

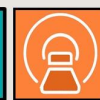


MED437
King Saud University



RADIOLOGY

437



TEAM

Interactive (6) lecture of the nervous system

Color Index:

- ✓ Important
- ✓ Notes
- ✓ Extra

[Editing File](#)

Note:
this lecture is the combination of both
lectures "common brain diseases I & II"


objectives:

no objectives were provided

Sources

Same **435** lecture Slides/Team:
YES

Done by:

 Dawood Ismail
Mohammed Alqaisomi
Anas AlJabaan
Hesham Almousa
Abdullah Balobaid

Revised by:

Yazeed Al-Dossare



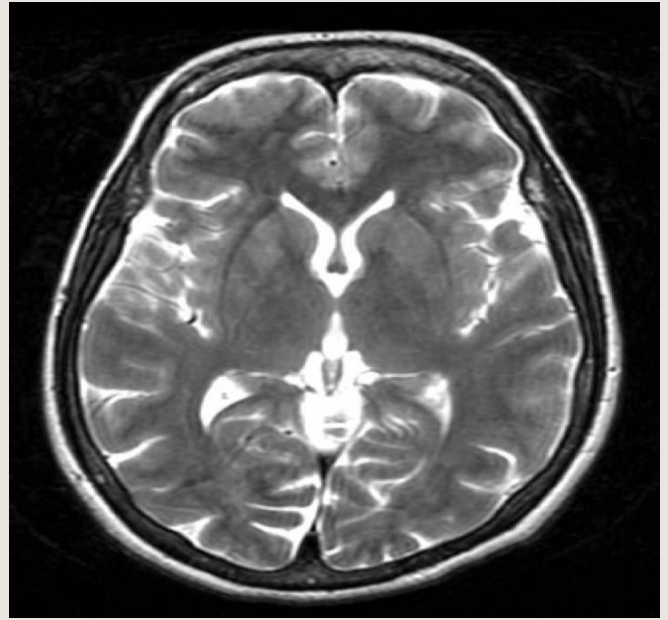
introduction



CT:

bone is white & fluid is black

White matter is darker than grey matter
the darkest structure is the fluid in the ventricles

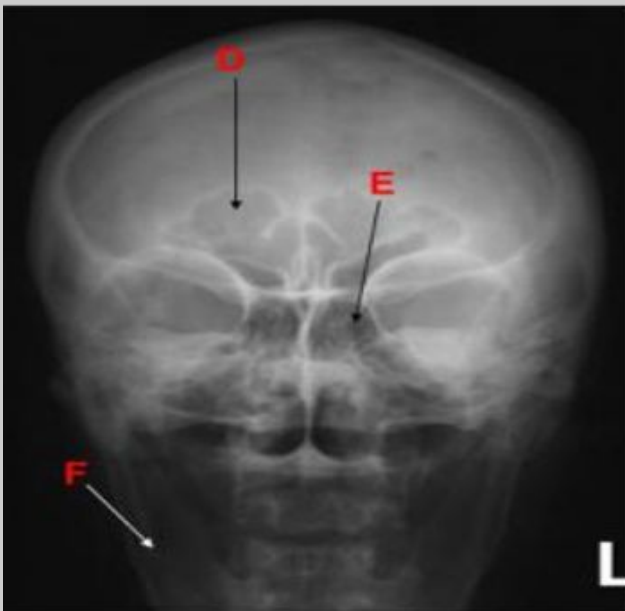


MRI:

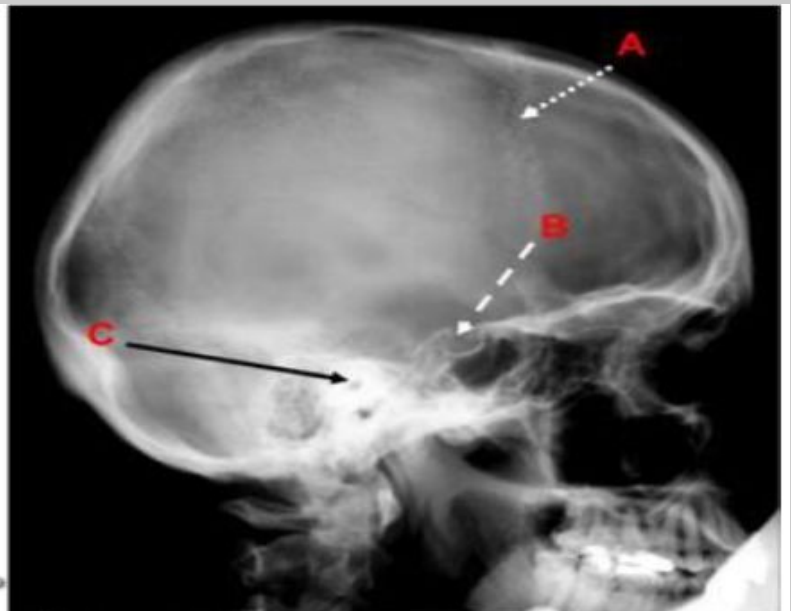
bone is black

T1: fluid is dark
T2: fluid is bright

- name the following structures :



SKULL PA VIEW



Skull X-RAY LAT. VIEW

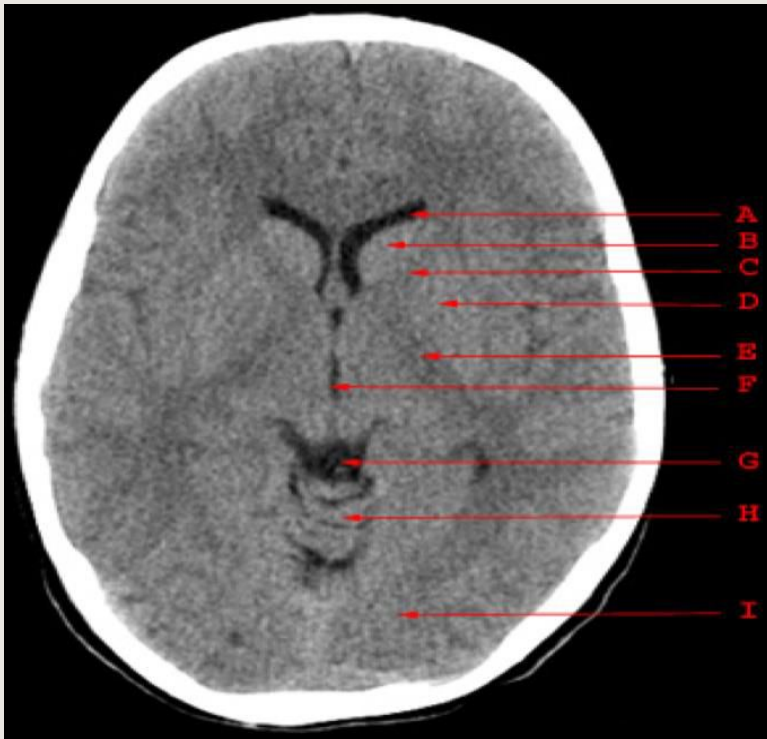
x-ray is rarely used these days, the only indication is looking for foreign bodies

(doctor said it does not matter if it PA or AP in the skull x-ray)

A. coronal suture B. sella turcica C. external acoustic meatus D. frontal sinus
E. ethmoidal sinus F. mandible

Brain CT (Axial)

(we know it's CT from the bone color - white in CT)

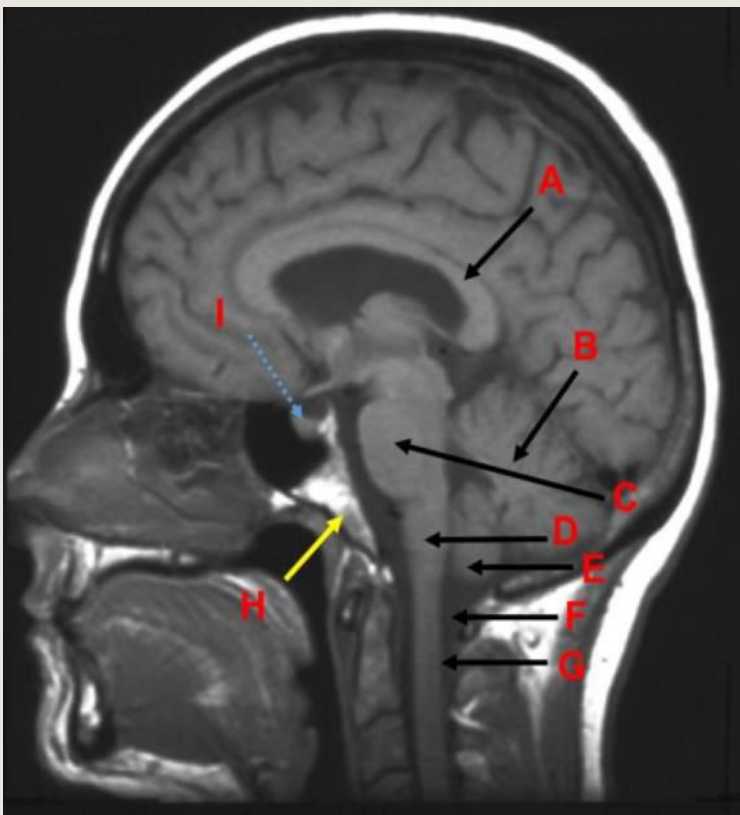


I. Occipital Lobe (left)

- A.** Anterior Horn of the Lateral Ventricle
- B. Caudate head** زي حبة اللوز
- C.** Anterior Limb of the Internal Capsule
- D.** Putamen and Globus Pallidus (lentiform nucleus)
- E.** Posterior Limb of the Internal Capsule
- F.** Third Ventricle
- G.** Quadrigeminal Plate Cistern
- H.** Cerebellar Vermis

N.B :Brain edema on ct shows loss of differentiation between grey and white matter

Sagittal view



- A.** Corpus callosum (body)
- B.** Superior vermis of cerebellum
- C.** Pons
- D.** Medulla
- E. Cerebellar tonsils**
- F.** 4th ventricle
- G. Spinal cord**
- H.** Clivus
- I.** Pituitary

Q1. which is true about CT ?

1. Bone is black (false, the bone color in CT is white)
2. **CSF is black** (true)
3. Gray matter is darker than white matter (false,, the opposite is true " there is more fluids in white matter)
4. Gray and white matter cannot be differentiated (no, we can not differentiate in one condition: brain edema either generalized or localized)

Q2. contraindication of MRI include all the following EXCEPT ?

1st and 2nd trimester you have to take precaution (relative contraindication) because it's time for embryogenesis, also there is no proof of safety or harm

1. cardiac pacemaker
2. cochlear implants
3. metal close to the eye (some metal are not ferromagnetic)
4. neurostimulators (overstimulate)
5. **pregnancy (3rd trimester)**. (true but also contrast is contraindication)

These days there are some devices which are MRI compatible

Q3. MRI diffusion (DWI) is particularly helpful in assessment of all of the following except :

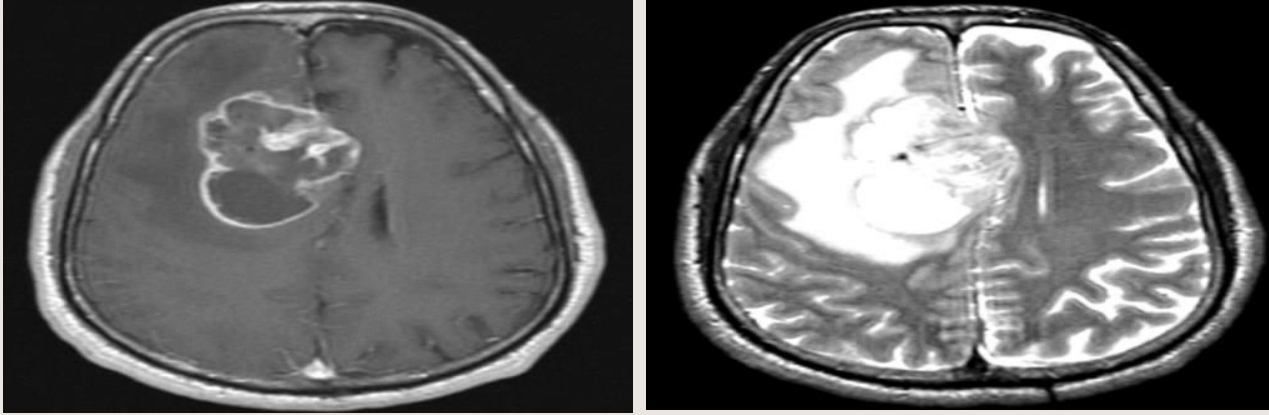
1. Brain infarction (in early infarction "from 7-10 days", after that will be normalized)
2. Brain abscess (helpful)
3. Brain tumors (in some types of tumors)
4. **Hydrocephalus** (not helpful) no fluid restriction like the 3 above choices

Q4. Which of the following is true?



- A. This is CTA study (bone is black)
- B. **This is MRA study** (that is true)
- C. This can only be done with contrast (MRA can be done without contrast just depend on the flow)
- D. This is good to diagnose cerebral venous thrombosis (this is not venography, you can just differentiate between the MRA & MRV by anatomy only).

Q5. This lesion is most likely:

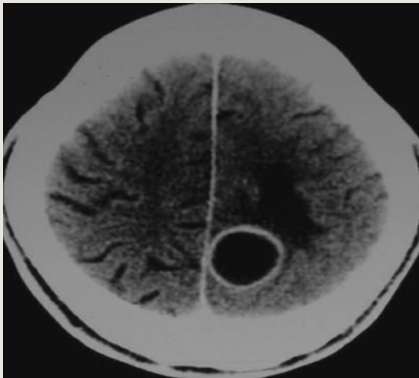


An MRI showed intra-axial lesion that is necrotic, irregular, strongly enhancing, and crossing midline. (intra-axial: in the brain not in the meninges, from the description we know that is malignant lesion)

1. Meningioma (NO, extra-axial, rarely necrotic)
2. Infarction (No, infarction is hypodense)
3. Multiple sclerosis (NO should be multiple lesions - they do not cross midline - hypodense)
4. **Glioblastoma multiforme (GBM)** (true)

- In the picture above what is the type of the edema ?
white matter edema which usually comes with tumors is a vasogenic edema because of leakiness of the blood vessels so fluid is not restricted in the cell but it is free in the interstitium (will not be seen in the DWI)

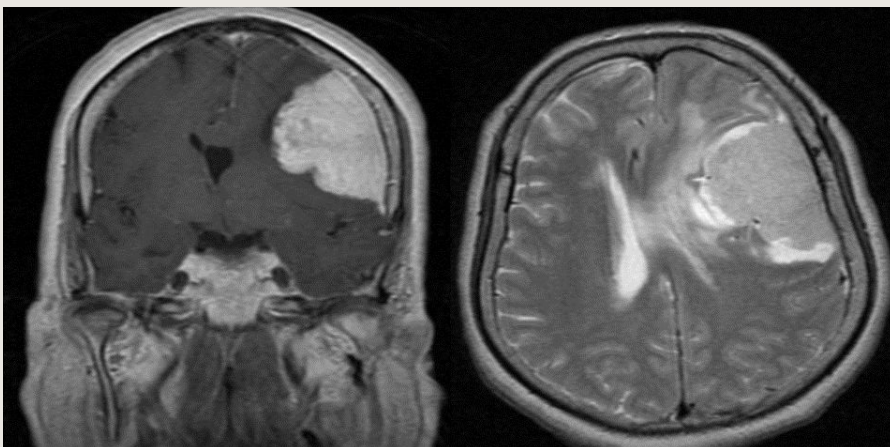
Q6. The lesion on this CT is :



intra-axial, regular, necrotic cavity and there is edema around it (Typical abscess)

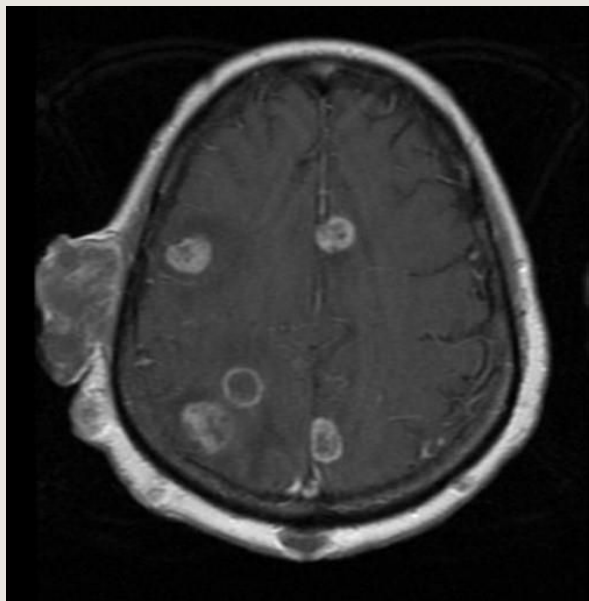
1. Meningioma (no this is an intra axial lesion)
2. **Abscess** (ring enhancement)
3. Multiple sclerosis (No, MS enhancement is incomplete ring and there is no edema around it)
4. Glioblastoma multiforme (does not fit the previous description)

Q7. The lesion on this MRI is :



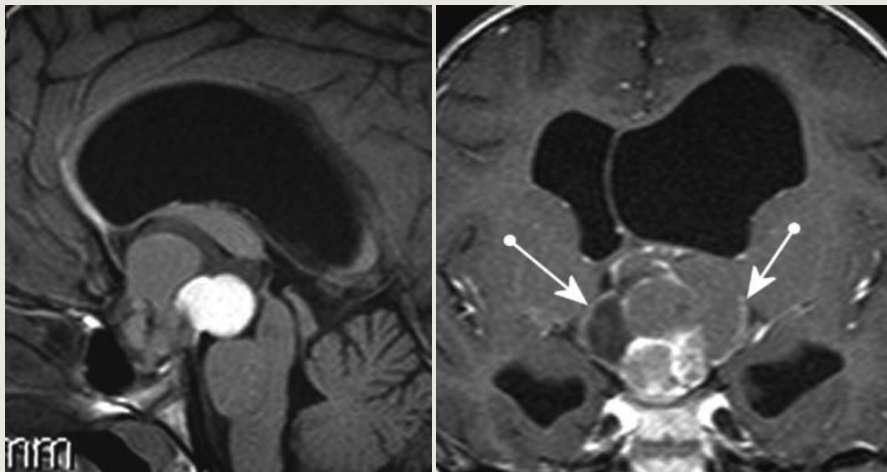
Extra axial, pushing the white and grey matter, non necrotic, CSF cleft sign (fluid in between it and the brain), solid enhancement.

1. **Meningioma** (true)
2. Infarction
3. Metastasis (very rare to reach that size solitary)
4. Abscess (no necrotic cavity)



This is metastasis brain tumor came from breast cancer

Q8. The lesion on this MRI is:



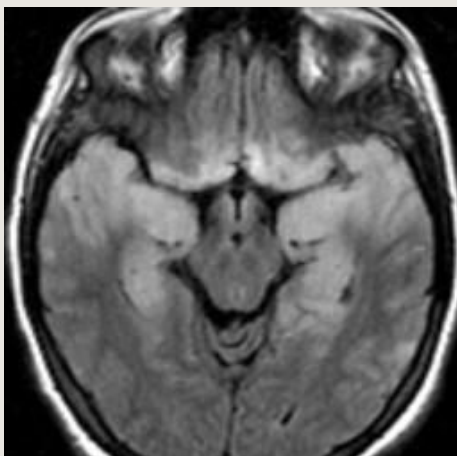
How patients with craniopharyngioma can present?

- Headache
- Vision disturbance
- Pituitary dysfunction (ex. hypogonadism, growth retardation)

Partially enhancing

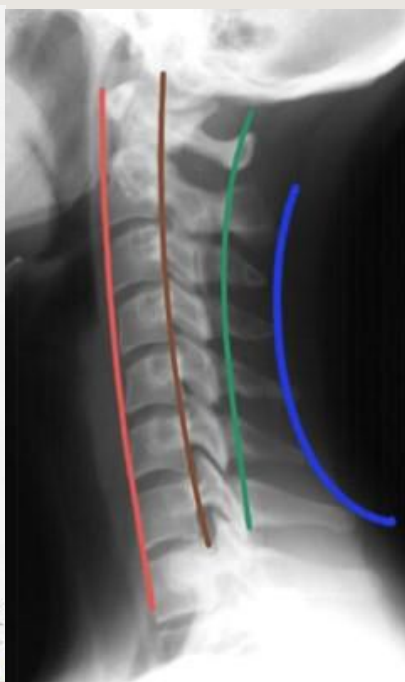
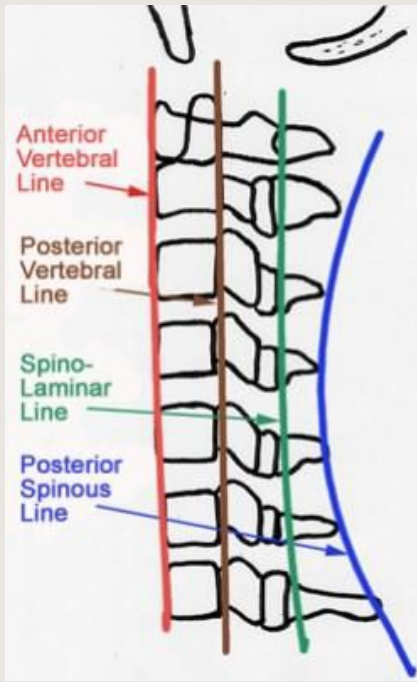
most of this mass is cavities of different content. Here look to the context of the question

- A. Pituitary adenoma (supposed to have single cyst unless if not treated)
- B. **Craniopharyngioma (multicystic)** (present in children and elderly, it's known that CPoma with cyst with different content) we do CT, if there is a calcification the choose it 100%) correct
- C. Meningioma (no it must be solid enhancement not cystic)
- D. Glioblastoma multiforme (rare to affect pituitary)



Q9. The abnormalities on this MRI are due to:

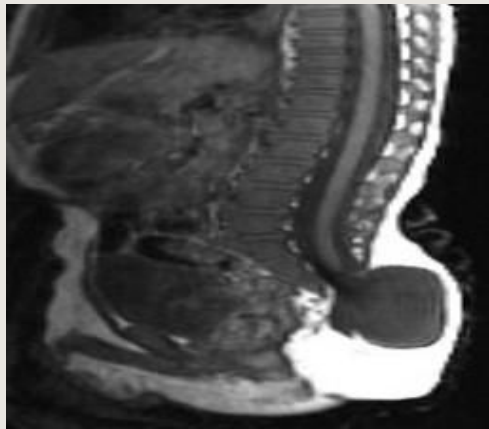
- A. Multiple sclerosis (disease of white matter and here gray matter is affected)
- B. Meningitis
- C. Brain tumor
- D. **Encephalitis** (correct) herpetic encephalitis the most important here is the pattern: bilateral and symmetrical increased intensity of the temporal lobe



Q10. Which of the following is true about the lines of the cervical spine?

- A. Red is intervertebral line
- B. Brown is posterior spinous line
- C. Green is spinolaminar line
- D. Blue is posterior vertebral line

The lines are important in fractures and dislocation

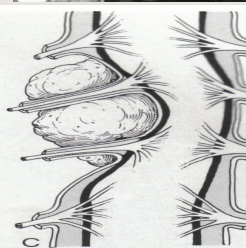
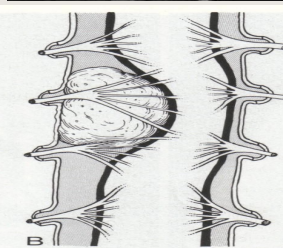
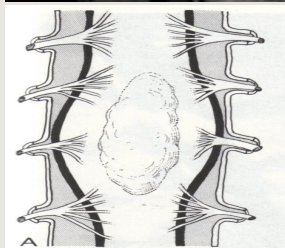
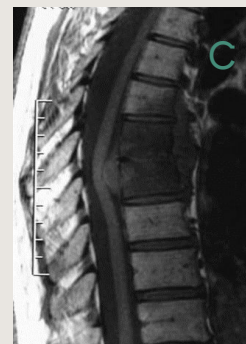
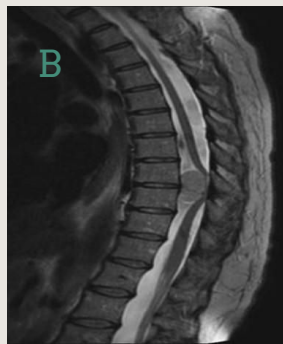


Q11. MRI of the spine shows :

1. Meningocele correct
2. Extradural tumor
3. Discitis
4. Vertebral fusion

spinal cord ends at L2

intraspinal masses:



A: Intradural intramedullary lesion
DDx: spinal cord tumor, multiple sclerosis, lymphoma

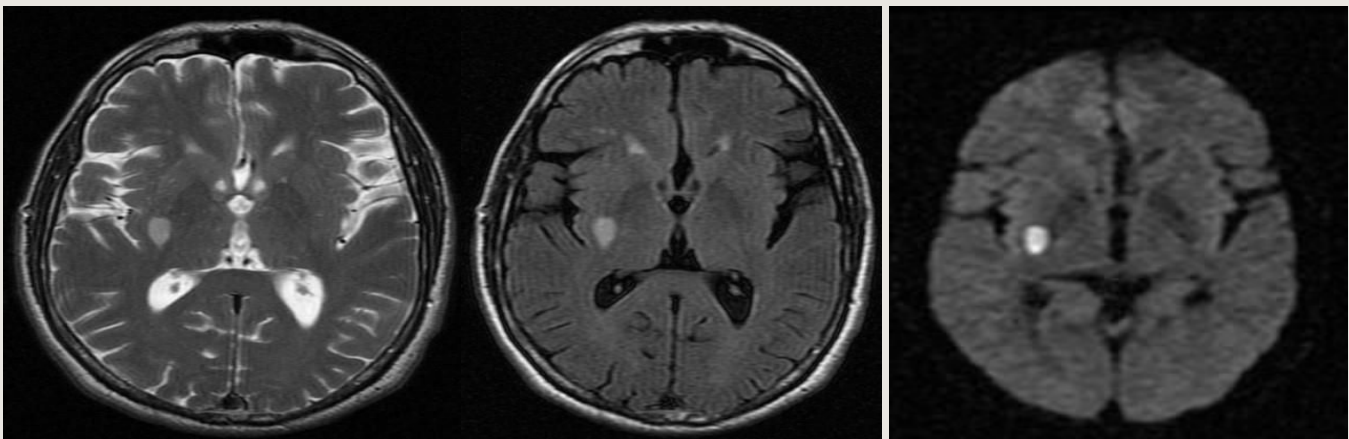
B: Intradural extramedullary
DDx: meningioma, nerve sheath tumor (neuroma, fibroma)

C: extradural (Epidural) extramedullary
DDx: disk herniation, infections, abscess formation



Q11. what is the difference between the two images?

The first one on the left is control normal the, 2nd is patient with **cervical spondylosis** vertebral disc space is narrowed, vertebral body endplate sclerotic it is SPONDYLOSIS



Q12. This MRI shows an infarction in the right basal ganglia.

A. The infarction is:

1. **Acute** (recent) (APPEARED IN DWI) CORRECT
2. Chronic (old)
3. Hemorrhagic
4. In PCA territory

B. This patient is most likely to have:

1. Left monoplegia (caused by ACA)
2. **Left hemiplegia** (correct)
3. Diplegia (upper limbs paralysis)
4. No symptoms (Dr said it is difficult in our level to have a question with this option)



Q13. This CT shows:

1. Subdural hematoma
2. Subarachnoid hemorrhage
3. Intraventricular hemorrhage
4. **All of the above** (correct one)



Q14. The hematoma pointed by the arrow is:
acute because it is bright

1. **Acute epidural** (it crossed the falx)
2. Chronic epidural
3. Acute subdural
4. Chronic subdural
5. None of the above



Q15. This CT shows:

1. **Acute PCA infarct** (in PCA territory)
 2. Chronic ACA infarct
 3. Subarachnoid bleeding
 4. Meningioma
 5. Abscess
- There is also intraventricular hemorrhage**

help us improve with your feedback:



RadiologyRadiology437@gmail.com



We would be happy, if you leave your feedback

[click Here !](#)

References

- ✓ Slides
- ✓ 435 Teamwork



You did it !

