

Organized Archive



شامل لأسئلة سنوات حتى

09/March/2023

Intracranial pressure

Essay Questions

سنوات (3) ❖ What is the CPP ?

- Cerebral perfusion pressure = mean arterial blood pressure – intracranial pressure (avoid writing abbreviations)

سنوات (3) ❖ What is the normal CBF with units ?

- ~50ml/100g/min

سنوات (1) ❖ What is the normal amount of CSF produced daily ?

- 500-600

سنوات (1) ❖ What the mechanism of early morning headache in intracranial hypertension ?

- Co₂ retention due to hypoventilation during sleep
- Recumbent position during sleep decreases venous return
- Cortisol level

Essay Questions

سنوات (3) ❖ Mention 2 devices used in monitoring of ICP

- Intraparenchymal catheter
- Subdural catheter
- Subdural bolt

سنوات (2) ❖ Mention 2 Indications for ICP Monitor insertion

- Head trauma
- Closed head injury
- Normal pressure hydrocephalus
- Post brain tumor surgery or intracranial surgery

سنوات (2) ❖ Mention 2 complications

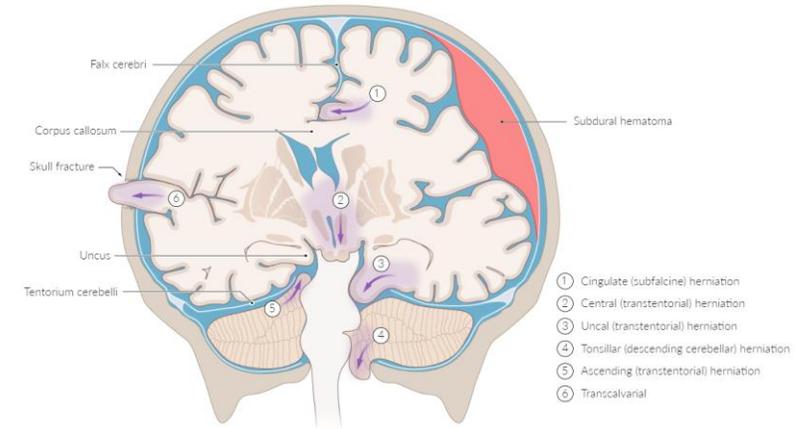
- Infection, Hemorrhage, CSF leak

Essay Questions

سنوات (1)

❖ Mention 2 types of brain herniation other than Chiari malformation

- Subfalcine herniation
- Descending transtentorial herniation
- Foramen magnum herniation



❖ What are the types of brain edema and the cause of each one ?

- Vasogenic: due to tumors, it responds well to steroid
- Cytotoxic: due to trauma

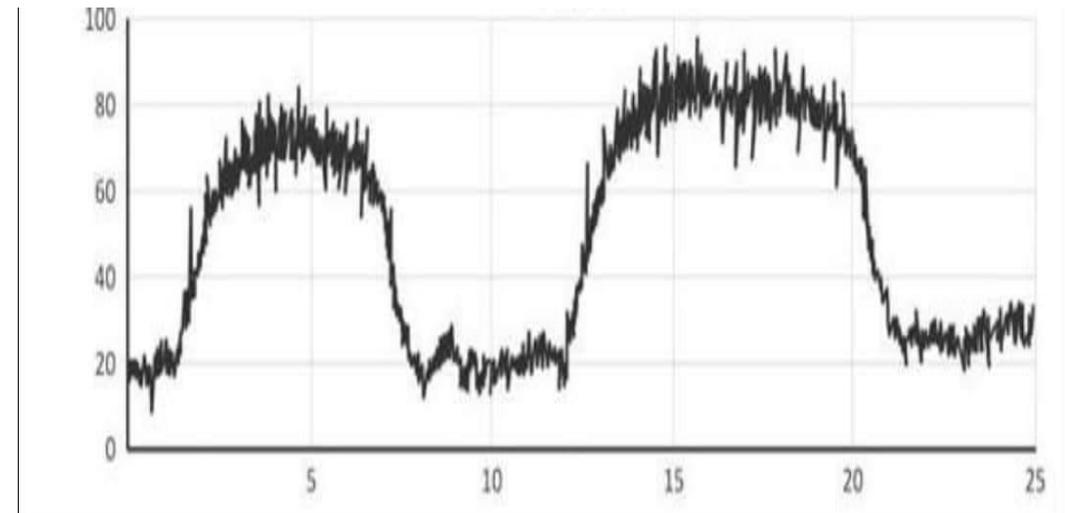
Lundberg Waves

❖ What is the type of this wave ?

- Lundberg Wave A (if you don't write Lundberg the answer is WRONG)

❖ What is the description of it?

- Increase mean ICP > 50 mmHg
- Lasting for 5-20 minutes
- (these 2 points are enough)



Lundberg Waves

❖ What is the type of this wave ?

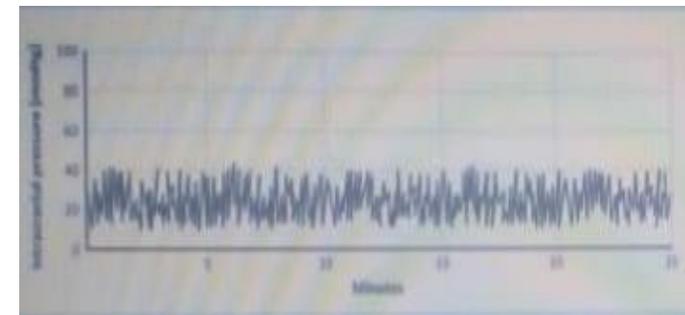
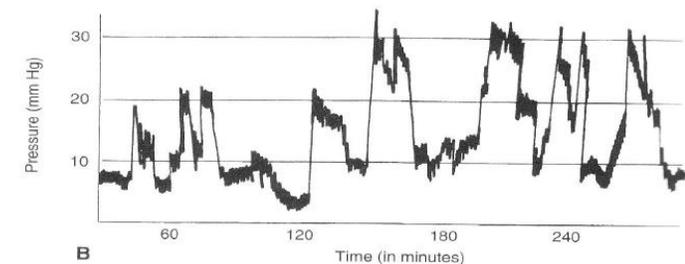
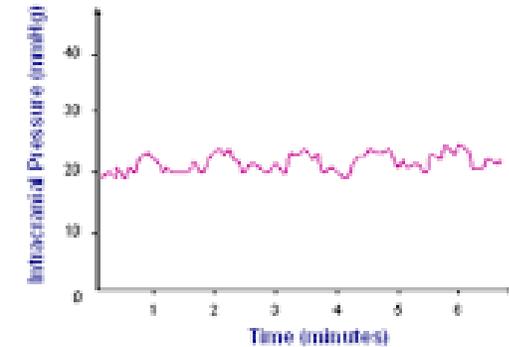
- Lundberg Wave B (if you don't write Lundberg the answer is WRONG)

❖ What is the description of it?

- Sharp, rhythmic increase ICP of (20-50) for 30s to 2 minutes

❖ Mention 2 devices used for ICP monitoring

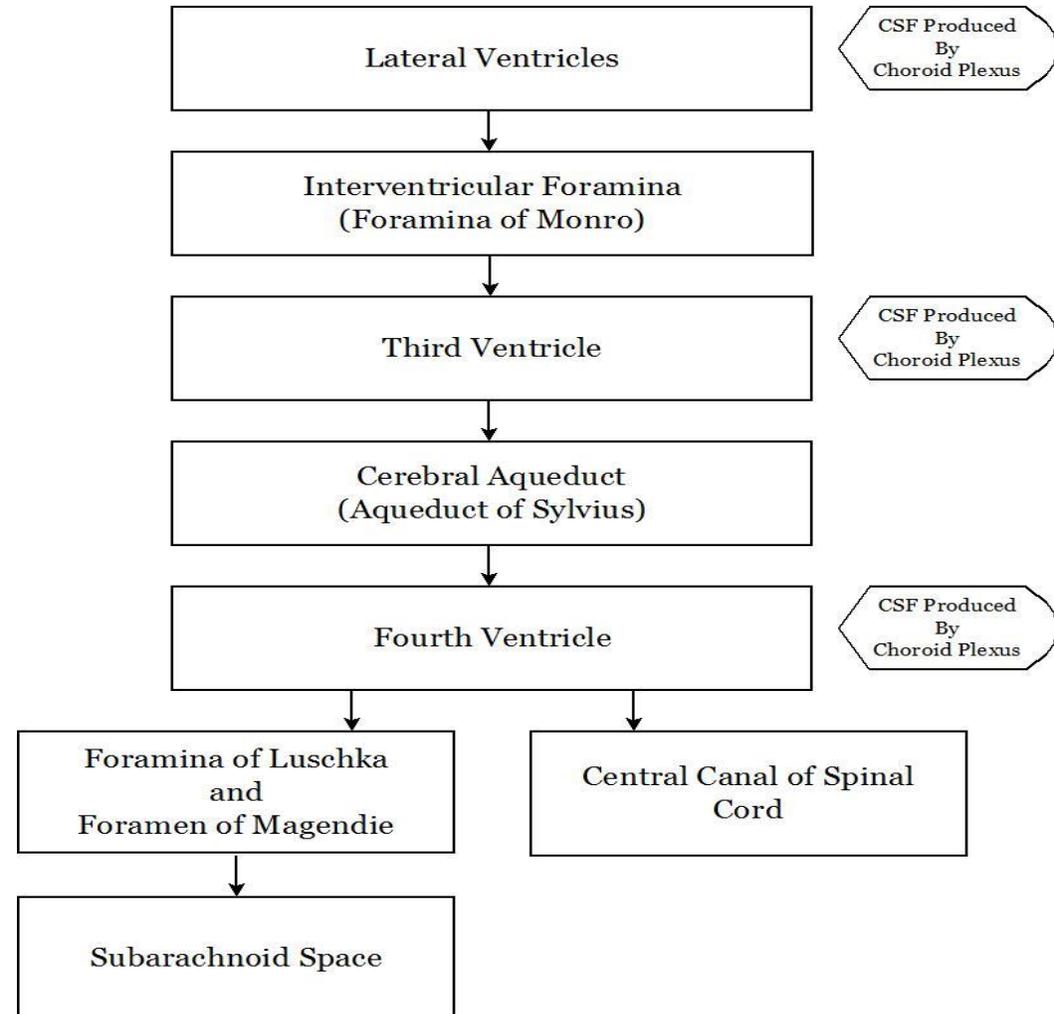
- Intraventricular catheter, Extradural sensor, Subdural sensor



Hydrocephalus

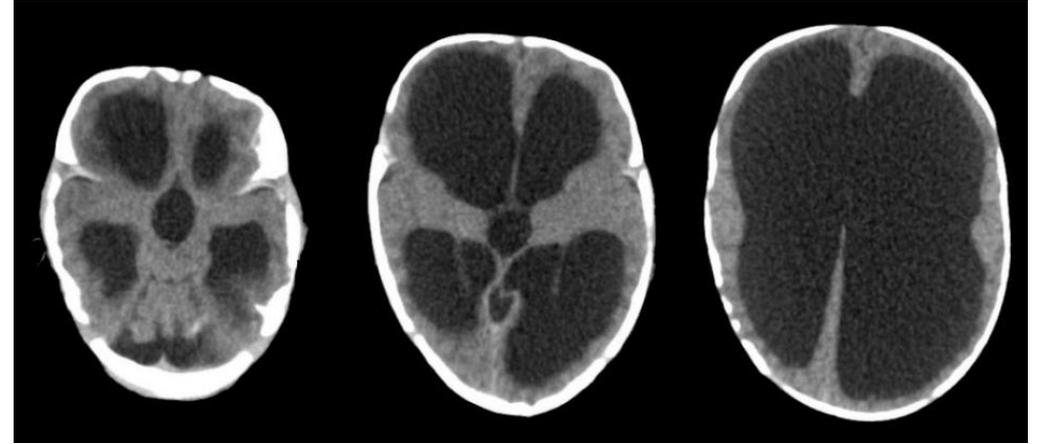
Write the pathway of CSF from secretion to absorption

- ❖ Formed by choroid plexus (mainly) > Lateral ventricles > Foramen of Monroe > 3rd ventricle > Aqueduct of Sylvius > 4th ventricle > Foramen of Magendie and Luschka > Subarachnoid space over the brain and spinal cord > CSF is reabsorbed by arachnoids villi into the superior sagittal sinus



Hydrocephalus 1

- ❖ **What is your diagnosis ?**
 - Hydrocephalus
- ❖ **What are the types ?**
 - Communicating and obstructive
- ❖ **Mention 3 surgical procedures**
 - Ventriculoperitoneal shunt
 - Endoscopic third ventriculostomy



Hydrocephalus 2

❖ What is the type of hydrocephalus ?

- Communicating

❖ Mention 2 possible causes

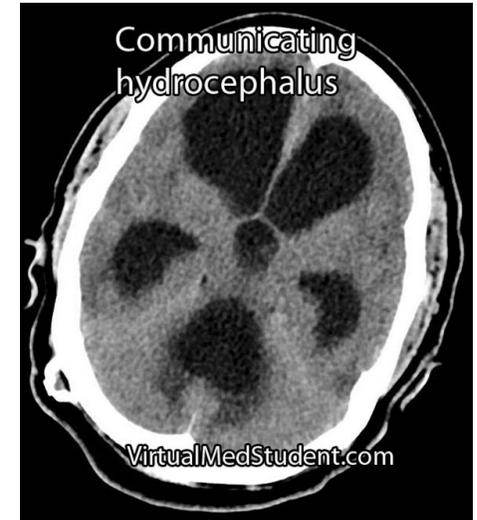
- Infection
- Subarachnoid hemorrhage

❖ Mention 2 signs of acute hydrocephalus on CT scan

- A. dilated ventricles
- B. transepindymal edema

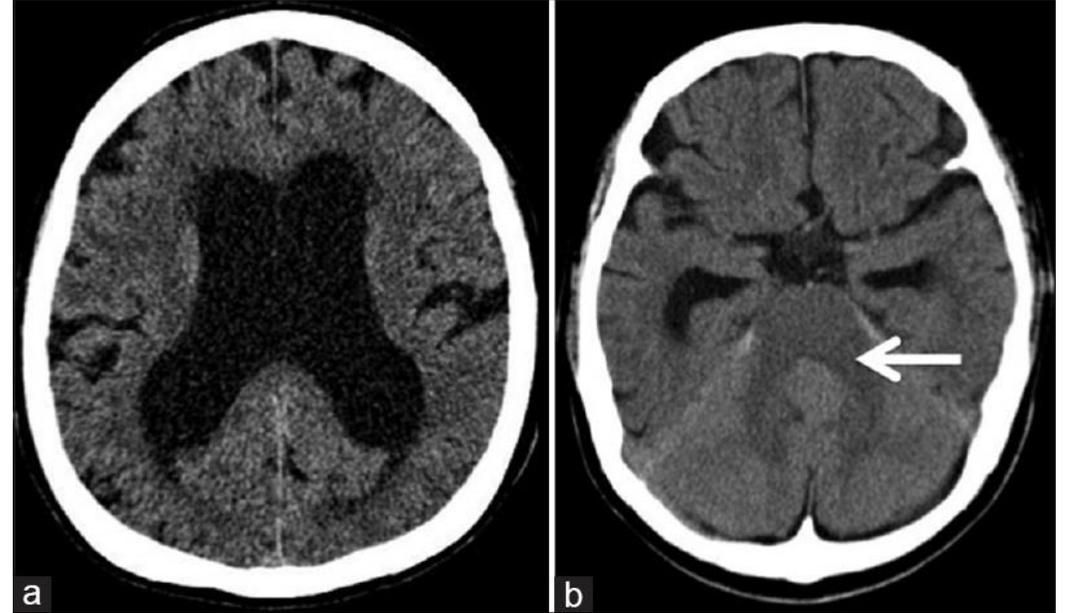
❖ What is the appropriate management for this type ?

- AP shunt



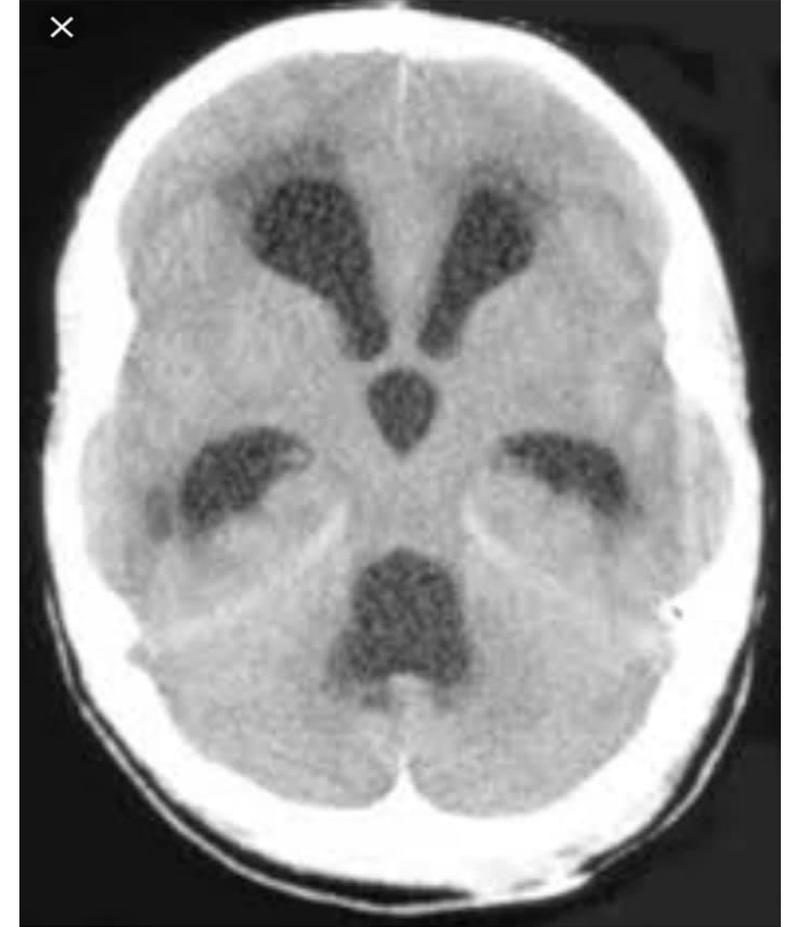
Hydrocephalus 4

- ❖ What is the type of hydrocephalus seen in this image?
 - Obstructive



Hydrocephalus 5

- ❖ What is the type of hydrocephalus seen in this image?
 - Communicating



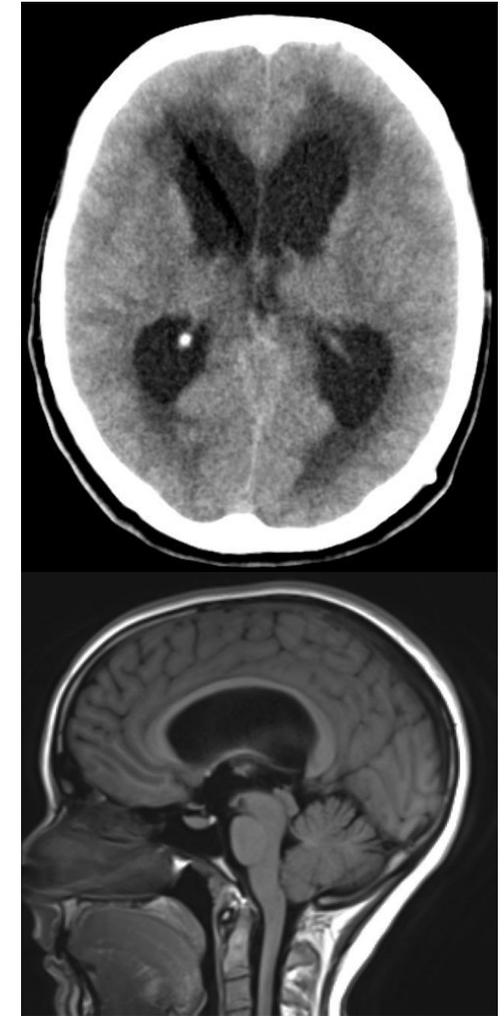
Hydrocephalus 6

- ❖ Mention the entity classification of this picture and example on each one and treatment ?
 - Obstructive (tumor, aqueduct stenosis) treated by VP shunt and ETV
 - Communicating (infection and hemorrhage) treated by VP shunt



Hydrocephalus 7

- ❖ What is the type of hydrocephalus seen in this image?
 - Obstructive (Aqueduct stenosis)
- ❖ Management ?
 - ETV + shunt
- ❖ Mention 2 signs of acute hydrocephalus in adult on CT scan
 - Dilated ventricles
 - Effacement of the sulci
 - Transepindymal edema



Infant's Hydrocephalus

- ❖ **What is your diagnosis ?**
 - Hydrocephalus
- ❖ **Mention 4 radiological signs**
 - Dilated ventricles, Effacement of sulci, Periventricular edema, Evans ratio $> 30\%$
- ❖ **Mention 2 solid clinical signs**
 - Sun setting eye sign, Dilated superficial veins & macrocephaly
- ❖ **Mention 2 symptoms**
 - Headache, nausea, and vomiting
- ❖ **Mention 2 signs seen in adults**
 - Papilledema, Abnormal gait



Infant's Hydrocephalus cont.

❖ Mention 3 surgical procedures (6 سنوات)

- Ventriculoperitoneal shunt
- Endoscopic third ventriculostomy

❖ Mention one single definite clinical manifestation for hydrocephalus in adults (2 سنوات)

- No idea 😊

❖ Mention a possible associated anomaly (2 سنوات)

- Chiari malformation
- Myelomeningocele

❖ Mention 2 possible causes (3 سنوات)

- Non-Communicating (Aqueductal stenosis)
- Communicating (Infection)



Infant's Hydrocephalus cont.

سنواٲ (2)

❖ What is the mechanism of the sunset eyes

- Results from compression of the tectum, including the superior colliculus, adjacent oculomotor and Edinger-Westphal nuclei, causing dysfunction to the motor function of the eye



Infant's Hydrocephalus 2

❖ Mention 2 sign in the pic 1

- increase skull circumference
- setting sun eyes
- less craniofacial proportion



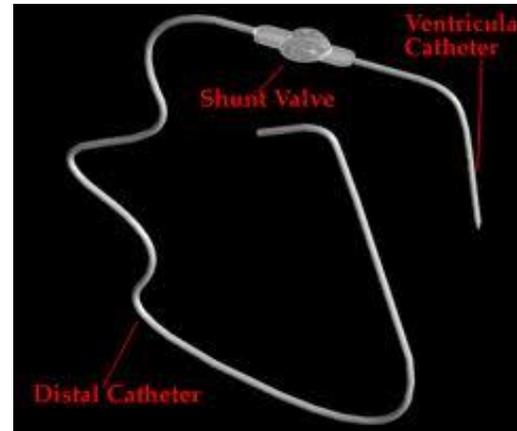
❖ What do you see in pic 2 ?

- VP shunt

❖ What are the complications of pic 2 ?

- Infection
- Hemorrhage
- Blockage

سنوات (3)



Ventriculoperitoneal shunt

- A 3 months old child with VP, came with irritability, decreased oral intake. Vitals are stable, head circumference 45 cm
- ❖ **What is your diagnosis ?**
 - VP shunt blockage
- ❖ **What is the most common cause of hydrocephalus for this patient ?**
 - Aqueductal stenosis
- ❖ **Mention 4 signs of hydrocephalus can be present in this patient**
 - Macrocephaly, Tense fontanelle, Setting sun sign, Irritability, Developmental delays
- ❖ **What investigations to be done ?**
 - Ultrasound through the anterior fontanelle



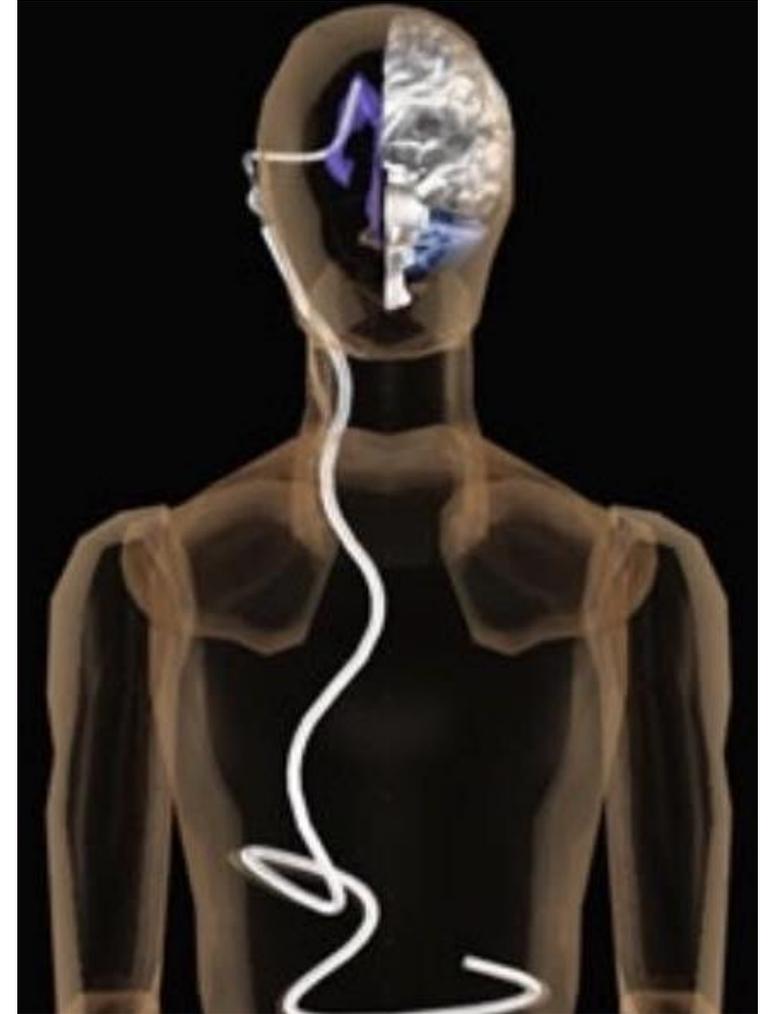
Ventriculoperitoneal shunt

❖ What is this ?

- Ventriculoperitoneal shunt

❖ Mention 3 complications of it

- Infection
- Hemorrhage
- Blockage



Endoscopic third ventriculostomy (ETV)

❖ **What is the site of fenestration in this procedure ?**

- The floor of 3rd ventricle

❖ **What is the affected artery ?**

- Basilar artery



Normal pressure hydrocephalus

❖ Write the triad of normal pressure hydrocephalus ?

- Incontinence
- Dementia
- Ataxia

❖ What is the definitive treatment ?

- ventriculoperitoneal shunt

❖ Which the first symptom improves after treatment ?

- Ataxia

Case Scenario

➤ 57-year-old male, complaining of incontinence, family says he has dementia, and physical exam shows ataxic gait

❖ **What is the diagnosis?**

- normal pressure hydrocephalus

❖ **What is the definitive treatment?**

- ventriculoperitoneal shunt

Case Scenario

➤ A 43-year-old male pt come to ER with ataxia, dementia, urine incontinence, tachycardia, with B.PR:90/50 and he doesn't take medication, what is your diagnosis?

❖ **What is the diagnosis?**

- normal pressure hydrocephalus

❖ **What is the definitive treatment?**

- ventriculoperitoneal shunt

Essay Question

سنوات (1) ❖ Types of hydrocephalus

سنوات (1) ❖ Cause of each type

سنوات (2) ❖ Management of hydrocephalus

سنوات (3) ❖ Give 2 signs on head CT in acute hydrocephalus

Congenital anomalies

Essay Questions

❖ Mention 4 congenital anomalies (related to CNS abnormality)

- Aqueductal stenosis
- Spina bifida
- Chiari malformation
- Dandy-walker malformation
- Anencephaly
- Arachnoid cysts

Anencephaly

❖ What is your spot diagnosis ?

- Anencephaly

❖ How can you prevent it ?

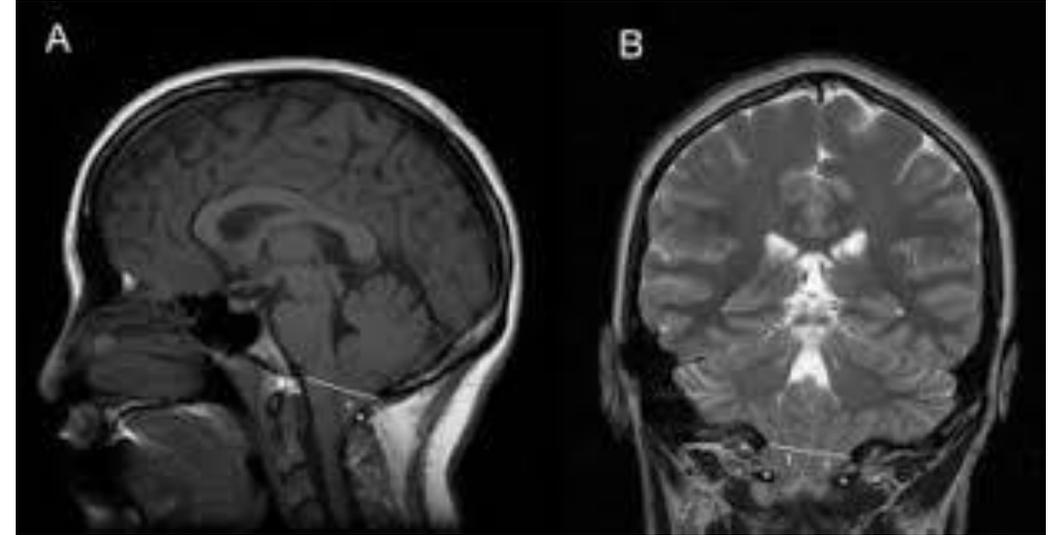
- 4 mg of folic acid daily, started 3 months before conception



Chiari malformation 1

❖ What is your DX ?

- Chiari type 1 malformation



T stands for cerebellar tonsils

Chiari malformation 2

❖ **What is malformation shown in this MRI and what its type ?**

- Chiari malformation type 4

❖ **Give 2 differential diagnosis**

- Dandy walker malformation
- Arachnoid cyst
- Megacysterna magna



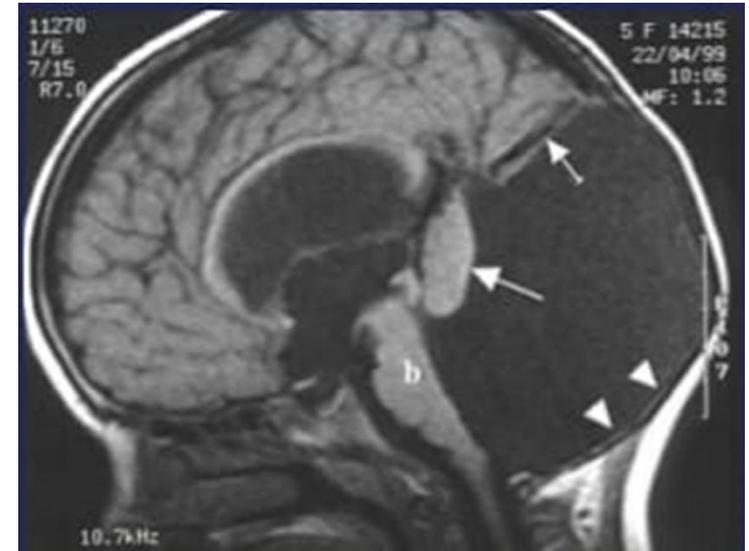
Dandy walker malformation

❖ What is malformation shown in this MRI and what its type ?

- Dandy walker malformation

❖ Give 2 differential diagnosis

- Arachnoid cyst
- Chiari malformation type 4



Myelomeningocele

- ❖ **What is your spot diagnosis ?**
 - Myelomeningocele
- ❖ **How do you classify this pathology ?**
 - Occulta, Aperta, cystica, open
- ❖ **What is your next step of management ?**
 - Surgical excision
- ❖ **Mention 2 pathologies this disease is usually associated with**
 - Chiara 2 malformation
 - Hydrocephalus



Myelomeningocele

❖ What is your spot diagnosis ?

- Myelomeningocele

❖ What is your next step of management ?

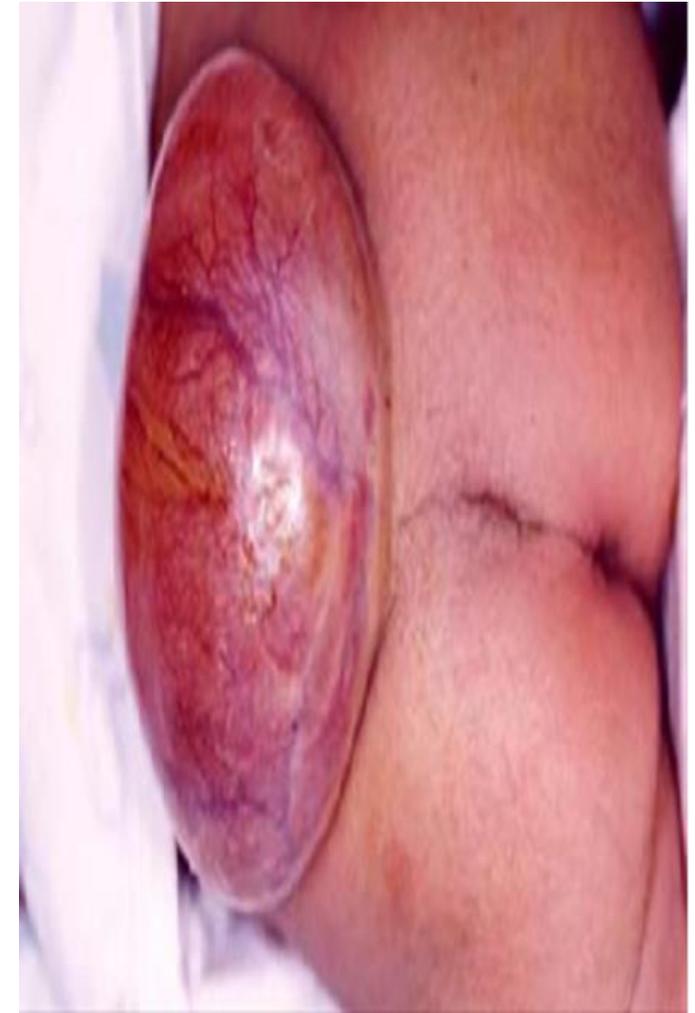
- Surgical excision

❖ Mention 3 advantages of treatment

- Prevent infection
- For cosmetic causes
- Prevent neurological deterioration (But do not improve or correct it)

❖ Which type of Chiari malformation is it associated with ?

- Chiara 2 malformation



Myelomeningocele

➤ Pregnant women deliver the child in the picture, he suffer from urinary incontinence and lower limb weakness, transillumination was positive on Examination

❖ **What is your spot diagnosis ?**

- Myelomeningocele

❖ **What is the dose of folic acid in the next pregnancy and when she should start it ?**

- 4 mg daily, started 3 months before conception

❖ **What is the aim of treatment ?**

- Prevent infection
- For cosmetic causes
- Prevent neurological deterioration (But do not improve or correct it)



Myelomeningocele

❖ What is your spot diagnosis ?

- Myelomeningocele

❖ What is your next step ?

- Physical examination (transillumination text, neurological exam)

❖ What is the site of the lesion?

- Limbo-sacral

❖ When does the posterior neuropore closes ?

- By 28 days
- Neural tube defects arise due to failure of the neuropores to fuse by the 4th week of pregnancy



Spina bifida occulta

❖ What is this sign ?

- Hair tuft

❖ What it's clinical importance ?

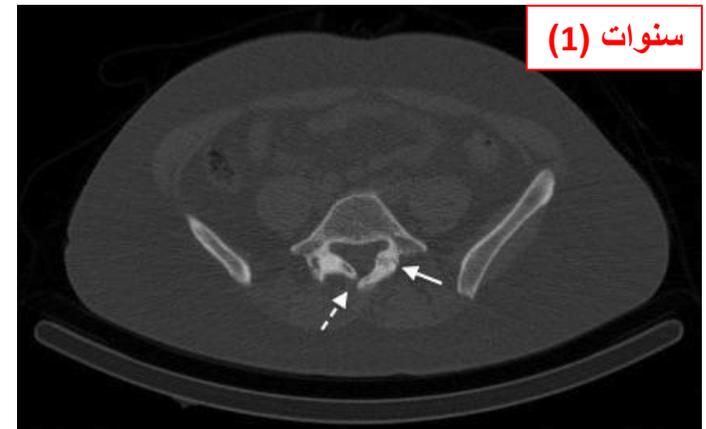
- It indicate spina bifida occulta



سنوات (1)

❖ What is your spot diagnosis ?

- Spina bifida occulta



سنوات (1)

Trigonocephaly

❖ What is your spot diagnosis ?

- Trigonocephaly

❖ Which suture is affected ?

- Metopic suture



Brachycephaly

❖ What is your spot diagnosis ?

- Brachycephaly

❖ Which suture is affected ?

- lambdoid sutures



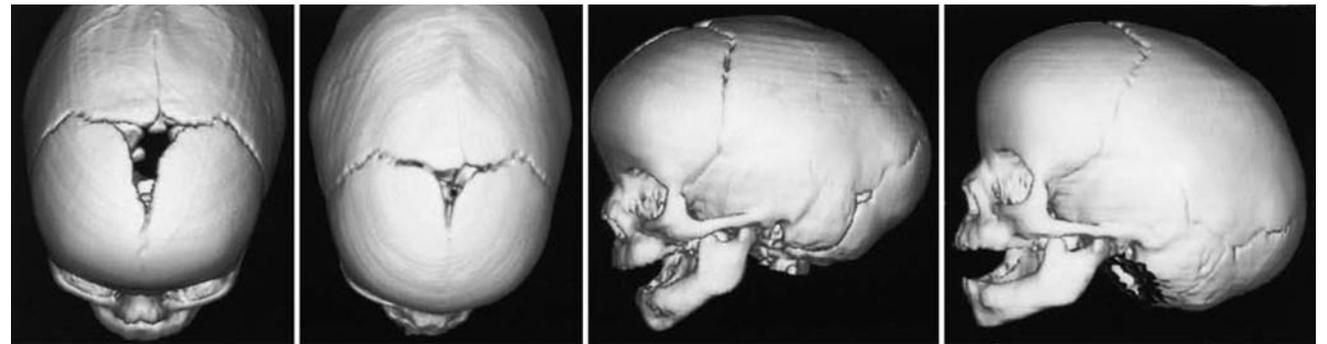
Scaphocephaly

❖ What is your spot diagnosis ?

○ Scaphocephaly

❖ Which suture is affected ?

○ Sagittal suture



a.

b.

c.

d.

Craniosynostosis

❖ What is the name of this anomaly ?

- Trigonocephaly

❖ What is the preferred imaging and why ?

- Cranial CT (with 3D reconstruction)
 - To assess extent of CS
 - To identify hydrocephalus
 - Helps plan surgical reconstruction

❖ What is the treatment and at what age ?

- Strip craniectomy or cranial vault remodeling
- Timing: controversial; mostly recommended at 3–9 months of age

❖ Mention one goal for the treatment

- To minimize cerebral constriction
- For cosmetic reasons



Head injury

Epidural hematoma

❖ What is your diagnosis ?

- **Acute** epidural hematoma

❖ What is the definitive management ?

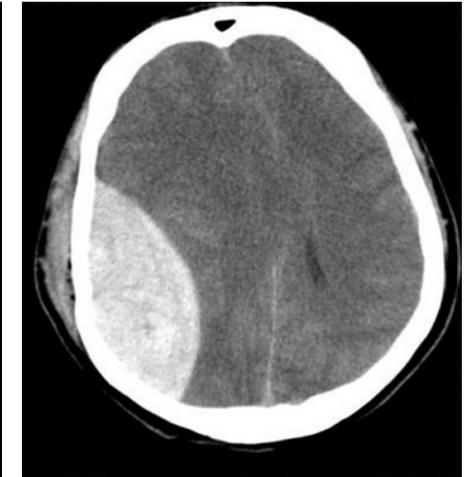
- Craniotomy and evacuation

❖ Which vessel is affected ?

- Middle meningeal artery

❖ What are the findings

- Non-contrast enhanced brain CT, axial view, that shows a lenticular shaped hyperdensity over the right frontal with mass effects in the form of effaced brain sulci and compressed frontal horn of the right lateral ventricle with minimal midline shift to the left



Depressed skull fracture

❖ What is your spot diagnosis ?

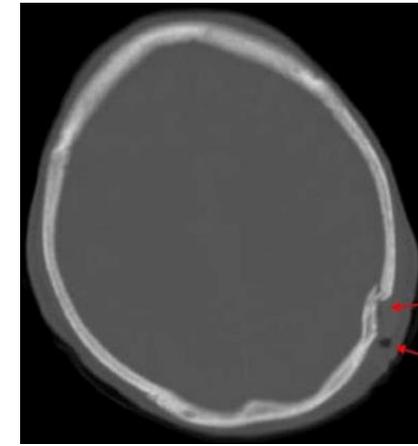
- Depressed skull fracture

❖ What is the management ?

- Surgical elevation

❖ Mention 2 indications for surgery

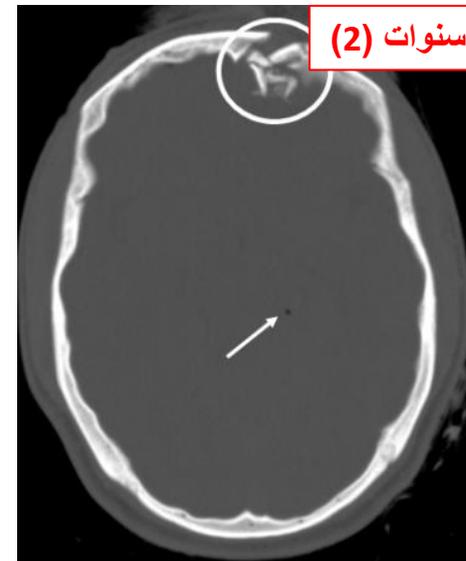
- Cosmetic disfigurement
- Depressed more than 1 cm
- Presence of neurological deficits
- CSF leakage
- Seizures



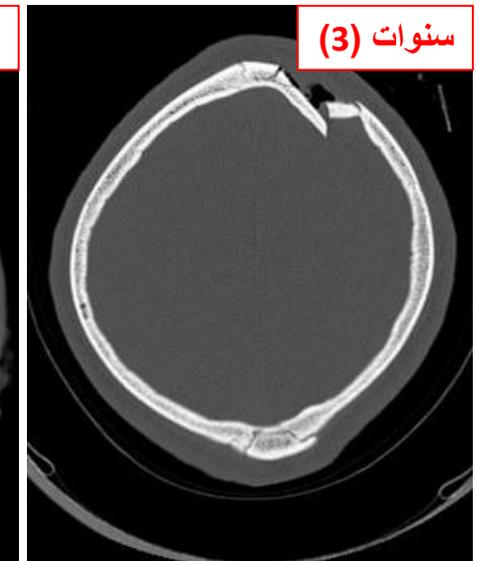
سنوات (6)

Depressed skull fracture

Locule of air within subcutaneous tissue



سنوات (2)



سنوات (3)

Depressed skull fracture

❖ What is your spot diagnosis ?

- Depressed skull fracture

❖ What is the management ?

- Surgical elevation

❖ Mention 3 absolute indications for surgery

- Focal Neurological signs
- CSF leak
- Overlying an eloquent area of the brain



Basal skull fracture

❖ What is the name of this sign ?

- a. Battle's sign
- b. Raccoon eyes

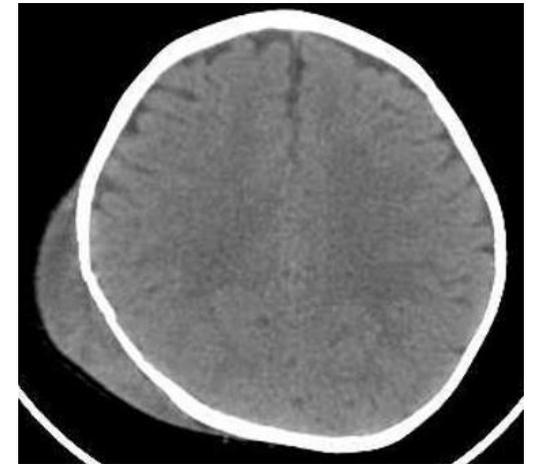
❖ What does this sign indicate ?

- Basal skull fracture



Case scenario

- A case of scalp swelling after delivery (hint: by palpation the lump was soft not firm)
- ❖ **What is your diagnosis ?**
 - Subgaleal hematoma



Acute subdural hemorrhage

❖ What is your diagnosis ?

- Left frontoparietal **acute** subdural hemorrhage

❖ Mention 2 differential diagnosis for this finding

- Brain hemorrhagic contusion

❖ What is your management ?

- Craniotomy and evacuation

❖ If this patient came to the ER, opens eyes to painful stimulus, incomprehensible sounds, flexion to painful stimuli

- What is your initial management in the ER ?
- What is the GCS for this patient ?
- What is the severity of the injury according to GCS ?



Chronic subdural hemorrhage

❖ What is the diagnosis ?

- Left side chronic subdural hemorrhage

❖ What is the treatment ?

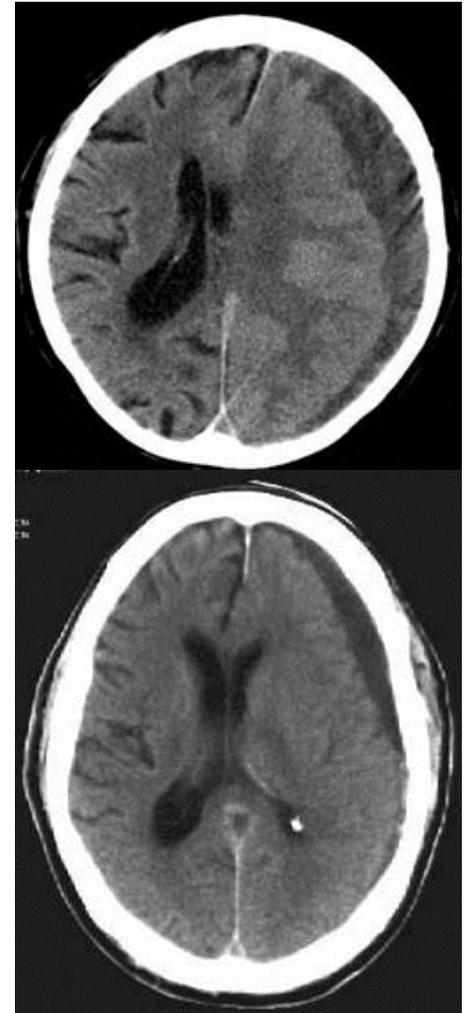
- Burr holes
 - Acute: Craniotomy and evacuation
 - Chronic: Burr holes

❖ Is there a midline shift ?

- Yes

❖ What is the timing ?

- >14 days



Subarachnoid hemorrhage

❖ What is your diagnosis ?

- Acute spontaneous SAH

❖ If the CT scan was negative, what is the next step to confirm the diagnosis

- Lumbar puncture

❖ What is the gold standard investigation ?

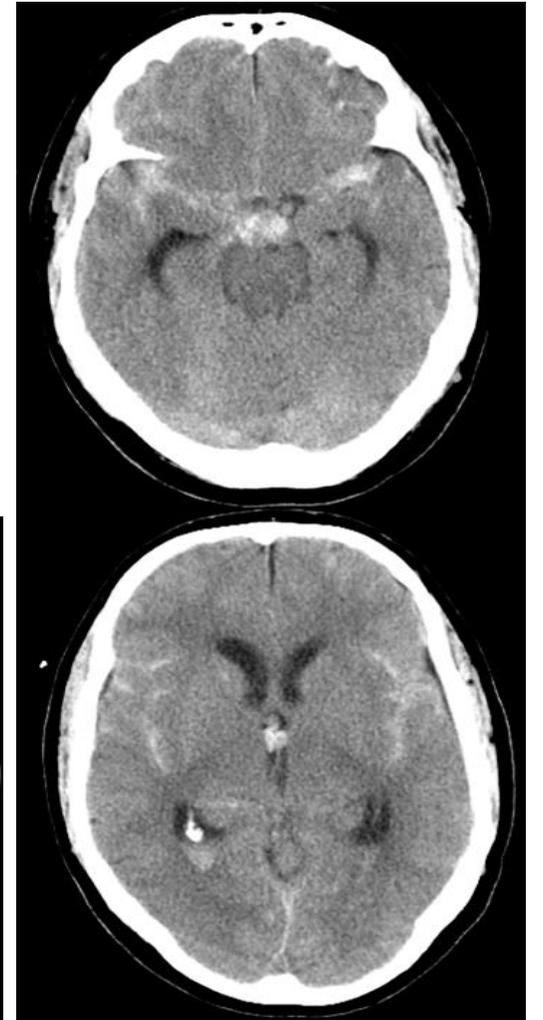
- Digital subtraction angiography

❖ What are the possible causes ?

- Ruptured arterial aneurysm
- AV malformation

❖ Mention 2 severity scale used

- Hunt and his Fisher scale



Intraventricular haemorrhage

❖ What is your diagnosis ?

- Intraventricular haemorrhage

❖ Mention one complication for it ?

- Hydrocephalus

❖ How to treat ?

- Drainage by extraventricular device



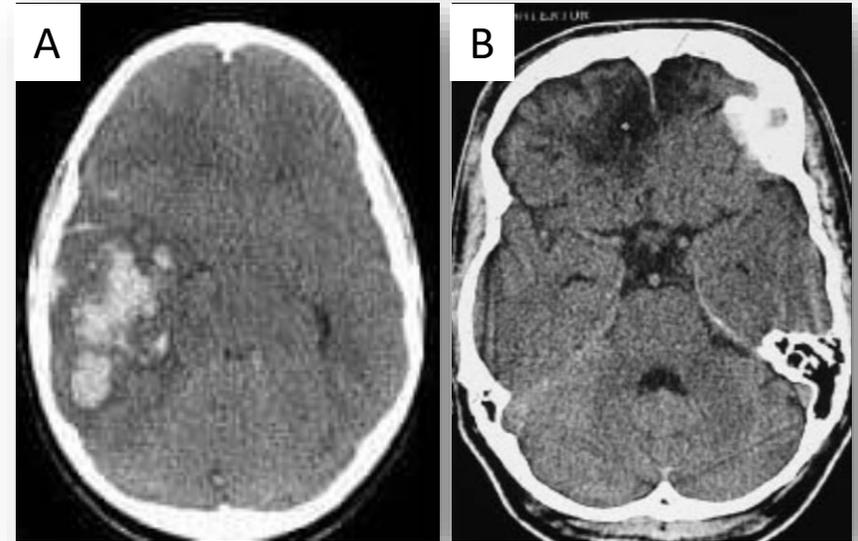
Acute hemorrhagic contusion

❖ What is your interpretation

- A. hyperdense area in the Rt parietal lobe
- B. hyperdense area in the Lt temporal lobe

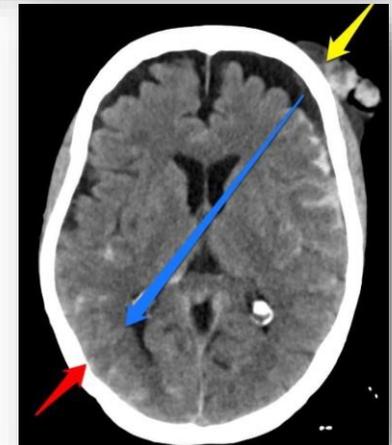
❖ What is your diagnosis ?

- Acute hemorrhagic contusion



❖ What is th diagnosis according to these CT scan ?

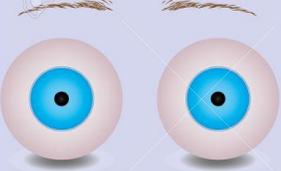
- Coup counter-coup hemorrhagic contusion



Glasgow coma scale

- ❖ 14-15>> mild
- ❖ 9-13>> moderate; next step: urgent CT head
- ❖ 3-8>> severe; next step: intubate
- ❖ In case of tracheostomy, we add +T

Note: If you don't write /15 the answer is WRONG 😊

Behaviour	Response
 Eye Opening Response	<ol style="list-style-type: none">4. Spontaneously3. To speech2. To pain1. No response
 Verbal Response	<ol style="list-style-type: none">5. Oriented to time, person and place4. Confused3. Inappropriate words2. Incomprehensible sounds1. No response
 Motor Response	<ol style="list-style-type: none">6. Obeys command5. Moves to localised pain4. Flex to withdraw from pain3. Abnormal flexion2. Abnormal extension1. No response

Calculate the GCS and determine the severity

- 1. Patient open eye to painful stimuli, inappropriate words, and decerebrate on both side**
 - 7/15, severe, management: intubation
- 2. Patient open only his left eye to painful stimuli, incomprehensible sounds, and localizes pain**
 - 9/15, moderate
- 3. Patient right eye is fixed dilated and don't respond to light and the other eye response to pain, inappropriate words, and decerebrate on both side**
 - 7/15, severe, management: intubation
- 4. Patient open eyes to pain, incomprehensive sound, decerebrate right side, decorticate left side**
 - 7/15, severe, management: intubation

Calculate the GCS and determine the severity

- 5. Patient open eyes to speech, localize to pain, confused verbal response**
 - 12/15, moderate
- 6. Patient open his eyes to pain, localized to pain, confused and disoriented**
 - 11/15, moderate
- 7. Patient is permanent intubated, eyes open to pain, decerebrate, no verbal response**
 - 5/15+T, severe
- 8. Patient opens his eye to pain, inappropriate words, decorticate**
 - 8/15, severe, management: intubation
- 9. Patient opens his eye to pain, inappropriate words, decerebrate**
 - 7/15, severe, management: intubation

Calculate the GCS and determine the severity

- 10. Patient opens eyes to speech, confused, decerebrate right side and decorticate left side**
 - 10/15, moderate
- 11. Patient open his eyes to painful stimulus, produce words, moves to localized pain**
 - 10/15, moderate, management: urgent CT
- 12. Patient open only one of his eyes to pain, one side withdraws from pain, the other side decorticate position, confused**
 - 10/15, moderate
- 13. Patient opens left eye spontaneously, incomprehensible sound, localize to pain right side, decorticate left side**
 - 11/15, moderate

Calculate the GCS and determine the severity

- 14. Patient with HTN and DM came to ER after RTA with direct trauma to head and orbital area with chest injury and hypotension, O2 sat 60%. Patient opens his eyes when the doctor calls him, obeys command, disoriented to time place and person**
- 13/15, moderate
 - What is your next step ? Managing his airway
- 15. 30 years old male patient came after falling down, His eyes do not respond to verbal or pain stimulations, produces sounds, extension of arms in response to pain and there is NO movement or sensation in lower limbs, on examination, doctor noticed bruises in his lower back, absent cremasteric reflex, anal examination reveals weak anal tone**
- 5/15, severe, management: intubation

Calculate the GCS and determine the severity

- 16. A 55-year-old patient with a history of laryngeal tumor and permanent tracheostomy presented to the ER after falling down from the 3rd floor. Physical examination revealed a fixed dilated right pupil, eye opening after painful stimulation and decerebrate posture to painful stimulus**
- 5/15+T, severe, next step: intubation
- 17. A 30-year-old male with a history of laryngeal cancer and permanent tracheostomy presented to the ER after falling down. Physical examination revealed *no sensory or motor response in his right leg*, opens his eyes to verbal command, localizes the pain**
- 9/15+T, moderate, next step: emergent non-contrast brain CT
 - What is the type of spinal injury ? Incomplete

Brain Tumors

Essay Questions

سنوات (2)

❖ **What is the mechanism of early morning headache in brain tumor patients ?**

- While sleeping hypoventilation occurs leading to increase in PaCO₂ which will result in dilatation of the cerebral vessels and hypotension then the ICP will increase.

سنوات (4)

❖ **Mention 2 ways of spread of brain tumor to the spinal cord**

- Hematogenous spread
- Direct invasion
- Drop metastasis

سنوات (2)

❖ **Which tumor is mostly associated with ossification and what are other ddx ?**

- Meningioma
- Other ddx: Oligodendroglioma, **ganglioma**

Essay Questions

❖ **Mention one example on the following**

- **Homogeneous enhancement lesion**
 - Meningioma/lymphoma
- **Hourglass appearance lesion**
 - Schwannoma
- **Brain tumor containing psammoma bodies**
 - Meningioma
- **Tumor has dural tail**
 - Meningioma
- **Example of nerve root tension sign**

True or false, and if false correct it

❖ **Meningioma originate from dermal cells**

- False, originates from arachnoid cap cells

❖ **Meningioma is the most common primary tumor in adults**

- False, Glioblastoma Multiforme is the most common primary tumor in adults

❖ **Psammoma bodies seen in GBM tumor**

- False, it's seen in meningioma

❖ **GBM considered grade 3 tumor**

- False, it's grade 4

❖ **GBM tends to calcify**

- False, it doesn't calcify

❖ **GBM is most common primary brain tumor in children**

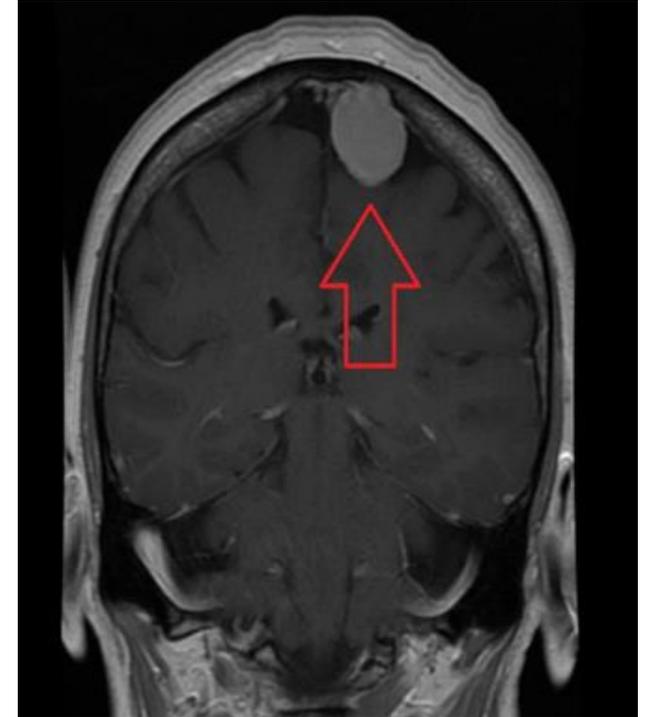
- False, in adults

True or false, and if false correct it

- ❖ **Craniopharyngioma is a kind of tumor that can cause drop mets**
 - False, Medulloblastoma is a kind of tumor that can cause drop mets
- ❖ **Functioning pituitary adenoma is mostly a macroadenoma**
 - False, Functioning pituitary adenoma is mostly a microadenoma
- ❖ **Prolactinoma always considered macroadenoma**
 - False, 99% of functioning adenoma are microadenoma because patient seek care early due to the signs and symptoms of hormonal imbalance
- ❖ **CSF is reabsorbed into transverse sinus**
 - False, reabsorbed into superior sagittal sinus by arachnoid villi
- ❖ **Meningioma is most common extra axial brain tumor**
 - True

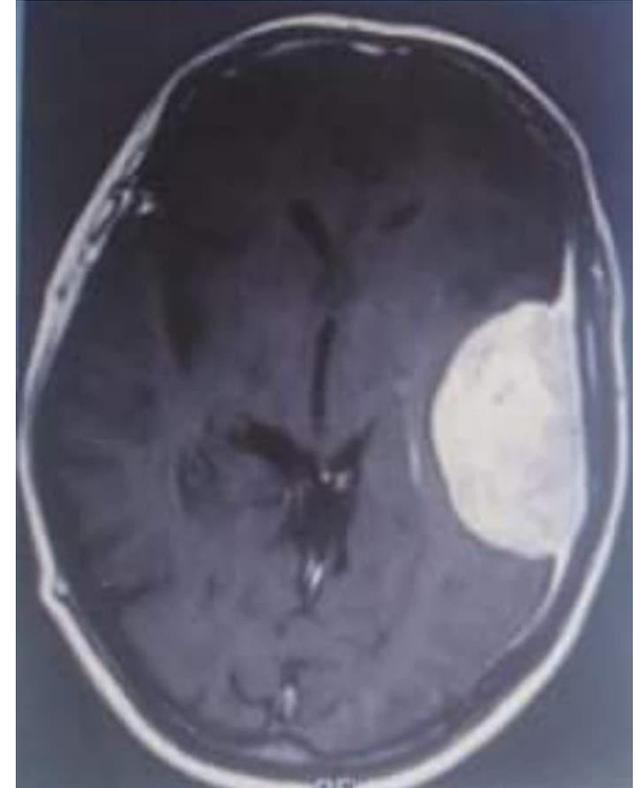
Meningioma

- ❖ **What is your diagnosis ?**
 - Meningioma
- ❖ **Where is it located ?**
 - Intradural extramedullary!
- ❖ **Is it more common in females or males ?**
 - In females



Meningioma

- ❖ **What is your diagnosis ?**
 - Meningioma
- ❖ **From what type of cells this tumor originate ?**
 - Arachnoid cap cells



Meningioma

❖ What is your diagnosis ?

- Meningioma

❖ What imaging modality is used in each picture ?

- A. T1 weighted without contrast, cross section view
- B. T1 weighted with contrast, cross section view
- C. T1 weighted with contrast, coronal view

❖ What is the finding in image C ?

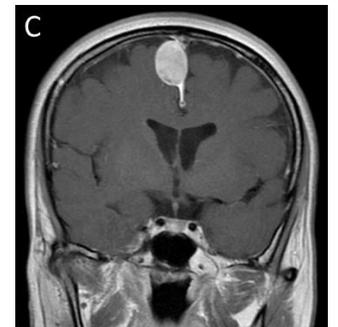
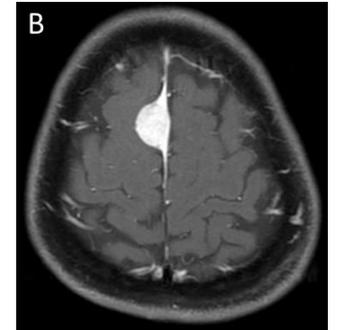
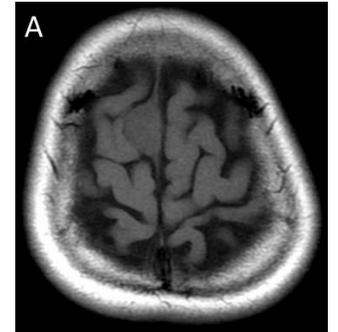
- Epidural tail

❖ Treatment options

- Surgical excision

❖ Stage according to WHO classification ?

- Stage 1



Cerebellopontine angle Masses

❖ What is the anatomic location of the tumor ?

- Right side cerebellopontine angle

❖ What are the differential diagnosis ?

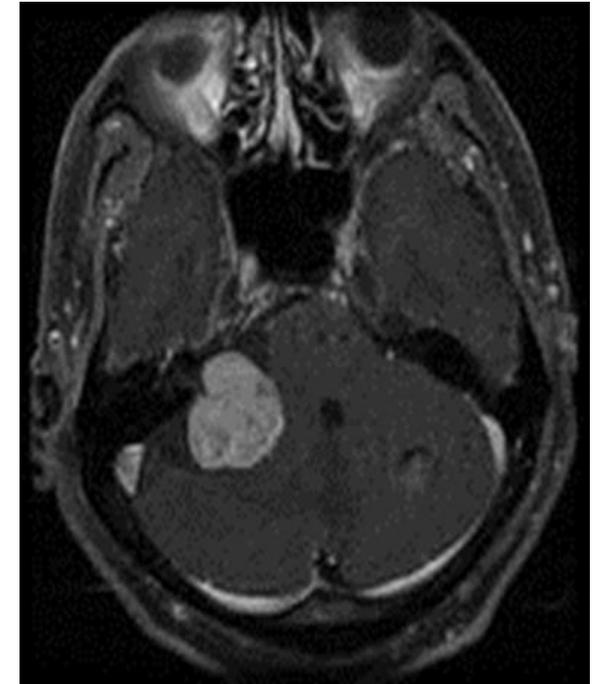
- Vestibular schwannoma
- Meningioma
- Epidermoid cyst
- Dermoid cyst

❖ Mention 2 clinical symptoms

- Ataxia, headache, vertigo, hearing loss

❖ If this patient present with dizziness, vertigo and hearing loss in his right ear, what is the most probable diagnosis ?

- Vestibular schwannoma



Suprasellar Masses

❖ What is the anatomic location of the tumor ?

- Suprasellar

❖ What is the most likely diagnosis ?

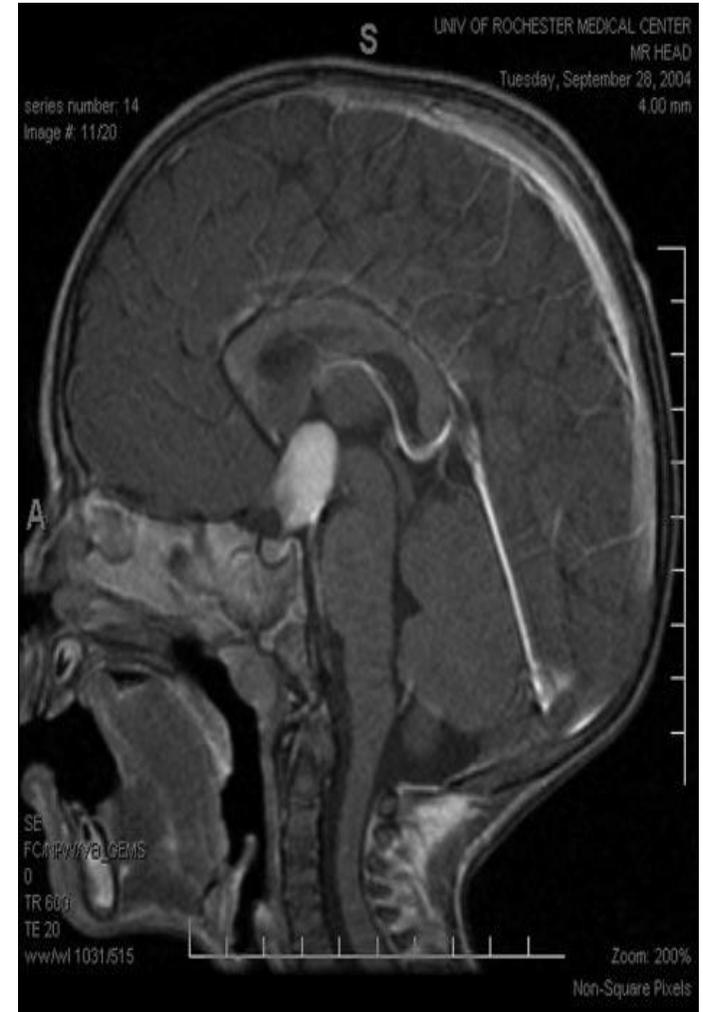
- Pituitary adenoma (homogenous mass)

❖ What is the visual abnormality you expect to see in this patient ?

- Bitemporal hemianopia

❖ Mention 2 surgical procedure?

- Trans sphenoidal hypophysectomy
- Craniotomy



Suprasellar Masses

❖ What is the anatomic location of the tumor ?

- Suprasellar

❖ Mention 3 DDX

- Pituitary adenoma
- Dermoid cyst
- Ranthky's cyst
- Craniopharyngioma

❖ Mention 3 clinical manifestations

- Visual impairment
- Endocrine dysfunction
- Hydrocephalus, Vomiting, Headache



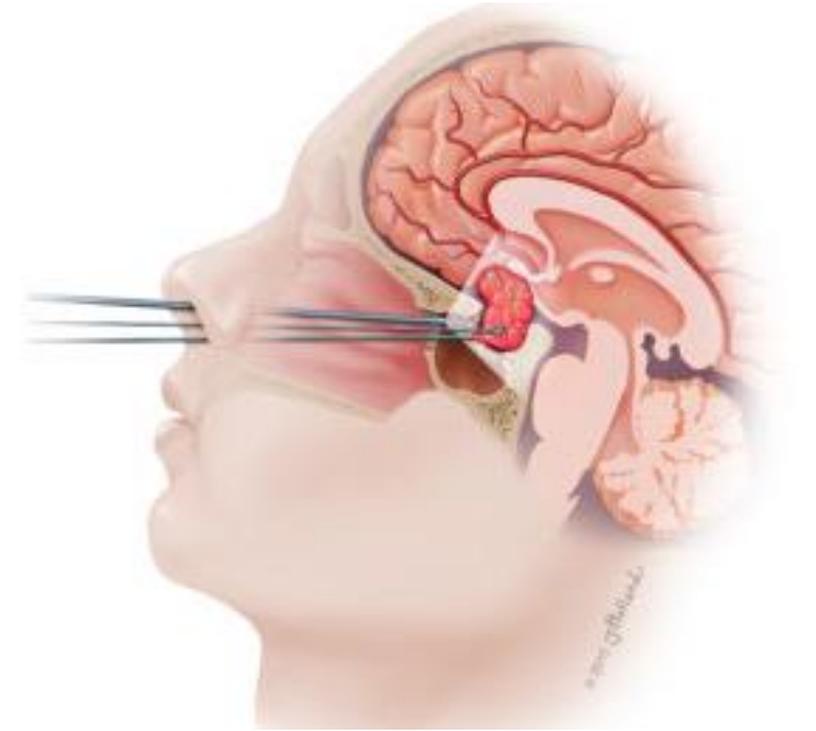
Transsphenoidal approach

❖ What is this name of this approach ?

- Transsphenoidal approach

❖ What is it used for?

- Pituitary resection/pituitary adenoma



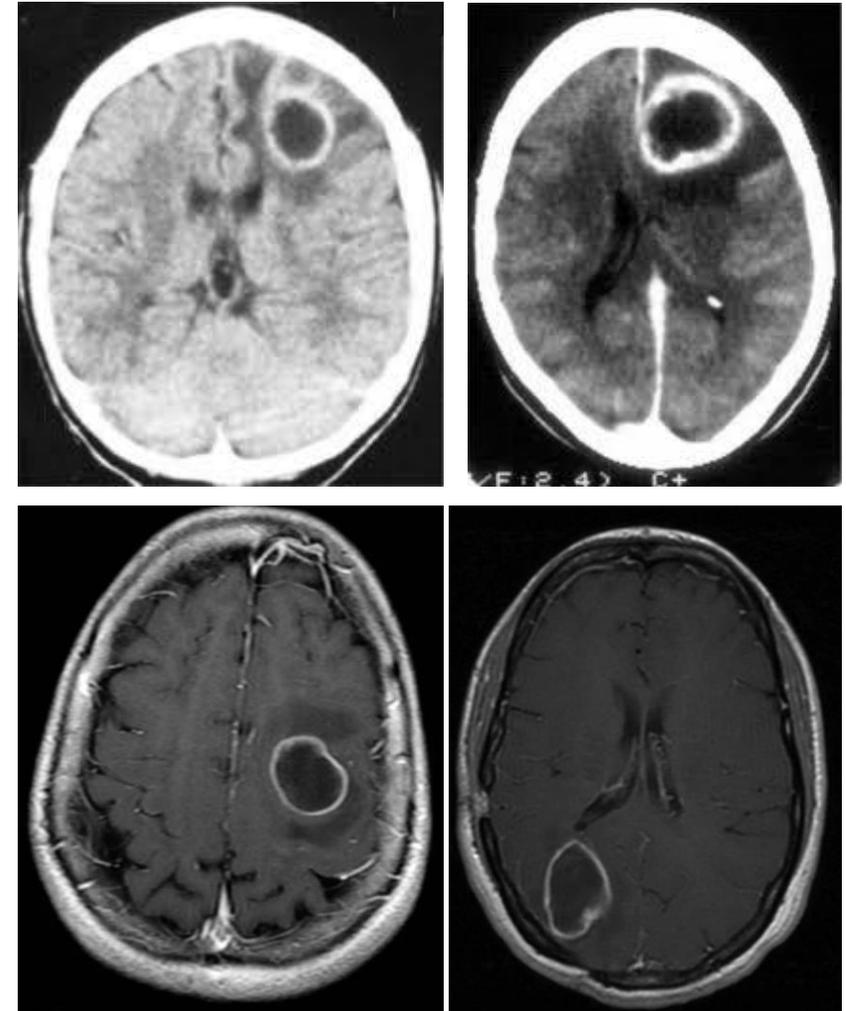
Infratentorial Masses

- ❖ **What is the anatomic location of the tumor ?**
 - Infratentorial (cerebellar tumor)
- ❖ **What type of hydrocephalus is seen in this patient**
 - Obstructive
- ❖ **Give 2 differential diagnosis**
 - Astrocytoma, medulloblastoma
- ❖ **What are the signs and symptoms expected to be seen in this patient ?**
 - Headache, Papilledema, Nausea/vomiting



Ring enhancement

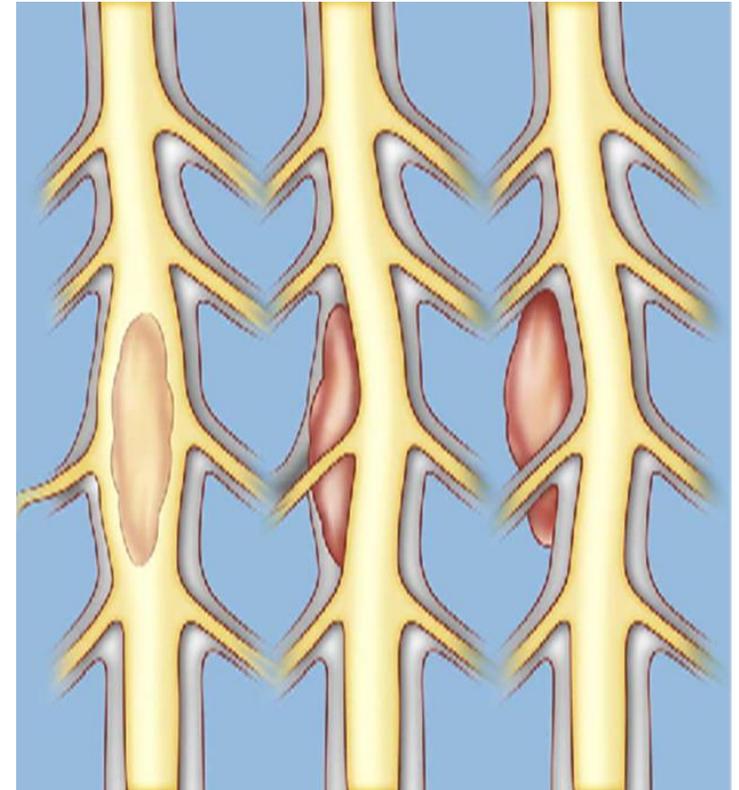
- ❖ **What is the type of enhancement ?**
 - Ring enhancement
- ❖ **Mention 2 other enhancements**
 - Homogenous enhancement
 - Heterogeneous enhancement
- ❖ **Mention 2 DDX**
 - Abscess
 - brain mets
 - GBM
 - Resolving hematoma
- ❖ **What is the type of edema surrounding this lesion & what is the treatment ?**
 - Vasogenic edema, steroids (Dexamethasone)



Spinal cord Tumors

Spinal cord Tumors

- ❖ How are spinal tumors classified according to the picture ? give one example on each one
- **Extradural:** osteochondroma, osteoid osteoma
 - **Intradural Extramedullary:** meningioma, schwannoma
 - **Intradural Intramedullary:** astrocytoma, ependymoma, hemangioblastoma



Spinal cord Tumors

❖ What is your diagnosis ?

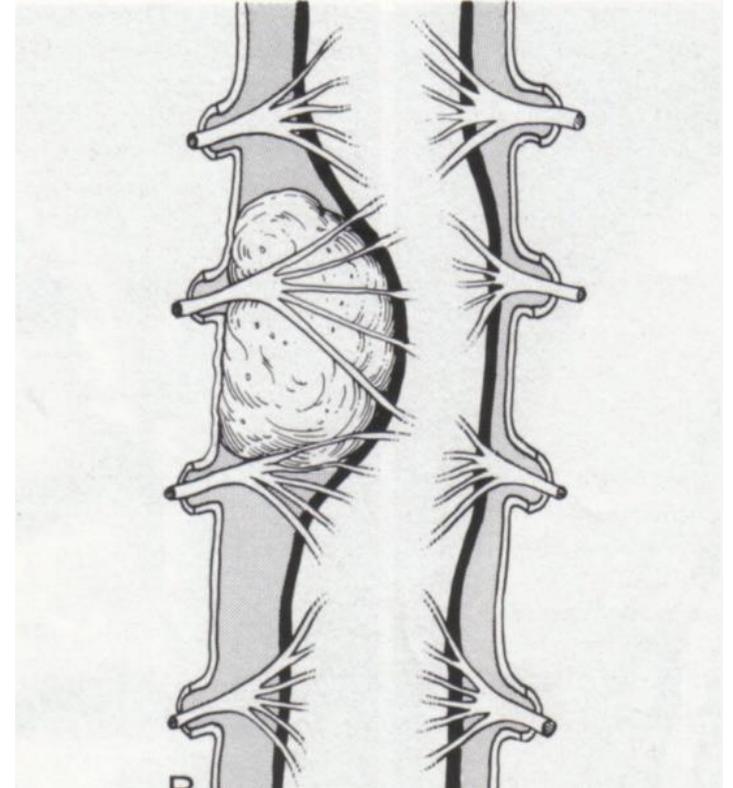
- Intradural extra medullary tumor

❖ Mention 2 differential diagnosis

- Meningioma, schwannoma and neurofibroma

❖ Mention 2 indications of surgery in spinal tumors ?

- Myelopathy
- Progressive neurological deficit
- Intractable pain



Spinal cord Tumors

❖ What is your diagnosis ?

- Intradural extra medullary tumor

❖ Mention 2 differential diagnosis

- Meningioma, schwannoma and neurofibroma



Spinal cord Tumors

❖ What is your diagnosis ?

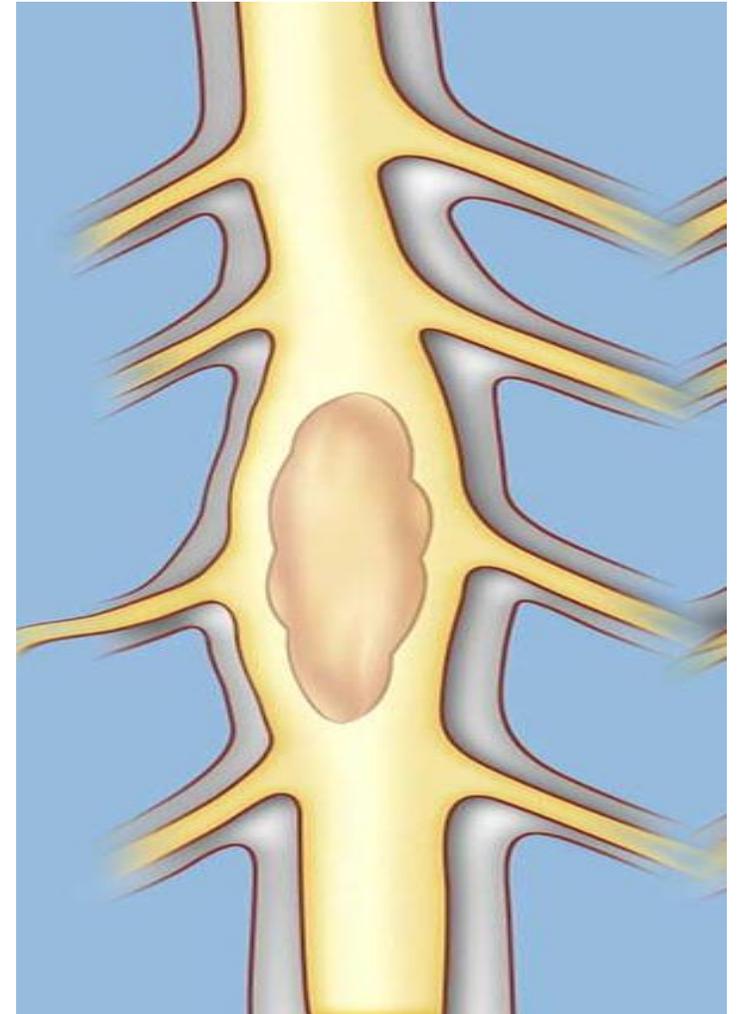
- Intradural Intramedullary

❖ Mention 2 differential diagnosis

- Astrocytoma, ependymoma, hemangioblastoma

❖ Mention 2 clinical features

- PAIN
- Neurological deficit
- Deformities



Spinal cord Tumors

❖ What is your diagnosis ?

- Intradural Intramedullary

❖ Mention 2 differential diagnosis

- Astrocytoma, ependymoma, hemangioblastoma

❖ What is the most likely diagnosis?

- Astrocytoma

❖ Mention 4 Upper motor neuron lesion symptoms?

- Muscle weakness, Increase in muscle tone, Flaccid paralysis, Muscle spasms, Babinski sign, Fasciculation



Spinal Injuries

Odontoid fractures

❖ What's this ?

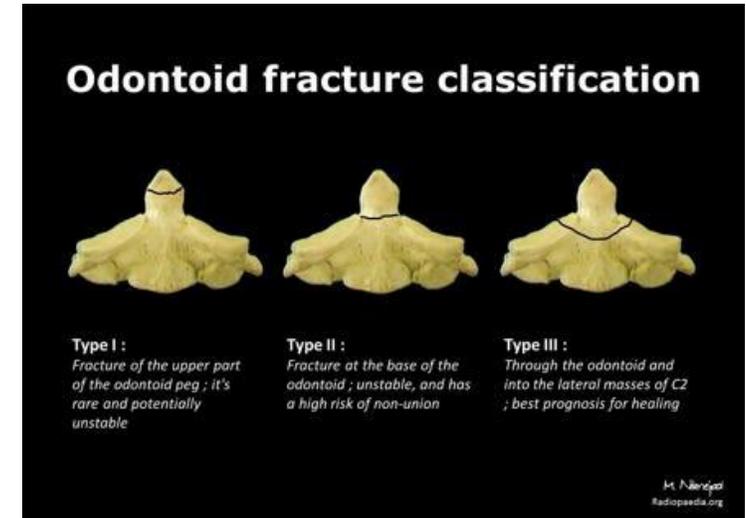
- Anderson's dens fracture classification

❖ What is the treatment of the third type ?

- Spondylodesis

❖ What is the prognosis of the third type ?

- Unstable fracture might damage the spinal cord



Cervical spine burst fracture

❖ What is the type of this fracture ?

- Cervical spine burst fracture

❖ At what level is it ?

- C5

❖ Mention 3 complications

- Nerve root compression
- Vascular injury
- Upper limb weakness



Lumber spine burst fracture

❖ What is the type of this fracture ?

- Lumber spine burst fracture

❖ At what level is it ?

- L1

❖ What is your initial management to this patient ?

- Spinal lift-log roll. + fixation and immobilization



Lumbar spine burst fracture

❖ What is the type of this fracture ?

- Lumbar spine burst fracture

❖ Will this fracture cause hyperreflexia ? and why ?

- No, it will cause hyporeflexia
- Because it will cause compression on the nerve root and not the spinal cord, because the spinal cord ends at the level of L1



Lumbar spine burst fracture

❖ What is your diagnosis ?

- burst fracture at L5

❖ Mention 2 indications for surgery ?

- Progressive neurological deficit
- Intractable pain
- Unstable fracture
- Cauda Equina syndrome

❖ What is the type of spinal injury in this patient ?

- Complete



Essay Question

➤ 22-year-old patient come to ER with RTA

❖ **What is your management ?**

○ ABC / vital signs / IV fluids / GCS / >>>

❖ **On examination RR :45 and BP:80/40 what is the type of shock ?**

○ Spinal shock

❖ **Patient with spinal injury no motor or sensory response, no anal sphincter tone, what's the type of injury ?** سنوات (2)

○ Complete

Essay question

❖ Mention 3 types of incomplete spinal injuries سنوات (1)

- Central cord syndrome
- Anterior cord syndrome
- Posterior cord syndrome
- Brown-Séquard syndrome (hemisection syndrome)

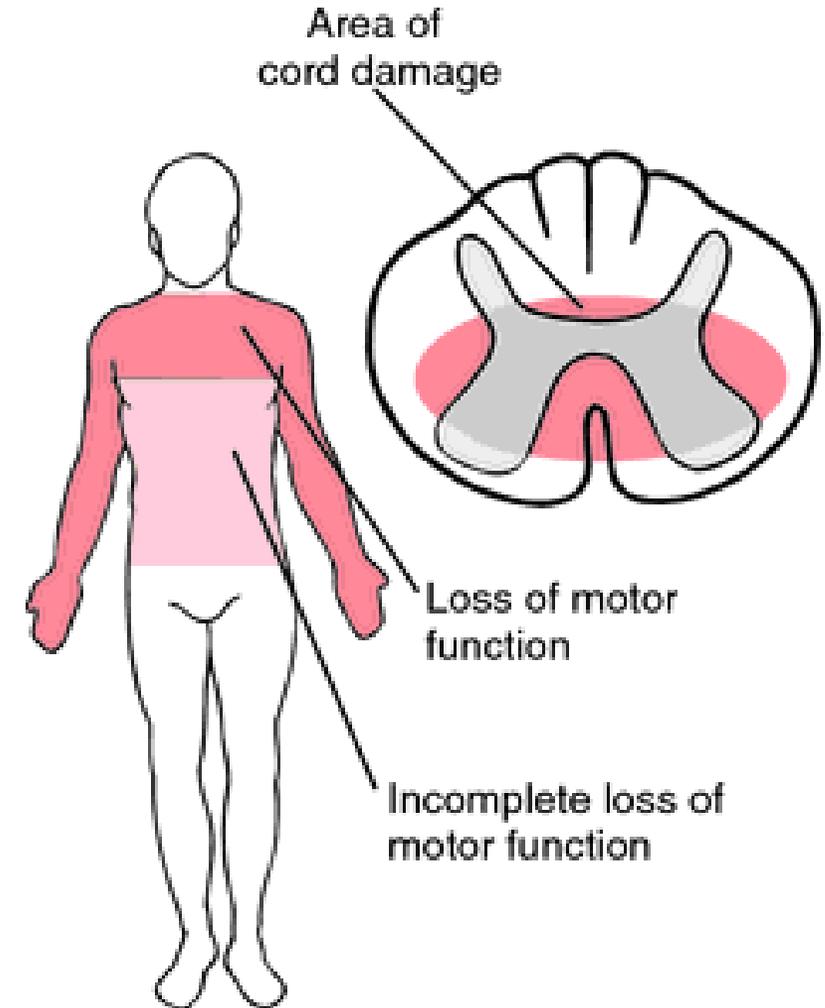
❖ Which spinal cord injury has the best prognosis ? سنوات (1)

- Anterior Cord Syndrome has the best prognosis due to retention of sacral sensation at the S4 - S5 dermatome, especially pinprick, with 75% regaining the ability to walk at 72 hours to 1-week post-injury.

Adult male came after RTA

❖ What Is The Name Of This Pathology ?

- Central cord prolapse



Brown Sequard Syndrome

❖ What Is The Name Of This Pathology ?

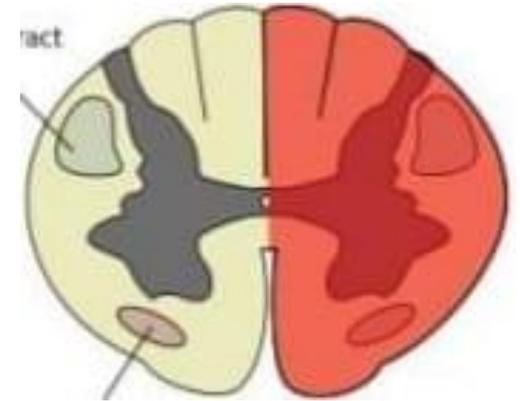
- Brown Sequard Syndrome

❖ Mention 3 Spinal Tracts That Are Affected In This Pathology

- Spinothalamic Tract
- Corticospinal Tract (Anterior & Lateral)
- Dorsal Column

❖ Mention 3 clinical presentations with this syndrome

- Ipsilateral motor loss (paralysis)
- Ipsilateral sensory loss (vibration, proprioception, light touch).
- Contralateral sensory loss (pain ,temperature)



Cauda equina syndrome

❖ What is the name of this syndrome ?

- Cauda equina syndrome

❖ Mention 3 symptoms the patient could have

- Severe low Back pain
- Bladder disturbances
- Saddle numbness



Conus medullaris syndrome

❖ What is the name of the lesion / syndrome at this level ?

- Conus medullaris syndrome



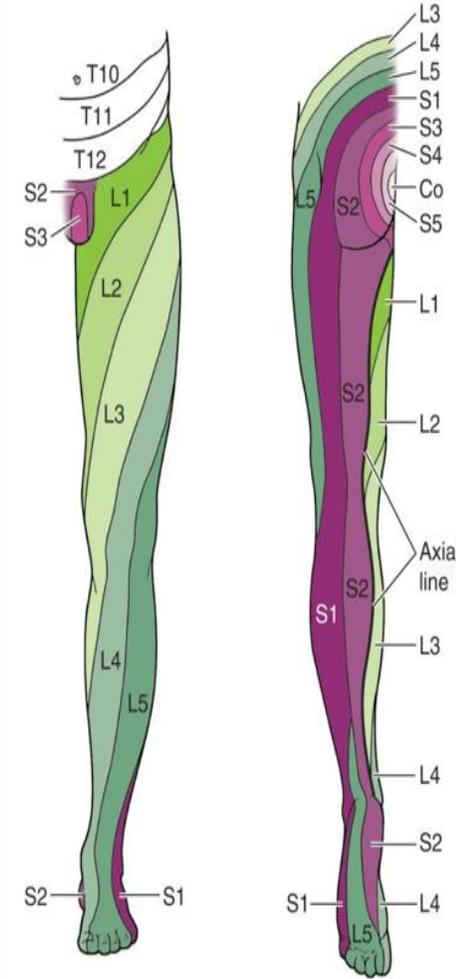
Degenerative diseases

Table 35.4 Neurological evaluation of the upper limb.

Neurological level	Motor	Sensation	Reflex
C5	Deltoid	Lateral arm	Biceps
C6	Wrist extensors and extensor carpi radialis longus	Lateral forearm	Brachioradialis
C7	Triceps	Middle finger	Triceps
C8	Long finger flexors	Medial forearm	No reflex
T1	Interosseus muscles	Medial arm	No reflex

Table 35.5 Neurological evaluation of the lower limb.

Neurological level	Motor	Sensation	Reflex
L2	Hip flexion	Anterior thigh, groin	No reflex
L3	Knee extension	Anterior and lateral thigh	Patellar (L3, 4)
L4	Ankle dorsiflexion	Medial leg and foot	Patellar (L3, 4)
L5	Extensor hallucis longus	Lateral leg and foot	No reflex
S1	Ankle plantarflexion	Lateral foot and little toe	Achilles



(C) Anterior view

(D) Posterior view

Cervical disc prolapse

❖ What is your diagnosis ?

- Cervical disc prolapse

❖ Which dermatome is affected ?

- C6 radiculopathy

❖ Which nerve (not dermatome) is affected ?

- Thoracodorsal nerve

❖ Mention 3 indications for surgery

- Myelopathy
- Intractable pain
- Focal neurological signs
- History of malignancy



Cervical disc prolapse

❖ What is your diagnosis and at which Level ?

- Cervical herniated disc at C5-6

❖ Mention 2 indications for surgery

- Myelopathy
- Intractable pain
- Focal neurological signs
- History of malignancy



Cervical disc prolapse

- A female patient complaining of neck pain radiating to left arm, forearm, middle and index finger, the pain associated with numbness and paresthesia, sensory examination normal, motor examination is normal.
- ❖ **What is the dermatomal distribution of pain ?**
 - C7
- ❖ **What is the level, site & diagnosis of the lesion ?**
 - C6-C7 left disc herniation
- ❖ **Is the pain due to radiculopathy or myelopathy ?**
 - Radiculopathy
- ❖ **Which reflex is affected ?** Triceps reflex



Cervical disc prolapse

❖ What is your diagnosis ?

- Cervical Disc prolapse

❖ What is the level and site ?

- Right side C6-C7

❖ What is the dermatome affected ?

- Right C7

❖ Mention 3 Indications For surgery

- Myelopathy
- Intractable pain
- Focal neurological signs
- History of malignancy



Case Scenario

➤ A female patient presented with neck pain radiated to the right shoulder reaching the right middle finger, associated with decreased sensation. Physical examination revealed upper limb reflexes +++, positive hoffman sign, spasticity in upper and lower limbs

❖ This patient has which of the following ?(MCQ)

- a. Radiculopathy
- b. Myelopathy
- c. Myeloradiculopathy

❖ Post op evaluation for this patient by physical examination revealed bilateral upper limb weakness (triceps and interossei muscles) and loss of sensation but lower limbs were preserved . What's your DX ?

- Central cord syndrome



Lumber disc herniation

❖ What is your diagnosis ?

- L4-L5 disk prolapse

❖ Which dermatome is affected ?

- L4

❖ Which reflex is affected ?

- Knee jerk reflex

❖ Mention 2 complications of lumber Spine surgery

- Infection
- CSF leakage

❖ Mention one Sign used for the diagnosis of lumbar PID

- Bowstring sign



Case Scenario

➤ 45 years old female patient presented back pain, and right leg pain, numbness and paresthesia on the posterior aspect of the thigh and big toe, along with urinary incontinence. These symptoms developed following heavy lifting 5 days ago

❖ What is the dermatomal distribution ?

○ Right L5

❖ What is the Diagnosis and the level of the lesion?

○ Right L4-L5 disk prolapse

❖ What is your management ?

○ Immediate surgery



Lumbar disc herniation

❖ What is your diagnosis ?

- L4-L5 disk prolapse

❖ The clinical picture of this patient is (MCQ)

- a. Radiculopathy
- b. Myelopathy
- c. Radiculopathy and myelopathy

❖ What is the affected dermatome ?

- Right L5

❖ What is the key muscle for this dermatome ?

- Extensor hallucis longus

❖ What is your next step ?

- Immediate surgery



Lumbar disc herniation

❖ What is the diagnosis ?

- Lumbar disc herniation

❖ What is your management ?

- excision of the disc prolapse

❖ If the patient had a paresthesia, urinary retention, stool incontinence what we call this syndrome?

- Cauda equina syndrome



Lumbar disc herniation

❖ What is the diagnosis ?

- Lumbar disc herniation

❖ What is the site ?

- L5-S1

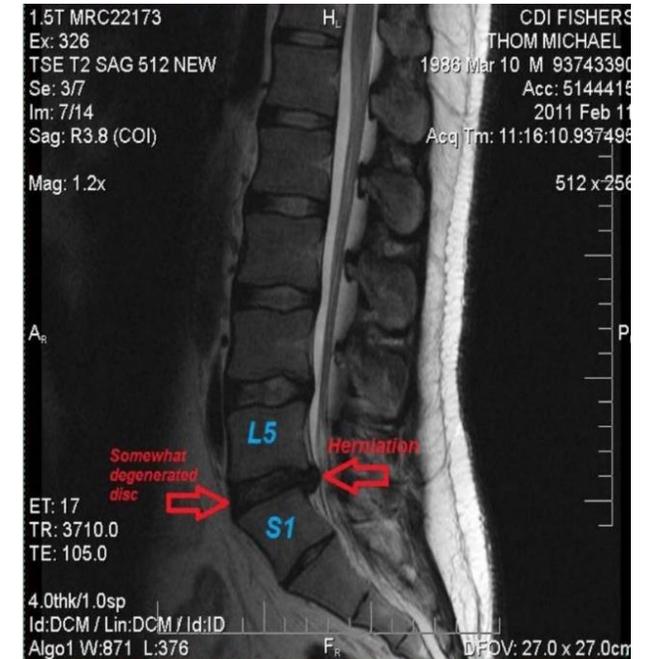
❖ Mention 2 indications for surgery

- Progressive neurological deficit
- Intractable pain
- Unstable fracture
- Cauda eqina syndrome

❖ What are the expected presentation in this patient?

- Numbness, weakness, urinary incontinence

❖ Is the knee reflex affected ? No



Lumbar disc herniation

❖ What is the site of prolapse ?

- L5-S1

❖ Mention 2 indication for surgery

- Cauda equina syndrome
- Intractable pain
- History of malignancy
- Progressive neurological deficit

❖ Can it cause hyperreflexia in the knee join ?

Why ?

- No, the compression is on the nerve root and not the spinal cord (the spinal cord end at L1)



Spondylolisthesis

❖ What is your diagnosis?

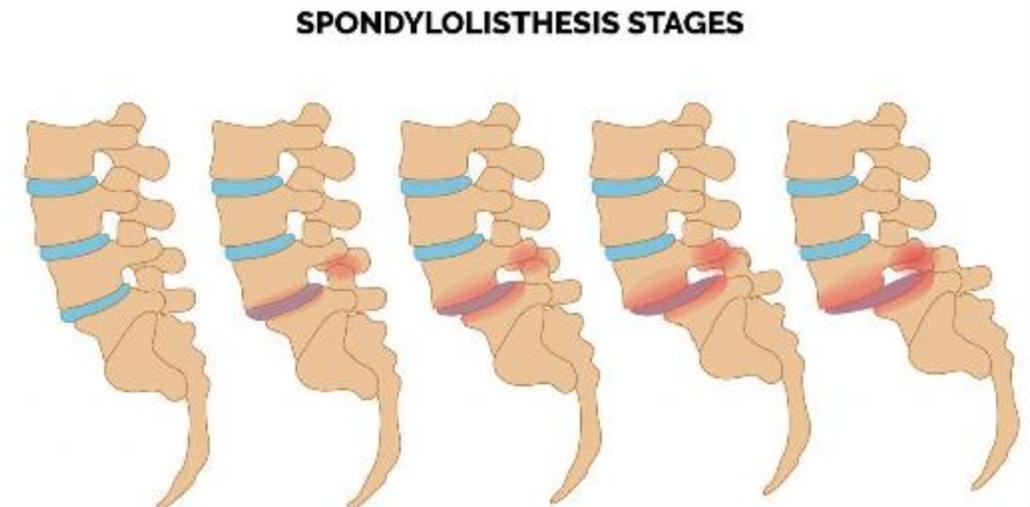
- Spondylolisthesis

❖ What is the name of this staging system ?

- Myerding classification system (according the degree of displacement of the vertebral body)

❖ Mention 2 types

- Pathologic
- Postsurgical
- Post-traumatic
- Degenerative
- Dysplastic
- Isthmic



Spondylolisthesis

Type	Description
I	Dysplastic
II	Isthmic – defect in the pars interarticularis
IIA	lytic – fatigue fracture of the pars region
IIB	elongated but intact pars acute fracture
IIC	acute fracture
III	Degenerative – resulting from long standing intersegmental instability
IV	Posttraumatic – acute fractures in the posterior elements beside the pars region
V	Pathologic – destruction of the posterior elements form generalized or localized bone
VI	Postsurgical

Grades (Myerding Classification)



Normal spine

Grade 1
< 25% slippage

Grade 2
25-50% slippage



Grade 3
50-75% slippage



Grade 4
>75% slippage

Patient with history of sciatica

❖ What is your diagnosis ?

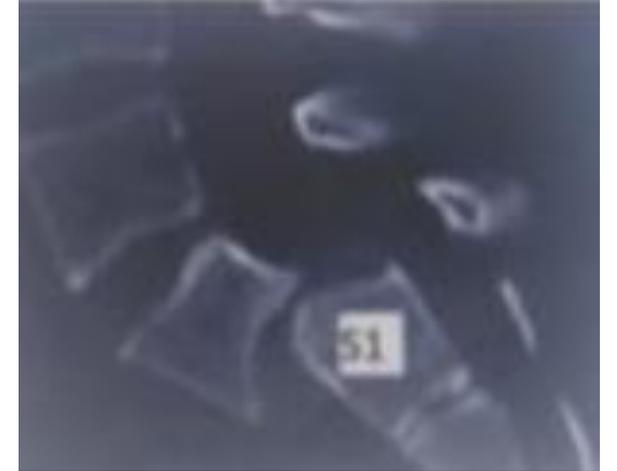
- L5-S1 Spondylolisthesis

❖ What is the affected dermatome ?

- S1

❖ What is the clinical picture ?

- Radiculopathy



Other Questions

Deep peroneal nerve injury

- A 23 years old male complaining of numbness in his left big toe
- ❖ **What is the clinical name for this neurological sign?**
 - Foot drop
- ❖ **Mention 4 questions in the history for this patient**
 - Previous fibular fracture
 - Knee or hip replacement surgery
 - Pain
 - Decreased sensation tingling
 - Numbness and tingling of the skin between the big toe and second toe
- ❖ **Mention the expected physical exam findings**
 - Slapping” gait (walking pattern in which each step makes a slapping noise)
 - Inability to point the toes upward or lift the ankle up (dorsiflexion)
 - Muscle loss (atrophy) in the outer edge of the leg
 - Loss of ability to move the foot
- ❖ **What is your diagnosis ?**
 - Deep peroneal nerve injury



Stereotactic frame

❖ What is this ?

- Stereotactic frame

❖ Mention its uses

- Biopsy
- Deep brain stimulation in case of movement disorder



Mention 2 differences between neurogenic and vascular claudication

Evaluation	Vascular	Neurogenic
Walking distance	Fixed	Variable
Palliative factor	Standing	Sitting/bending
Provocative factor	Walking	Walking/standing
Walking uphill	Painful	Painless
Bicycle test	Positive (painful)	Negative
Pulse	Absent	Present
Skin	Loss of hair; shiny	-
Weakness	Rarely	Occasionally
Back pain	Occasionally	Commonly
Back motion	-	Limited
Pain character	Cramping—distal to proximal	Numbness, aching—proximal to distal
Atrophy	Uncommon	Occasionally

Drugs

سنوات (2) ❖ What is phenytoin ? Anticonvulsant

سنوات (2) ❖ Mention 3 side effects of phenytoin

- Gingival hyperplasia
- Vitamin b12 deficiency which lead to disc prolapse
- Neural tube defect

سنوات (6) ❖ What is Acetazolamide ? Carbonic Anhydrase inhibitor

سنوات (6) ❖ Mention one indication for it in neurosurgery

- Increased ICP to decrease CSF production

سنوات (1) ❖ What is dexamethasone ? Steroid

سنوات (1) ❖ Mention one indication for it in neurosurgery

- Vasogenic edema

Anatomy

- ❖ **Mention 2 nerves exit from superior orbital fissure**
 - Oculomotor, trochlear, abducent
- ❖ **Mention structure exit from foramen spinosum**
 - Middle meningeal artery
- ❖ **Mention structure exit from foramen rotundum**
 - Maxillary division of trigeminal nerve
- ❖ **Mention an example of pure sensory cranial nerve**
 - Olfactory nerve
- ❖ **The medial rectus muscle of the eye is innervated by which nerve ?**
 - Oculomotor nerve

Miscellaneous

سنوات (1)

❖ Define motor aphasia 😊😊😊

- A form of aphasia caused by lesions in the inferior frontal gyrus of the dominant hemisphere. Language production is greatly limited, resulting in non-fluent, telegraphic, and grammatically incorrect speech. The patient is unable repeat after the examiner. Language comprehension, however, is intact.