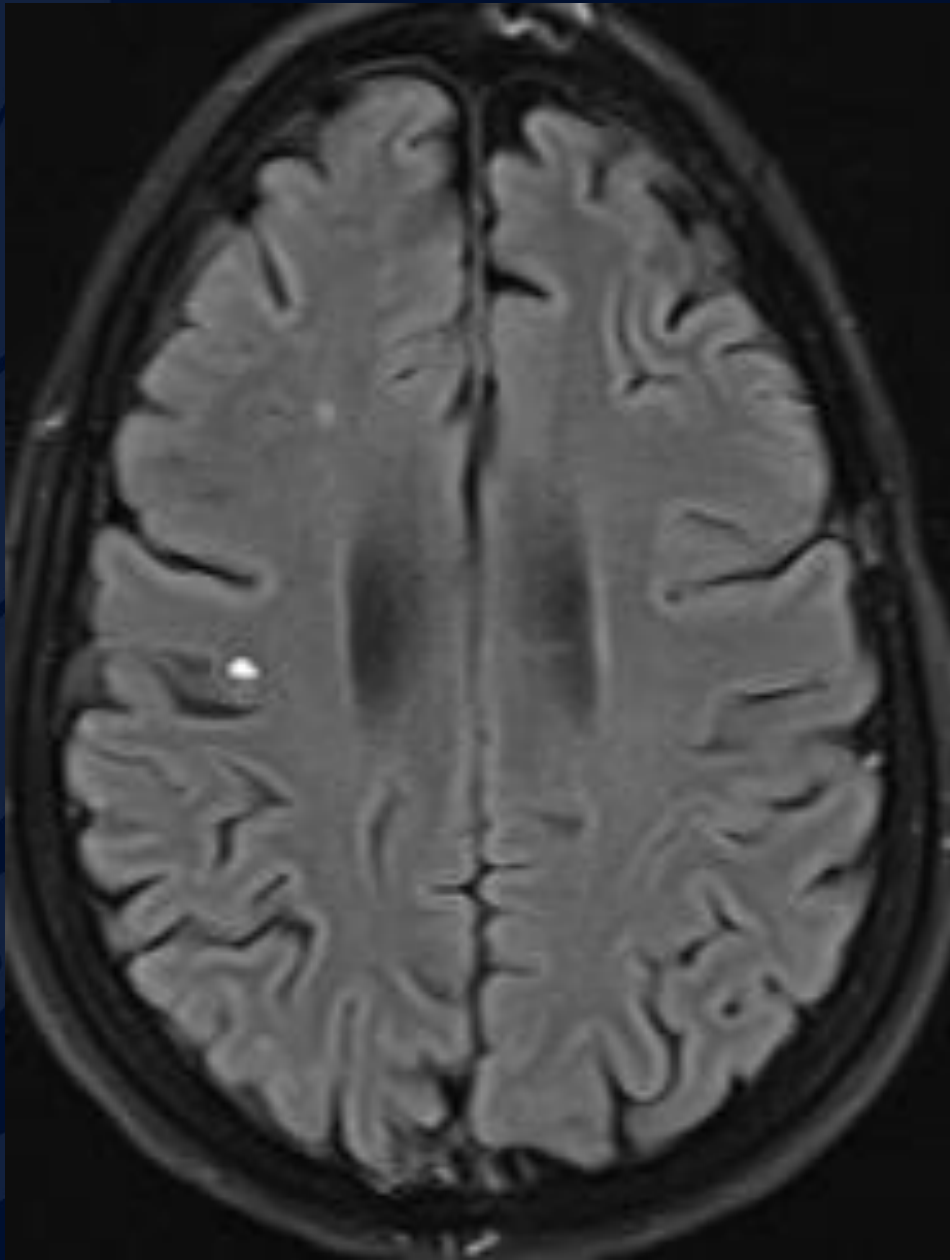
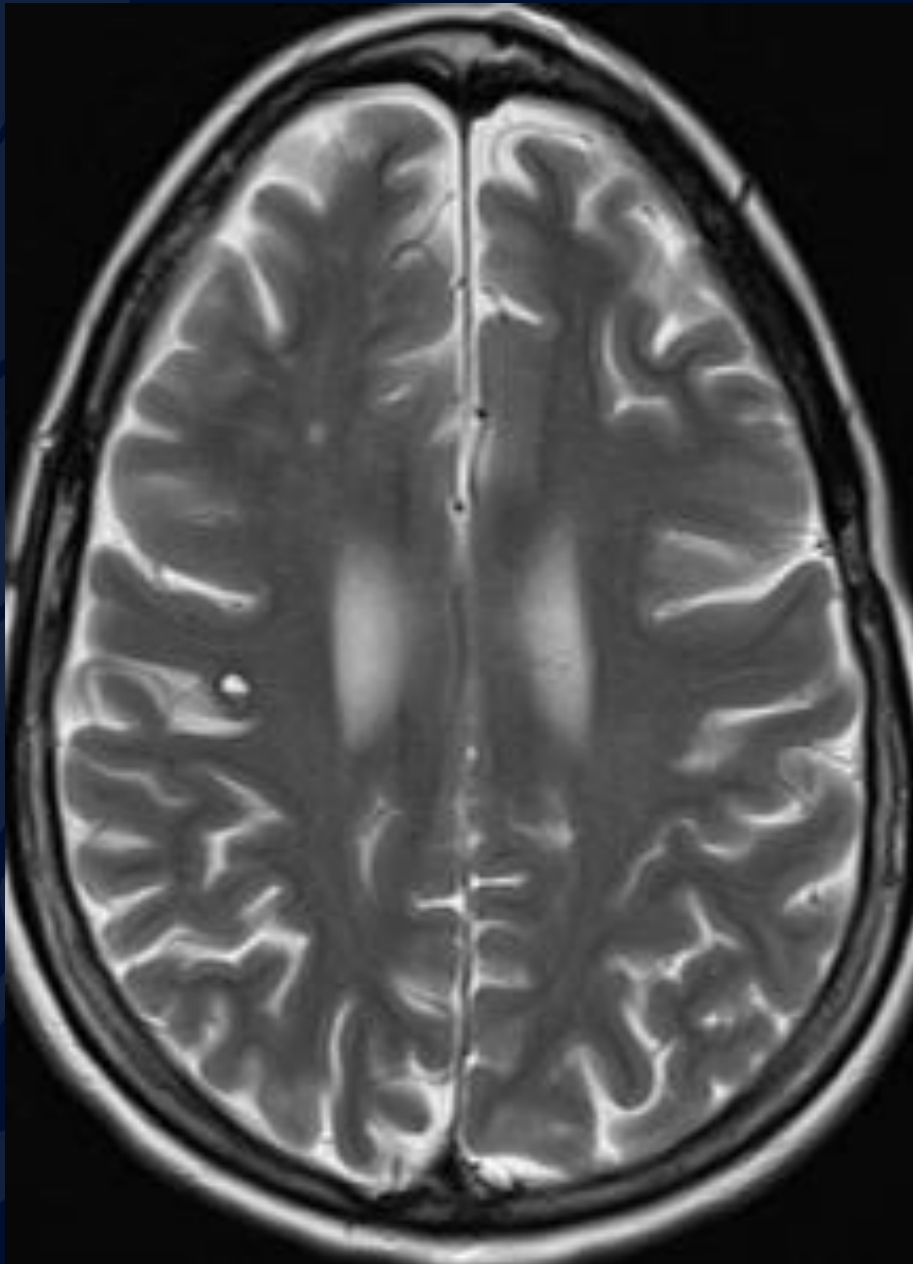
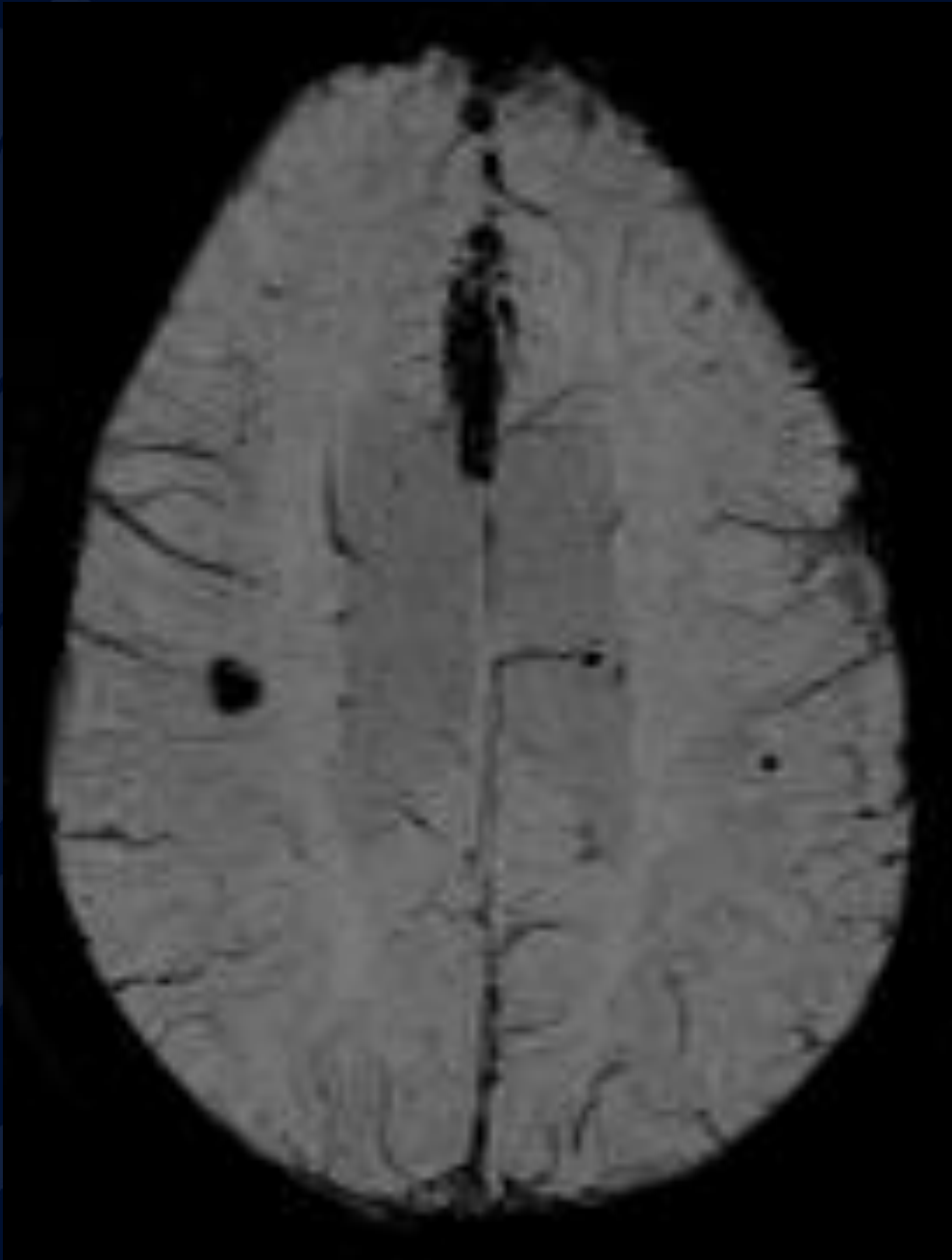


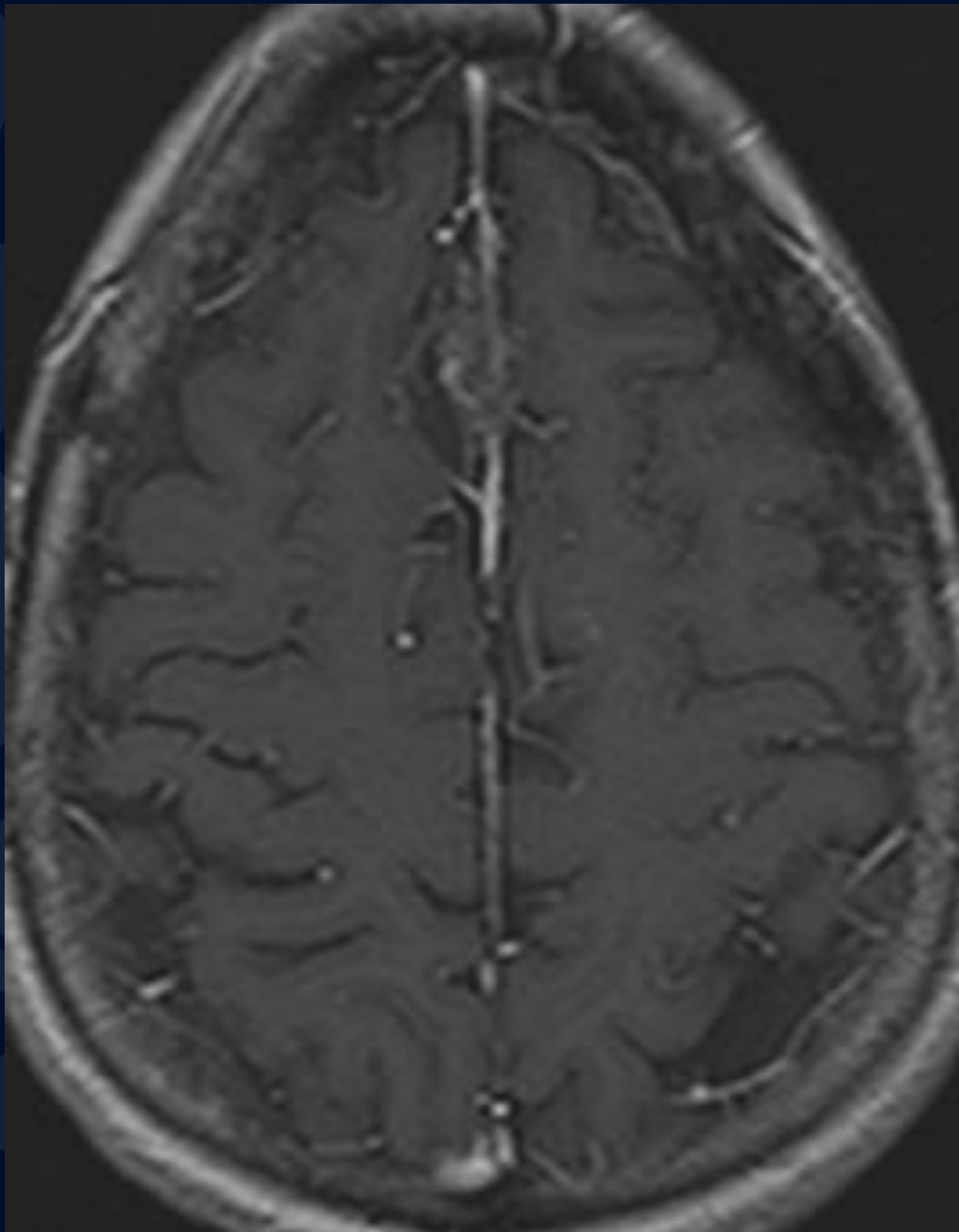
38-year-old female with past medical history of brain tumor, s/p resection 12 years ago, hx of radiation treatment and multiple meningiomas presents with fatigue and dizziness

Samantha Huq, MD, MPH








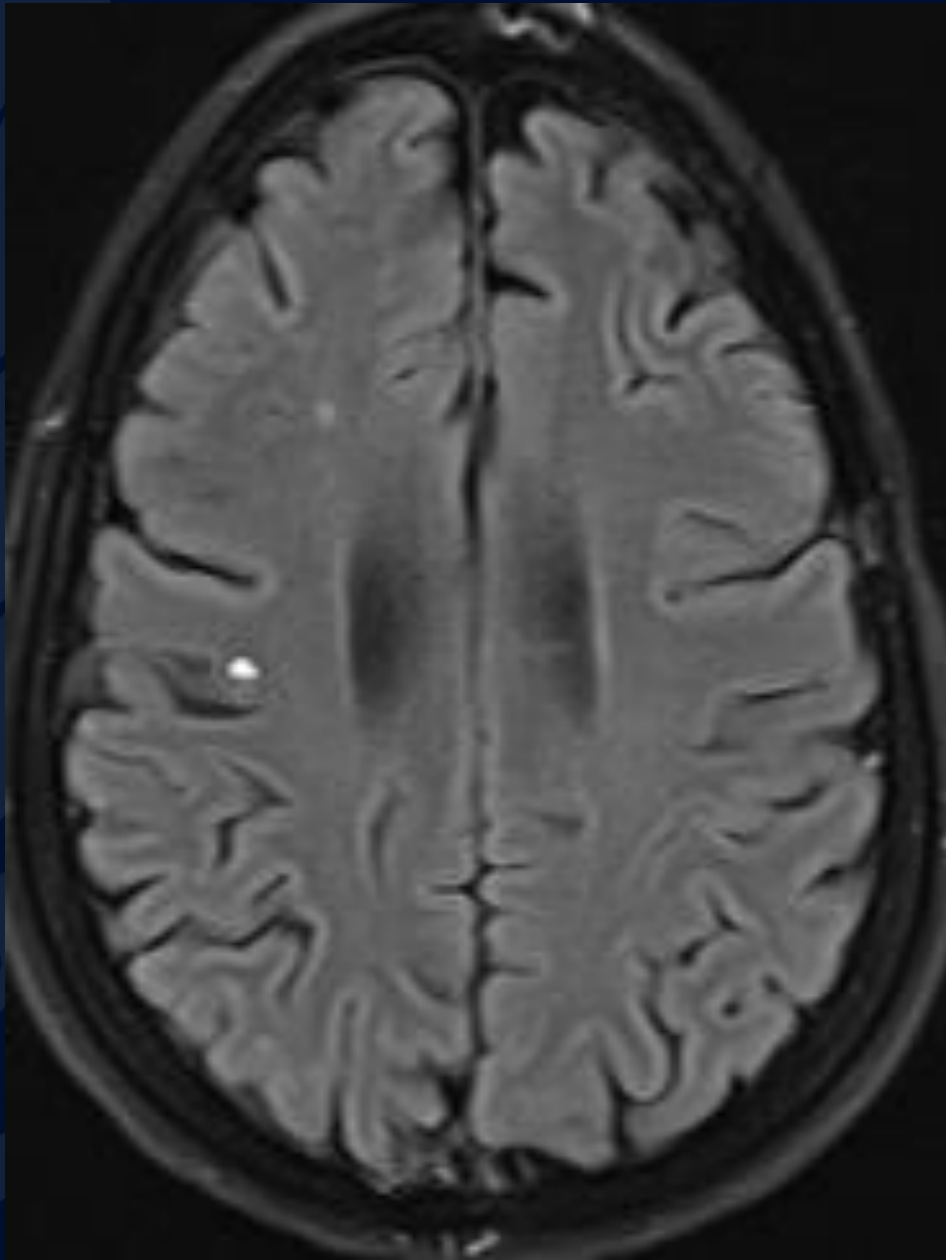


A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide. It features detailed vein patterns and a lobed edge.

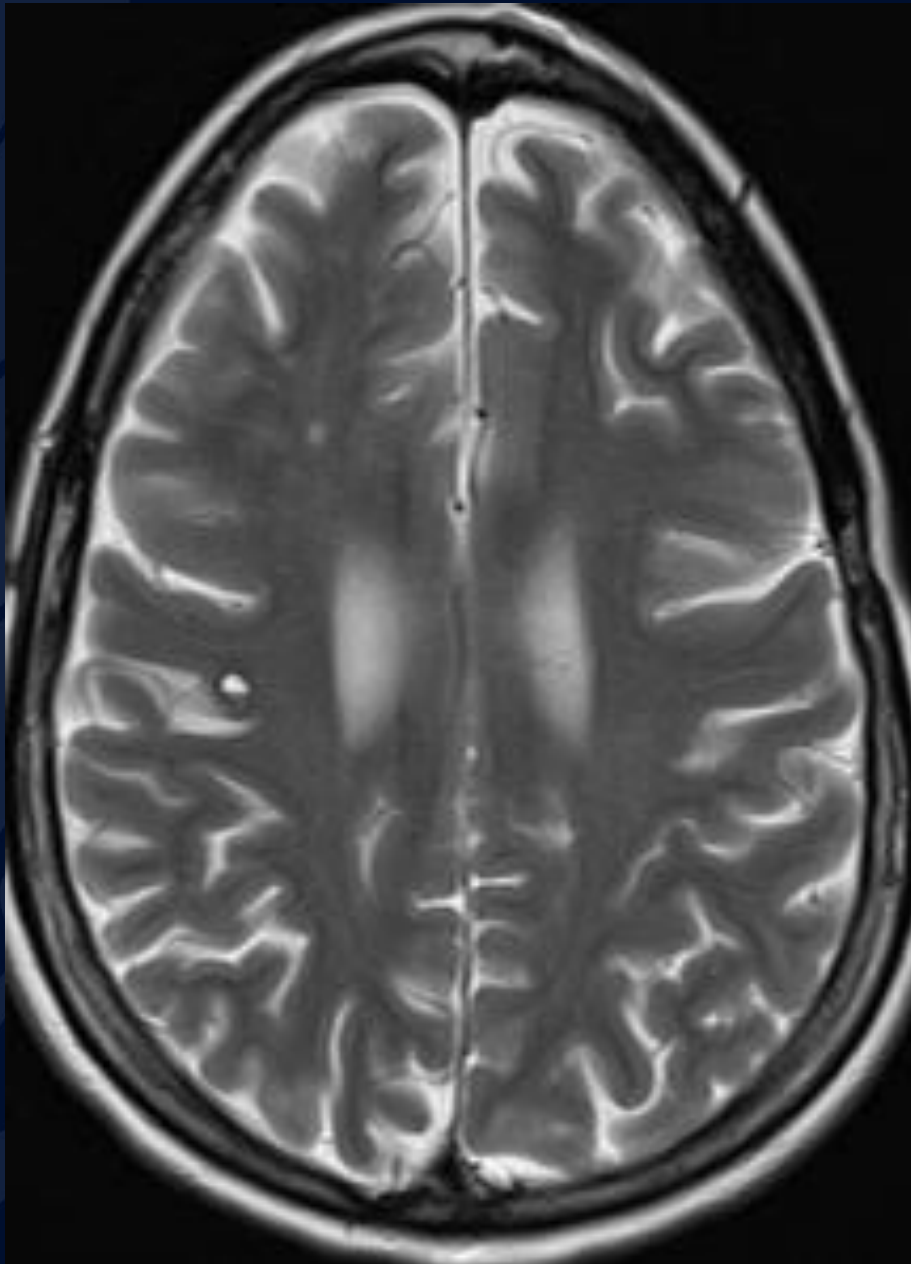
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A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide. The leaf has a prominent central vein and several smaller veins branching off it. The background of the slide is a solid dark blue.

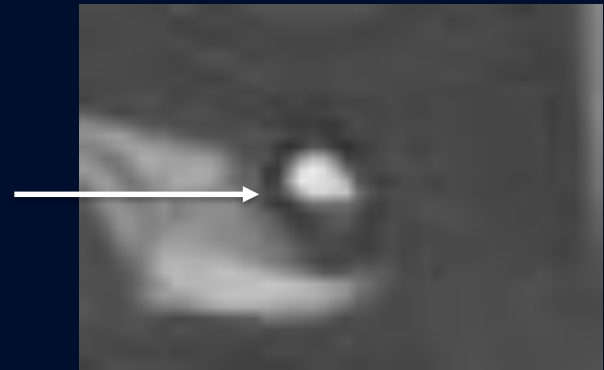
Radiation-induced cavernoma & meningioma



FLAIR shows a small focus of increased signal in the right pre-central gyrus.

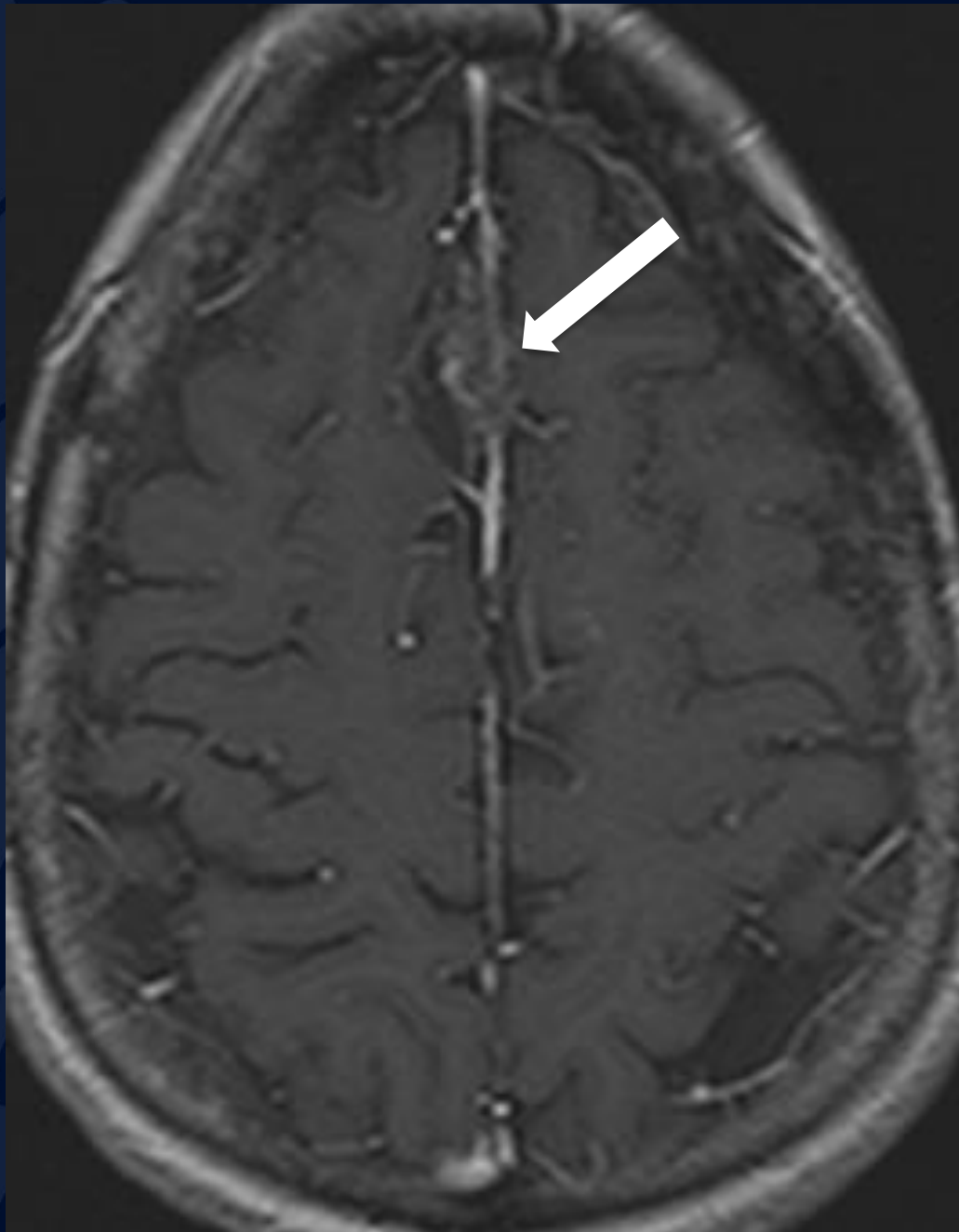


T2-weighted image also shows the central focus of increased signal plus a thin hypointense rim and a small fluid-fluid level (arrow)





Axial SWI shows a prominent “blooming” hypointense focus (arrow), which represents hemosiderin deposition. Given history of RT, typical for radiation-induced cavernoma.



Axial T1 C+ MR shows an enhancing mass involving the falx cerebri, predominantly on the right of midline. Findings are compatible with a meningioma. (Enhancement is typically more robust)

Radiation-induced cavernoma

- Cavernomas

- Composed of a cluster of dilated thin-walled vessels, with surrounding hemosiderin
- Majority of cavernomas are supra-tentorial (~80%) but can be found anywhere including the brainstem
- MRI is the modality of choice for diagnosis
- T1/T2 signal is varied depending on the age of the blood
- On SWI, there is prominent blooming due to hemosiderin
- Typically T1 hyperintense septated center
- Hemosiderin rim produces characteristic “popcorn” or “berry” appearance
- Typically no Gd enhancement

Radiation-induced meningioma

- Meningiomas
 - Frequently multiple
 - Usually long latency between radiation exposure & meningiomas, ~35 years
 - Higher rate of recurrence than spontaneous meningiomas
 - CT often first modality employed but MRI with Gd is study of choice
 - Meningiomas typically demonstrate intense & homogeneous enhancement on T1 C+

References

- Chiarelli M et al: An incidental pulmonary meningioma revealing an intracranial meningioma: primary or secondary lesion? *Ann Thorac Surg.* 99(4):e83-4, 2015
- Nolan CP et al: Neurologic complications of chemotherapy and radiation therapy. *Continuum (Minneap Minn).* 21(2 Neuro-oncology):429-51, 2015
- Diaz AZ et al: Radiation-associated toxicities in the treatment of high-grade gliomas. *Semin Oncol.* 41(4):532-40, 2014