

# Postpartum PRES

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## Introduction

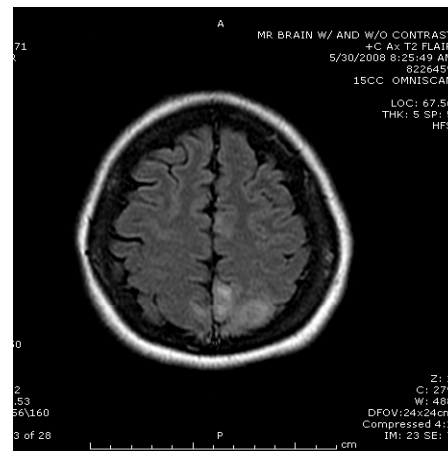
Posterior reversible encephalopathy syndrome (PRES) is a transient clinical and neuroradiologic syndrome characterized by hypertension, seizures, altered mental status, headache along with typical brain CT and MRI findings. We report a case of PRES in a postpartum patient without proteinuria and hypertension.

## Case Report

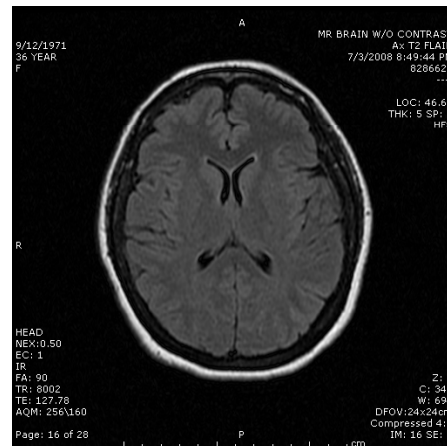
A 36yr old, G5P5 presented for a postpartum tubal ligation and umbilical hernia repair 1 day after a vaginal delivery. Patient was consented for spinal anesthesia. GI prophylaxis was administered with famotidine and bicitra. Blood pressure and heart rates ranged around 120/50 and 60. Spinal anesthesia was done by single attempt and hyperbaric bupivacaine 9mg along with 15 mcg of fentanyl was injected intrathecally. T4 level was noted bilaterally and incision was made. Patient complained of nausea for which 4mg ondansetron was given intravenously. One minute later, patient complained of severe headache and was crying. At this time the blood pressure was noted to be 188/114 and heart rate 115 and so 10 mg of esmolol was given along with some fentanyl. The blood pressure normalized but mild headache still persisted. Surgery was completed without any problems. Ibuprofen was given orally for the headache and on further questioning; patient had a history of severe headaches at least once a week for a few years.

Three hours later, the patient was being discharged to the floor, but suddenly she had some jerky movements of both lower extremities and right arm and she was found to be very confused. The movements then stopped. Neurology was consulted immediately and CT head was ordered. Hypodense lesions were noted in the parietal lobes consistent with PRES. CT angiogram was also ordered and while in the radiology suite, patient experienced generalized tonic clonic seizures. Lorazepam was given and patient was loaded with phenytoin. Magnesium sulfate was also started to rule out eclampsia. Urine protein was negative. Patient appeared confused at times but maintained her airway and so we elected not to intubate her at that time. She was then transferred to MICU for close neurologic and hemodynamic monitoring. Blood pressures were elevated in the MICU and she required antihypertensives. She recovered fully over 2 months and is followed up in medicine and seizure clinic and is on nisoldipine for blood pressure control.

## Initial MRI



## Follow up MRI 2 months later



## Discussion

The etiology of PRES is unknown but the popular theory suggests that severe hypertension exceeds the limits of autoregulation, leading to breakthrough edema. Autoregulation is managed by the principal resistance vessels, the arterioles. In humans, the lower limit of autoregulation is approximately 40-60 mm Hg mean arterial pressure and upper limit is 150-160 mm Hg. With reduced blood pressure below the lower limit of autoregulation, hypoperfusion can occur with potential infarction. Increased blood pressures above the upper limits of autoregulation can cause breakthrough edema.

PRES can also develop in normotensive patients and only mild blood pressure elevation. In 20-30% of preeclampsia patients who develop PRES, blood pressure is essentially normal. Though moderate to severe blood pressure elevation is seen in many preeclampsia patients with PRES, hypertension does not reach the upper limits of autoregulation in most instances.

Lower sympathetic innervation of posterior cerebral arterial circulation compared to internal carotid artery territory may be a reason the posterior circulation is commonly involved in PRES. Sympathetic innervation presumably protects brain from marked increases in intravascular pressure.

A retrospective study was conducted to clarify the relation between the reversibility of PRES with regard to anatomical location and background clinical cause. Reversibility was lower in the brain stem and deep white matter compared to the other cortical and subcortical areas. It was greater in the eclampsia group followed by the hypertension and chemotherapy subgroups.

## Conclusion

Most patients with PRES make a complete recovery within few weeks. Initially, these patients should be monitored carefully in the intensive care unit. Delayed diagnosis and therapy can result in permanent damage to affected brain tissues. Sometimes even with adequate therapy, recovery is not complete.

## References

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