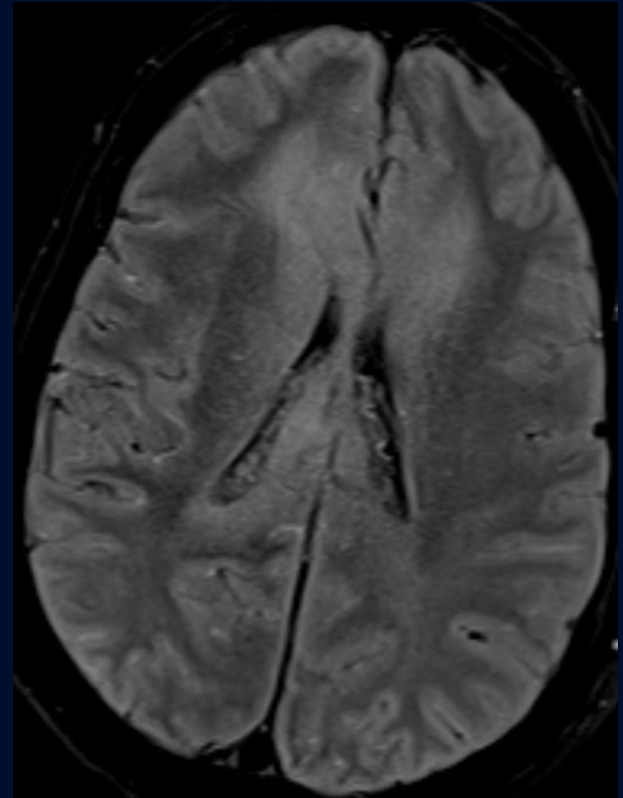
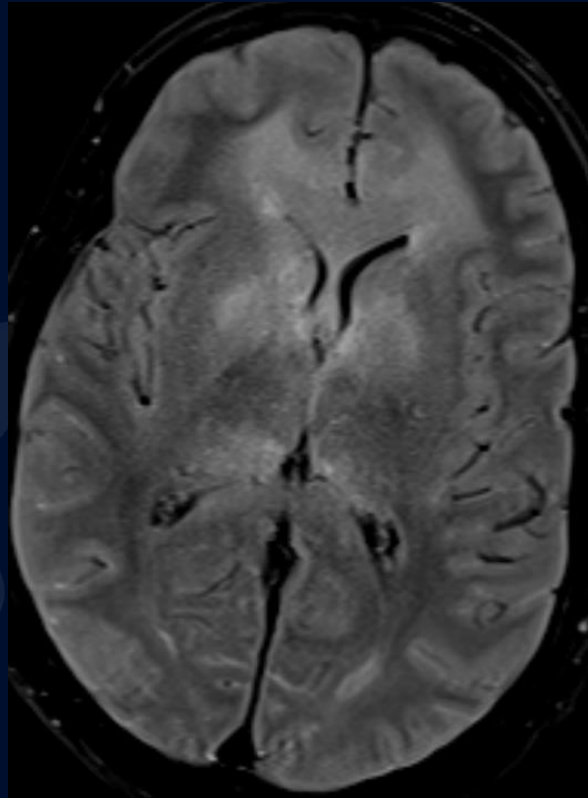
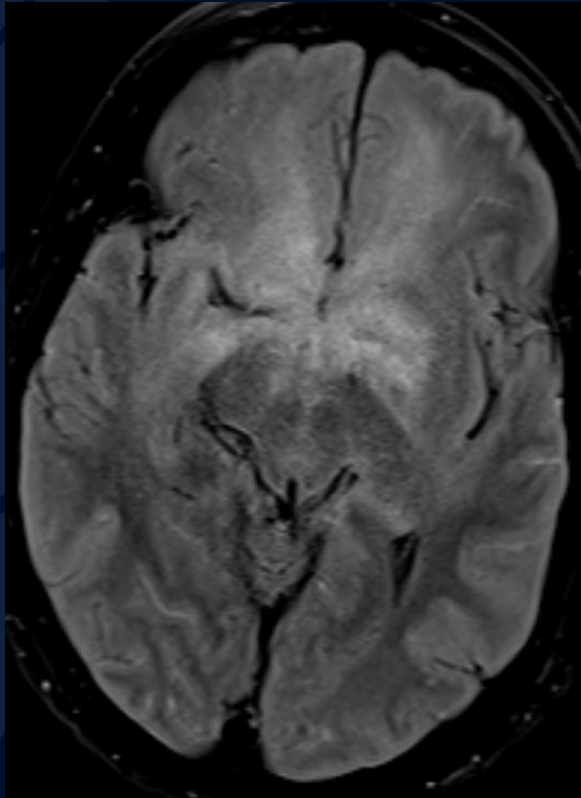


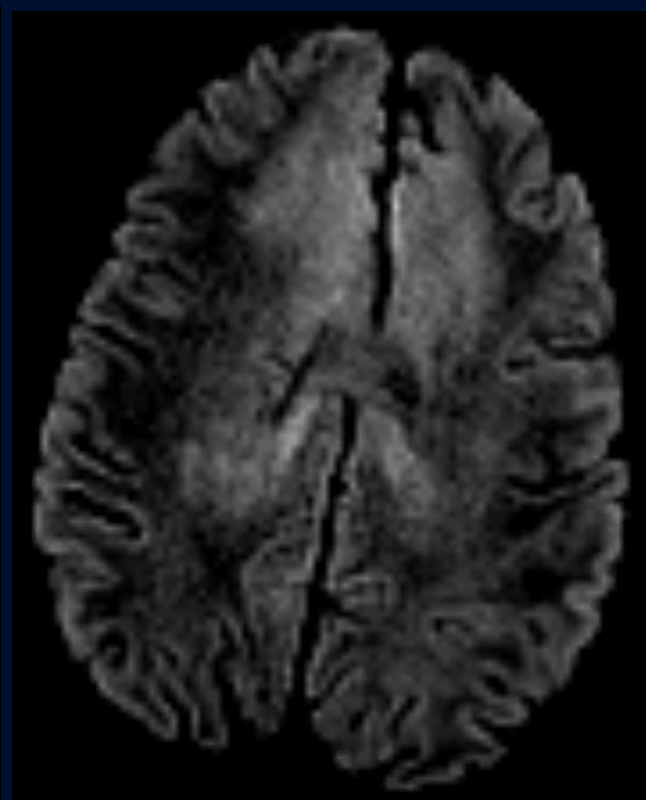
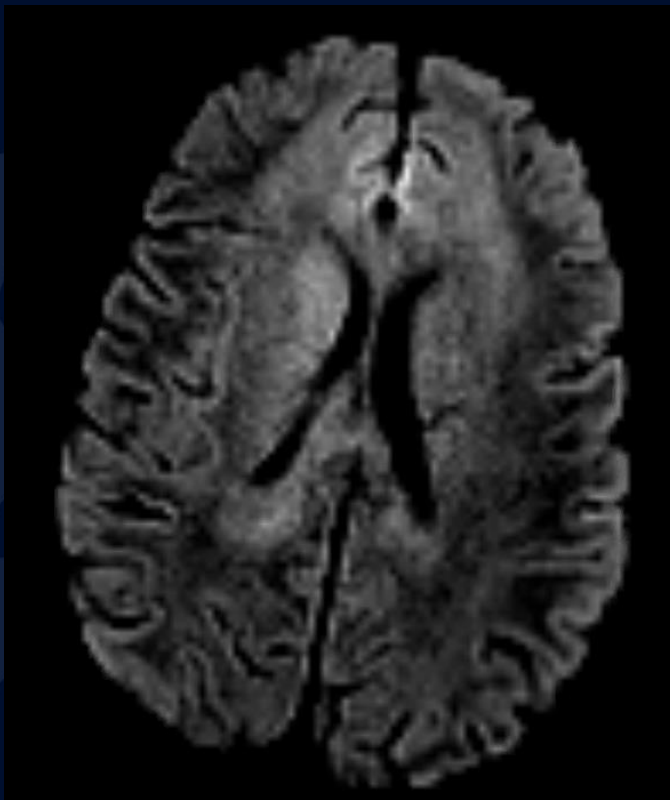
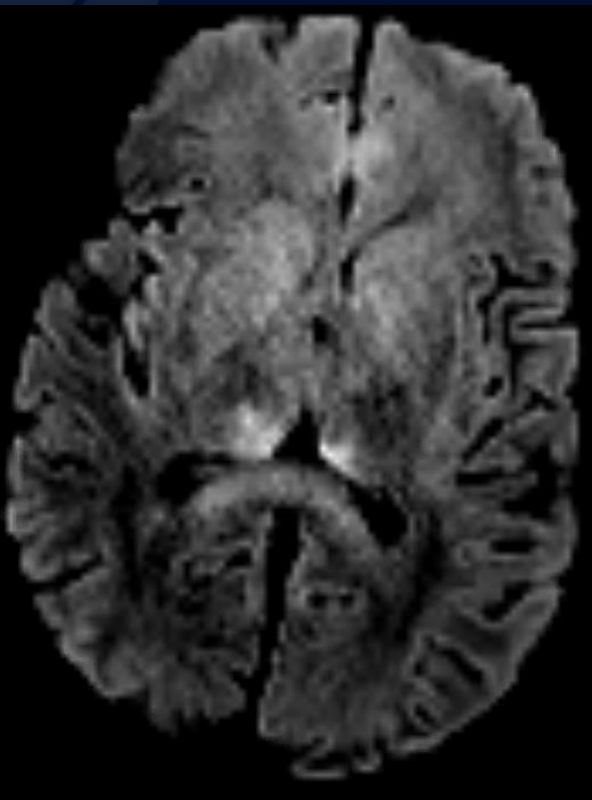
48-year-old male with malignancy  
with new-onset seizures.

Ryan P. Joyce, MD

Leo Wolansky, MD

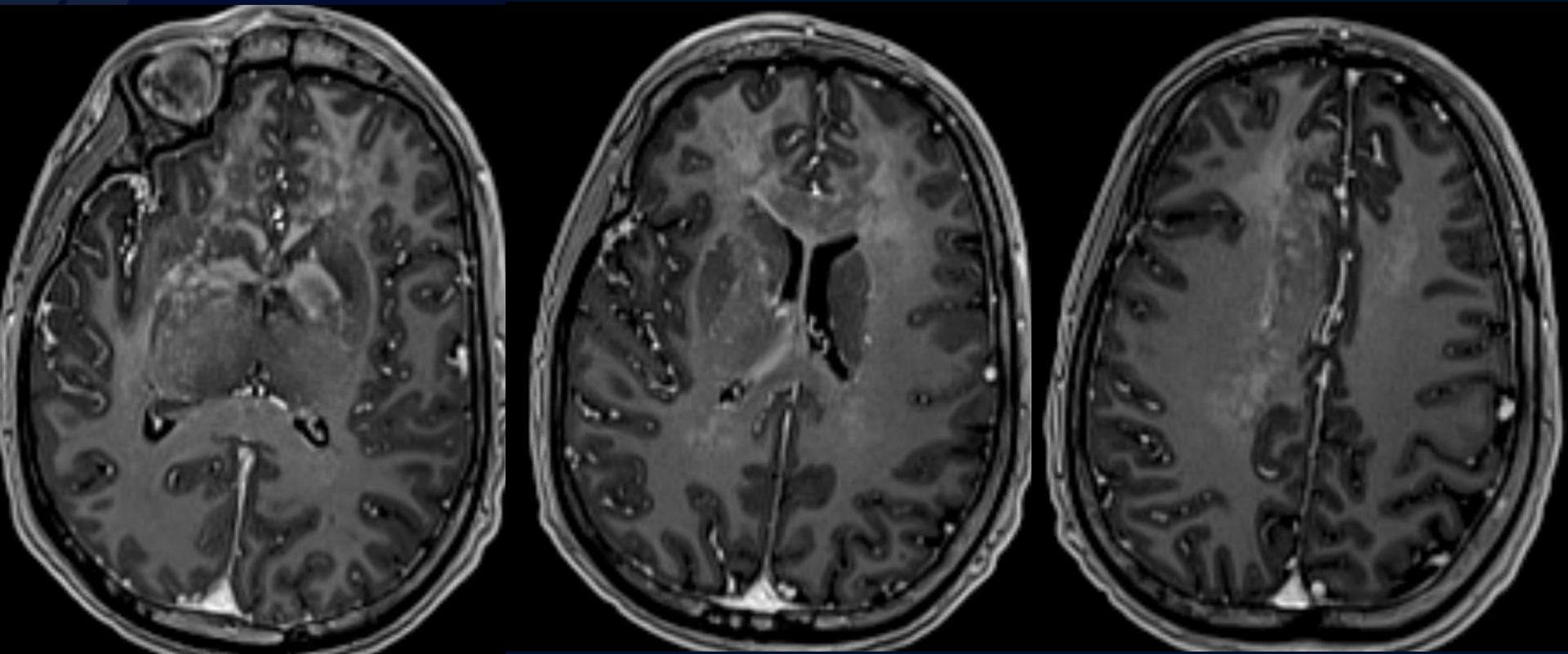


Axial FLAIR

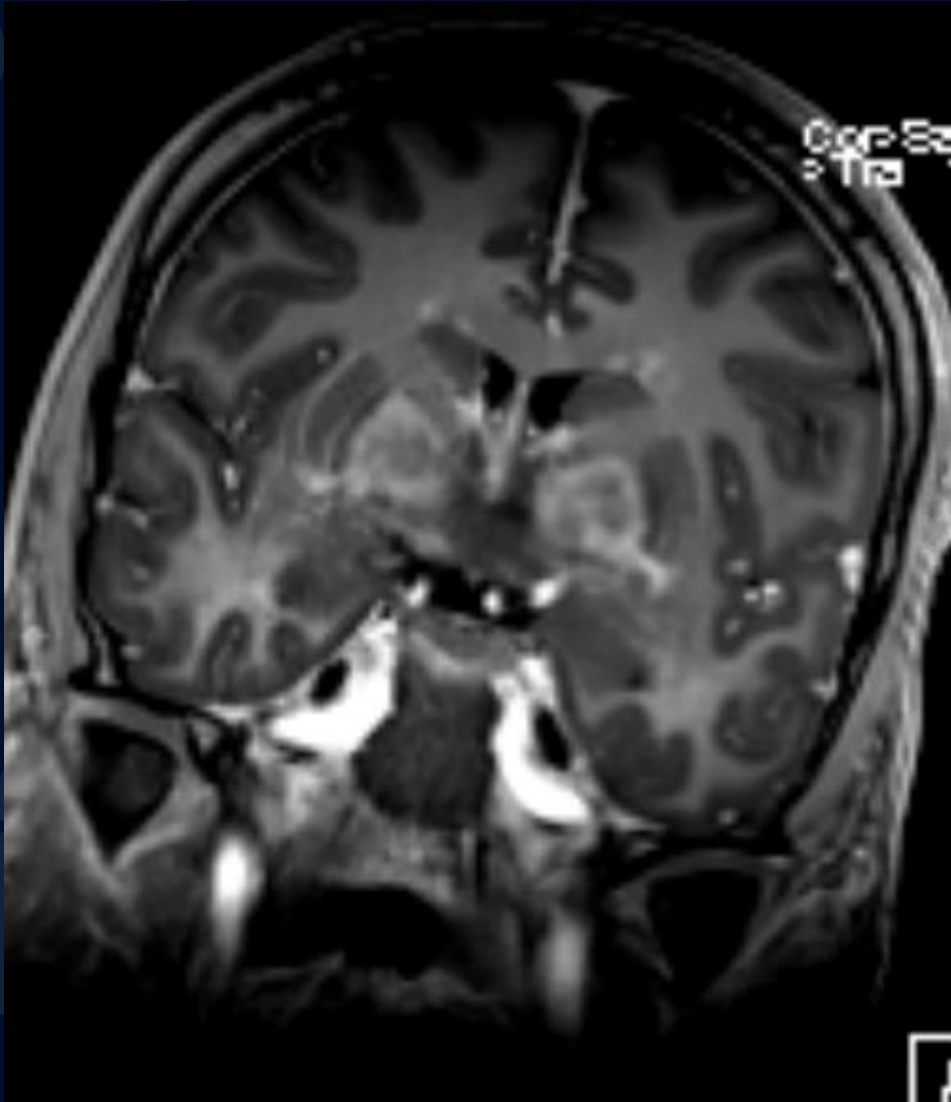


Axial B1000 DWI

# Axial T1 Gd-enhanced Volumetric Gradient-Echo



# Axial T1 Gd-enhanced Volumetric Gradient-Echo



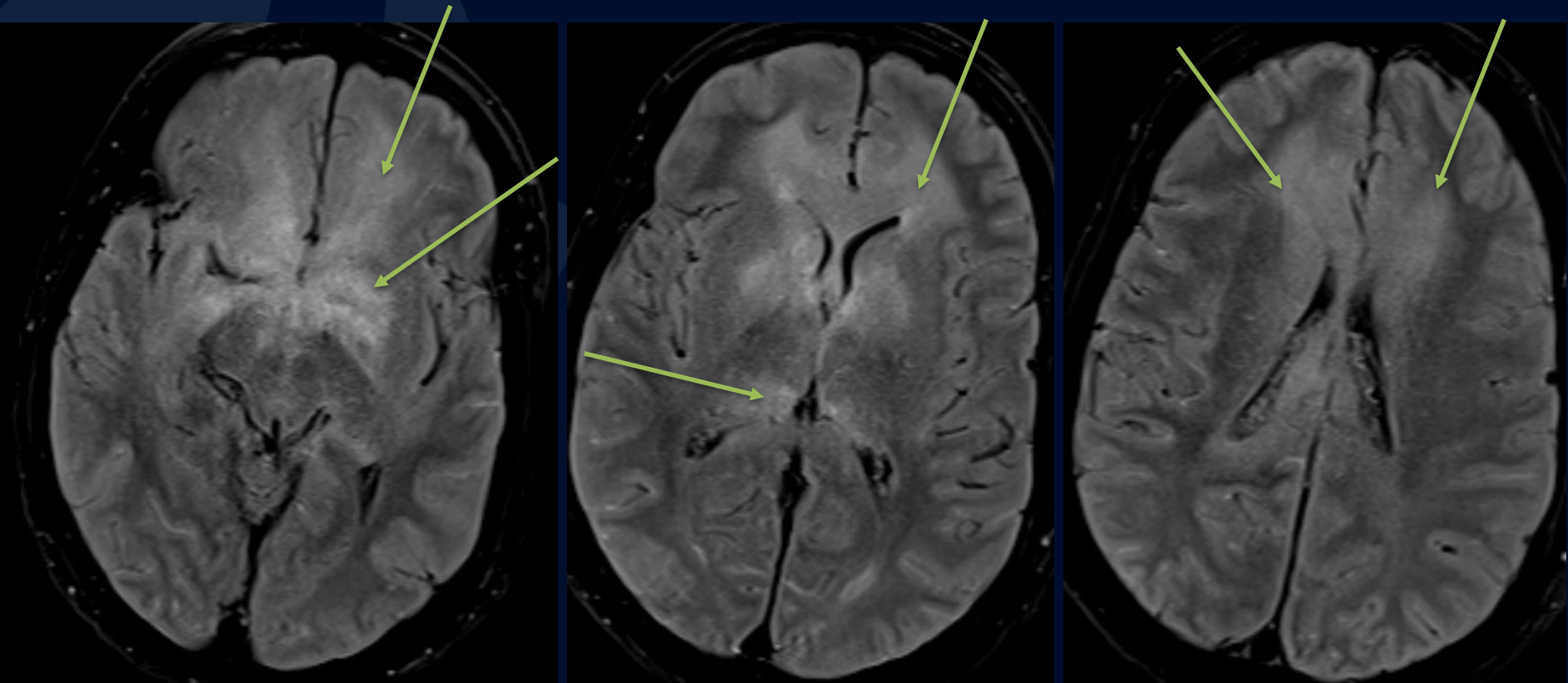
A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide. It features detailed vein patterns and a lobed edge.

?

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

# Intravascular (angiocentric) lymphoma

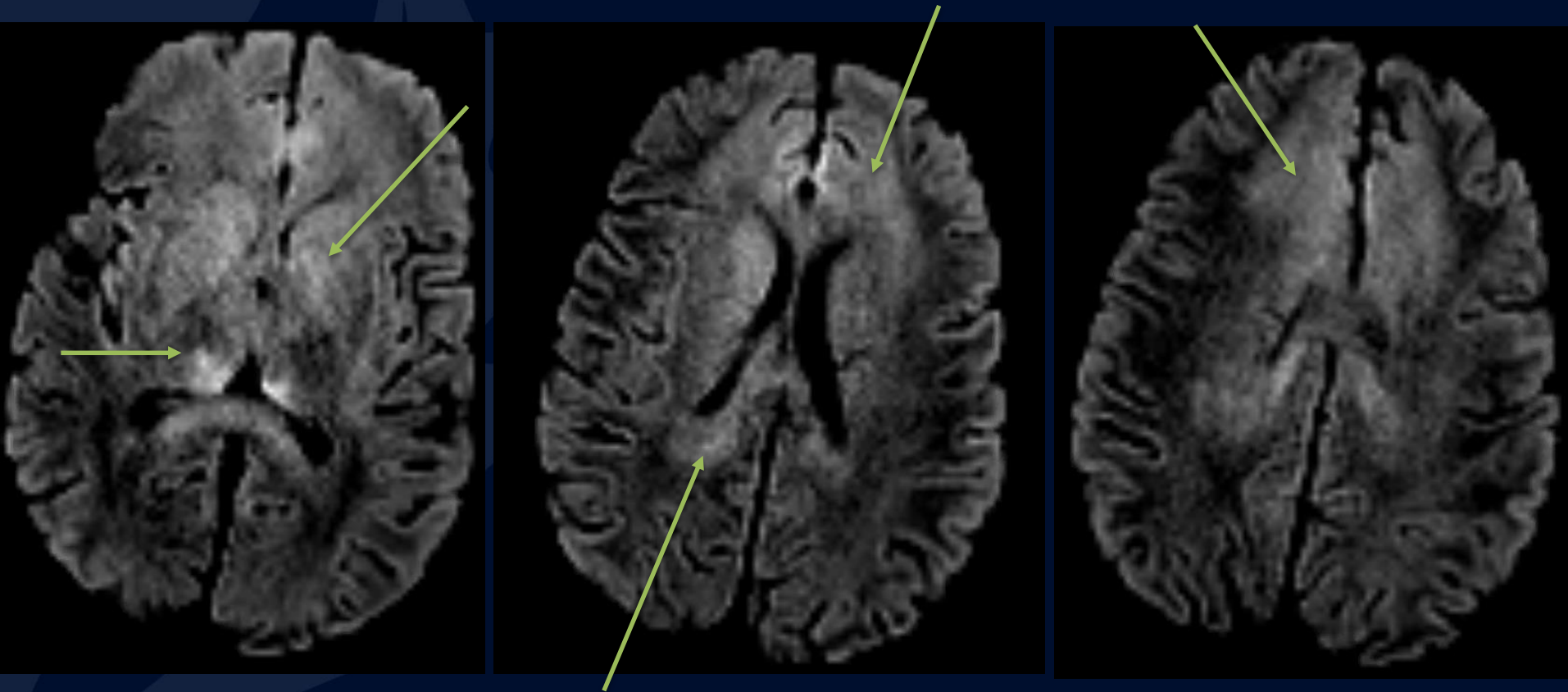
Hyperintense FLAIR signal within the basal ganglia, thalami, periventricular and deep white matter



Axial FLAIR

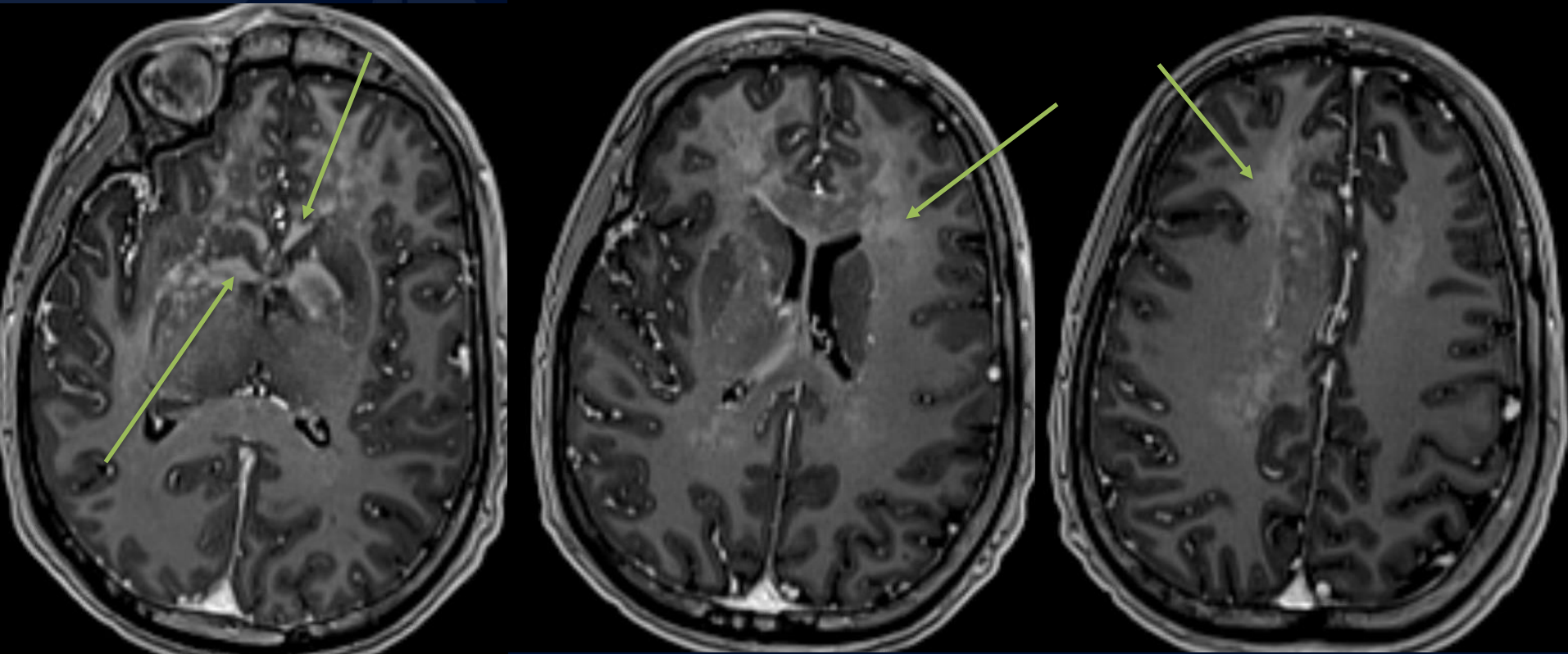


Hyperintense DWI signal, representing restricted diffusion, within the same regions; the basal ganglia, thalami, periventricular and deep white matter



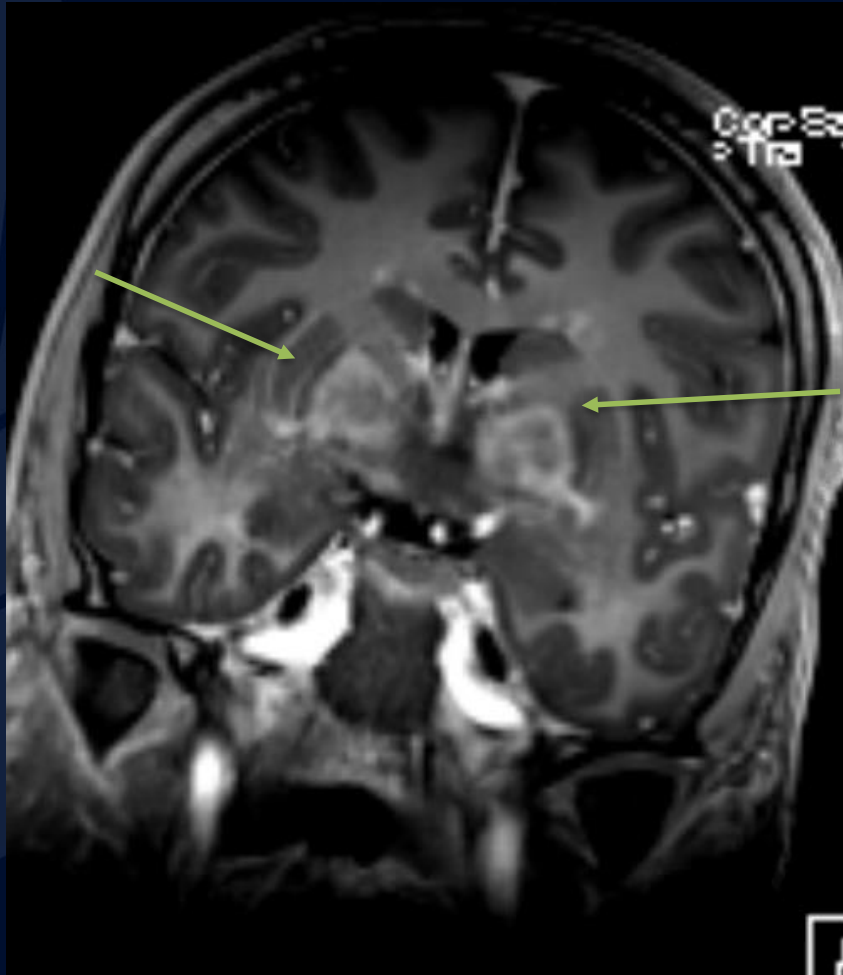
Axial B1000 DWI

Patchy, punctate, & linear enhancement involving same regions; basal ganglia, thalami, periventricular & deep white matter



Axial T1 Gd-enhanced Volumetric Gradient-Echo

Patchy and confluent enhancement involving same regions;  
basal ganglia, thalami, periventricular & deep white matter



Axial T1 Gd-enhanced Volumetric Gradient-Echo

# Intravascular (angiocentric) lymphoma

- Rare, fatal form of non-Hodgkin lymphoma with angiotropic growth – proliferation of malignant lymphoid cells within vessel lumen.
  - Results in distension & occlusion of small arteries, veins, & capillaries.
  - Originally thought to be a neoplastic vascular proliferation, later shown to be lymphoma (usually B-cell).
- Preferentially involves small-to-medium sized vessels.
  - Cells primarily found in capillaries in the CNS & skin.
    - Western variant found in the CNS and skin, Asian variant characterized by hemophagocytosis.

# Intravascular (angiocentric) lymphoma

- *Can involve any organ*, but predilection for CNS & skin
- Tends to not be seen on peripheral blood smears, bone marrow biopsies.
- Typically *no lymphadenopathy* on imaging.
- Highly variable clinical presentation.
- New-onset dementia most common presenting feature.
- Rapidly progressive disease with high mortality rate.
  - Mean survival 7-13 months

# Intravascular (angiocentric) lymphoma

There are no pathognomonic criteria for IVL.

Imaging findings are nonspecific & include:

- Multifocal abnormal T2/FLAIR hyperintensities in white matter and/or cortex and/or basal ganglia, with abnormal, typically linear or nodular enhancement on post-contrast imaging.
- Enhancement may be absent in early/acute phase. Seen in subacute phase.
- Frequently associated with hemorrhage or evidence of prior hemorrhage (blooming artifact).
- May mimic acute multifocal embolic stroke or vasculitis.
  - May see “beading” morphology of vessels on MRA, CTA

# Intravascular (angiocentric) lymphoma

- >1/2 of patients are diagnosed at autopsy.
- Recent emphasis on the importance of a skin biopsy for diagnosis.
- Treatment with chemotherapy & immunotherapy has shown better response than chemotherapy alone.

# References

1. Konikkara, John J., et al. "A 62-year-old man with fluctuating neurological deficits and skin lesions." *Jama neurology* 70.1 (2013): 120-124.
2. Awad, Amer, Bachir Estephan, and Olaf Stüve. "CNS intravascular lymphoma: A case report." *Case reports in neurological medicine* 2011 (2011).
3. Matsue, Kosei, et al. "A clinicopathological study of 13 cases of intravascular lymphoma: experience in a single institution over a 9-yr period." *European journal of haematology* 80.3 (2008): 236-244.
4. Statdx.com