

76-year-old male with a history of lymphoma

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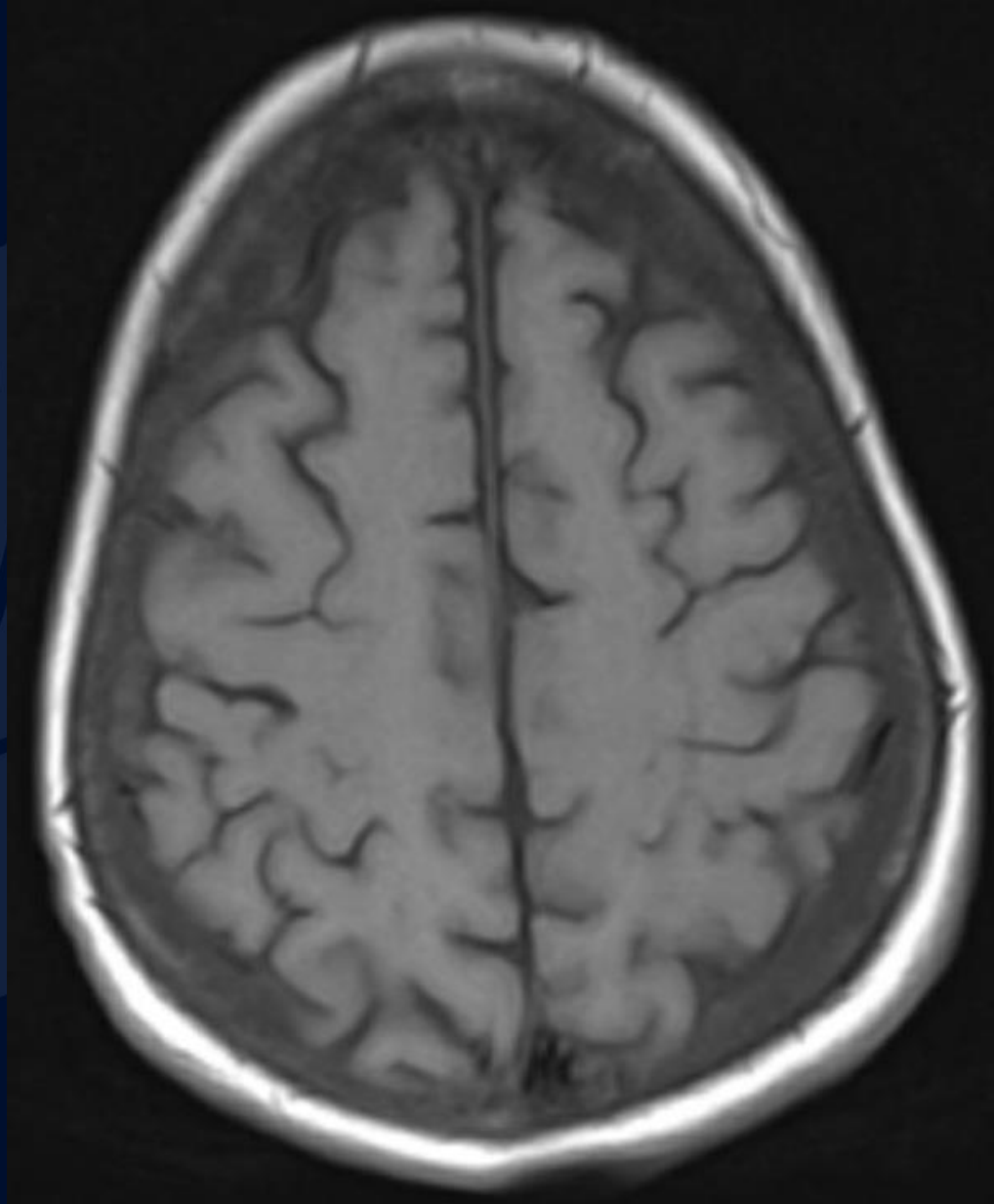
Michael Baldwin, MD

Leo Wolansky, MD

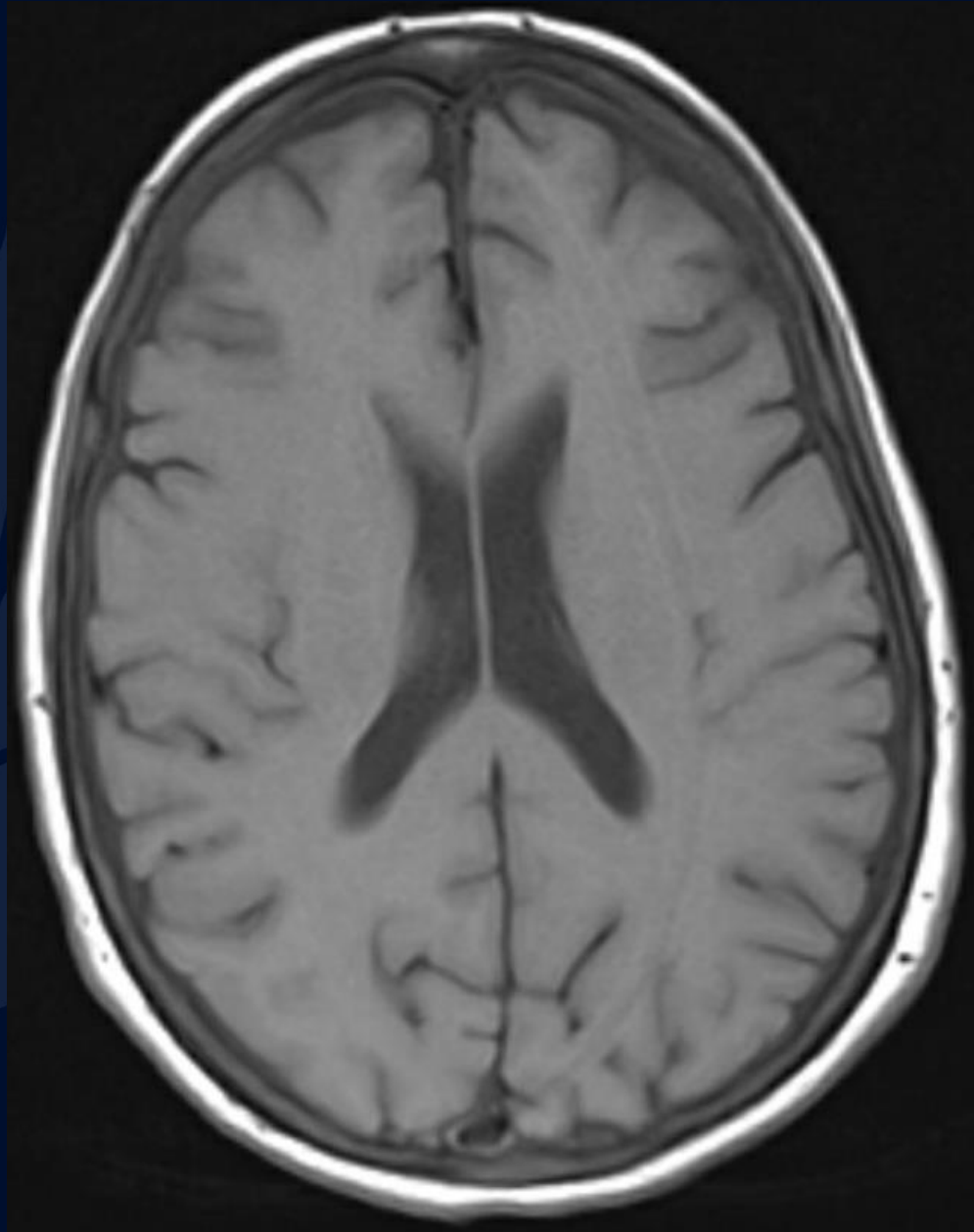
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MRI brain with and without intravenous contrast

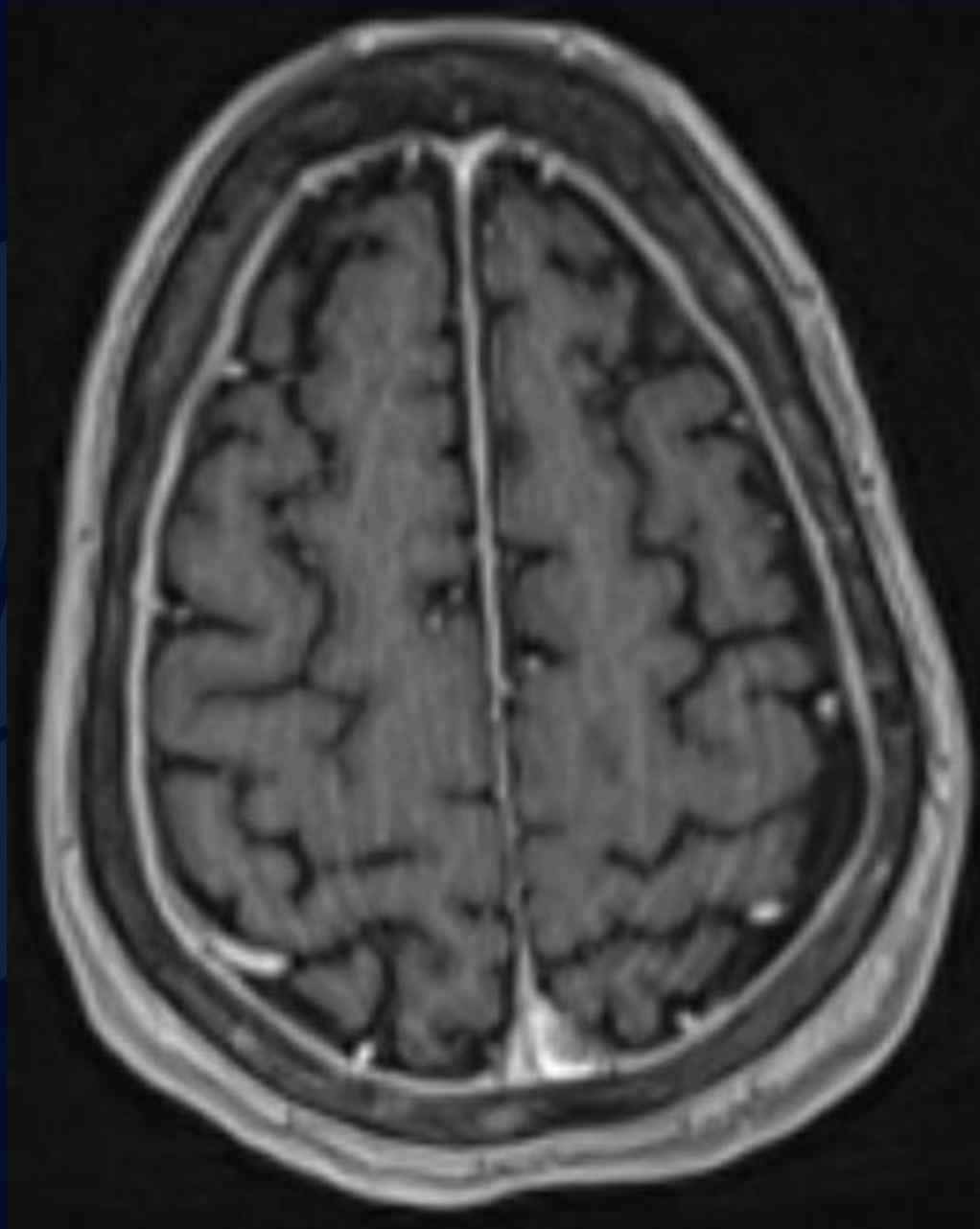
T1



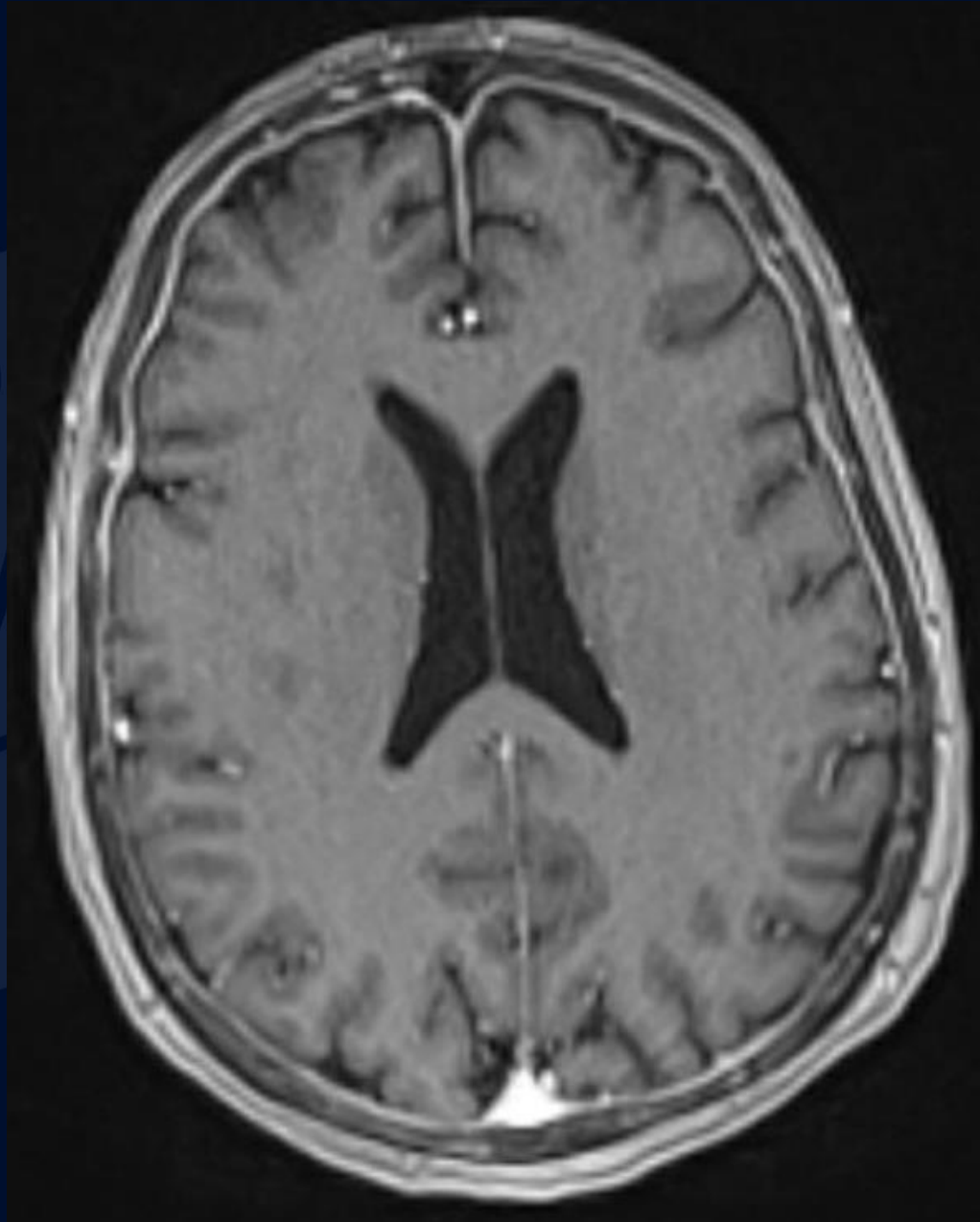
T1



T1 post gadolinium



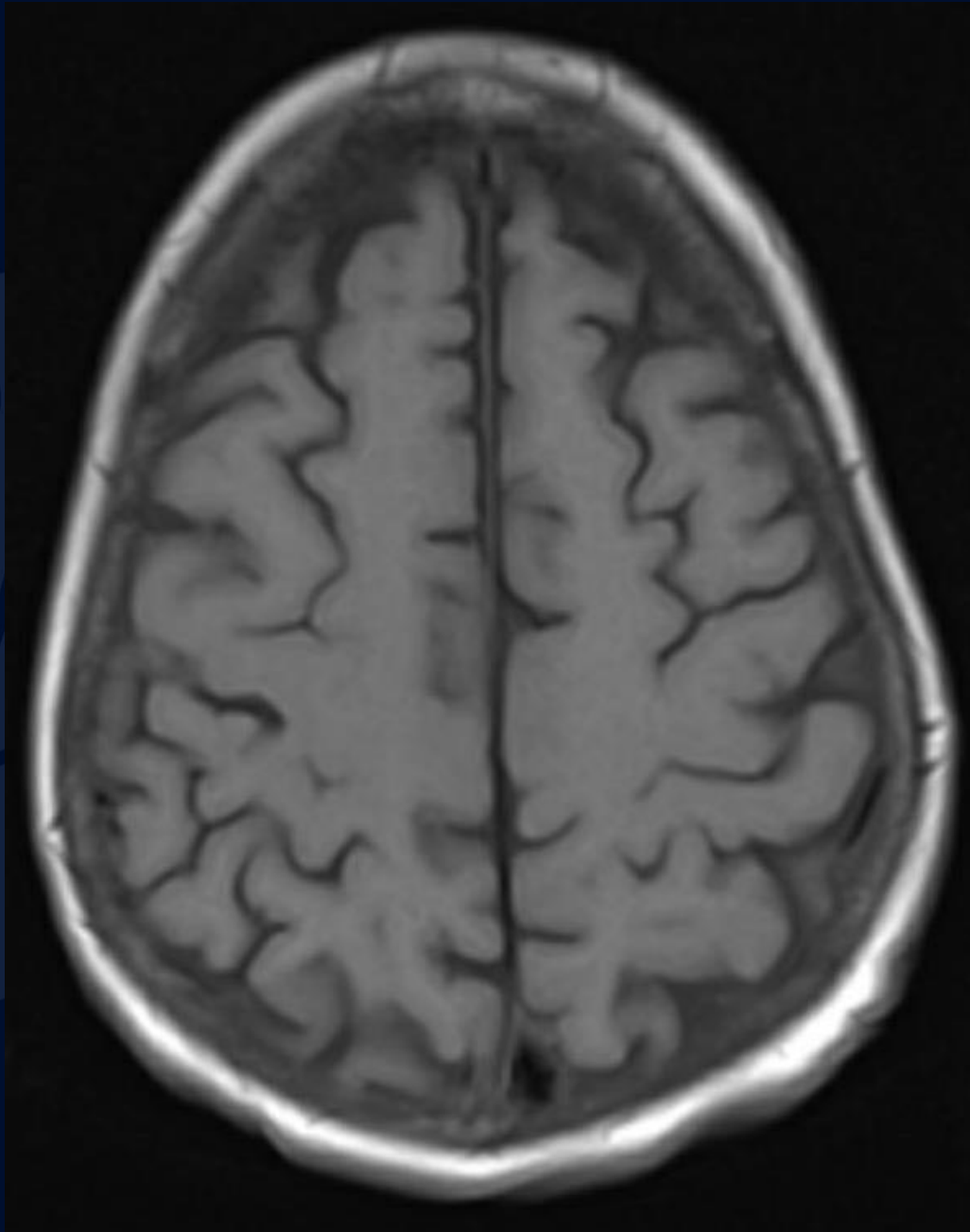
T1 post gadolinium



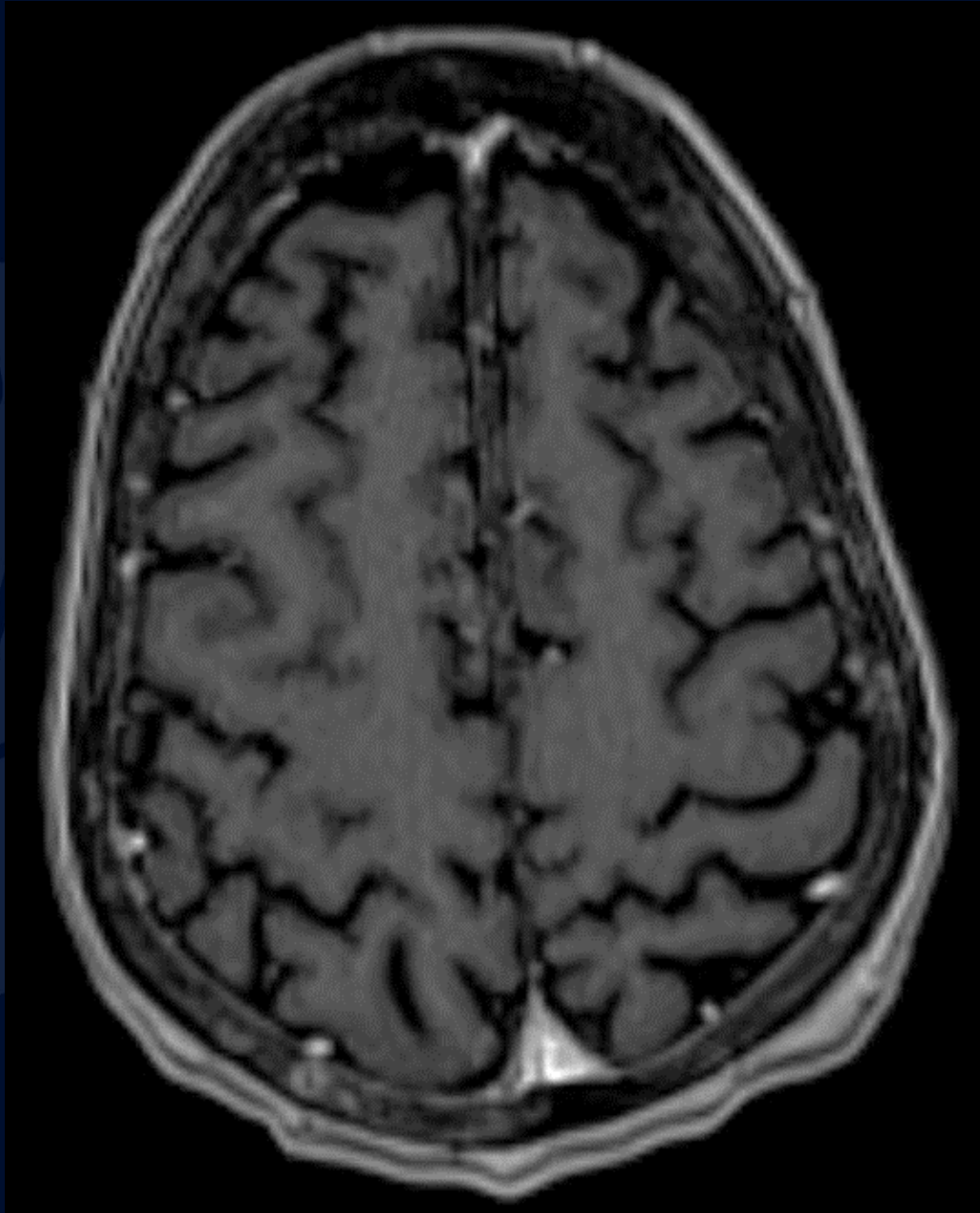
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Follow-up MRI 2 months later to
assess treatment response

T1



T1 post gadolinium





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Secondary CNS Lymphoma with Dural Metastases

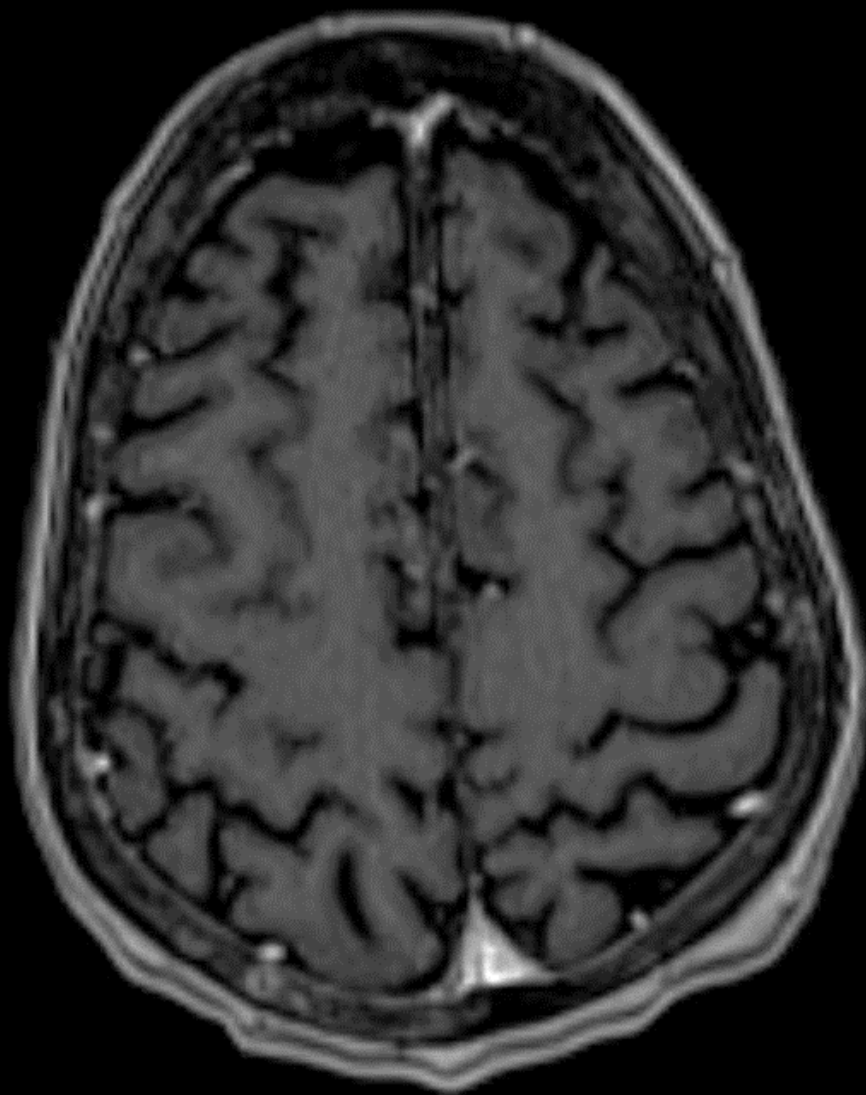
Initial Presentation



Initial Presentation



Post-Treatment



Dural Enhancement

- Pachymeningeal enhancement (aka dura-arachnoid enhancement) is enhancement of the pachymeninges
- Can occur due to changes in ICP, changes in meningeal perfusion, tumor infiltration, and inflammatory cell infiltration
- Distinct entity from leptomeningeal enhancement (aka pial or pial-arachnoid enhancement), which involves the surface of the brain
- Normally the pachymeninges does enhance, due to lack of blood brain barrier of vessels supplying dura, but usually is very thin and not well appreciated on routine imaging
- Degree of enhancement is considered excessive when pachymeninges is visible abutting the entire inner surface of the skull

Excessive Dural Enhancement

- May occur in various disease states:
 - Changes in pressure/perfusion
 - Intracranial hypotension
 - Cerebral venous thrombosis
 - Tumors
 - Dural metastases
 - Hypertrophic pachymeningitis
 - Infection (neurosyphilis, CNS tuberculosis, cryptococcosis, bacterial meningitis)
 - Inflammatory (IgG4-related hypertrophic pachymeningitis, Wegener's, neurosarcoidosis, polyarteritis nodosa, rheumatoid arthritis, relapsing polychondritis, Behcet disease)
 - Other (Rosai-Dorfman disease, hemodialysis, mucopolysaccharidoses)
 - Idiopathic

Dural Metastases

- Metastases are a common cause of dural masses, though less common than meningiomas and cerebral metastases
- Can be intracranial or within the spine
- Patient's may be asymptomatic or may present with headache, fatigue, AMS, focal deficit
- Etiologies: hematogenous seeding, lymphatic seeding, direct extension of skull mets, vertebral venous plexus retrograde seeding.
- Common primaries, in order: breast, prostate, lung, head/neck, hematologic, etc.

Dural Metastases

MR Imaging Features:

- Can be a focal mass, but usually multiple
- T1-isointense or hypointense to cortex
- T2-isointense or hyperintense to cortex
- Very bright enhancement
- MR spectroscopy:
 - Increased choline/Cr ratio
 - Large lipid peak
 - Sometimes lactate peak
 - No NAA peak

Secondary CNS Lymphoma with Dural Metastases

MR Imaging Features:

- Diffusely enhancing dural mass
- Can be multifocal, confluent when extensive and diffuse
- Can have low T2 signal and diffusion restriction due to hypercellularity
- No calvarial invasion

References

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