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

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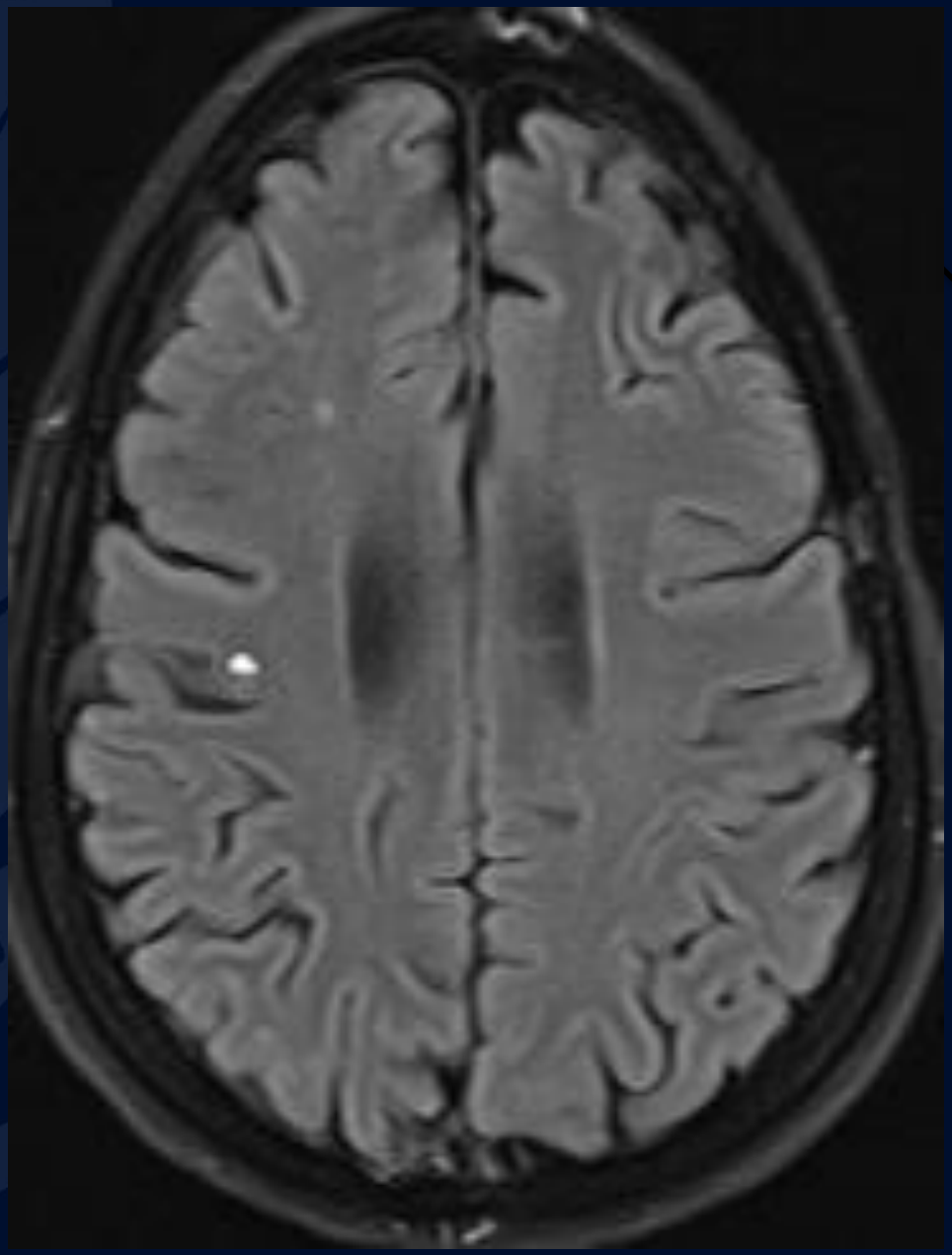

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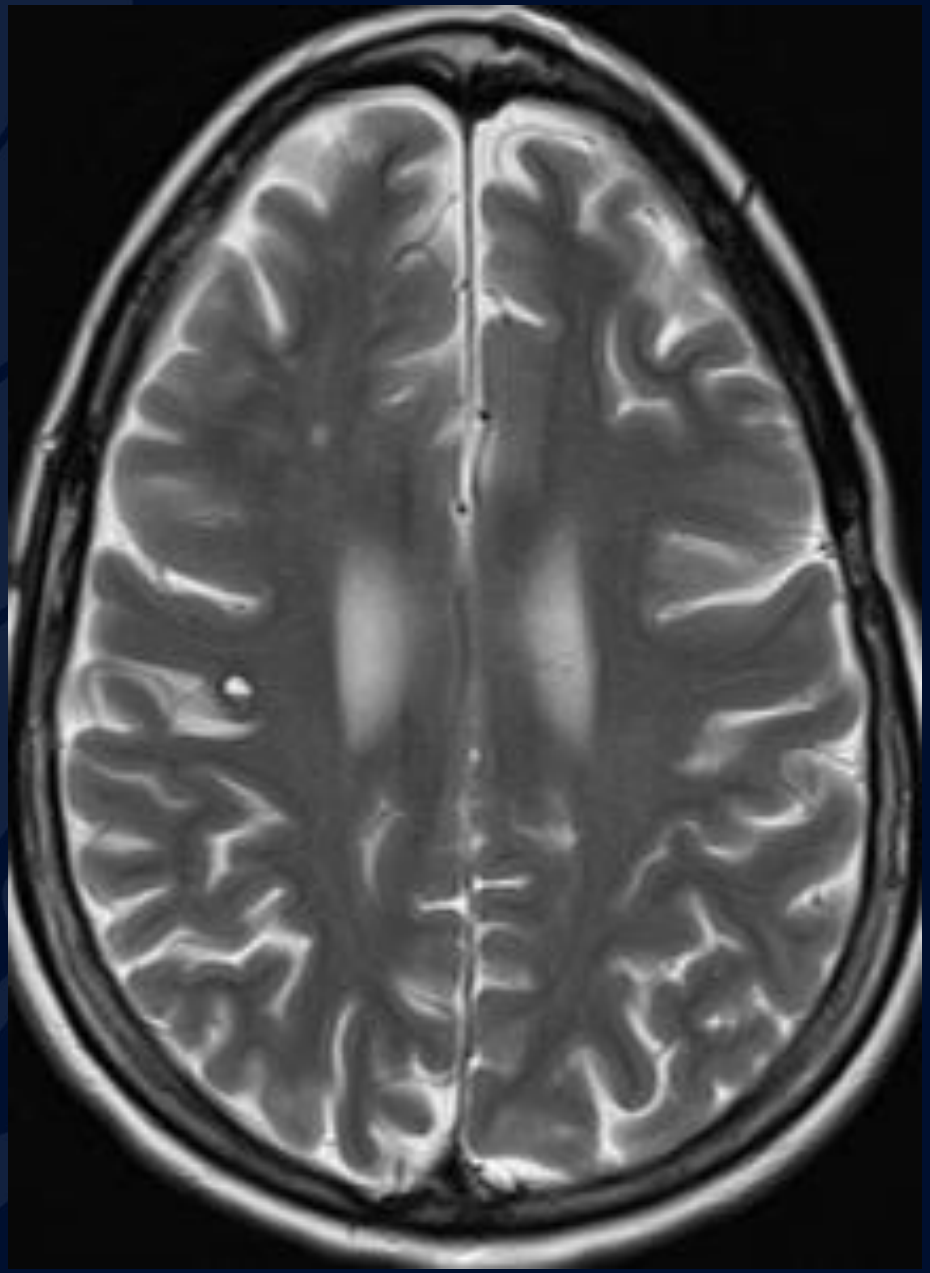

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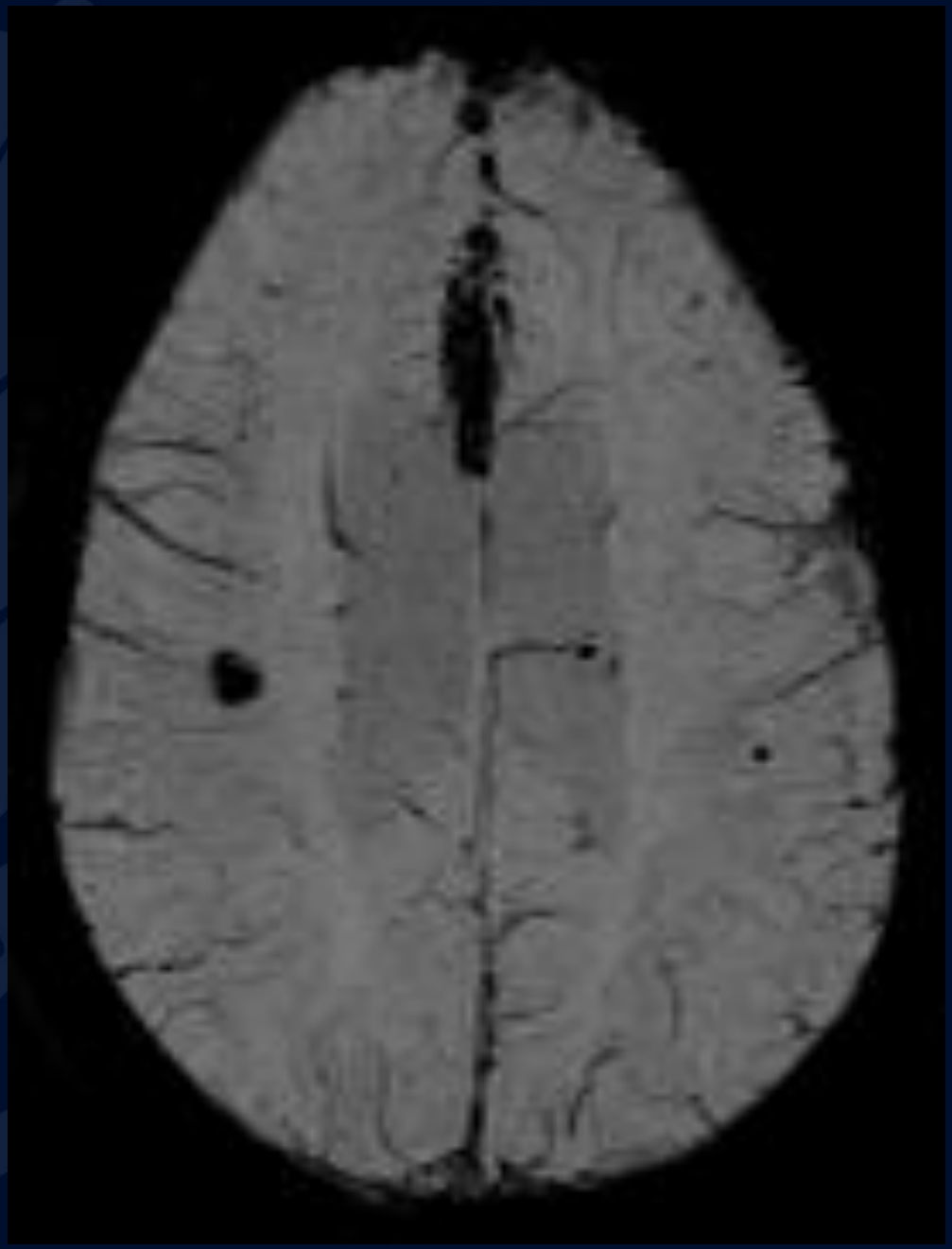

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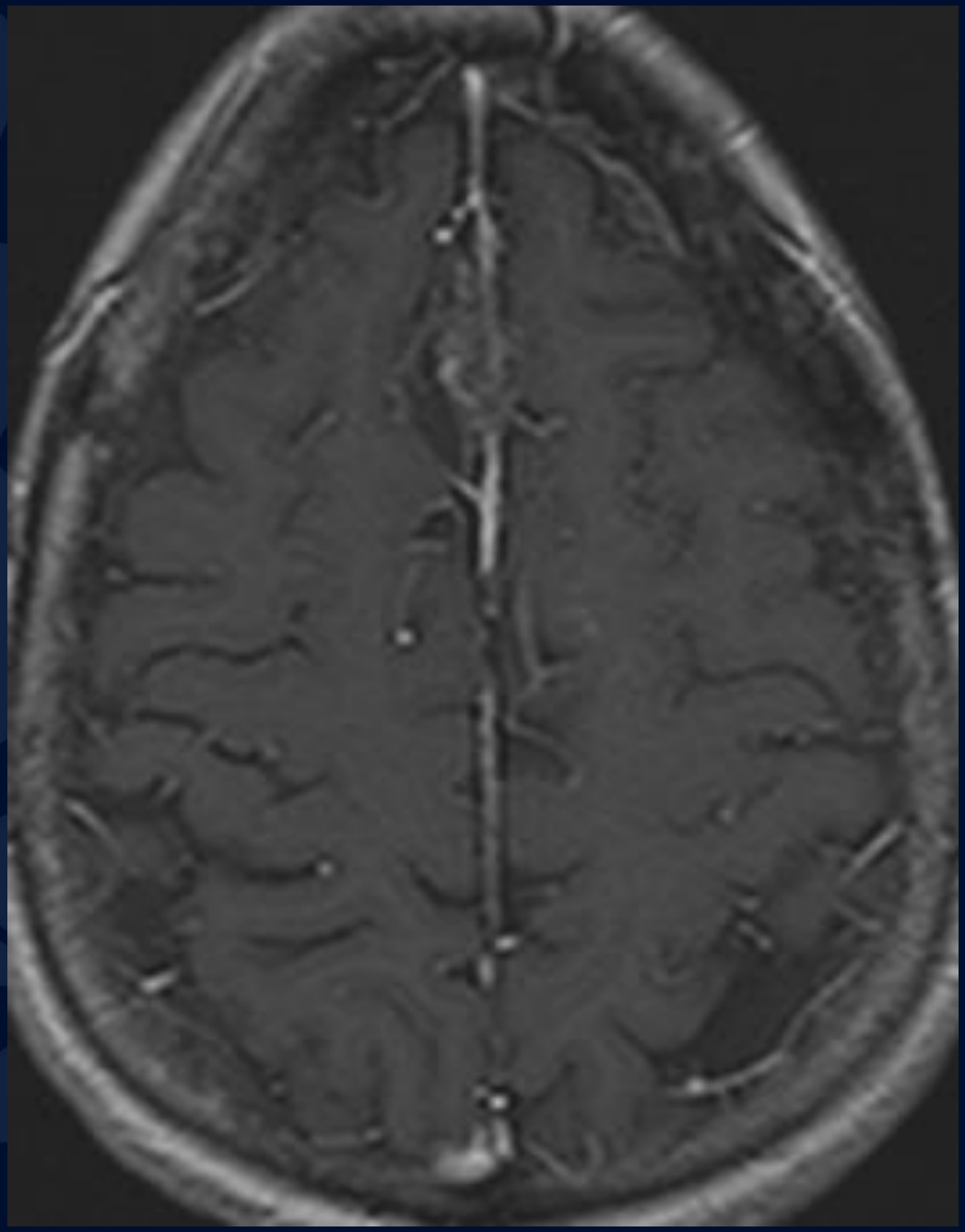

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Radiation-induced cavernoma & meningioma

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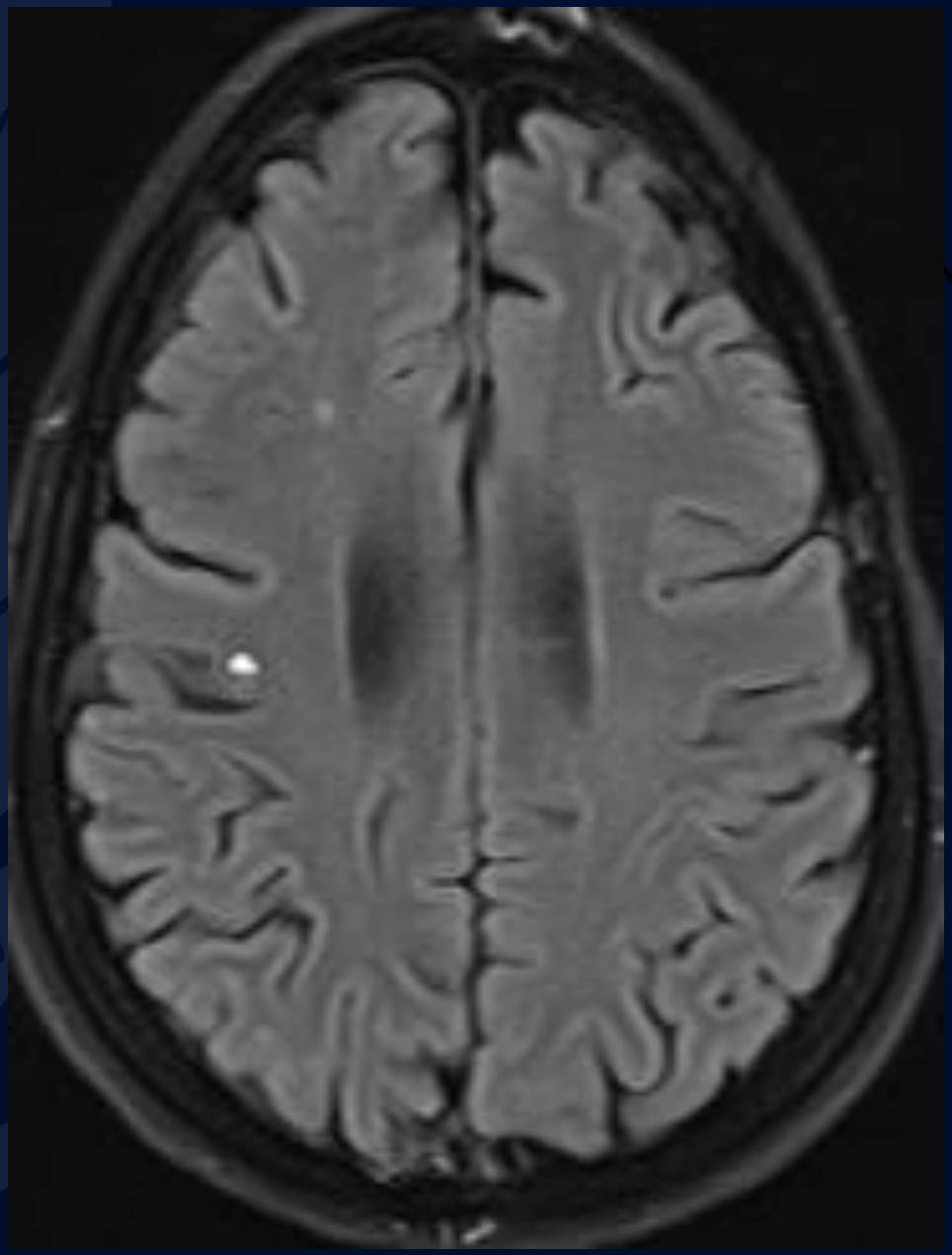

FLAIR shows a small focus of increased signal in the right pre-central gyrus.

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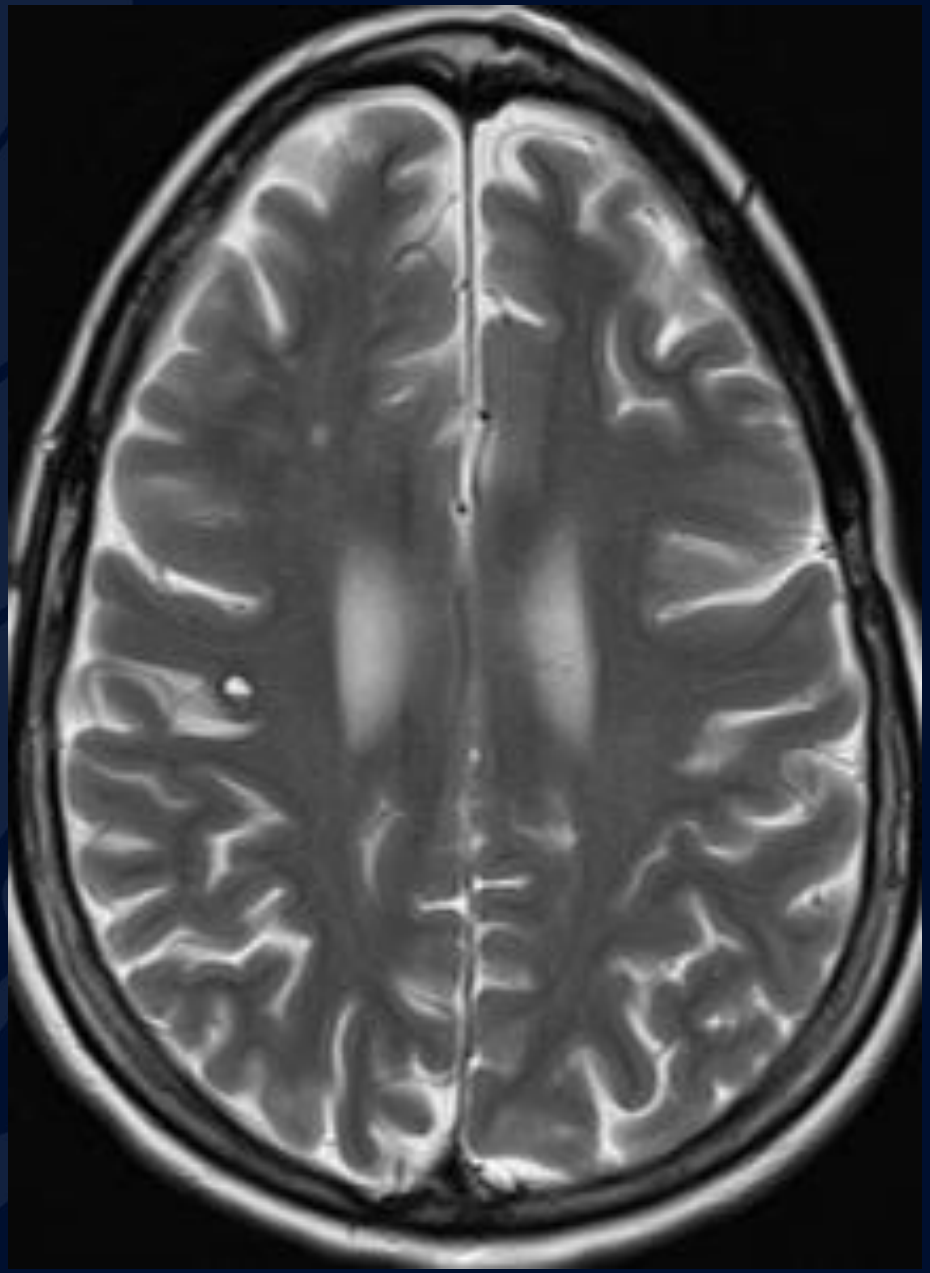
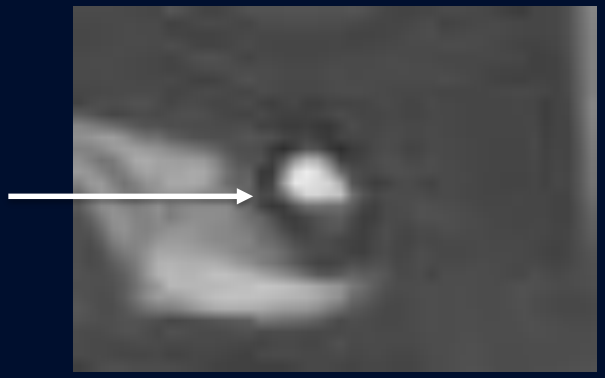


T2-weighted image also shows the central focus of increased signal plus a thin hypointense rim and a small fluid-fluid level (arrow)



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

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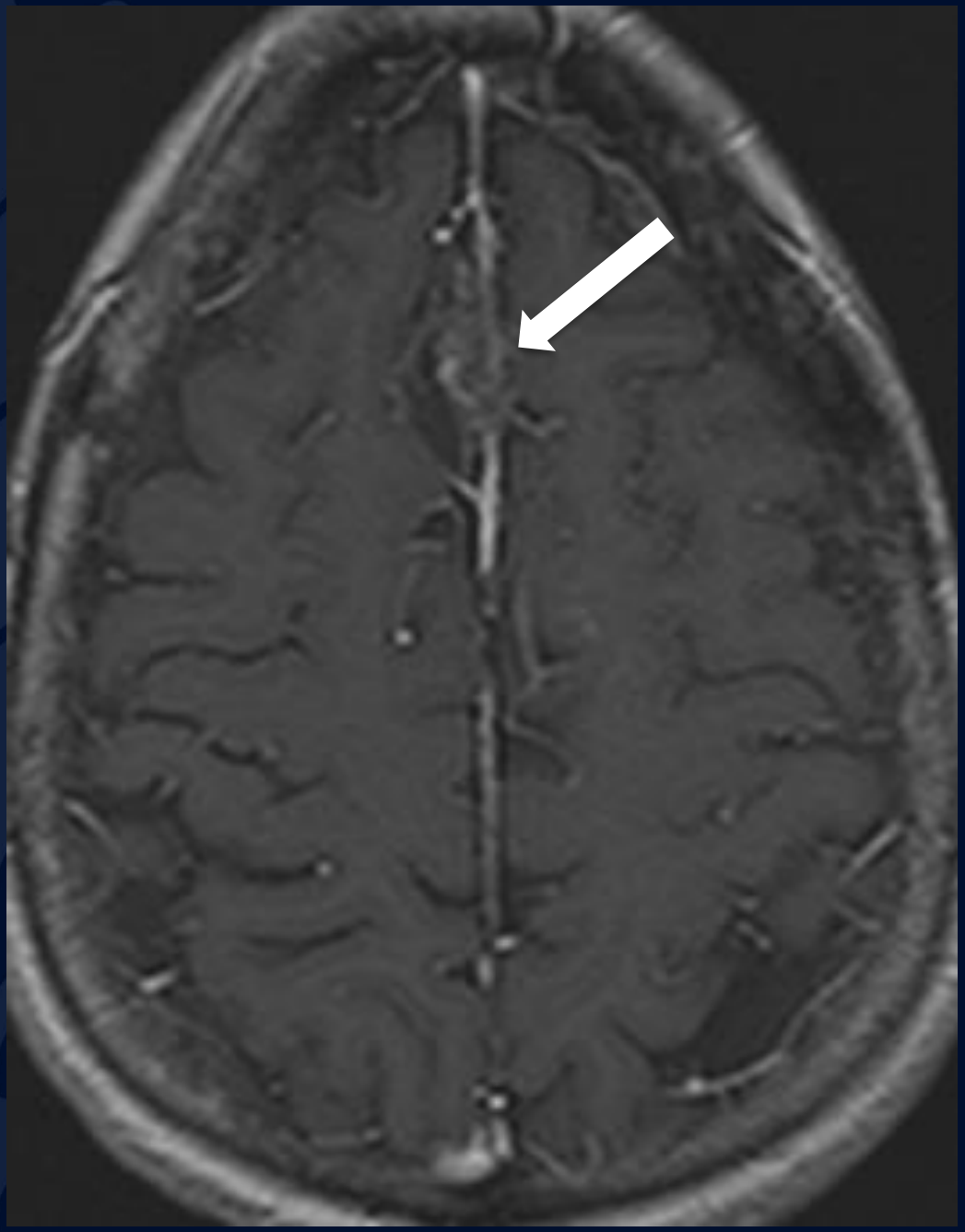

Axial T1 C+ MR shows an enhancing mass involving the falx cerebri, predominantly on the right of midline.

Findings are compatible with a meningioma. (Enhancement is typically more robust)

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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

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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+

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- Nolan CP et al: Neurologic complications of chemotherapy and radiation therapy. Continuum (Minneap Minn). 21(2 Neuro-oncology):429-51, 2015
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