

56-year-old male presenting with new onset seizures after discontinuing antihypertensive medication

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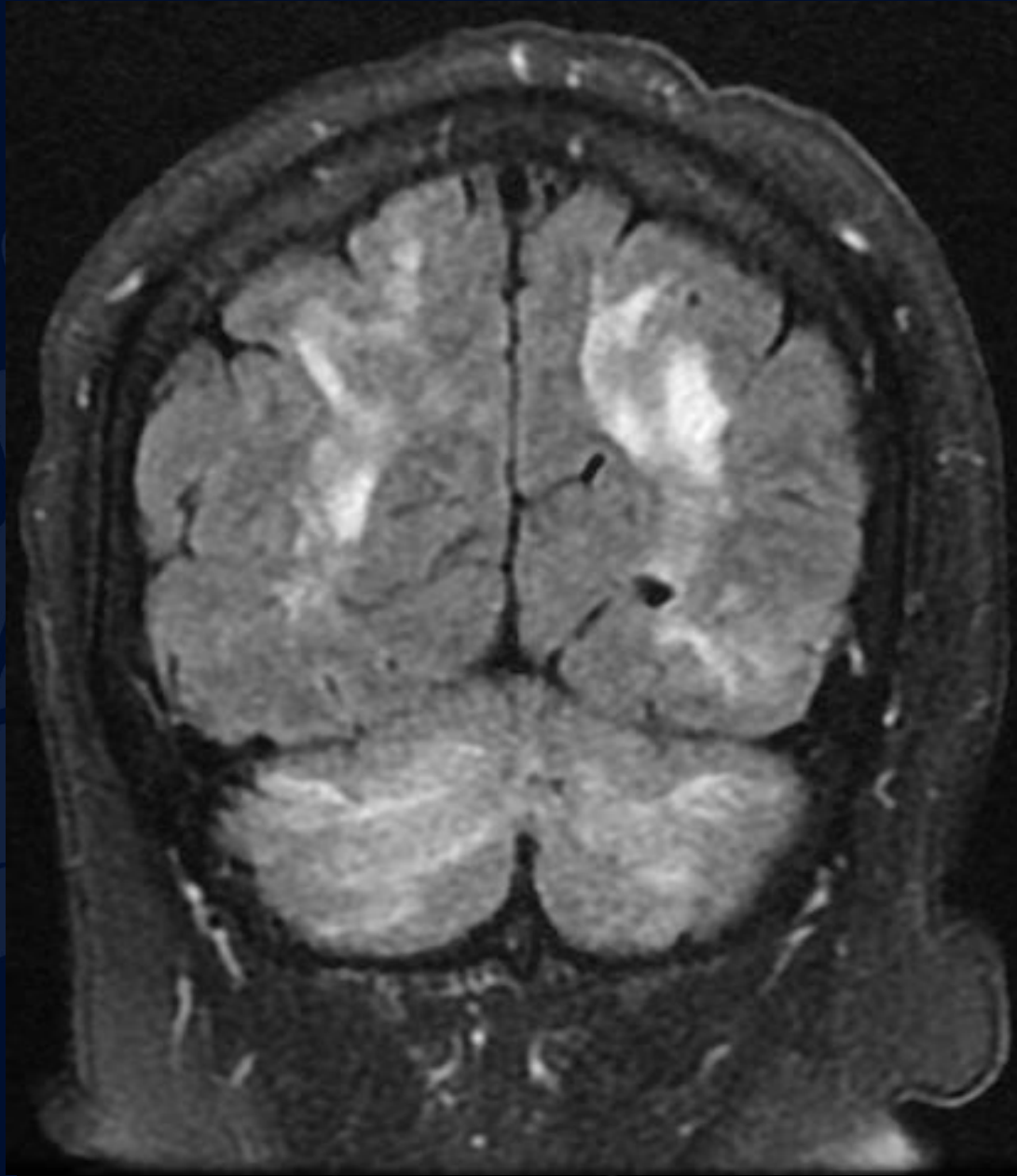
CT with IV contrast



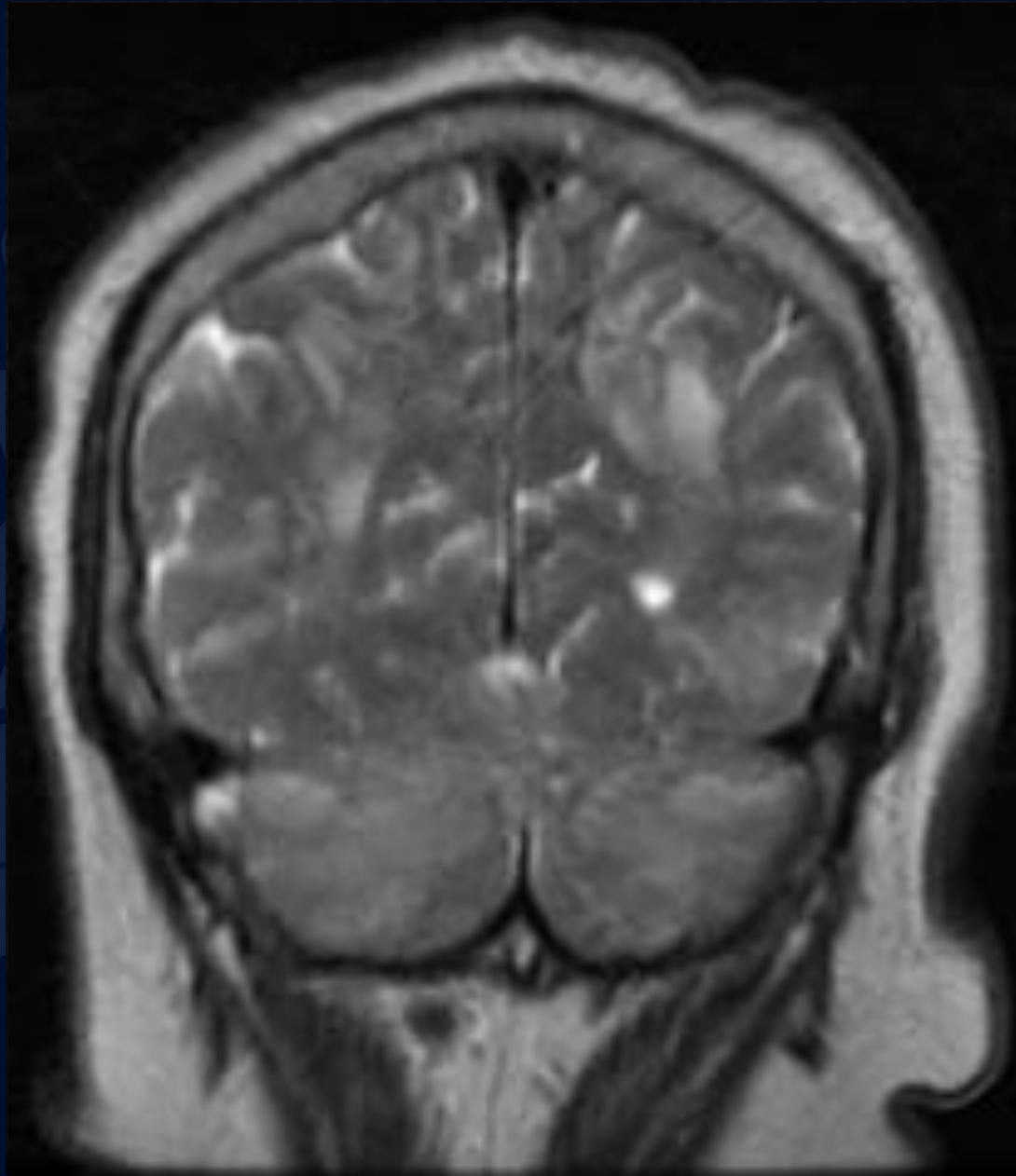
CT with IV contrast



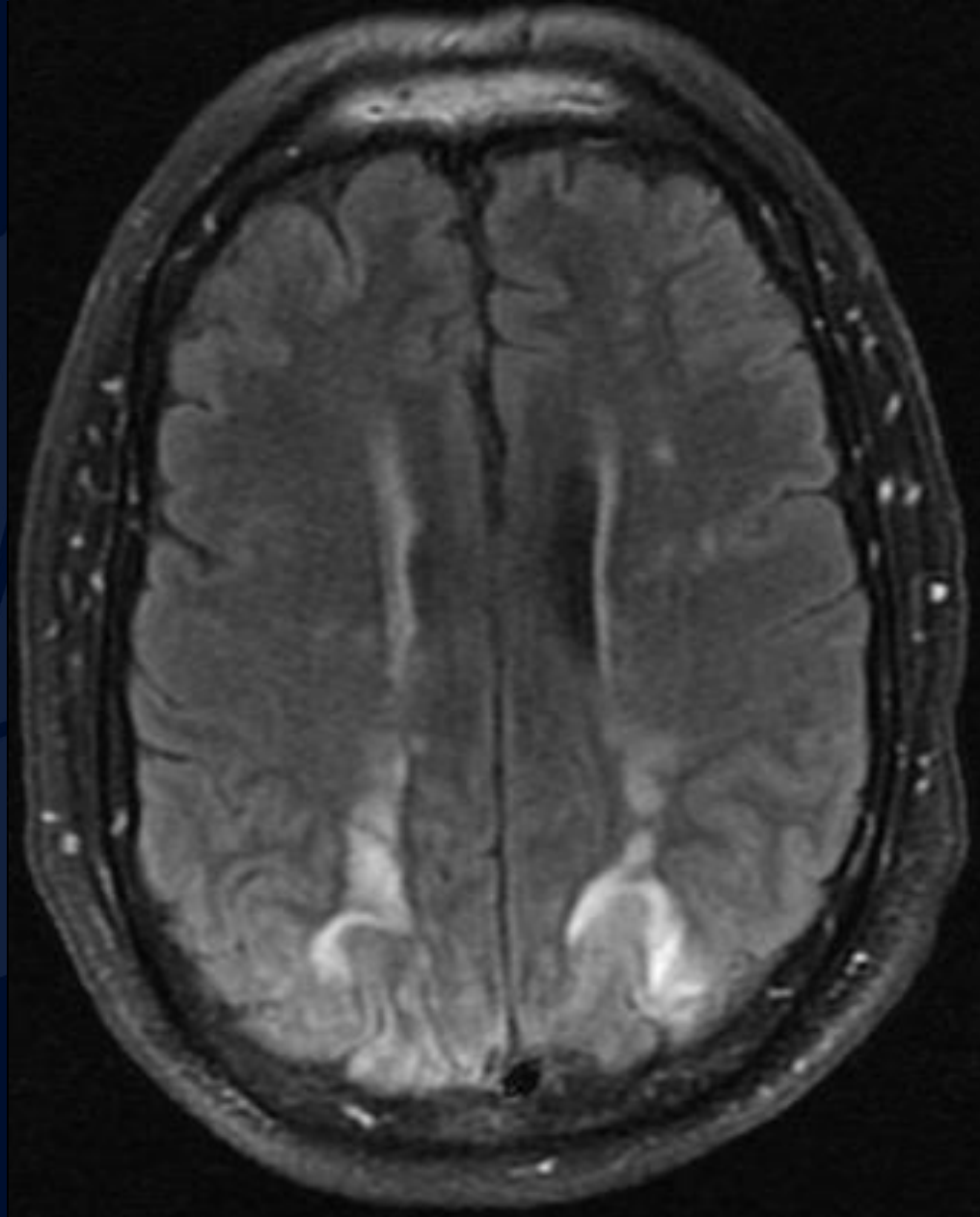
MR T2 FLAIR



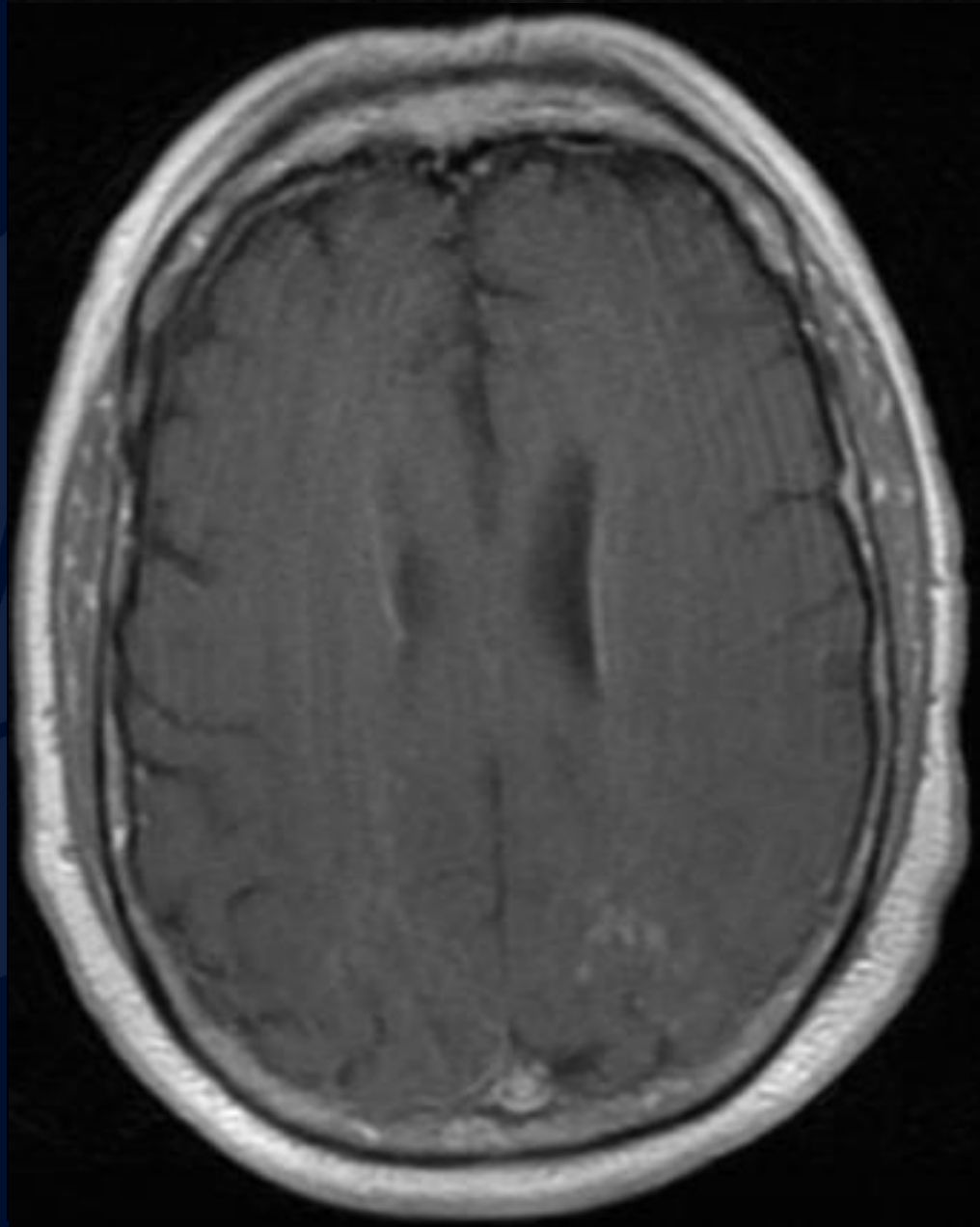
MR T2



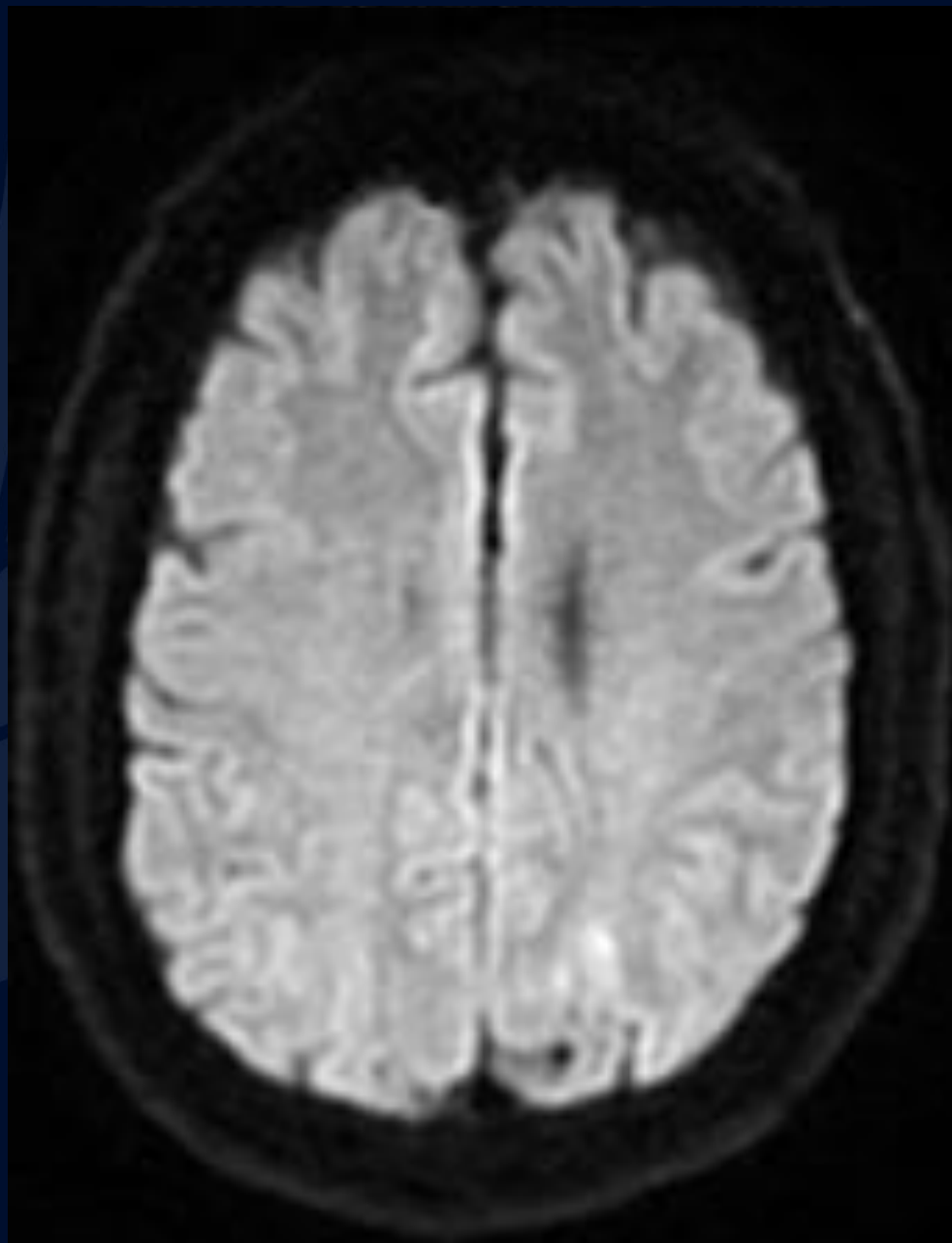
MR T2 FLAIR



MR T1 + Gad



MR T2 DWI



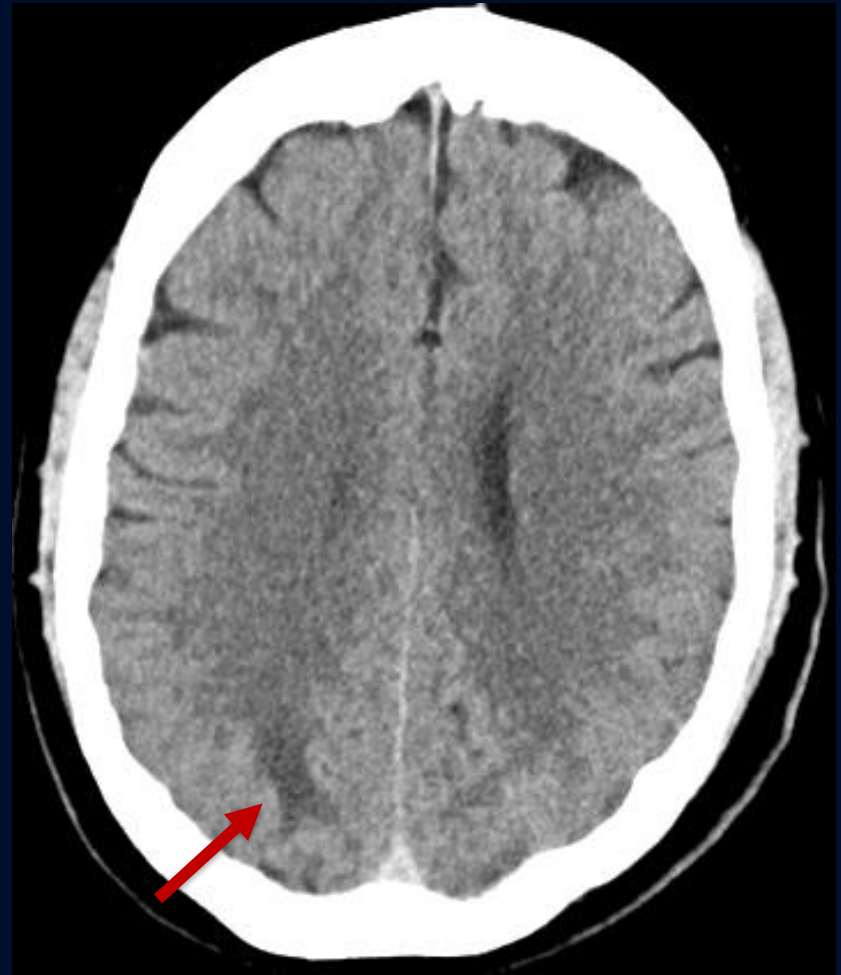
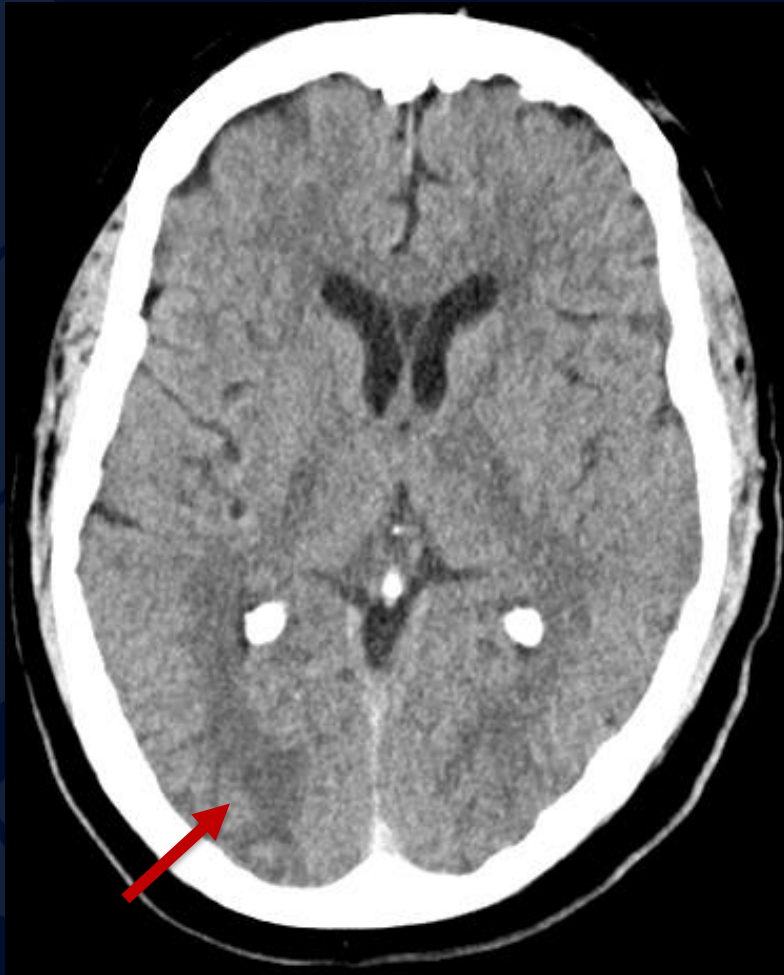


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A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide, partially overlapping the title text.

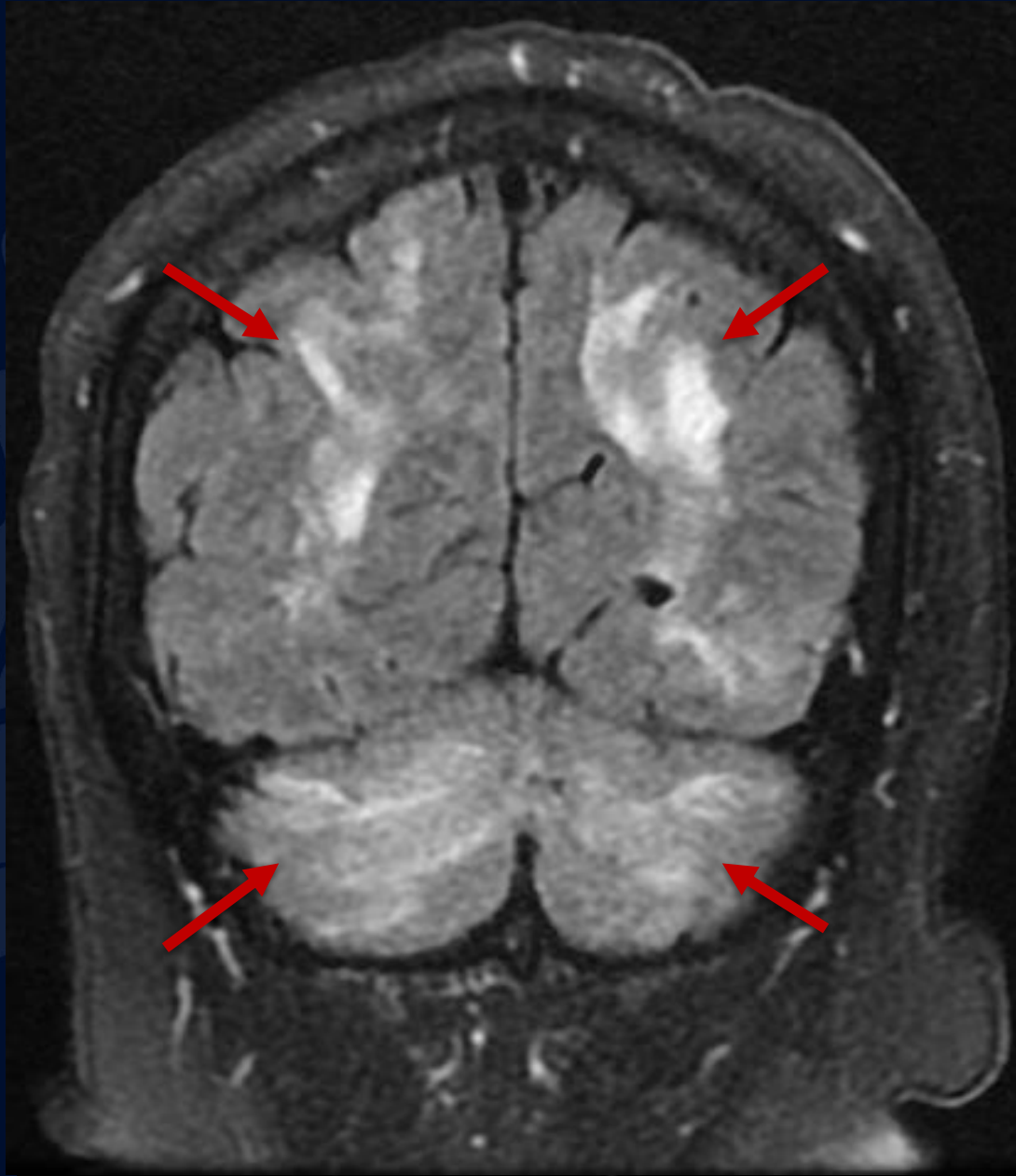
Posterior Reversible Encephalopathy Syndrome (PRES)

CT with IV contrast



Vasogenic edema

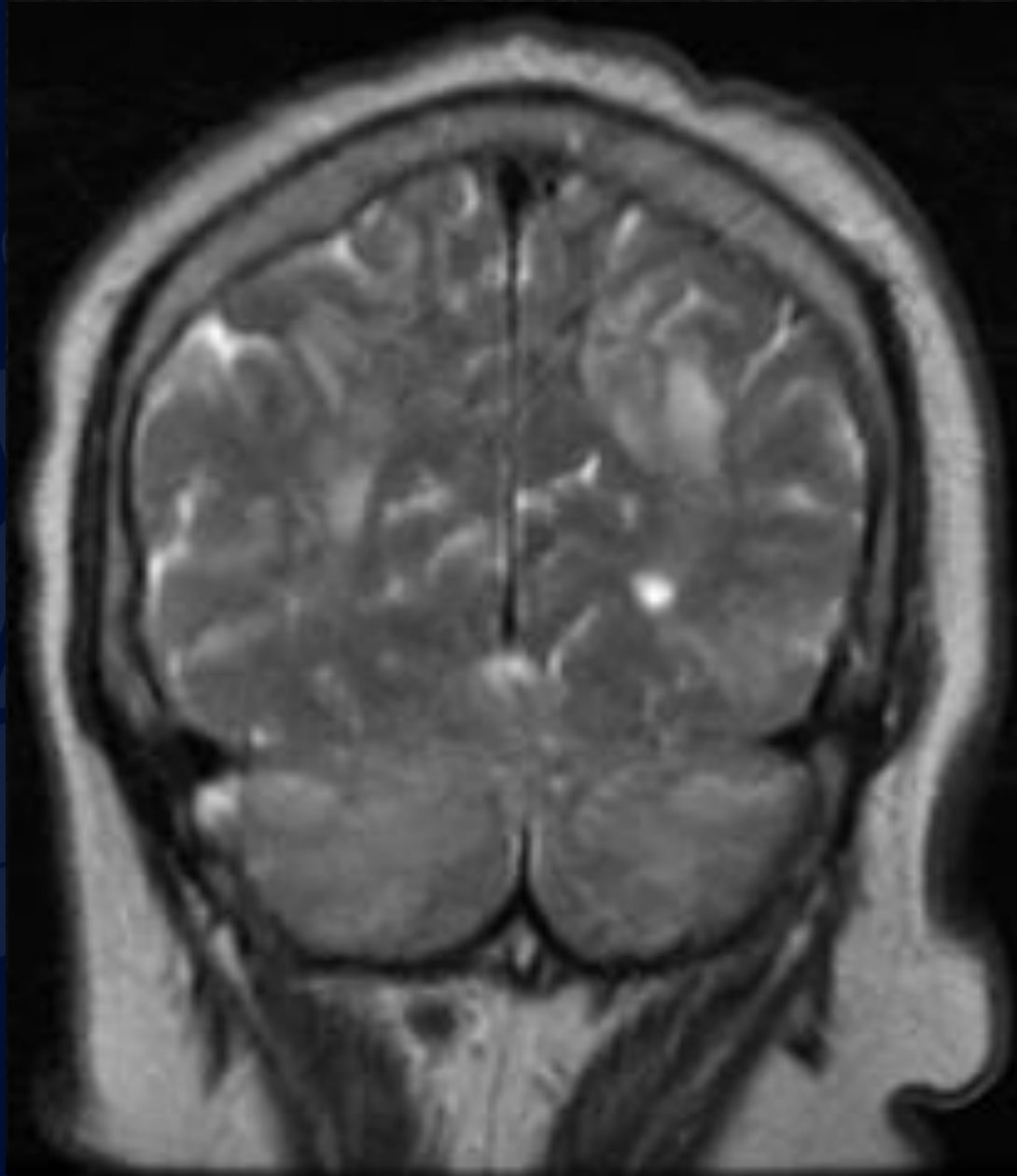
MR T2 FLAIR



Hyperintensities
within the subcortical
white matter
bilaterally

Patchy
hyperintensities
within the cerebellum
bilaterally

MR T2

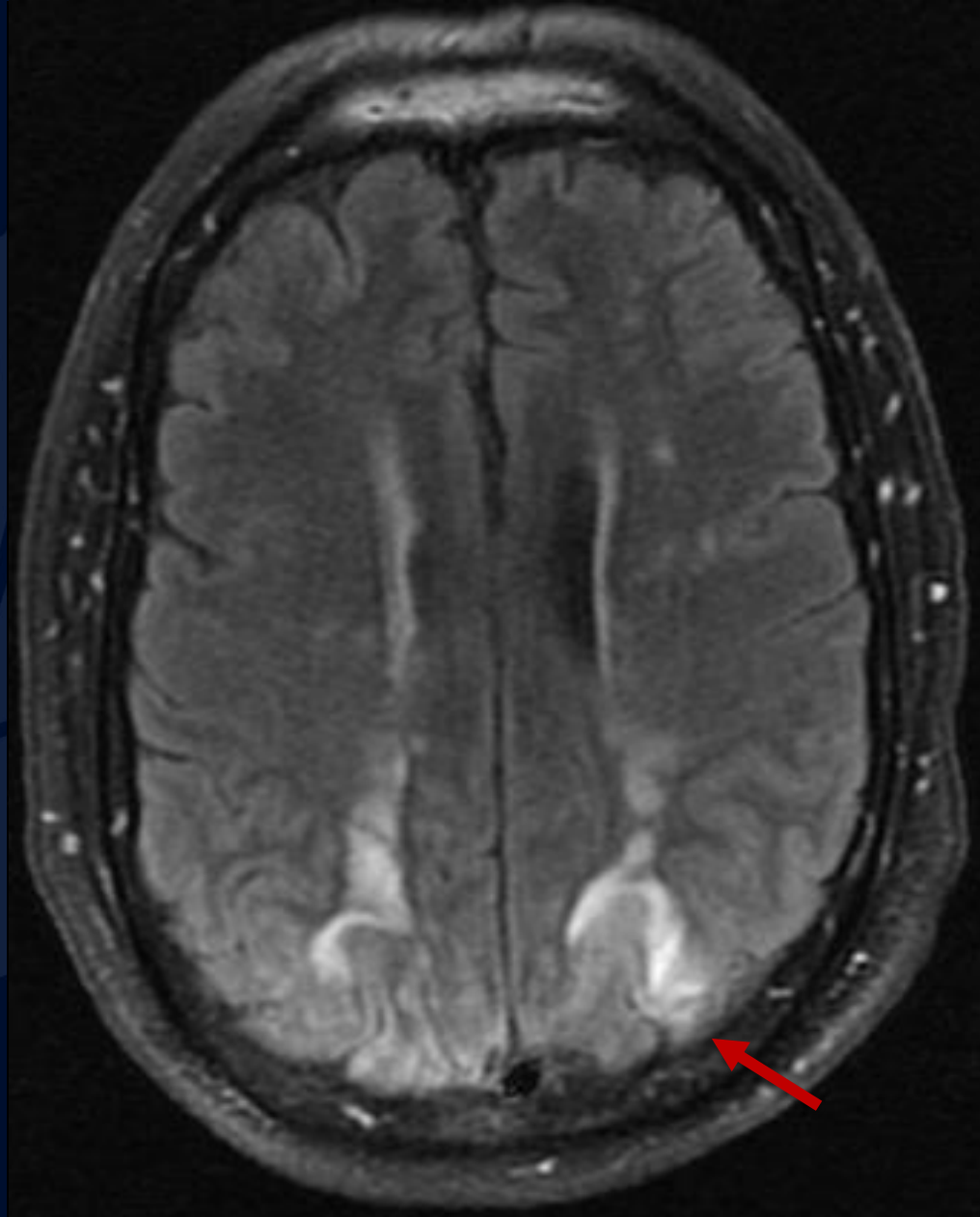


Hyperintensities
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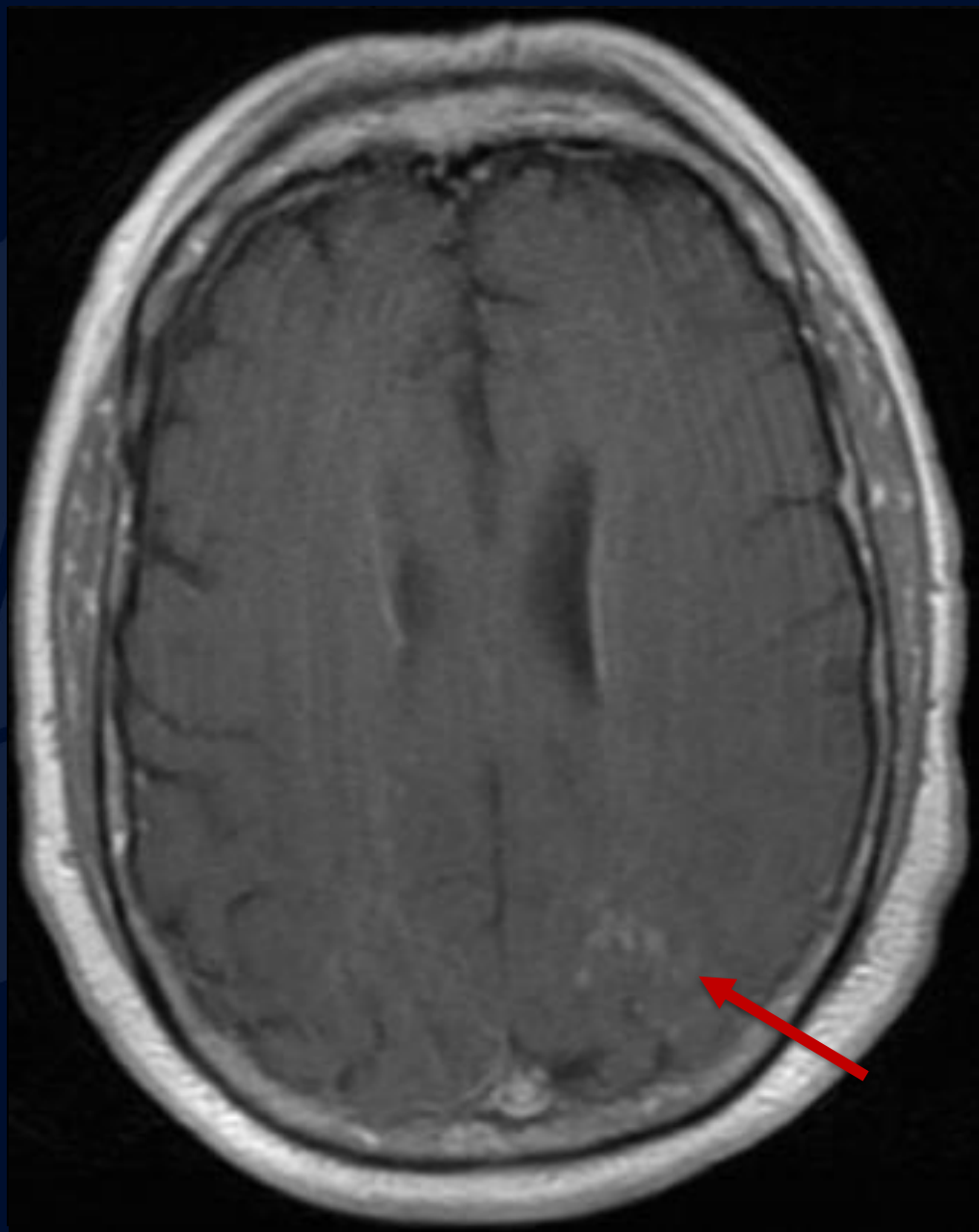
MR T2 FLAIR

Hyperintensities
within the occipital
subcortical white
matter



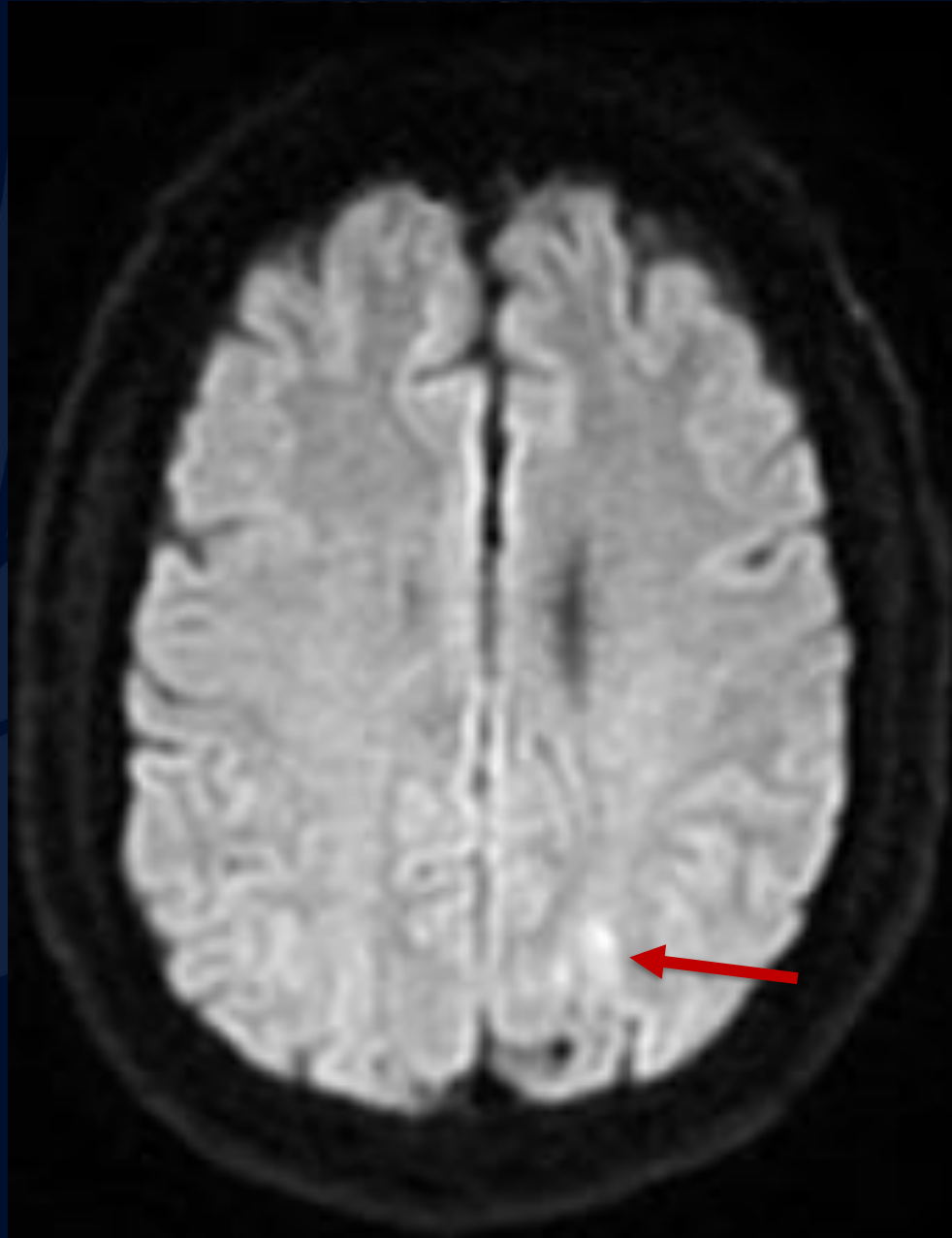
MR T1 + Gad

Minimal patchy
enhancement



MR T2 DWI

Minimal focal
diffusion restriction,
the remaining
affected area does
not demonstrate
diffusion restriction



PRES

PRES is a neurotoxic state that occurs secondary to the inability of the posterior circulation to autoregulate in response to acute changes in blood pressure. Hyperperfusion with resultant disruption of the blood-brain barrier results in vasogenic edema, usually without infarction, most commonly in the parieto-occipital regions.

Differential Diagnosis

- Inflammatory cerebral amyloid angiopathy
 - Microhemorrhages with surrounding edema
- Progressive multifocal leukoencephalopathy
 - Spares the cortex, affected areas showing little to no enhancement
- Posterior circulation infarct
 - Cerebellar and occipital involvement
 - Demonstrated restricted diffusion (vs PRES which usually does not)
- Gliomatosis cerebri
 - Asymmetric involvement

PRES Imaging Findings

Imaging findings are reflective of vasogenic edema

CT

- Bilateral nonconfluent hypodense foci
- +/- symmetric lesions in the basal ganglia

MRI

- Parietooccipital T2/FLAIR hyperintensities in 95%
- T1 hypointense
- +/- basal ganglia, pontine, cerebellar involvement
- 3 patterns of hemorrhage
 - Focal parenchymal hemorrhage, microhemorrhages, convexity SAH
- Variable patchy enhancement
- Most often, no diffusion restriction though is possible

References

Gaillard F, Ranchod A, Yap J, et al. Posterior reversible encephalopathy syndrome. Reference article, Radiopaedia.org (Accessed on 07 Sep 2023)
<https://doi.org/10.53347/rID-1915>

Bartynski WS, Boardman JF. Distinct imaging patterns and lesion distribution in posterior reversible encephalopathy syndrome. *AJNR Am J Neuroradiol*. 2007 Aug;28(7):1320-7. doi: 10.3174/ajnr.A0549. PMID: 17698535; PMCID: PMC7977645.

Tetsuka S, Ogawa T. Posterior reversible encephalopathy syndrome: A review with emphasis on neuroimaging characteristics. *J Neurol Sci*. 2019 Sep 15;404:72-79. doi: 10.1016/j.jns.2019.07.018. Epub 2019 Jul 17. PMID: 31349066.

Triplett JD, Kutlubaev MA, Kermode AG, et al. Posterior reversible encephalopathy syndrome (PRES): diagnosis and management. *Practical Neurology* 2022;22:183-189.