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Case Report

Antepartum posterior encephalopathy syndrome: a case study

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ABSTRACT

Posterior reversible encephalopathy syndrome (PRES) is increasingly being recognised as a clinic-neuro-radiological complication of eclampsia, with the availability of better imaging techniques. Preeclampsia and eclampsia continues to be one of the leading cause of both maternal and foetal morbidity and mortality worldwide. PRES is a diagnostic and therapeutic challenge when it develops in a case of preeclampsia. Reported here a case of 21 years old primi gravida, presenting in emergency OPD with 30 weeks pregnancy, history of seizures and in unconscious state. She was diagnosed to have PRES by imaging. PRES is associated with various clinical conditions i.e. hypertensive encephalopathy, renal failure, auto immune disorders and treatment with cytotoxic medication and presence with headache, encephalopathy, seizures, cortical visual disturbances or blindness. Early recognition of the condition with prompt management can prevent permanent neurological damage antihypertensive, control of seizures and anti-oedema measures are the main stay of the treatment as prompt control of BP will cause reversal of the syndrome. Clinical improvement with prompt resolution of the neurological deficit in the reported case highlights the importance of early suspicion, diagnosis and management of PRES in order to prevent short and long term neurological damage.

Keywords: Eclampsia, PRES, Seizures

INTRODUCTION

Posterior reversible encephalopathy syndrome (PRES) is increasingly being recognised as a clinic-neuro-radiological complication of eclampsia, with the availability of better imaging techniques.[1]

PRES presents with nonspecific neurological symptoms like headache, visual disturbances, altered mental status, loss of consciousness and seizures. The underlying pathology is vasogenic oedema, predominantly in the posterior cerebral hemispheres. It is diagnosed by characteristics MRI features and may occur in situations like hypertension, preeclampsia, eclampsia, immunosuppressive medications, thrombocytopenia, haemolytic uraemia syndrome, SLE, sepsis etc.

We report a similar case of PRES in a primigravida with 28-30 weeks pregnancy and eclampsia. The case emphasises on the fact, that, though PRES is a dreaded complication with very high morbidity and mortality, but its timely recognition and targeted management can save the patient, as the pathology is reversible.[2,3]

CASE REPORT

A 21-year-old primigravida, presented in emergency OPD with 7 months amenorrhea and in an unconscious

state. According to the attendants, she was on regular antenatal visits at a nearby PHC. She was prescribed some antihypertensive drug since last 3 days and had 3 episodes of seizures in last 12 hours. She was referred from PHC to district government hospital, where some medications were given according to attendants, and then they shifted the patient here to our hospital. She was admitted in the ICU and evaluated.

On examination, she had tachycardia (130/m), with hypertension (BP- 150/110mmHg), she was febrile with temperature of 104°F with SpO2 of 90%. CVS was normal, lung auscultation revealed bilateral crepitation. Patient was unconscious with Glasgow Coma Scale (GCS) of 5/15 and absent planter reflex. Uterus was 28-30 weeks' size with absent FHS, on per vaginal examination the external os was closed with cervix lying posteriorly and was unaffected. No discharge or bleeding was present per vaginal.

Patient was intubated and taken on mechanical ventilation, a loading dose of $MgSO_4$ and IV labetalol given, along with intravascular paracetamol and broad spectrum antibiotics. All routine antenatal and specific investigations were sent, particularly specific to hypertensive disorder of pregnancy and the coagulation profile. USG confirmation of IUD was done, and abruption-placentae was ruled out.

Induction of labour was done with cerviprime gel, which was supplemented with 300 micrograms vaginal misoprostol, along with extra amniotic Foley's catheter insertion. A preterm fresh dead female foetus delivered around 10 hours after the induction. Patient was still unconscious and febrile. Therefore, blood and urine culture were sent and brain MRI was done as advised by neurophysician. Maintenance dose of $MgSO_4$ was withheld, as reflexes were absent. She was kept on broad spectrum antibiotic injection, hydrocortisone injection and levetiracetan as antiepileptic.

MRI specifically suggested PRES (Multiple altered signal areas appearing hyper intense on T2W and FLAIR images and hypo intense on T1W sequences with mild diffusion restriction were seen in bilateral cerebellar hemispheres, occiptio-parietal and frontal lobes. Small acute infarcts were seen in bilateral basal ganglia appearing hyper intense on T2W, WI and FLAIR images and hypo intense on T1W sequences. No haemorrhage was seen. No midline shift was seen. Ventricular system and basal cisterns were normal. Brain stem was normal) (Figure 1).

Same treatment continued on day 3. Pyrexia persisted, urine culture report showed candidial infection, hence tablet fluconazole was started and injection artesunate was started. Blood culture revealed pseudomonas infection on day 5, therefore injection colistin was started. Her metabolic state was analyzed and corrected with continuous ABG analysis. Patient condition remained the same till day 7, she was still febrile with GCS of 5/15.

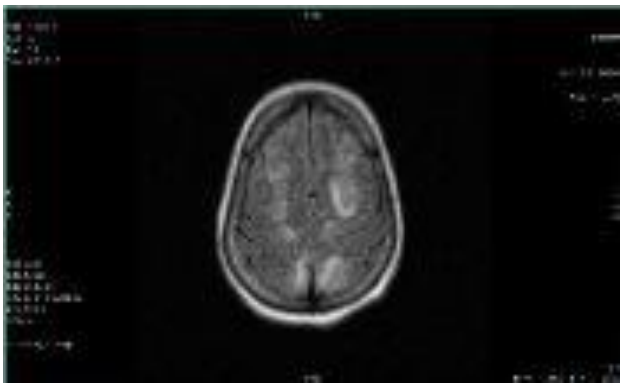

Figure 1: On admission MRI picture, suggesting PRES.

On day 8 she started showing signs of improvement, temperature decreased to 101.20 F with GCS of 7/15. She was extubated on day 9, consciousness regained on day 10, blood pressure and urine output remained normal throughout, but hyperpyrexia continued. Taking it as fluconazole resistant urinary infection, injection capsufugin was started on day 12, after which her temperature started getting normalized. She was kept on strict physiotherapy regimes and proper nursing care including maintenance of nutrition and hygiene, and prophylaxis for thromboembolism and bed sores. Repeat MRI was done on day 14, which confirmed decreased oedema and signs of improvement (Figure 2).

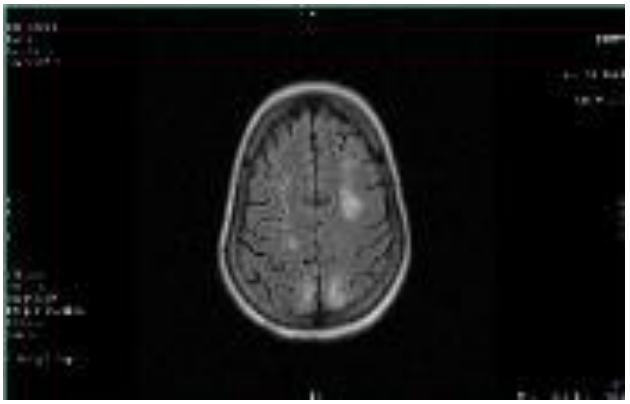

Figure 2: MRI picture on day 14, after treatment.

She was shifted to general ward on day 15 on same treatment. Patient recovered well and was discharged on day 22 in a good general condition.

DISCUSSION

Post reversible encephalopathy syndrome (PRES) or reversible posterior leukoencephalopathy syndrome (RPLS) in an unusual clinic-neuro-radiological entity introduced as late as 1996 by Hinchey et al.[1] It is a group of clinical disorders in which patients present with

combinations of the following signs and symptoms: alterations in mental status, headache, occasional focal neurological signs, visual loss, seizure, and rarely coma.[2]

Many clinical conditions may be associated with PRES, e.g. hypertensive encephalopathy, renal failure, autoimmune disorders, treatment with immune suppressant and sepsis. Preeclampsia and eclampsia may be the most common cause of PRES and most cases are managed without neuroimaging, the incidence remains unknown.[3]

The cause of PRES is not clearly understood. The most accepted theory being the vasogenic oedema. The cerebral auto regulation, which maintains a constant blood flow to the brain, gets disrupted, resulting in increased perfusion pressure, allowing extravasation of fluid and macro molecules. Therefore, PRES is a vasogenic rather than cytotoxic oedema. One characteristic of this syndrome is that oedema is present without infarction.

Computed tomography scans show vasogenic oedema predominantly of the parieto occipital subcortical white matter. These abnormalities partially or completely resolve on follow up scanning, therefore it suggests that the subcortical oedema occurs without infarction.[2] Therefore, it is said that the changes the noted in the occipital lobe in cases of eclampsia are reversible and are associated with clinical improvement.

The differential diagnosis of PRES includes various acute neurological conditions including ischaemic stroke. Though the clinical and neurological clinical features are diverse, the characteristic MRI finding, makes it distinct to diagnose.

Clinical suspicion of PRES, and early recognition by clinical features and MRI are the key to prompt diagnosis. No clinical trials have evaluated the management of PRES, but rapid withdrawal of the trigger appears to hasten recovery and to avoid complications, for example, aggressive blood pressure management, withdrawal of the offending drug, or delivery in eclampsia. Catastrophic results related to this syndrome are reversible with prompt, aggressive and accurate treatment by withdrawing the offending pathology and proper ICU care, in terms of mechanical ventilatory support, physiotherapy, DVT prophylaxis, healthy by design nutrition and bed sore prevention.

If appropriate treatment is not promptly initiated, if progresses from reversible vasogenic oedema to irreversible ischaemic damage which can cause irreversible neurologic squeal, such as epilepsy as well as death.[4]

CONCLUSION

Preeclampsia and eclampsia are the leading cause of maternal and perinatal morbidity and mortality, with an estimated 50,000-60,000 preeclampsia-related death per year worldwide. As the technology and availability of CT scans and MRI continue to improve, the PRES is being diagnosed more and more. This case endorsed the importance of prompt diagnosis and management in preventing short and long term neurological deficits in reversible conditions like PRES. One needs to be aware of the varied clinical and radiological presentation of PRES, in order to avoid misdiagnosis and treatment delay.

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