37-year-old female presents with a headache

Jignesh Modi, MD

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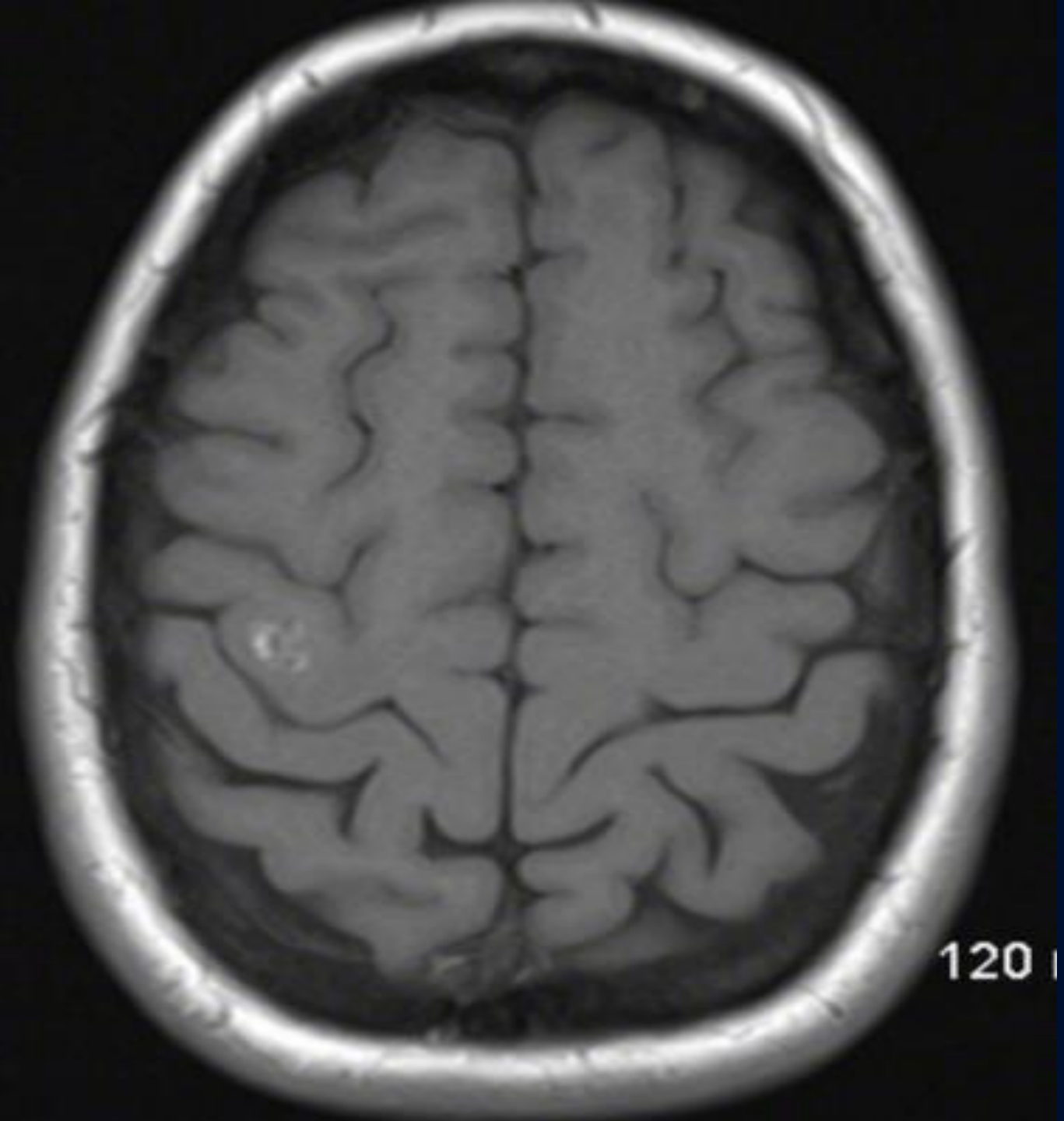

Axial T1 Pre-contrast

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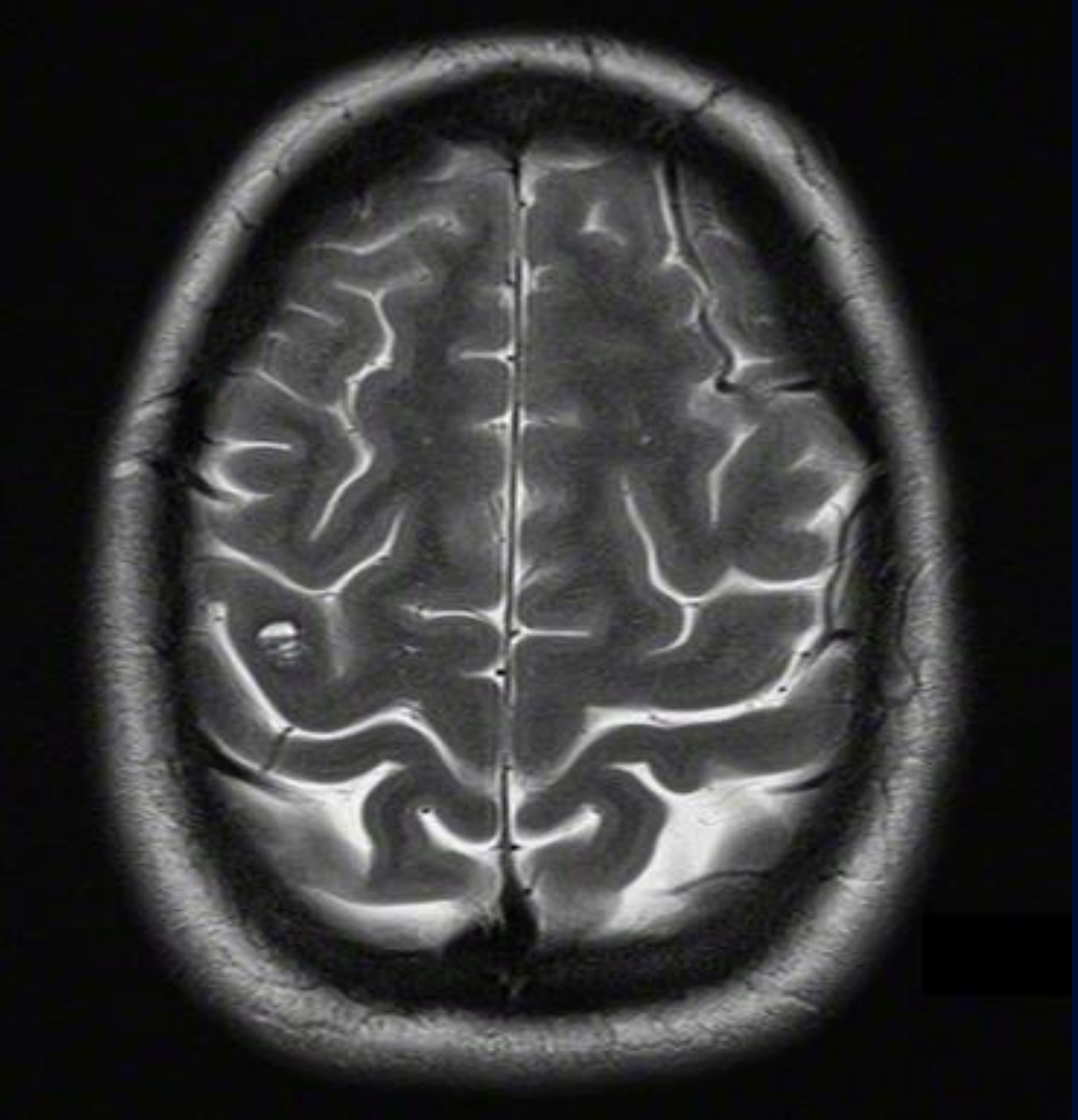

Axial T2 Pre-contrast

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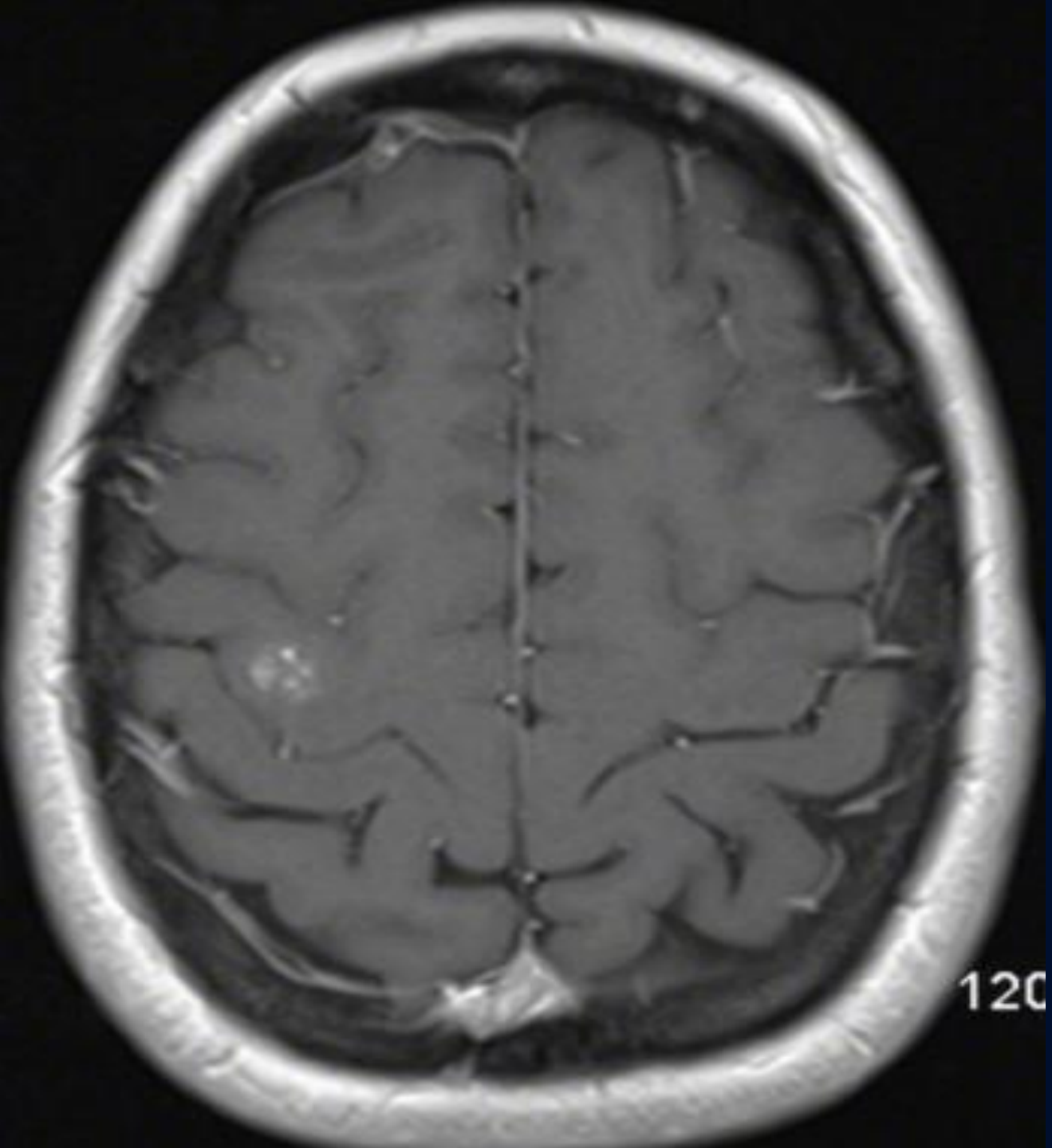

Axial T1
Post-contrast

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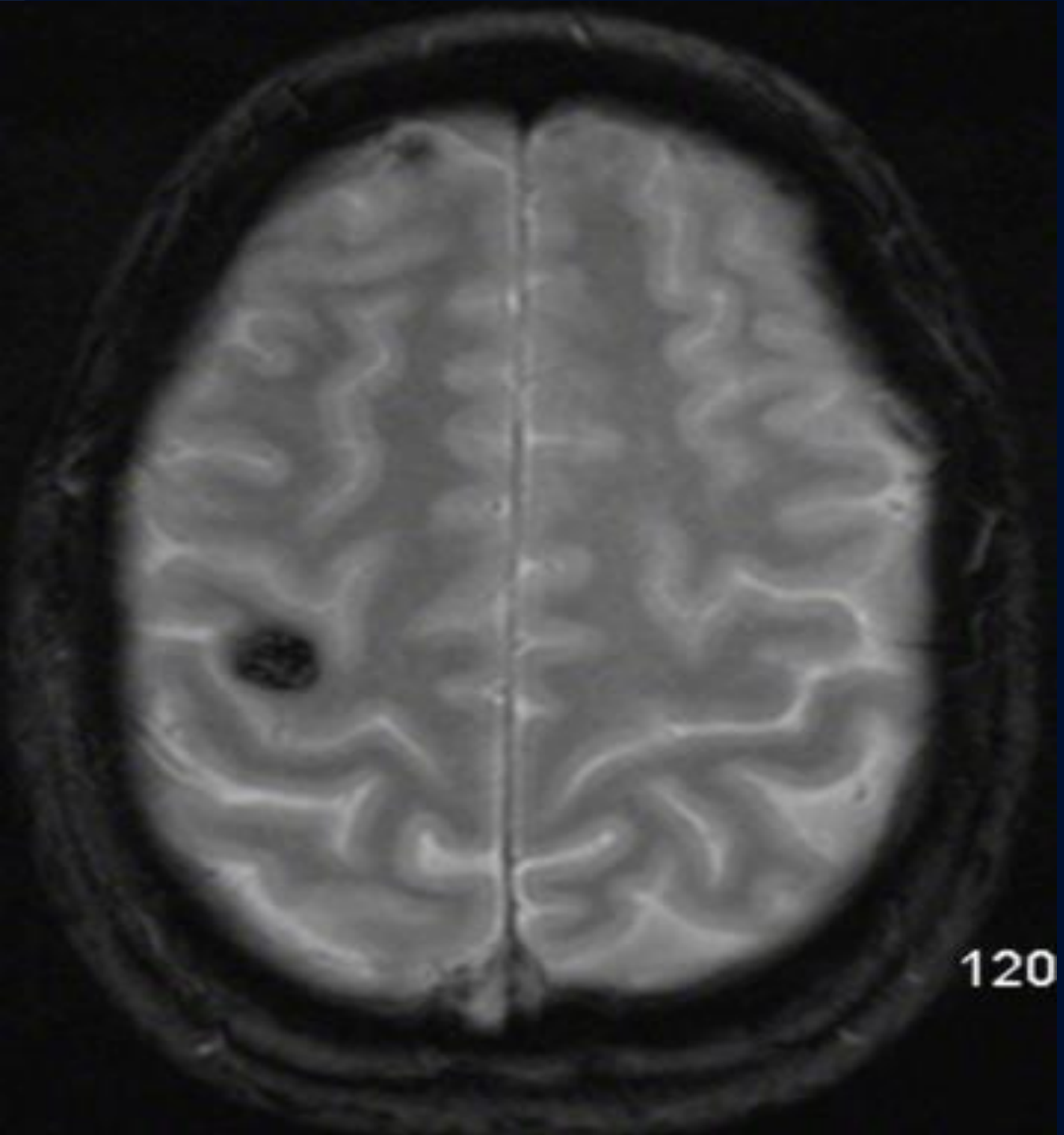

Axial Gradient Echo

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Cavernous Malformation

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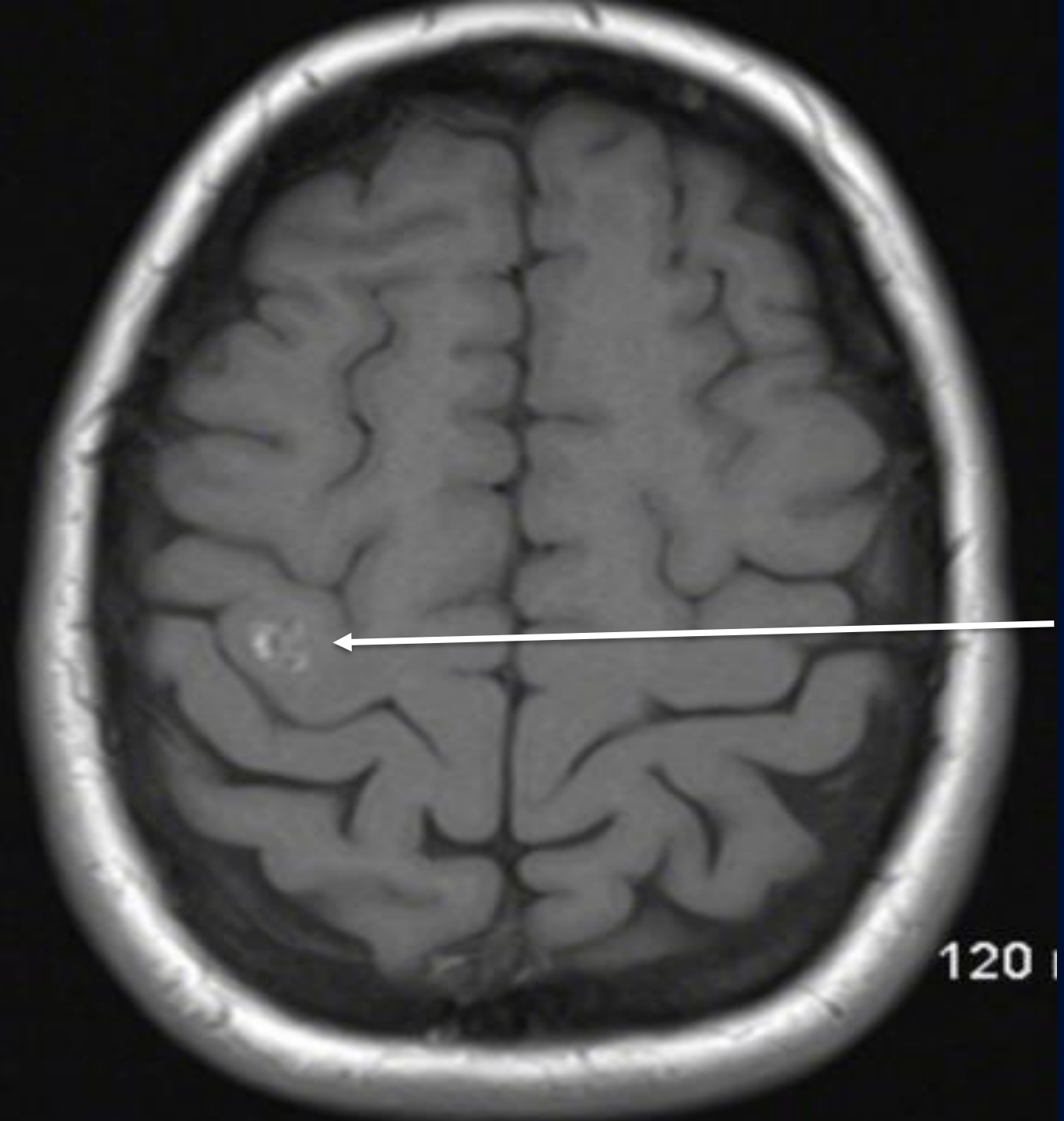

Axial T1 Pre-contrast

Patchy increased T1 signal

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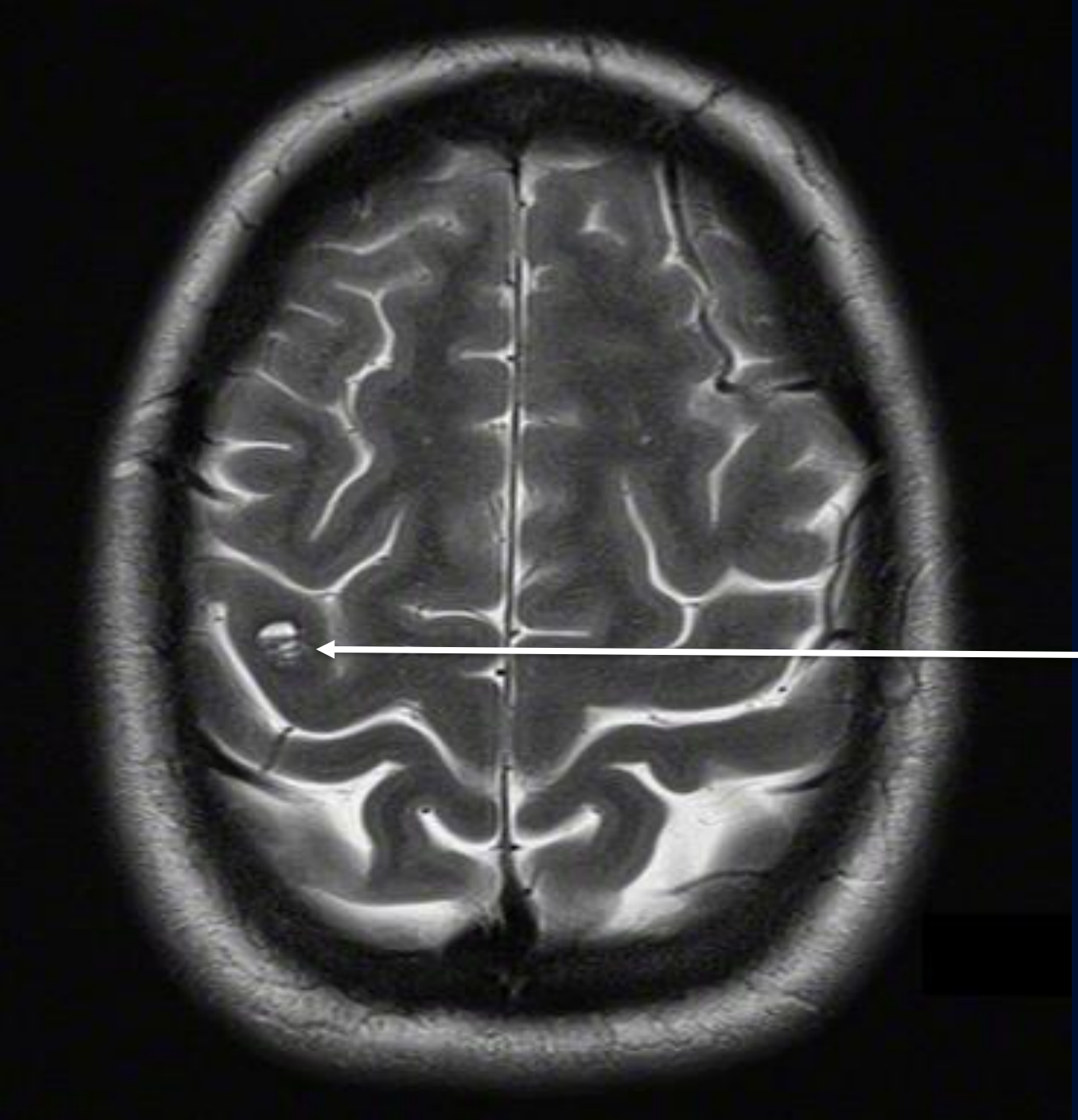

Axial T2 Pre-contrast

Popcorn appearance

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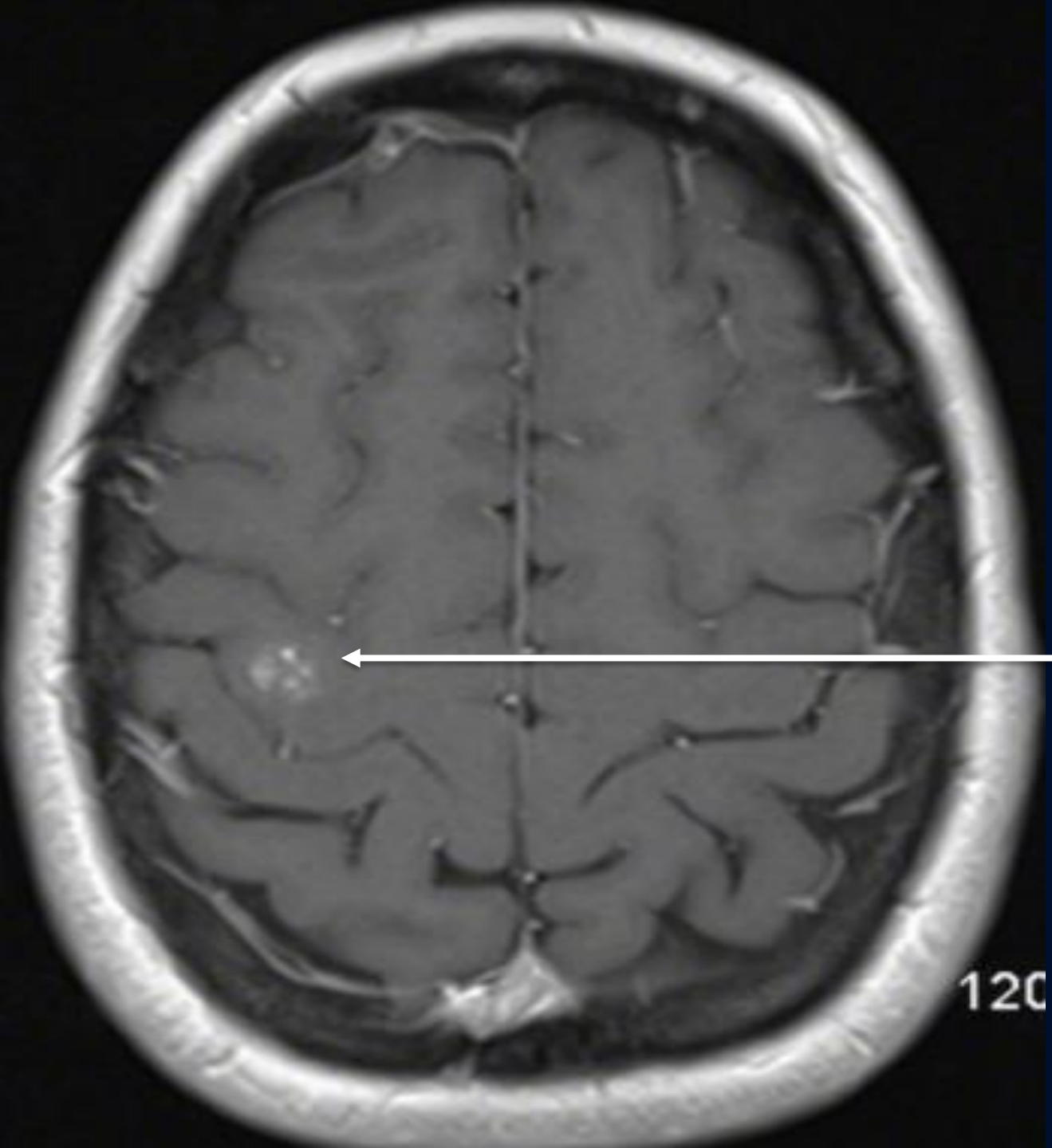

Axial T1

Post-contrast

Patchy increased T1 signal

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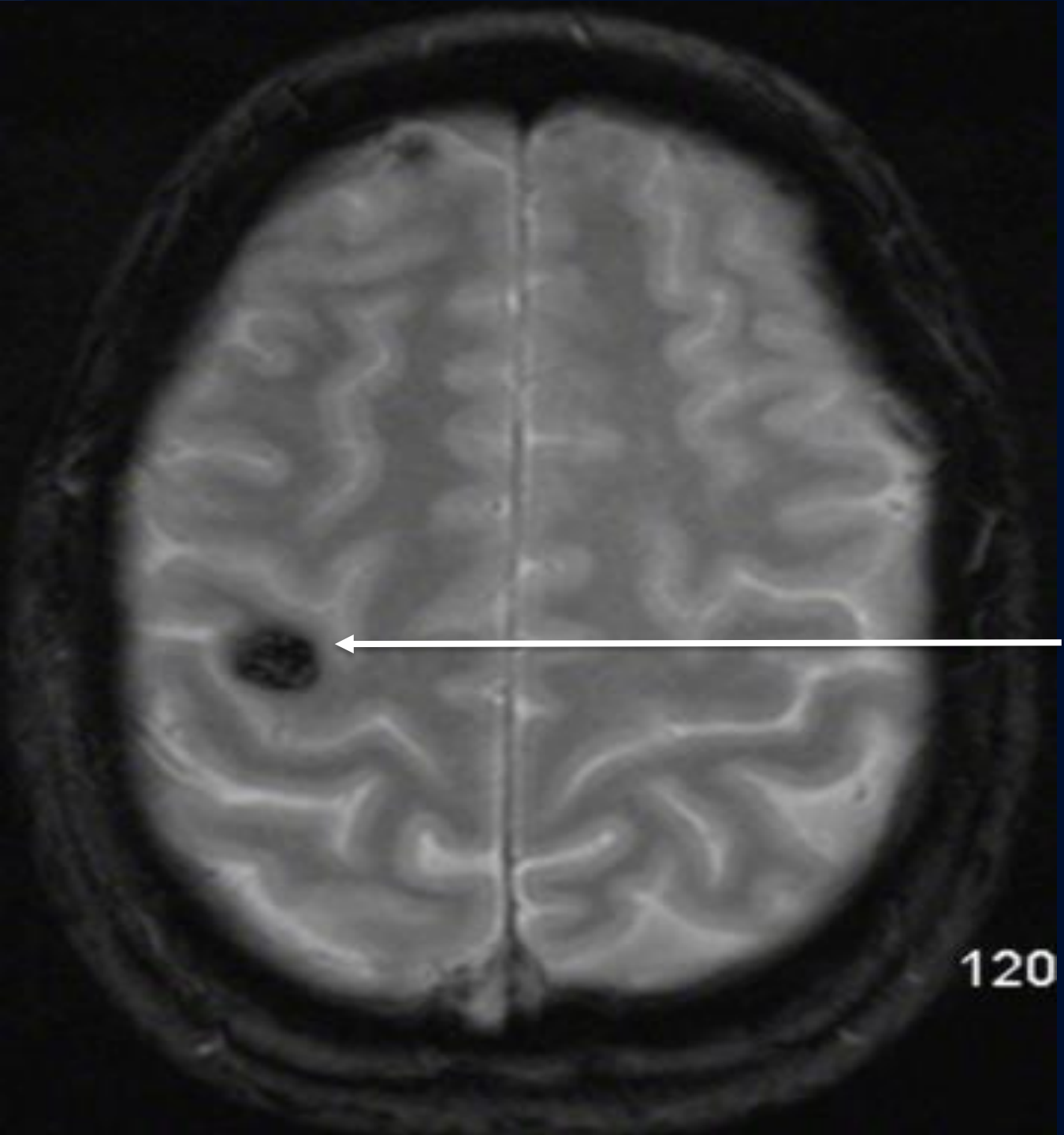

Axial Gradient Echo

Blooming artifact

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Cavernous Malfunction

- 40% are found incidentally on neuroimaging.
- Majority of symptomatic patients present at 40-60 years of age.
- Most often found as a single lesion.
- Multiple lesions may be familial; screening family members may be indicated when familial multiple cavernous malformation syndrome is suspected.

Imaging Features

CT: Unless large, these non-enhancing lesions are difficult to see on CT. If large, they appear as a region of hyperdensity resembling blood products and speckles of calcification. If there has been a recent hemorrhage, the lesion is more conspicuous and may be surrounded by a mantle of edema.

MRI is the modality of choice, demonstrating a characteristic “popcorn” or "berry" appearance with a rim of signal loss due to hemosiderin.

- **T1**
  - Varied signal depending on the age of the blood products, small fluid-fluid levels may be evident
- **T2**
  - Hypointense rim
  - Varied signal internally depending on the age of blood products
  - Blood locules with fluid-fluid levels may be seen
  - If a recent bleed has occurred, surrounding edema may be present

GRE T2*/SWI

- Prominent blooming
- Useful for detecting smaller lesions otherwise missed by conventional spin echo sequences

T1 C+ (Gd): Usually no enhancement, although possible

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Treatment & Prognosis

- Many cavernous malformations are asymptomatic and can be treated conservatively.
- Symptoms can relate to mass effect, epileptic activity or repeated hemorrhage. Symptomatic lesions should, when possible, be resected and complete resection is curative.

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