A PRESentation of Posterior Reversible Encephalopathy Syndrome Following Eclampsia

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BACKGROUND

Posterior Reversible Encephalopathy Syndrome (PRES) is an uncommon condition and has a known association with preeclampsia and eclampsia. The prevalence and cause are not well understood however in the setting of eclampsia it is likely related to endothelial dysfunction. The presentation is very similar to that of eclampsia and diagnosis is based on risk factors, clinical features and neuroimaging. Early treatment is important to prevent long term morbidity.

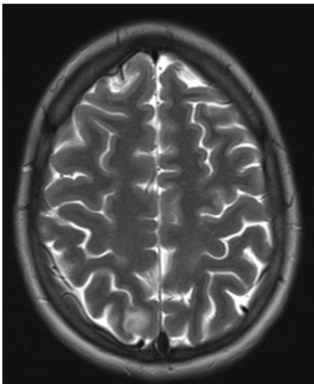

Figure 1: T2 weighted MRI image

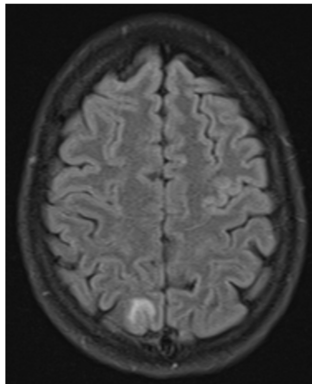

Figure 2: FLAIR sequence MRI image

Images demonstrate focal hyperintensity in the right parieto-occipital region slightly involving the cortex – consistent with PRES.

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CASE

We discuss the case of a 27 year old primigravida who presented at 35 weeks gestation with three eclamptic seizures on the background of an uncomplicated and low risk antenatal course. In the day prior she had experienced a headache and swelling of the face, hands and feet. Her first recorded blood pressure was 190/108 and she was confused with a decreased level of consciousness. Initial investigations showed proteinuria, elevated serum creatinine and elevated liver transaminases but no haemolysis or thrombocytopenia. She was initially stabilised with intravenous magnesium sulphate and proceeded to a prompt emergency caesarean section under general anaesthetic of a liveborn male infant in good condition.

Neuroimaging was undertaken postpartum. CT demonstrated a hypodensity in the right parietal lobe and subsequent MRI showed focal hyperintensity in the right parieto-occipital region. In combination with seizure activity, headache, hyperreflexia and confusion this was highly suspicious for PRES.

The patient required dual agent anti-hypertensive therapy and 48 hours of intravenous magnesium sulphate and her symptoms gradually resolved. She was admitted to the Intensive Care Unit for two days and was then able to be stepped down to ward care. Following a seven day admission she was discharged with normal neurological function.

1. Liu S, Joseph KS, Liston RM, Bartholomew S, Walker M, León JA, et al. Incidence, risk factors, and associated complications of eclampsia. Obstet Gynecol. 2011;118(5):987-94.
2. Fugate JE, Rabinstein AA. Posterior reversible encephalopathy syndrome: clinical and radiological manifestations, pathophysiology, and outstanding questions. The Lancet Neurology. 2015;14(9):914-25.

DISCUSSION

Eclampsia occurs in approximately 1 in 2000 births and the incidence is slowly decreasing.[1] It is an uncommon but serious diagnosis that requires urgent management.

Posterior Reversible Encephalopathy Syndrome is a known complication of eclampsia. It typically presents with headache, altered consciousness (a sign of encephalopathy), visual disturbance and seizures. There are several proposed mechanisms for PRES, most likely in the context of eclampsia it is related to endothelial dysfunction resulting from hypertension. This can lead to breakdown in the blood-brain barrier and cause oedema, to which the posterior brain is more susceptible.[2] The exact incidence of PRES in preeclampsia/eclampsia is currently not known. This case contributes to the collection of case studies to help to better understand the incidence and presentation of PRES in obstetrics.

The neuroimaging undertaken for this patient was a significant factor in the diagnosis of PRES. T2 weighted and FLAIR sequence MRI images (*see Figures 1-2*) demonstrated focal hyperintensity in the right parieto-occipital region slightly involving the cortex. The T1 MRI images also demonstrated converse hypointensity in the same region. These findings are consistent with PRES.

The management of PRES is supportive with the aim of controlling the causative factor which in the case of eclampsia is to control hypertension. While significant long term mortality and morbidity are rare they can occur, particularly without prompt recognition and treatment. Ongoing neurological symptoms have been reported in up to 20% of patients.[2] It is therefore important to consider PRES in the eclamptic patient. In future pregnancies for this patient it would be recommended that she take low dose aspirin and be closely monitored for pre-eclampsia.