42 y/o female who presented unresponsive following seizure

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Posterior Reversible Encephalopathy Syndrome (PRES)







Axial T2 & FLAIR images show hyperintensity within the cortical & subcortical white matter within the parietal lobes. Patchy areas of hyperintensity are also present within the frontal lobes (arrows).

Axial T2 & FLAIR images at the level of the ventricles show hyperintensity within the cortical & subcortical white matter of the occipital lobes







Axial T2 and **FLAIR** images further down show hyperintense signal within the cortical and subcortical white matter of the temporal and occipital lobes

> HEALTH RADIOLOGY

Imaging Features

- T1 hypointense cortical/subcortical lesions
- T2 hyperintense cortical/subcortical lesions
 - Parietooccipital lobes, cortical watershed zones
 - May see frontal lobe and basal ganglia involvement
- Parietooccipital hyperintense cortical/subcortical lesions on FLAIR
- No restriction on DWI
- May see variable, patchy enhancement



General Features

- Thought that acute hypertension damages vascular endothelium
- Failed autoregulation damages BBB
- Results in vasogenic edema
 - Cerebral hyperpetusion causes dilatation and damage of arterioles resulting in hydrostatic leakage of interstitial fluid
- Posterior circulation has few sympathetic nerves resulting in less autoregulation & protection for parietal and occipital lobes



General Features

- Any age, but young more so than old
- F >> M
- Predisposing conditions with HTN as a common component: Preeclampsia > eclampsia, drug toxicity from chemotherapy, uremic encephalopathies (child with renal transplant or kidney disease)



DDx

- Cerebral Infarction
 - Will restrict on DWI
- Status Epilepticus
 - Transient gyral edema, but most often unilateral where PRES is usually bilateral
- Hypoglycemia
 - Severe parietooccipital edema resembling PRES, clinical history is the key differentiation



References

- Bartynski, W.S. "Posterior Reversible Encephalopathy Syndrome, Part 1: Fundamental Imaging and Clinical Features." *American Journal of Neuroradiology*, American Journal of Neuroradiology, 1 June 2008, www.ajnr.org/content/29/6/1036.
- 2. Lamy C et al: Posterior reversible encephalopathy syndrome. Handb Clin Neurol. 121:1687-701, 2014

