



Brainstem & cerebellum

DONE BY
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هذا العمل لم يتم مراجعته من قبل الدكتور وحسب كلامه انه سيراجعه يوم الاثنين لكن ان شاء الله انه كامل ووافي ولو حصل أي نقص بالملف سيتم تعديله وتبليغكم

دعاء قبل المذاكرة:

- اللهم اني اسألك فهم النبيين وحفظ المرسلين والملائكة المقربين.
 - اللهم اجعل أسنتنا عامرة بذكرك، وقلوبنا بخشيتك، انك على كل شيء قدير وحسبنا الله ونعم الوكيل.
- دعاء بعد المذاكرة:

اللهم اني استودعك ما قرأت وما حفظت وما تعلمت، فرده لي عند حاجتي إليه.
انك على كل شيء قدير، وحسبنا الله ونعم الوكيل



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OBJECTIVES

Identify radiological anatomy of brainstem and cerebellum

Compare CT and MRI

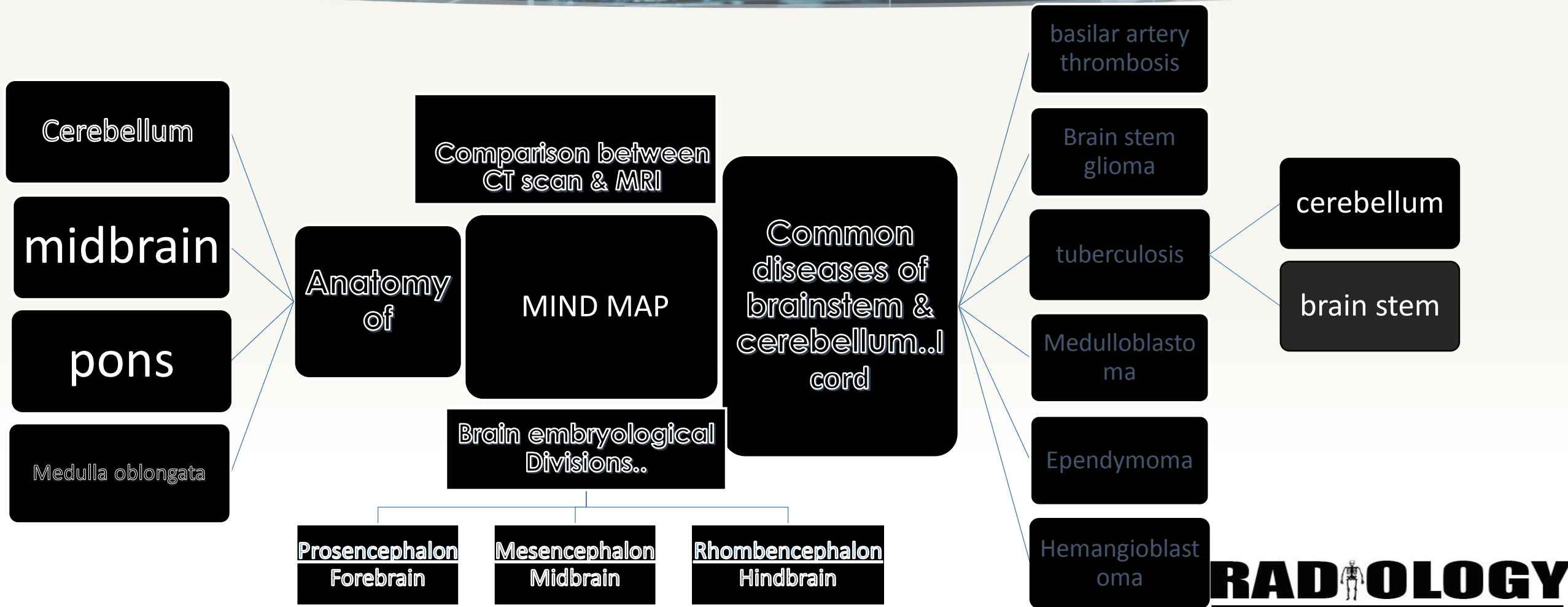
Recognize main imaging findings in common diseases

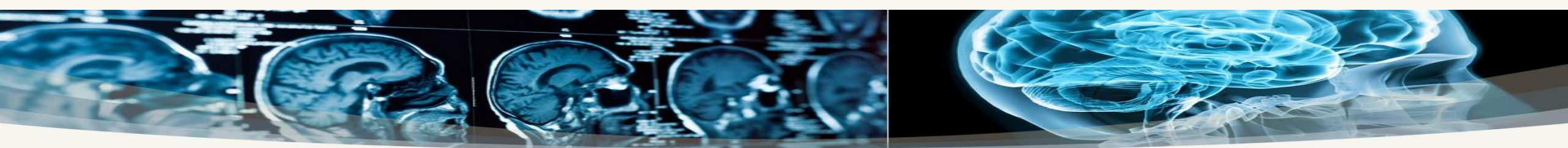


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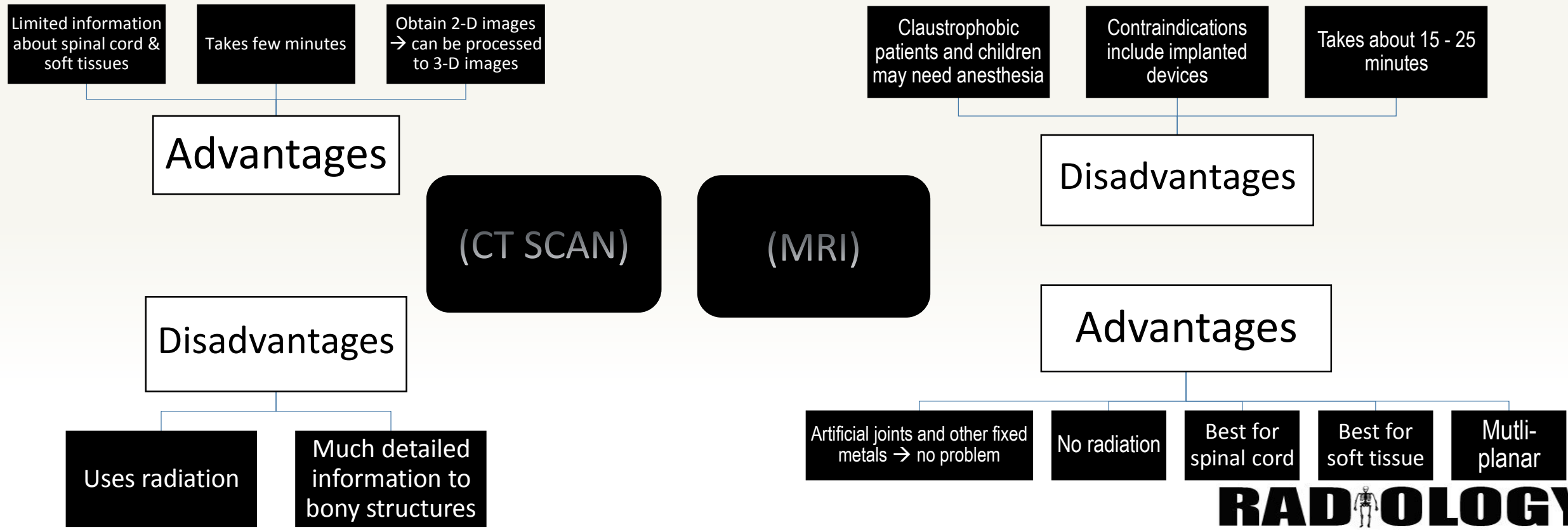
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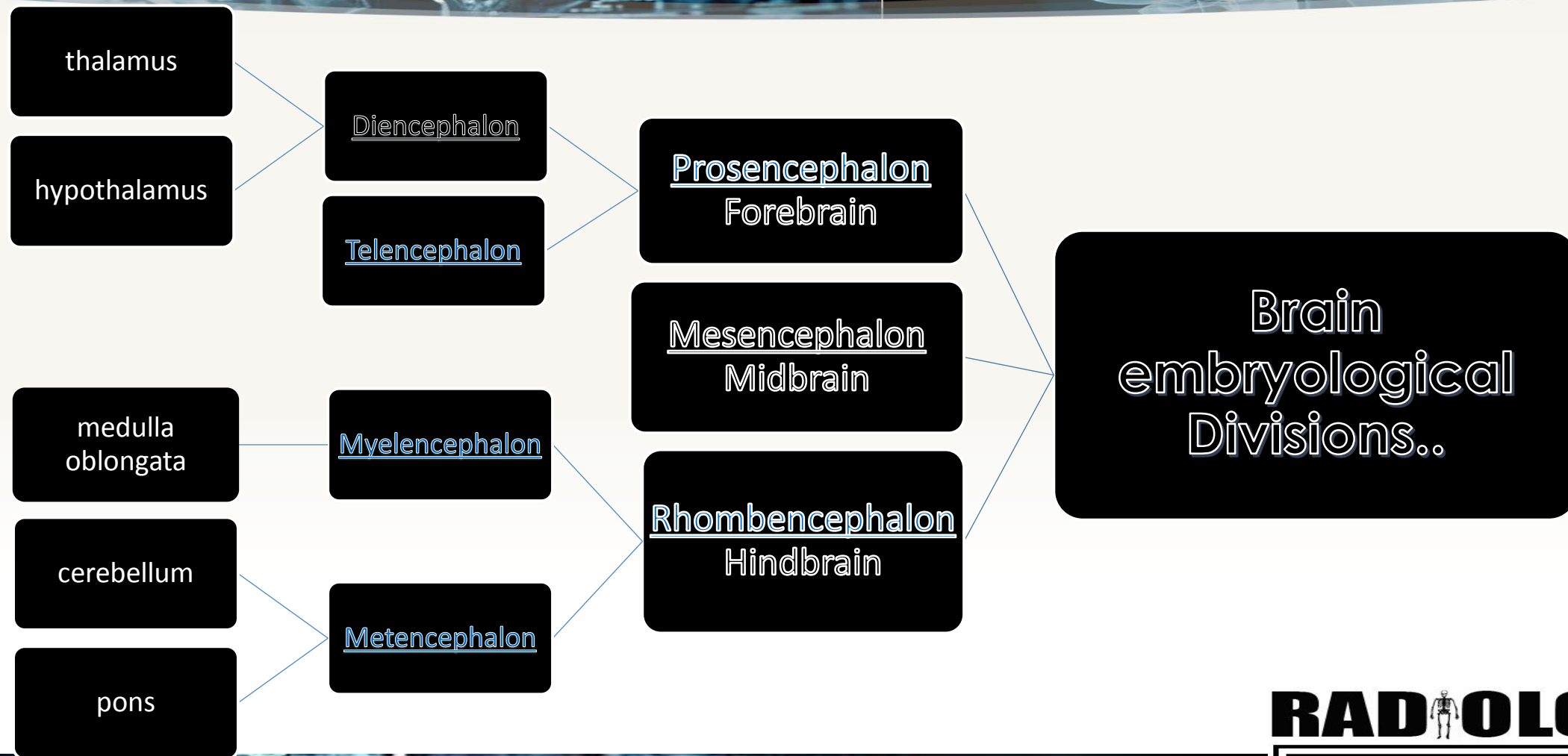
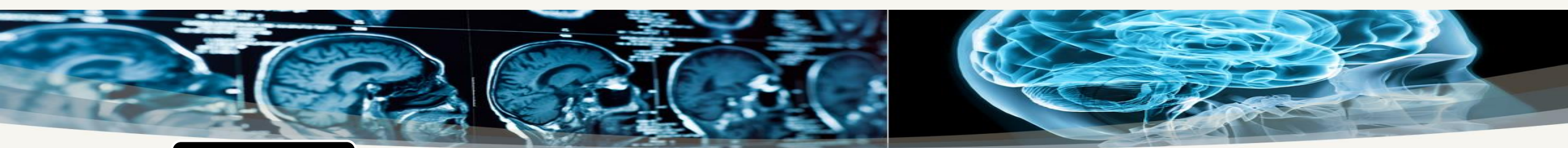
Comparison Between CT scan & MRI

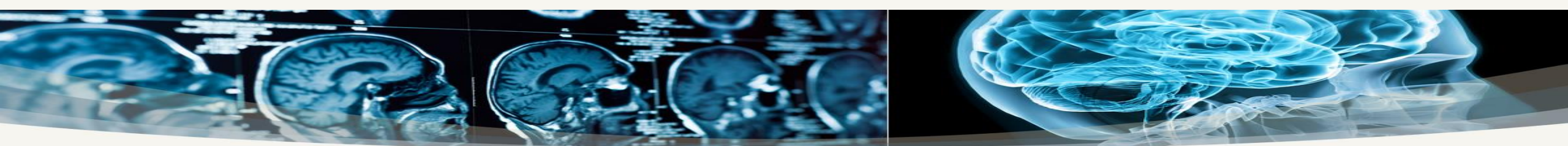


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Brain Stem..

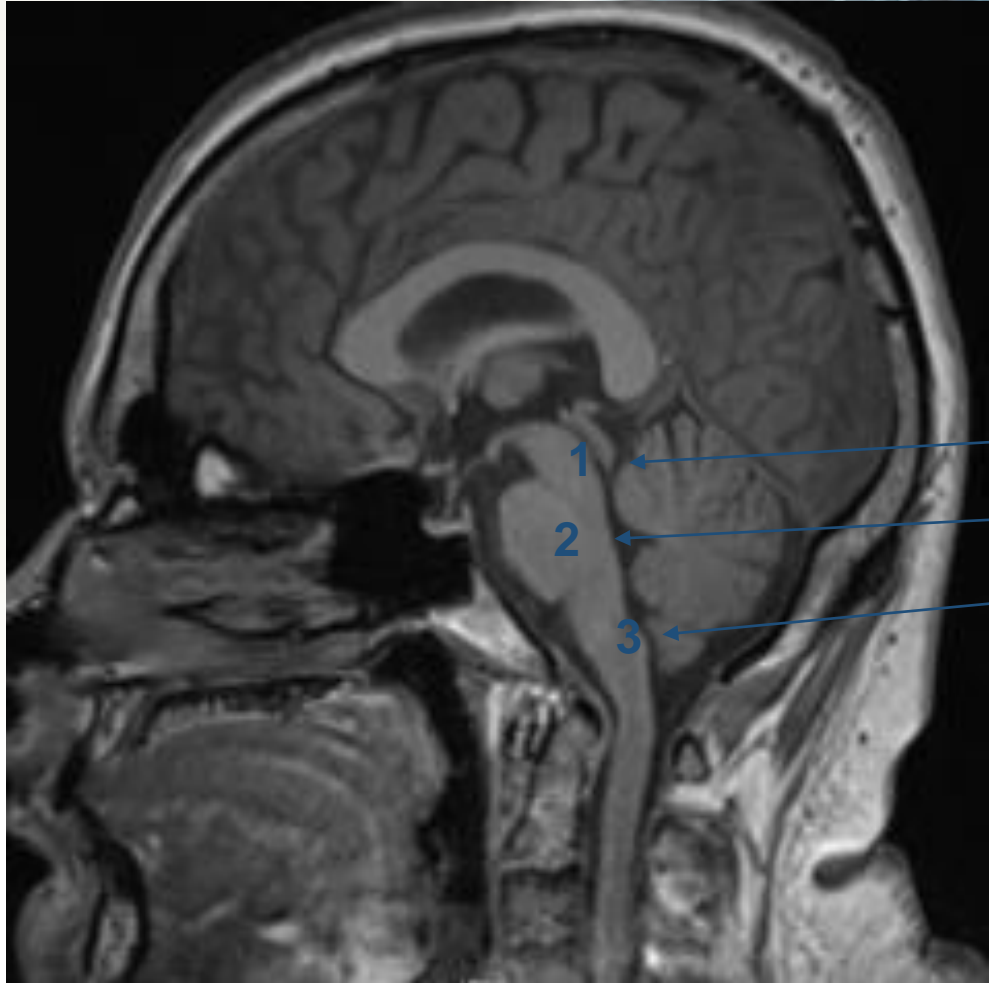
Three parts from superior to inferior:

1 midbrain

2 pons

3 medulla oblongata

Connects cerebral hemispheres with spinal cord, and indirectly to cerebellum



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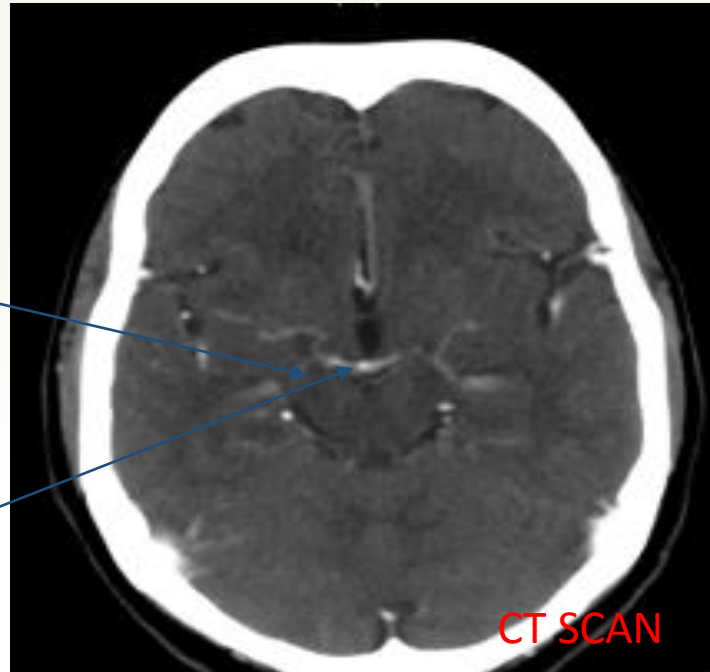
MID BRAIN

At the level of circle of Willis

ANTERIORLY

cerebral peduncles (or crus cerebri)

interpeduncular cistern

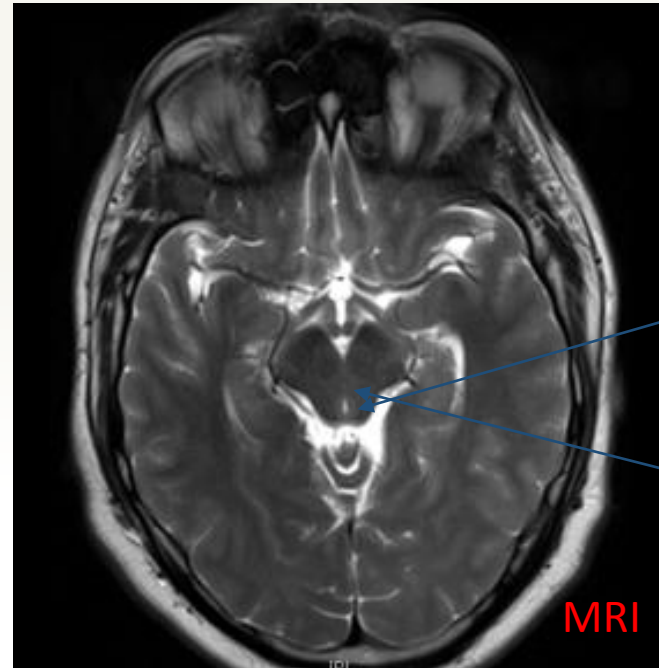


CT SCAN

POSTERIORLY

2 superior and 2 inferior colliculi

tegmentum of midbrain



MRI

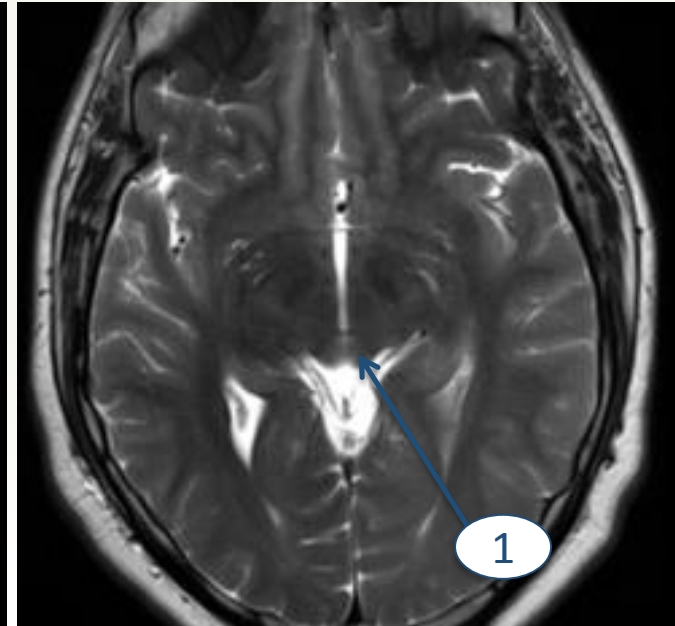
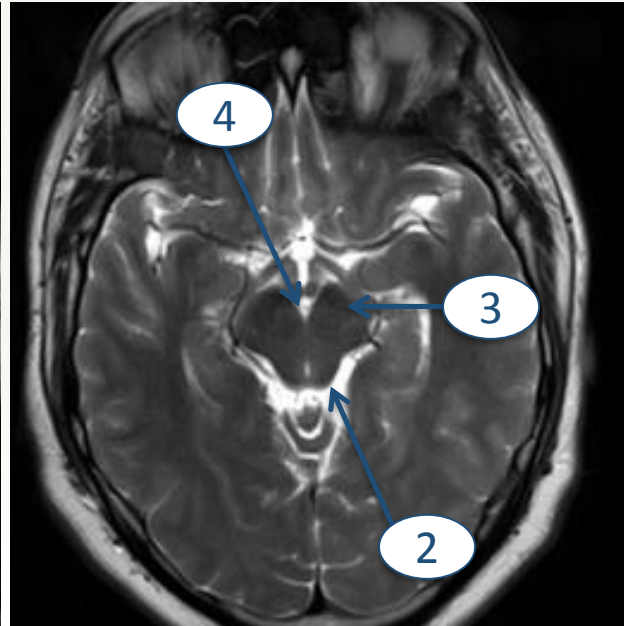
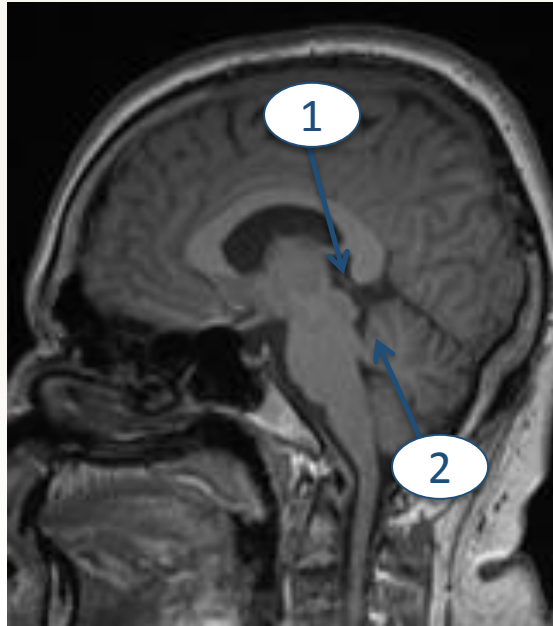
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Midbrain..



- 1 Superior colliculus
- 3 Cerebral peduncle

- 2 Inferior colliculus
- 4 Interpeduncular cistern

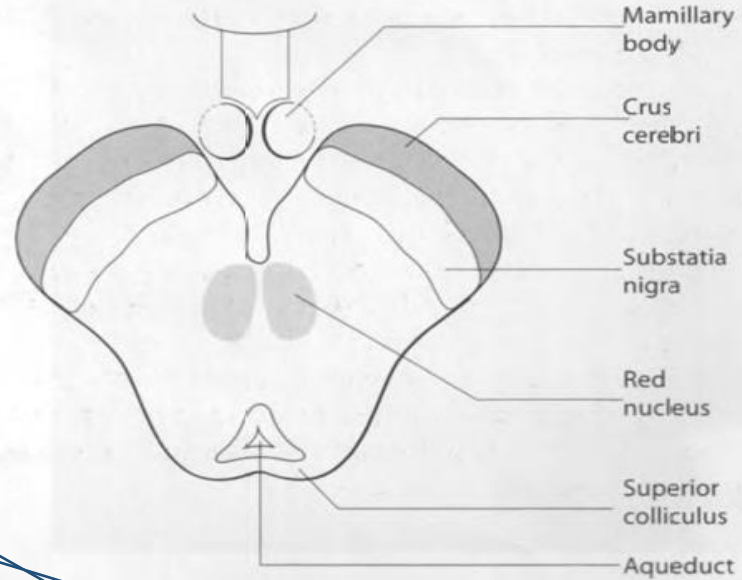
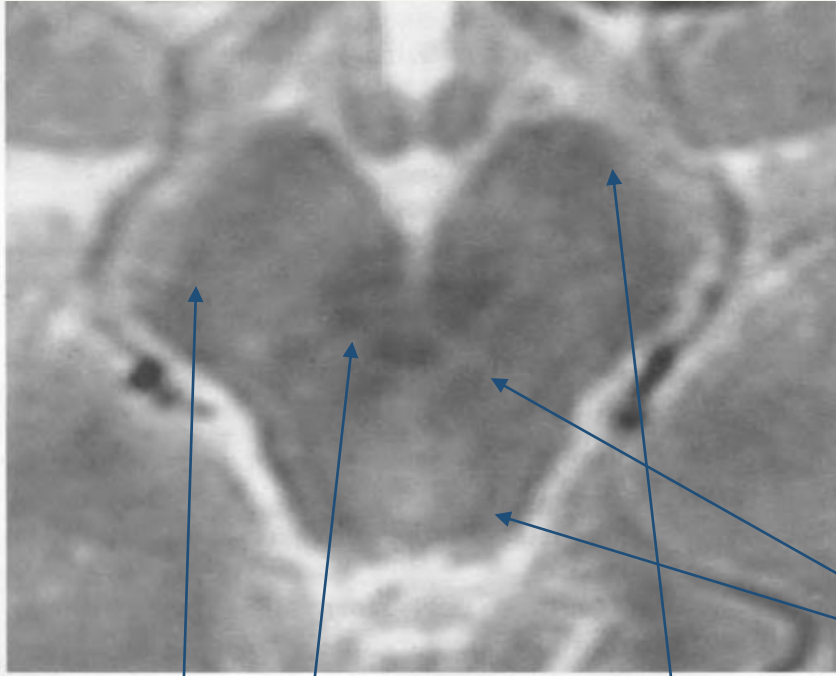
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Fig. 2.14 Midbrain, axial section: (a) T₂ MRI; (b) diagram.



Internal features:

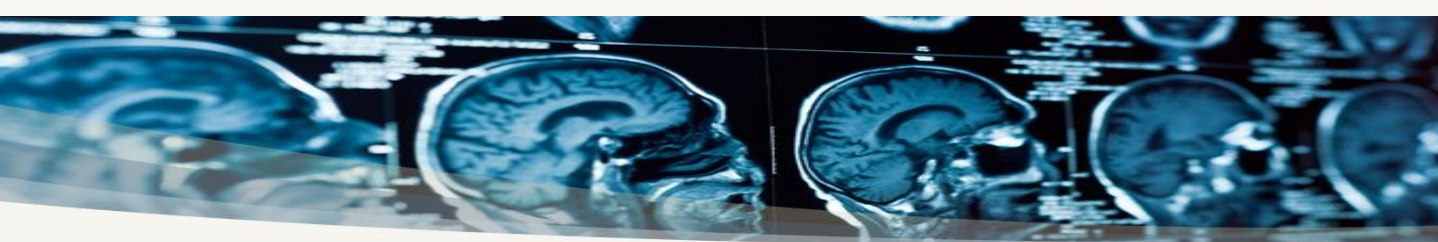
Substantia nigra separates crus cerebri ventrally from tegmentum posteriorly. Red nuclei are dorsal to substantia nigra at the level of superior colliculi



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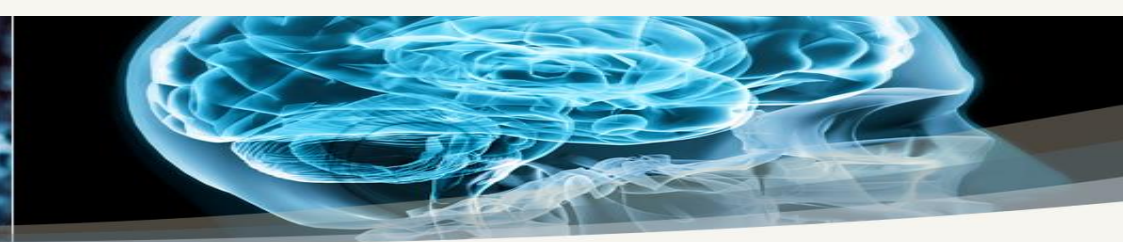
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MRI axial T2

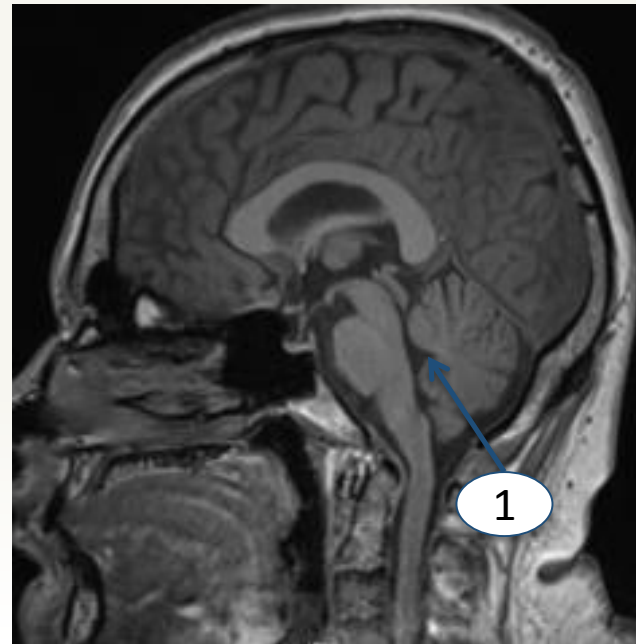
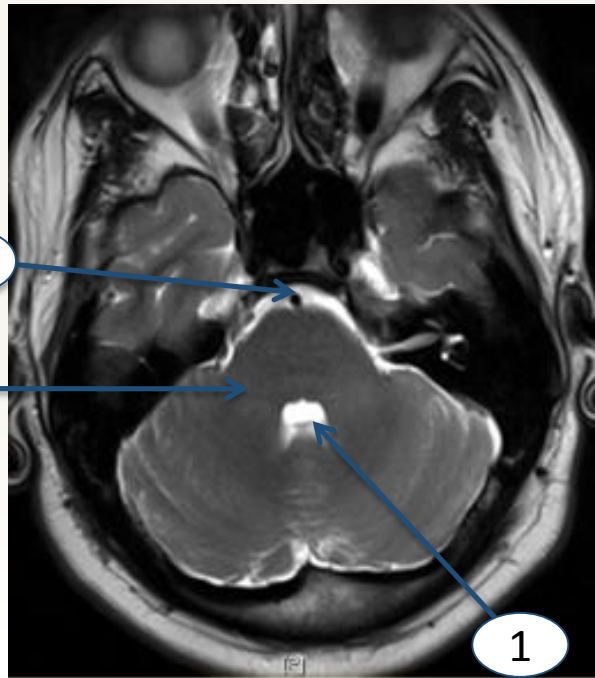
MRI Sagittal T1



Pons..

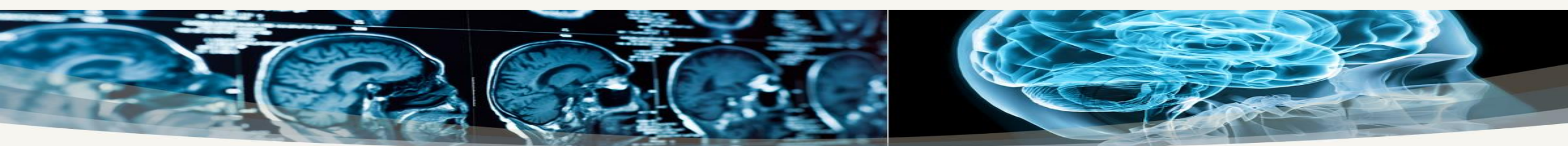
Radiological Features:

- The bulbous anterior part consists mainly of fibres continuous on each side with middle cerebellar peduncle
- Basilar artery lies in groove anteriorly
- Posterior surface of pons forms upper part of floor of 4th ventricle
- Adjacent bones:
Clivus anteriorly in midline
Petrous part of temporal bones laterally

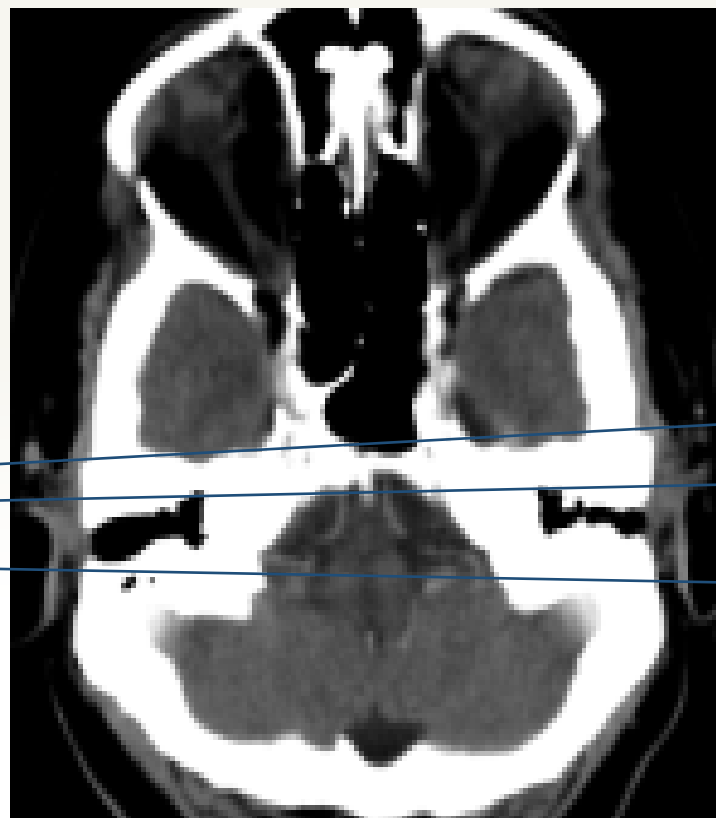
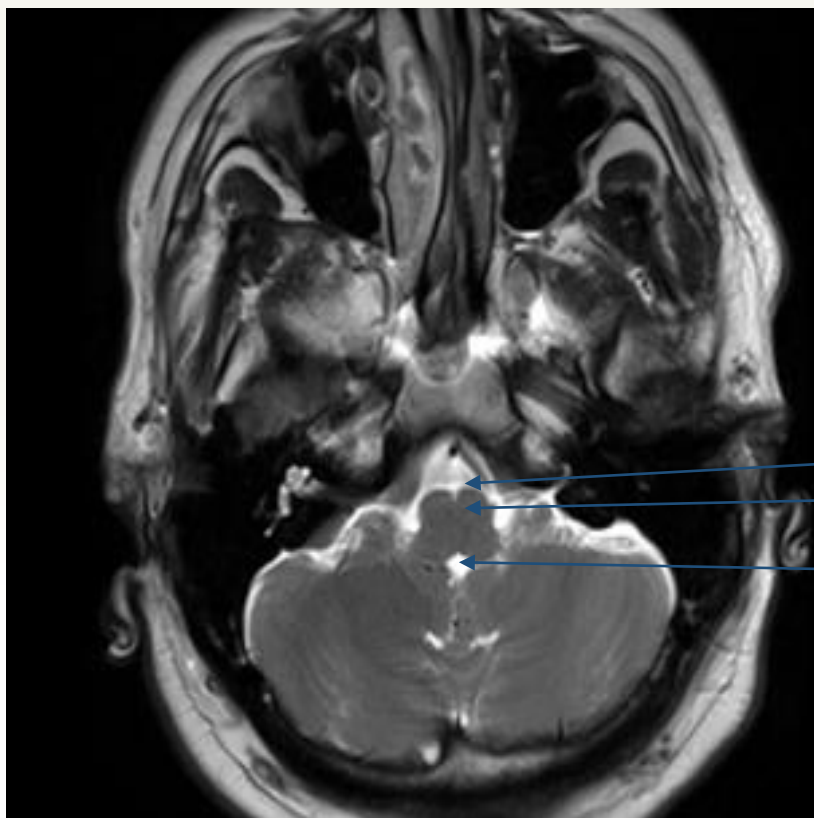


1 → 4th ventricle 2 → basilar artery
3 → middle cerebellar peduncle





Medulla oblongata..



Radiological Features:

MRI of medulla gives better images than CT due to bony artefact on CT

- median fissure
- Pyramids
- 4th ventricle

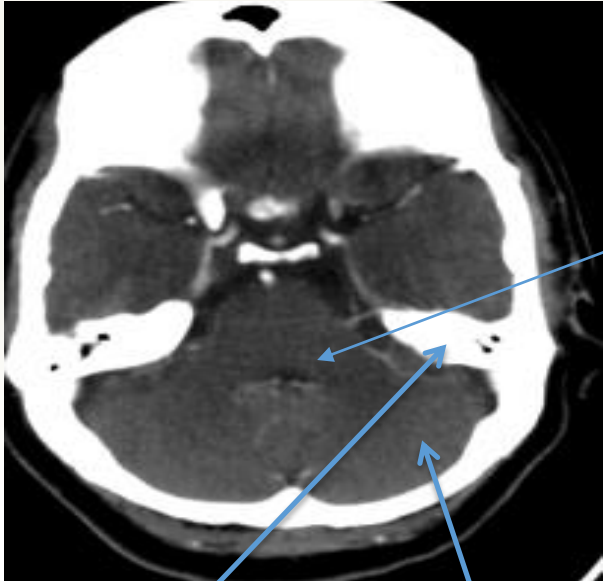
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Cerebellum

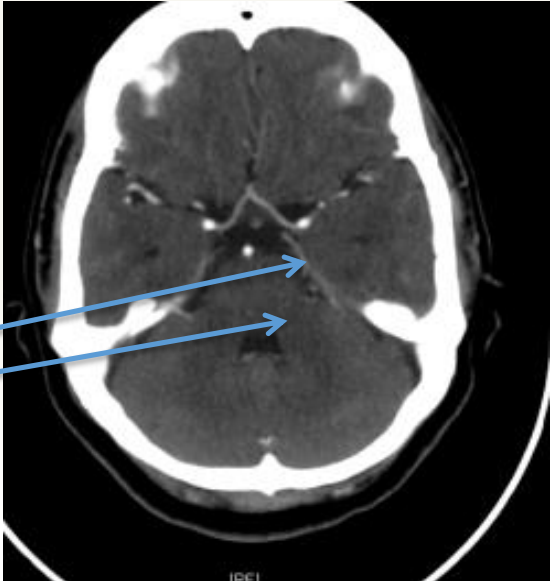


Petrous bone

cerebellum

cerebellum is separated from pons by 4th ventricle in midline and connected to pons laterally on each side by middle cerebellar peduncle

On higher slices it is separated from temporal and occipital lobes anterolaterally by tentorium cerebelli, which can be seen on contrast enhanced studies



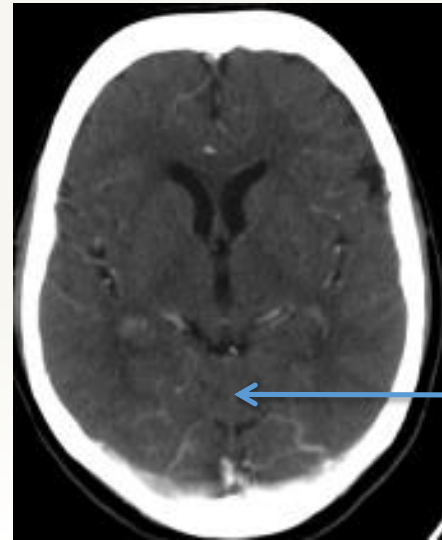


Radiological Features:

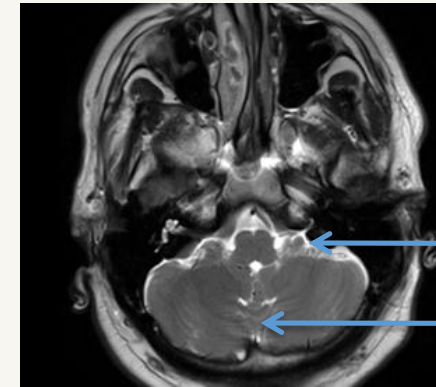
- Cerebellum is connected to brainstem by 3 pairs of cerebellar peduncles
- Two cerebellar hemisphere with midline vermis

Flocculus is a small ventral portion of the hemisphere

- Tonsils are the most anterior inferior parts of hemispheres that lie close to midline
- The superior vermis can be seen between occipital lobes on section through thalamus.



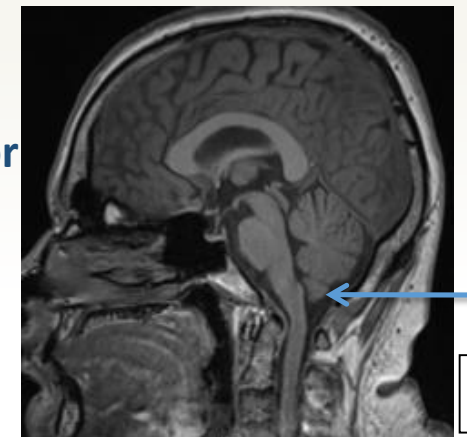
Superior vermis



T2 MRI

flocculus

vermis



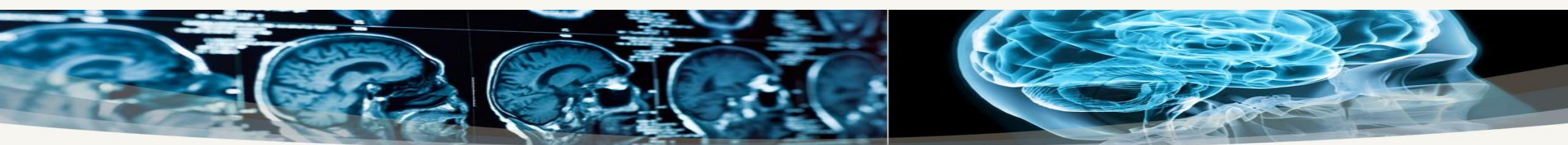
tonsil

T1 MRI

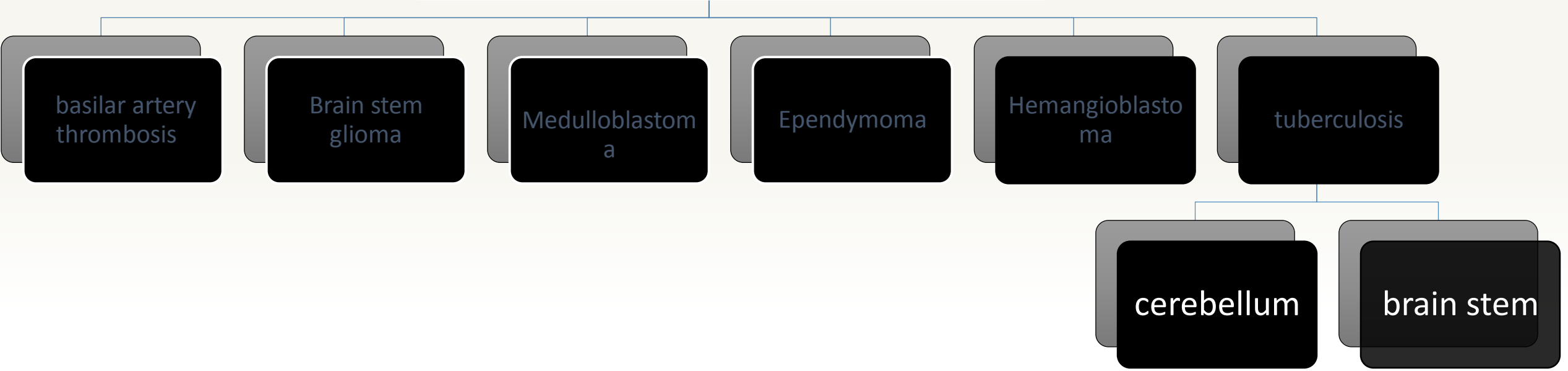
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Common diseases of brainstem & cerebellum



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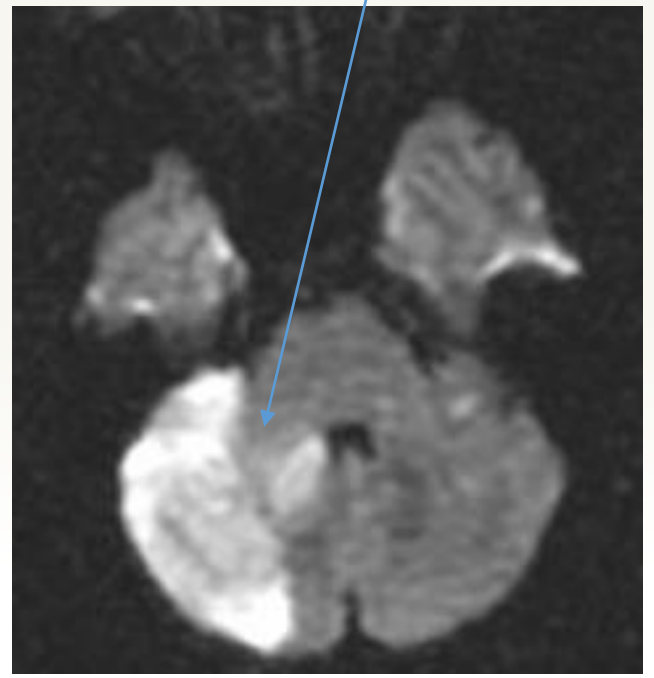
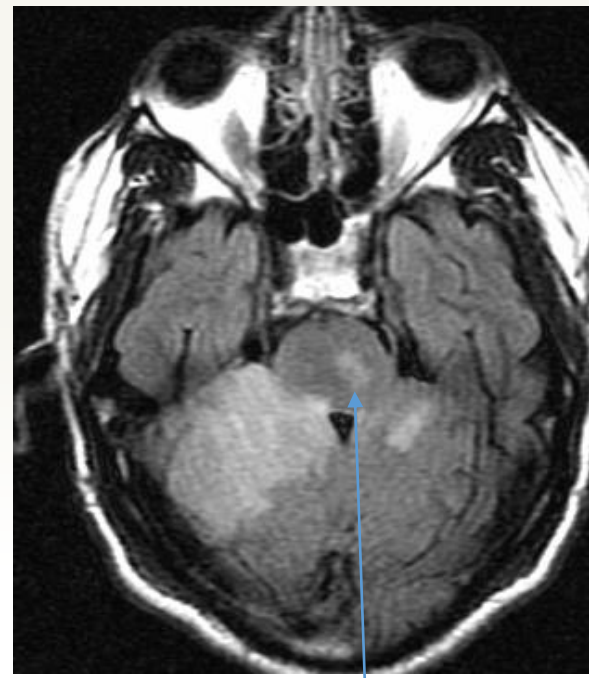
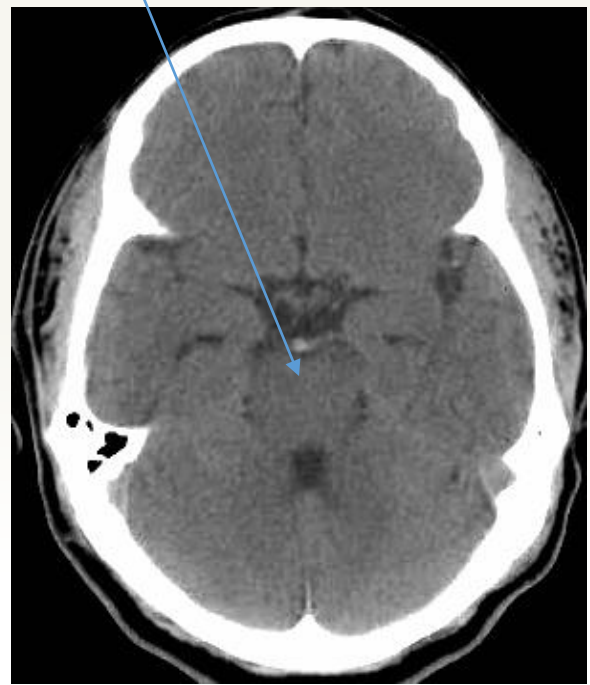
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Hyperdense
basilar artery

Basilar artery thrombosis

Diffusion sequence



Acute infarction due to basilar artery thrombosis

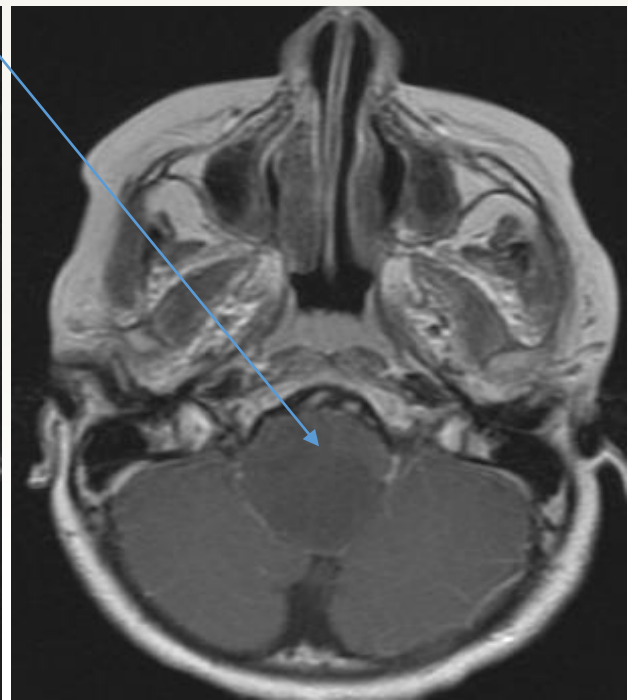
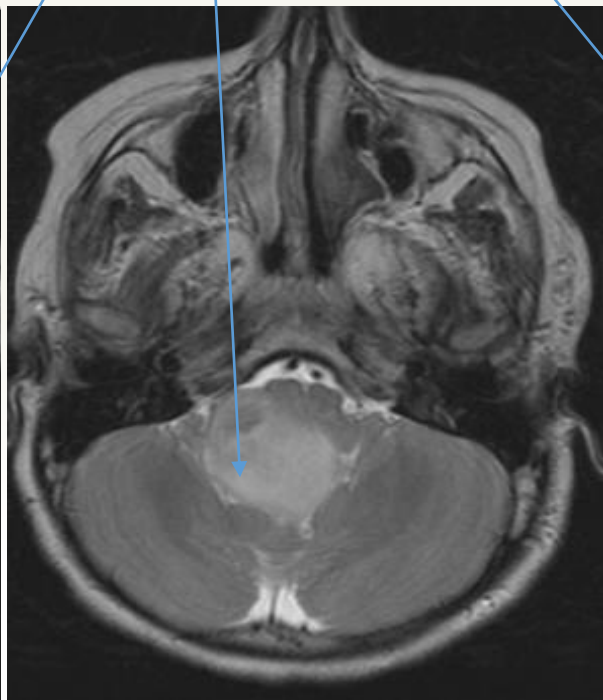
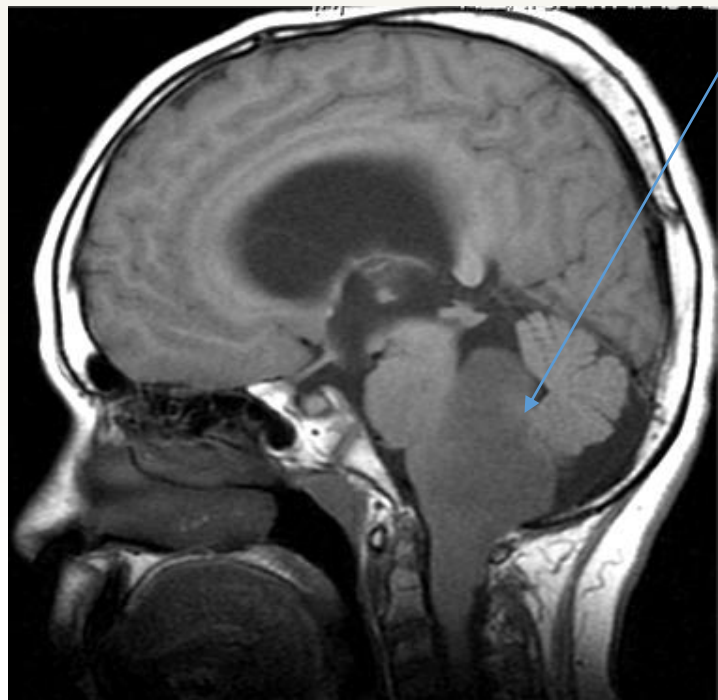
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Brain stem glioma



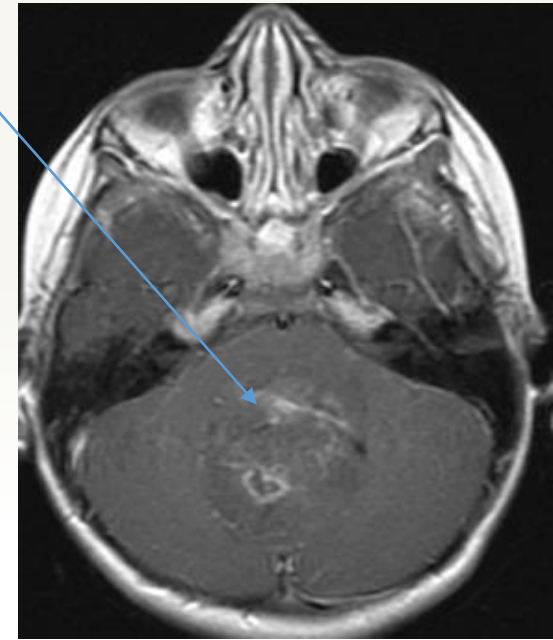
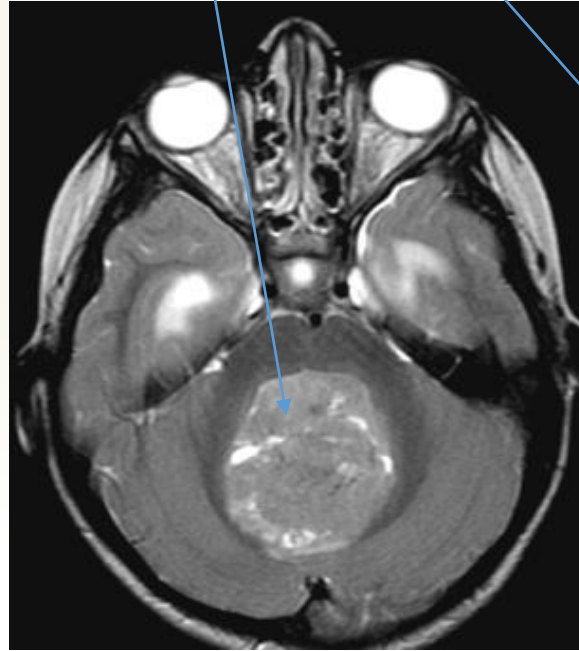
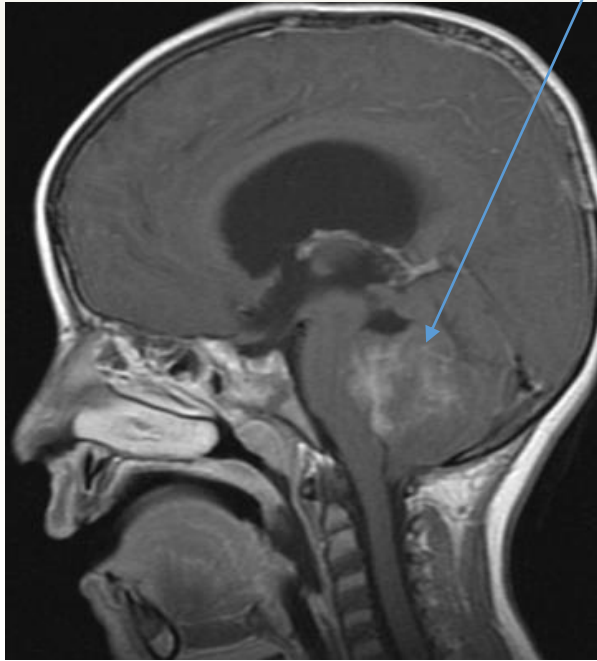
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Medulloblastoma



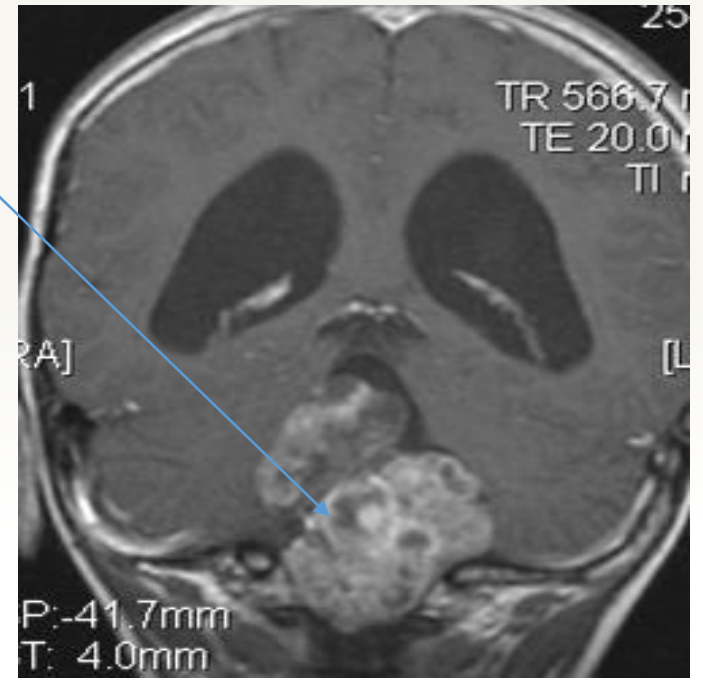
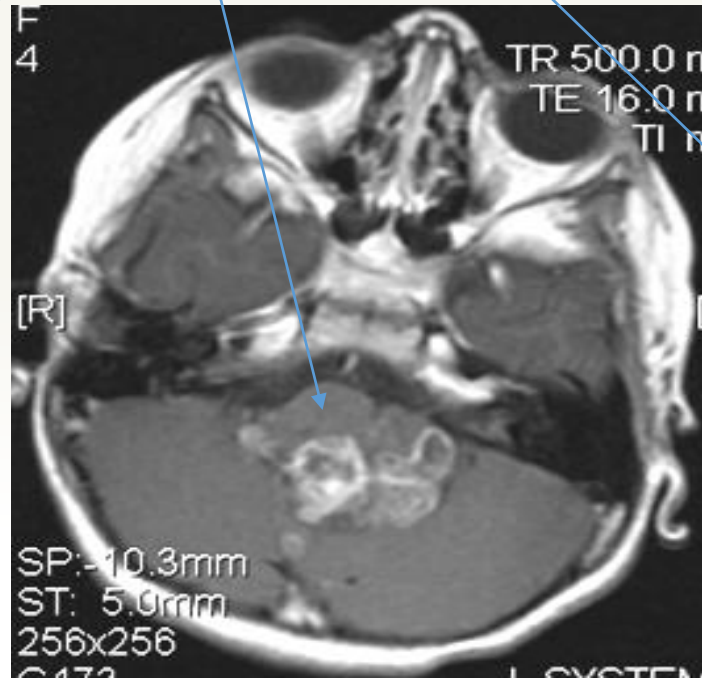
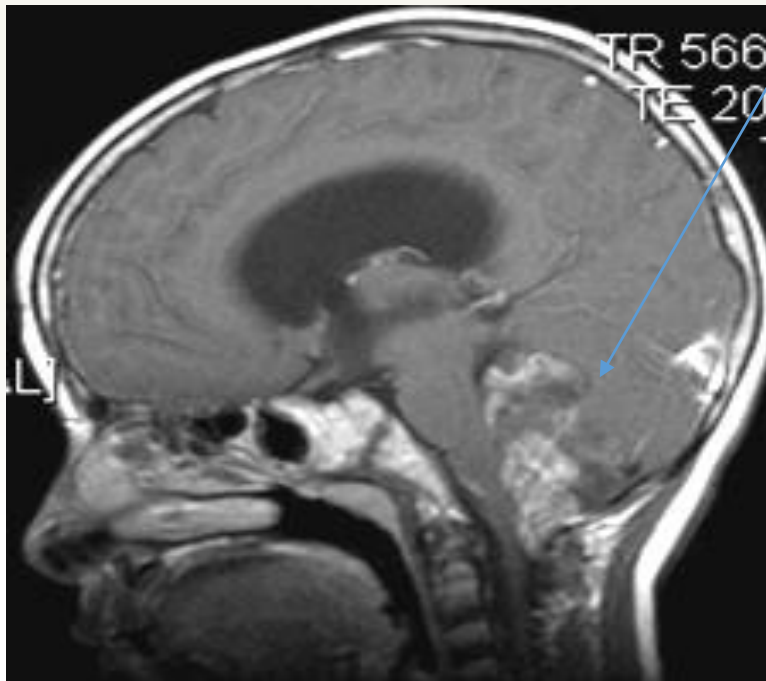
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Ependymoma



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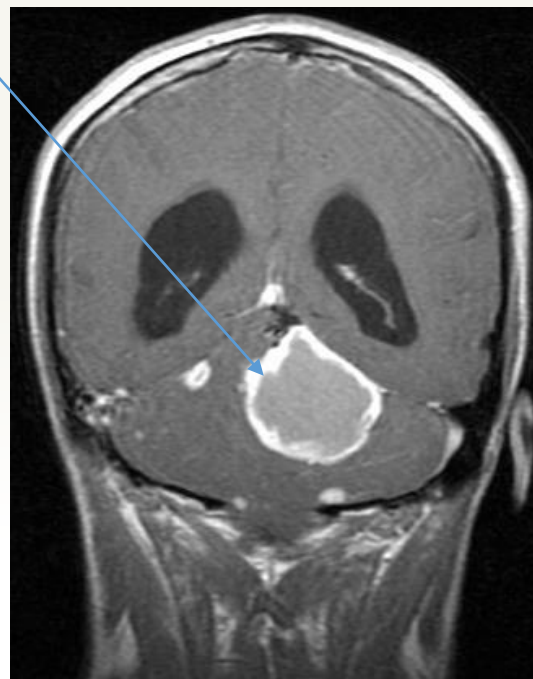
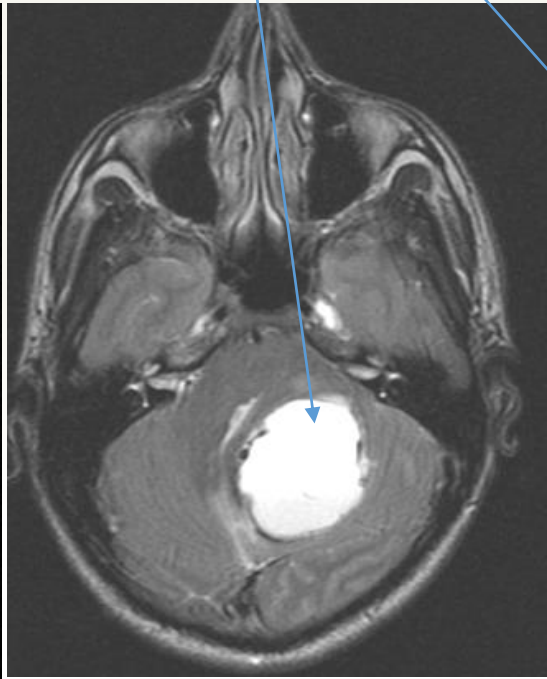
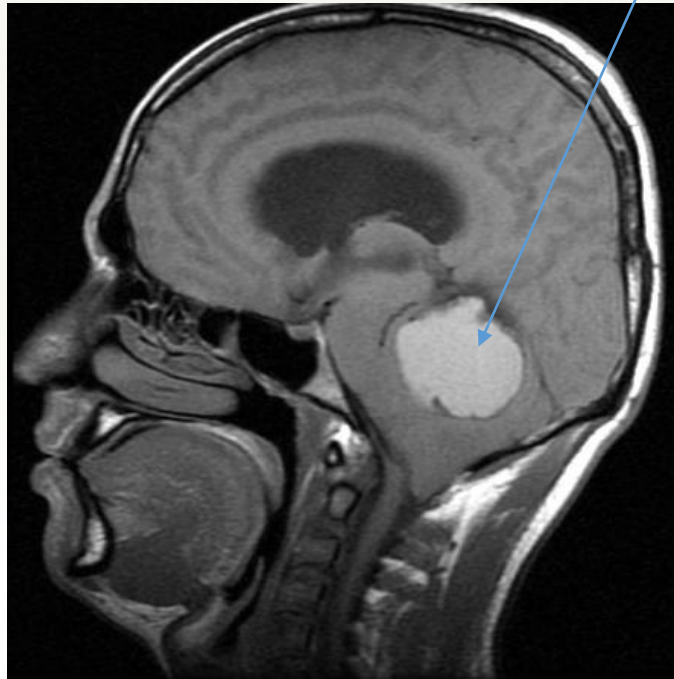


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Hemangioblastoma



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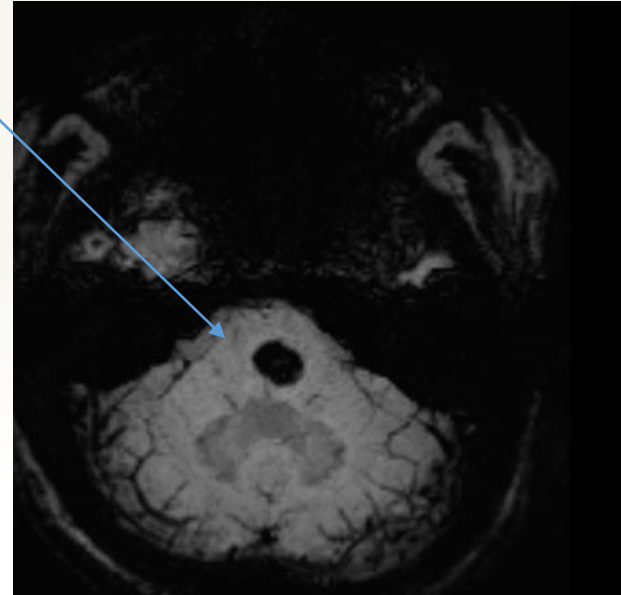
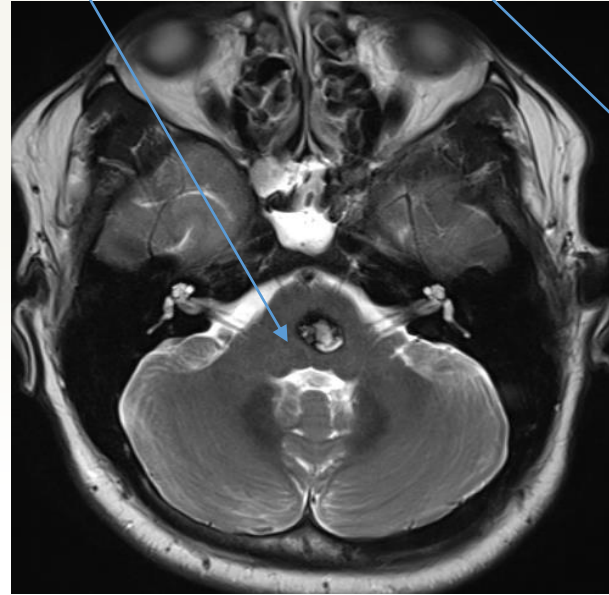
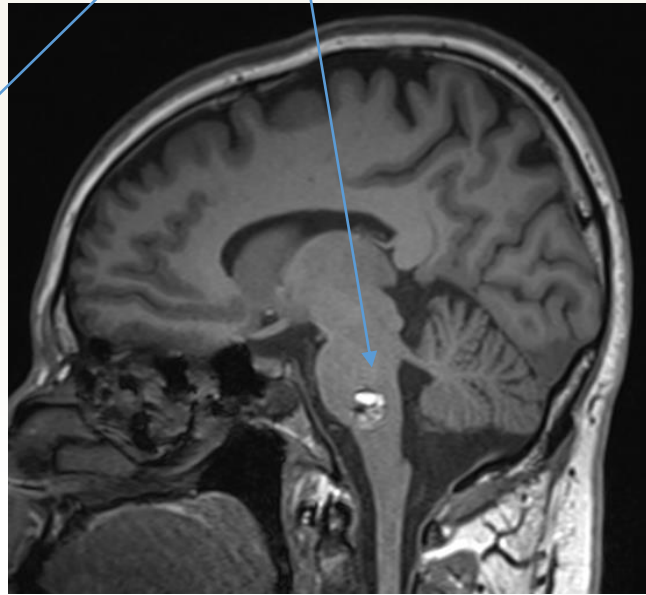
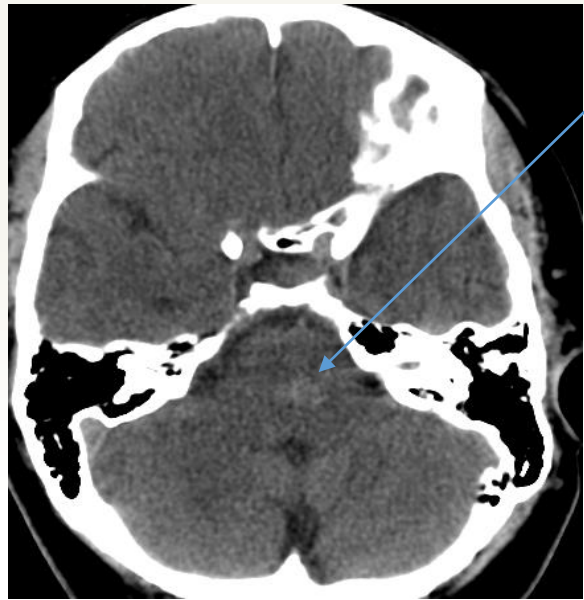


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Cavernous angioma



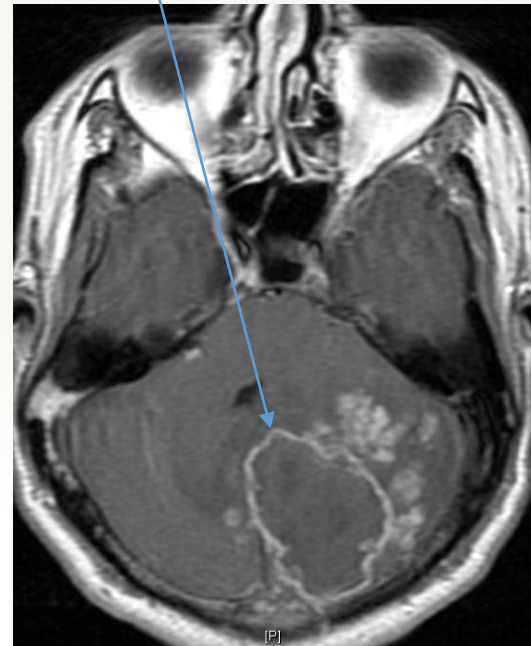
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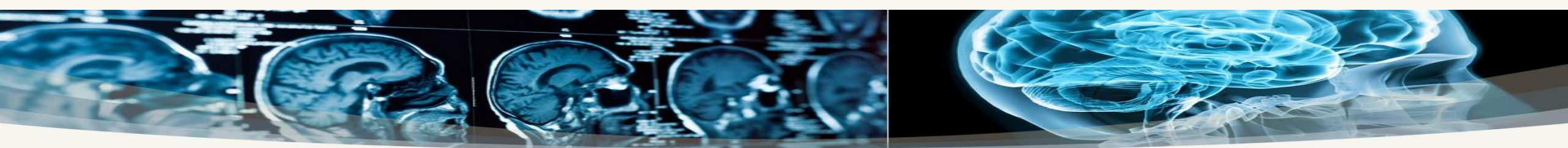
Cerebellar tuberculosis



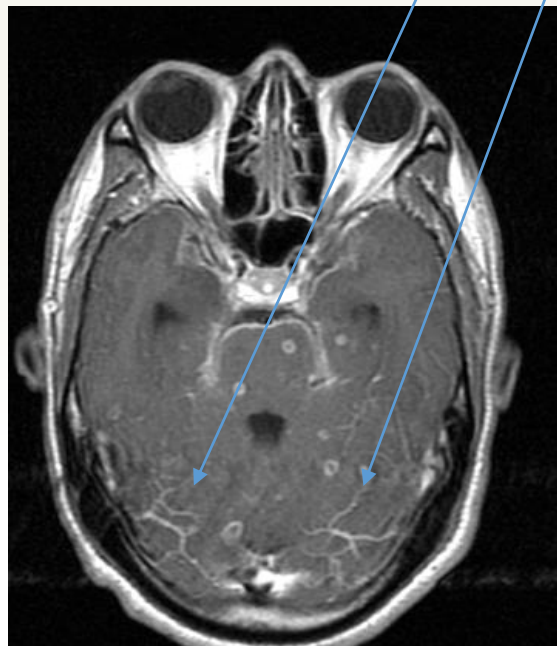
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TB meningitis with multiple tuberculomas



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THANK YOU

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