Section: Anaesthesia

Case Report

# MANAGEMENT OF POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME IN PREGNANCY: A CASE REPORT

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ABSTRACT

Posterior Reversible Encephalopathy Syndrome (PRES) is a rare but significant condition that can occur in pregnancy, often presenting similarly to hypertensive complications like pregnancy-induced hypertension and eclampsia. This paper discusses a case of PRES in a 28-year-old pregnant woman who developed acute symptoms, including seizures and elevated blood pressure, during full-term pregnancy. Initial symptoms were managed with emergency cesarean section, but postoperative deterioration necessitated intensive care. MRI confirmed PRES diagnosis, and with multidisciplinary care, the patient recovered fully. This case highlights the importance of early recognition and effective management of PRES in pregnancy to ensure optimal outcomes.

**Keywords:** PRES: Posterior Reversible Encephalopathy Syndrome, PIH: Pregnancy Induced Hypertension, Eclampsia.

## INTRODUCTION

Posterior Reversible Encephalopathy Syndrome (PRES) is a clinical and radiological condition that can manifest through various symptoms such as headaches, encephalopathy, seizures, and visual disturbances, including blindness. While not commonly associated with pregnancy, PRES can be mistaken for pregnancy-induced hypertension (PIH) or eclampsia.

It is crucial to consider PRES in differential diagnoses, particularly when symptoms are present, as confirmation through Magnetic Resonance Imaging (MRI) is essential. MRI findings typically reveal edema predominantly in the white matter of the posterior regions of the cerebral hemispheres, especially in the parietal and occipital lobes. Early recognition and prompt diagnosis of PRES are vital to initiate timely treatment, thereby minimizing both short-term and long-term morbidity and mortality associated with the syndrome.

## CASE REPORT

Effective Management of PRES in a Pregnant Patient
We present a case of successful management of a 28-year-old woman at full term pregnancy, who was admitted with abdominal pain despite a normal antenatal workup and follow-up. Upon admission, her blood pressure was elevated at 160/100 mmHg, with a heart rate of 100 beats per minute. She was afebrile, conscious, oriented, presenting with premature rupture of membranes, and fetal distress, which necessitated an emergency cesarean section (LSCS). Initially, spinal anesthesia was considered but following a seizure episode during transfer to the operating table, the anesthesia plan was changed to general anesthesia. The surgery proceeded without complications, and postoperatively, the patient was started on antiepileptic drugs and magnesium sulfate, along with supportive care.

However, the patient experienced delayed recovery, poor sensorium, and deteriorating Glasgow Coma Scale (GCS) scores, prompting a transfer to the medical intensive care unit (ICU) for advanced management. In the ICU, her GCS dropped to E1VTM1, and her pupils were fixed and dilated at 5 mm bilaterally.

An urgent non-contrast CT (NCCT) of the head was performed to exclude hemorrhage or stroke, revealing acute subarachnoid hemorrhage in the bilateral frontoparietooccipital regions, along with vasogenic edema suggestive of Posterior Reversible Encephalopathy Syndrome (PRES).[1,2]

Further evaluation with MRI confirmed the diagnosis of PRES, showing similar findings of vasogenic edema.

The patient's management included neurology consultation, anti-edema measures (mannitol, glycerol), labetalol infusion, magnesium sulfate infusion, levetiracetam, and comprehensive supportive care. Remarkably, the patient's condition improved within two days; her pupils began to respond, and her sensorium improved significantly. She was successfully extubated on the third day and showed a complete neurological recovery, with no deficits noted upon discharge on the fifth day. The patient was advised to attend follow-up appointments in the neurology and gynecology outpatient departments.

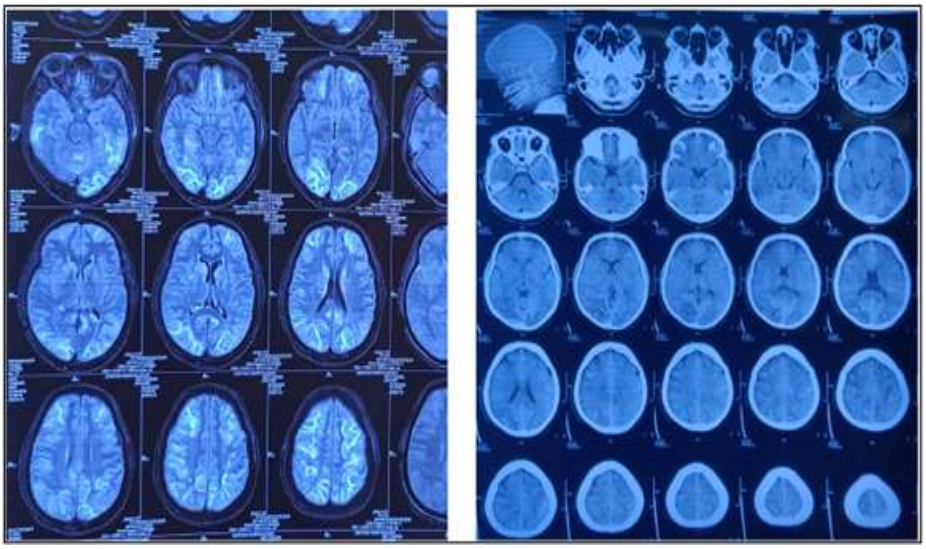

**Figure 1: CT Images; PRES in Pregnancy: A Case of Vigilance, Adaptation, and Triumph**

## DISCUSSION

The postoperative presentation of delayed recovery and bilateral fixed pupils in our patient raised concerns for a potential new onset of a cerebrovascular event. Posterior Reversible Encephalopathy Syndrome (PRES) has emerged in recent literature as a distinct clinical entity, characterized by a constellation of symptoms including headaches, altered mental status, seizures, and visual disturbances.[3,4] The spectrum of altered mental status can range from mild lethargy and restlessness to severe agitation, confusion, stupor, and even coma. Visual complications commonly associated with hypertensive conditions like preeclampsia and eclampsia include hypertensive retinopathy, exudative retinal detachment, and cortical blindness, with the latter often linked to a cortical origin of blindness. Cortical blindness is typically identified by the preservation of pupillary reflexes and normal ocular fundus examinations, with vision usually restored within a few hours to days.

Preeclampsia and eclampsia are frequently cited as leading causes of PRES, yet the actual incidence of PRES remains uncertain due to the frequent management of these conditions without neuroimaging. The pathophysiology of PRES is believed to involve vasogenic edema, stemming from a disruption in cerebral autoregulation. This disruption allows increased systemic pressures to breach the blood-brain barrier, resulting in fluid extravasation and subsequent edema, indicative of vasogenic rather than cytotoxic origins.[5]

Management of PRES typically involves addressing elevated blood pressure and discontinuing any causative agents. Magnesium sulfate therapy is recommended upon suspicion of PRES in pregnancy, as it effectively addresses both seizures and hypertension.[6,7] Caution is advised with the use of nitroglycerin infusions in pre-eclamptic patients due to potential exacerbation of PRES. Fluctuations in blood pressure and serum electrolyte levels, particularly magnesium, during or post-anesthesia can trigger PRES in susceptible individuals. Prompt intervention often leads to a complete reversal of symptoms. Imaging findings in our patient included acute subarachnoid hemorrhage in the bilateral frontoparietooccipital regions and vasogenic edema consistent with PRES, as revealed by CT and MRI. The MRI further detailed T2 hyperintensities and small hemorrhagic foci, underlining a diagnosis of PRES.[8] Carotid Doppler studies showed normal flow and no evidence of plaque formation, contributing to the exclusion of other vascular pathologies.

Despite initial considerations of ischemic stroke, cerebral hemorrhage, cerebral venous thrombosis, PRES, and hypertensive emergency with retinal hemorrhage, the absence of retinal hemorrhage on fundoscopic examination and the reversibility of symptoms with characteristic MRI findings led to a definitive diagnosis of PRES. The patient's recovery, albeit delayed, was complete and without neurological deficits, underscoring the critical role of timely and accurate diagnosis in the management of PRES, especially in late-term pregnancy.

## CONCLUSION

While Posterior Reversible Encephalopathy Syndrome (PRES) is uncommon in pregnancy, it remains a critical consideration in cases of pregnancy-induced hypertension (PIH), eclampsia, and hypertension. The key to a successful outcome lies in the early recognition of the syndrome, prompt and thorough evaluation, and timely initiation of appropriate treatment. Recognizing the potential for PRES in such clinical scenarios can significantly enhance patient care and improve prognostic outcomes.

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