ones include hypertensive emergency, renal disease, pre-eclampsia/eclampsia and immuno-suppressive agents.[13] Other reported causes include sepsis, autoimmune diseases such as systemic lupus erythematosus, systemic sclerosis, tumour lysis syndrome, Guillain-Barres syndrome, AIDS, thrombotic thrombocytopenic purpura and acute intermittent porphyria.[14,15] PRES in association with late postpartum eclampsia has been reported before.[16-19] Although the exact prevalence of PRES in LPE is unknown, a recent study suggested it could be more common than expected.[20]

Clinically, PRES presents with headache, seizures, encephalopathy, visual disturbances and focal neurological symptoms.[12] As the name suggests, reversibility of these symptoms is one of the hallmarks of the disease. However, some patients with severe manifestations of PRES, such as coma and/or status epilepticus, may require admission to the intensive care unit (ICU).[19] Moreover, permanent neurological impairment or death occurs in a minority of patients.[17-19]

The diagnostic criteria for posterior reversible encephalopathy syndrome are[20]

1) The presence of neurologic symptoms or findings.
2) Presence of risk factors for PRES.
3) Absence of other possible causes of encephalopathy.
4) Reversible course on follow up.

A pregnant woman presenting with hypertension and visual disturbance constitutes a diagnostic dilemma. In our patient with the sudden development of headache, right sided weakness , bilateral vision loss with elevated blood pressure and pregnancy loss, we considered an initial diagnosis of ischaemic stroke, cerebral haemorrhage , cerebral venous thrombosis, APS, SLE, PRES and hypertensive emergency with retinal haemorrhage. A normal fundus examination essentially ruled out retinal haemorrhage, ANA-negative , Anti-phospholipid antibody- Negative , while the reversibility of symptoms with characteristic MRI findings led us to a diagnosis of PRES.

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