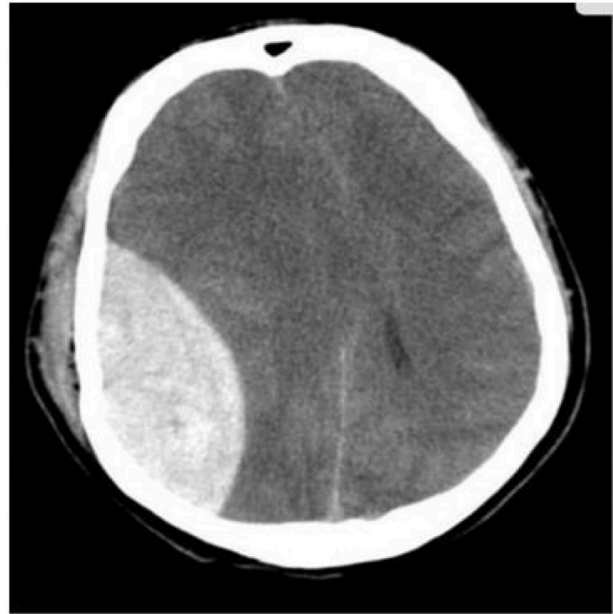


Q1:What is
diagnosis ?

Acute epidural
hematoma

Definitive
treatment?

Craniotomy and
evacuation



Rt. Acute epidural hematoma

M → EHL
TAM

A → Common Peroneal n.
R → Dorsiflexion
of big toe

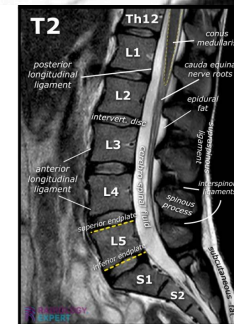
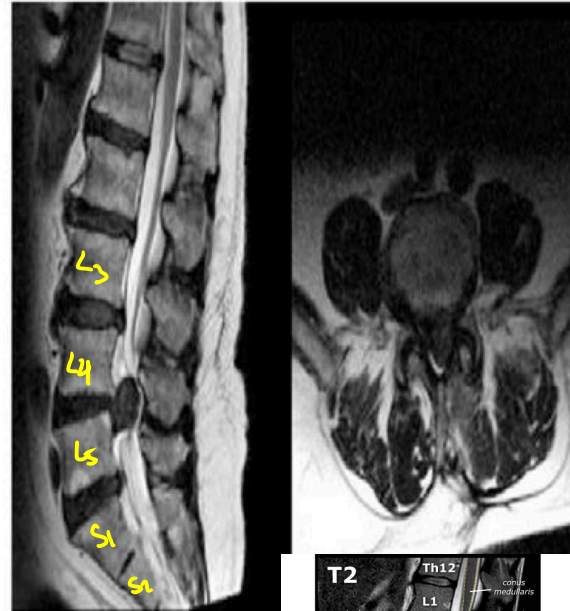
What is the diagnosis?

Rt Lumber disc herniation

What is your management?

excision of the disc prolapse

If the patient had a parasthesia, urinary retention, stool incontinence what we call this syndrome? **Cauda equina syndrome**



- What is the diagnosis?

- **meningioma**

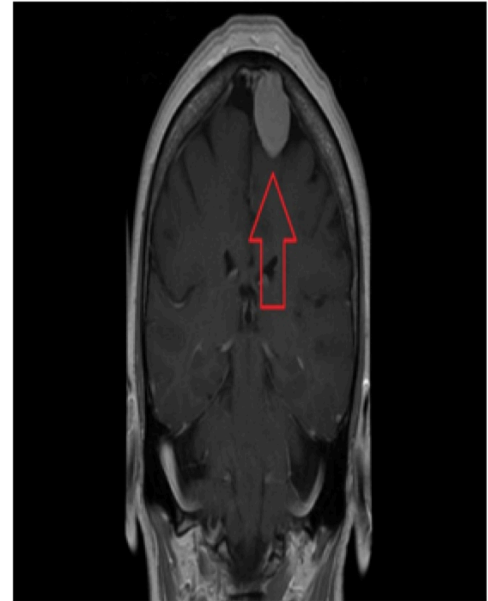
- Where it is located?

Intradural

extra axial

extramedullary!

- Is it more common in females or males? **In females**



Q8:

1- What is your spot Diagnosis

Meningomyelocele /Meningocele

How do you classify this
Pathology?

Occulta , Aperta , cystica , open

What is your next step of
Management ?

Surgery to Prevent Deterioration

*Surgical
repair*



meningocele

- 1- cystica*
- 2- CPne*
- 3- A perta*
- 4- Occulta*

Surgery

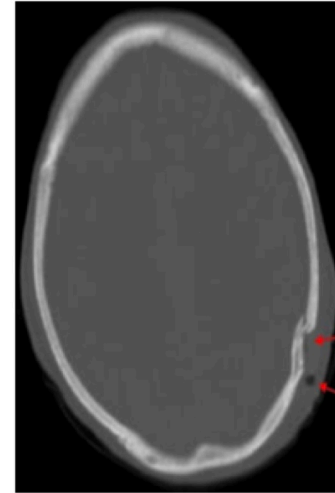
1. What is your spot

Diagnosis?

Depressed skull fracture of
the left parietal bone

2. What is the management?

Surgical elevation



Depressed skull
fracture

Locule of air within
subcutaneous tissue

1. $> 1\text{ cm}$
2. Epilepsy + neurological damage
3. contaminated
4. sensitive area
5. cosmetic

1. What is your spot Diagnosis?

Suprasellar mass (pituitary adenoma)

2. Mention 2 surgical procedure?

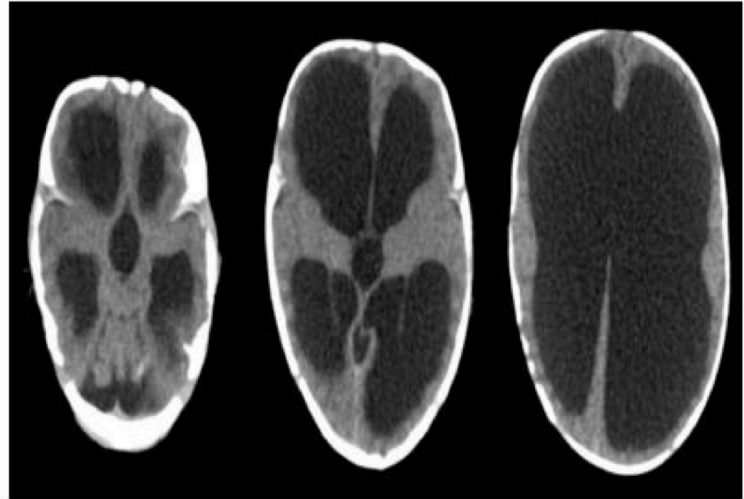
* Trans sphenoidal hypophysectomy

* Craniotomy

① Pincinet \rightarrow < 1 cm \rightarrow 1. ACTH
2. TSH
3. FSH + LH
4. Prolactin
5. growth hormone
Surgery will cut them except prolactin \rightarrow Bromocriptine \rightarrow D₂ agonist



- Q2: •
- A) what is the diagnosis •
- hydrocephalus •
- B) what are the types of •
it •
- Communicating and •
obstructive •
- C) what are the surgical •
procedures for it •
- ① Endoscopic third •
ventriculostomy and •
- ② shunt •



1- endoscopic third ventriculostomy
2- Shunt

Q4: •
•
What is the name of the area that
the tumor locate in?

infratentorium •

Give 2 differentials •

Medulloblastoma and astrocytoma •

What are the symptoms the
patient suffer from? •

Headache , Papilledema , •

Nausea/vomiting



1- medulloblastoma
2- astrocytoma

gaze → upward gaze palsy

fontanel bulge

What is your diagnosis?

→ Hydrocephalus

Mention 2 surgical procedures:

→ Ventriculoperitoneal shunt and endoscopic third ventriculostomy

Mention 2 causes:

1. Obstructive (non → Communicating) → tumors, Chiari malformation, dandy walker syndrome
2. Communicating (Non obstructive) → infection, Hemorrhage



Q3: What is diagnosis ? –

**left Fronto-Parietao-occipital
chronic Subdural Hematoma**

Definitive treatment ? •

burr hole

Is there a midline shift?

yes



Station 4

1-What is your spot diagnosis?

→ Depressed skull fracture

2-Mention 3 absolute indications for surgery :

→ 1-Focal Neurological signs,

2-Cosmetic,

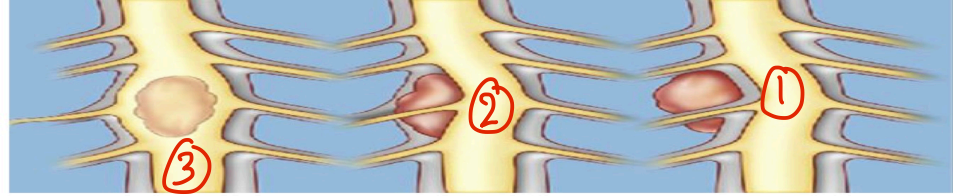
3-Overlying an eloquent area of the brain.

4-CSF leak



- 1- focal neurological signs
- 2- cosmetic
- 3- CSF leak
4. presents in an important area of the brain

Station 5



How are spinal tumors classified according to the picture, and give one example on each one :

- 1. Extradural : osteochondroma
- 2. Intradural Extramedullary : meningioma
- 3. Intradural Intramedullary : astrocytoma

Station 6

1-What is your diagnosis?

→ **spondylolisthesis**

2-Staging system ?

→ **Myerding classification**

system , according to degree of displacement

3-Mention 2 types

1. **Pathologic**

2. **Postsurgical**

3. **Post-traumatic**

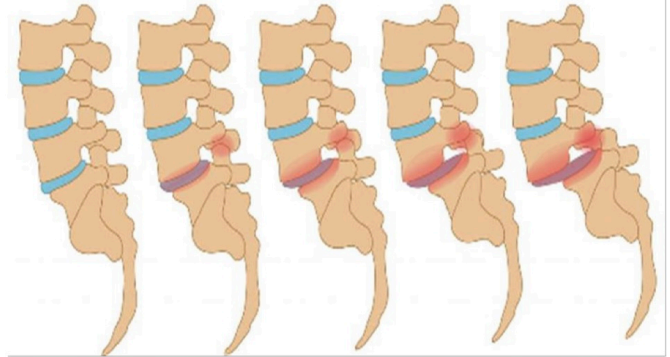
4. **Degenerative**

5. **Dysplastic**

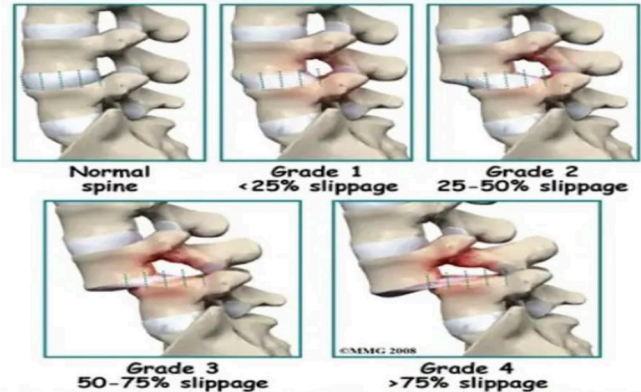
6. **Isthmic**

1. congenital
2. Degenerative
3. isthmic
4. Dynamic

SPONDYLOLISTHESIS STAGES



Grades (Myerding Classification)



Station 7

1-What is the diagnosis ?

→ Left frontoparietal acute subdural hemorrhage

2-Mention differential diagnosis for this finding

→ Brain hemorrhagic contusion

3-Management ?

→ Craniotomy and evacuation



Station 8

1-What this area is called ?

→ **Suprasellar area**

2-Mention 3 DDX

→ **1. Pituitary adenoma**

2. Dermoid cyst

3. Rathke's cyst *Rathke's*

4. Craniopharyngioma

3- Mention 3 clinical manifestations :

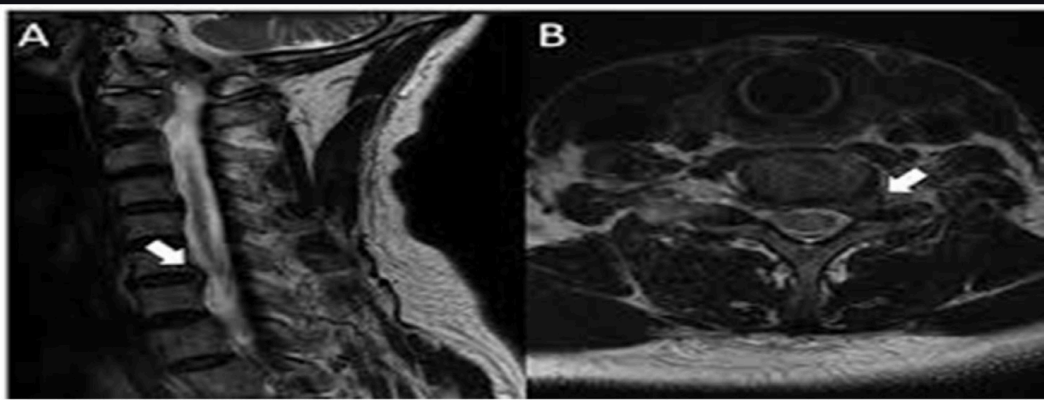
→ **1. Visual impairment** → *Bitemporal hemianopia*

2. Hydrocephalus , Vomiting , Headache

3. Endocrine dysfunction



Station 9



1- what is the DX , What is the level and site ?

→ Cervical Disc prolapse , ^{Left} Right side c6-c7

2- What is the dermatome affected ?

→ Right C7

3- 3 Indications For surgery :

1- Myelopathy

2- Intractable pain

3- Focal neurological signs

4- History of malignancy

Station 10

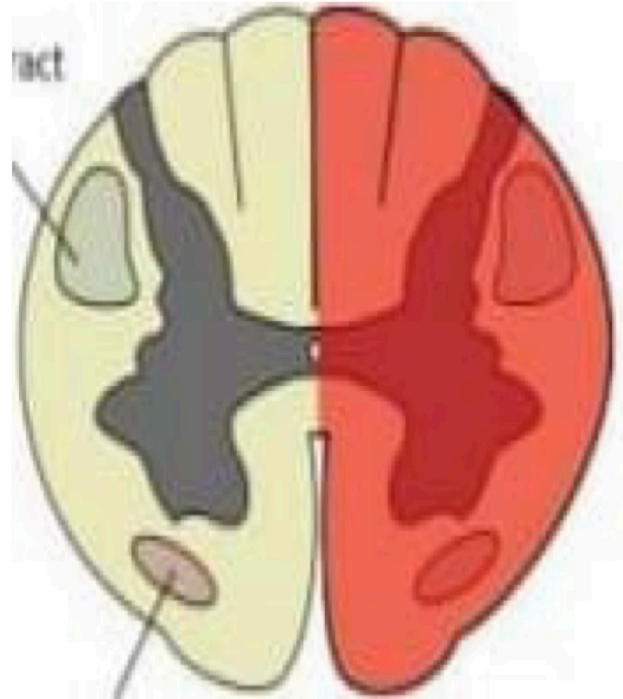
1- mention 3 clinical presentations with this syndrome :

→ 1- ipsilateral motor loss (paralysis)

2- ipsilateral sensory loss (vibration, proprioception, light touch).

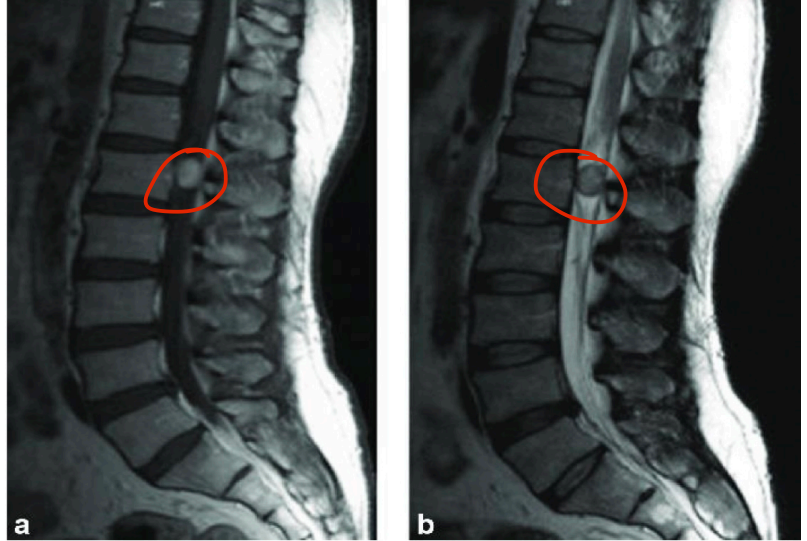
3- Contralateral sensory loss (pain, temperature)

Brown - séquard syndrome



Station 11

What is the lesion / syndrome at this level ?

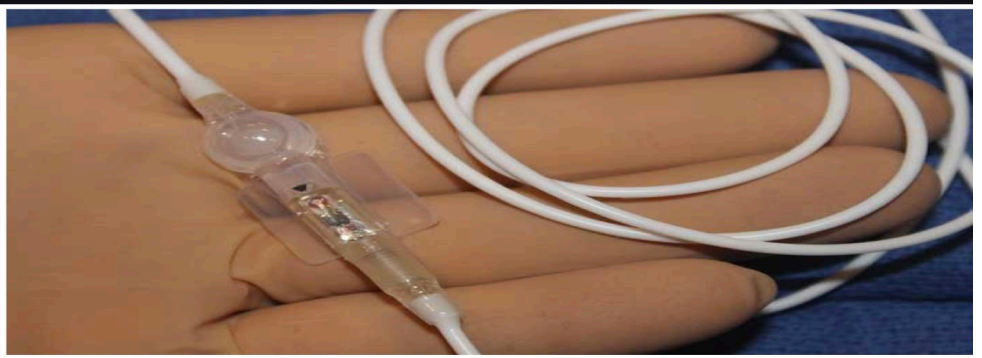


→ conus medullaris syndrome

↓
L1/L2

conus medullaris syndrome

Station 12



→ Mention 3 complications of this procedure :

1- Infections

2- Bleeding

3- Blockage

Station 13

Spot Diagnosis ?

→ Spina Bifida
occulta



Q10:

1. What is the name of this syndrome ?

Cauda equina syndrome

2. Mention 3 symptoms the patient could have

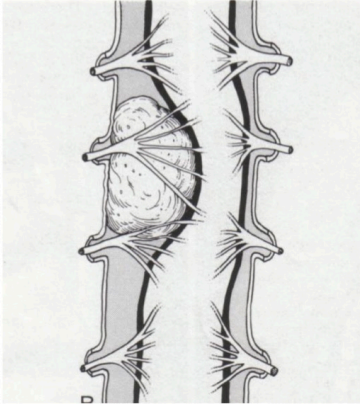
Severe low Back pain

Bladder disturbances

Saddle numbness



Station 1



Q1 what is diagnosis

Intradural extra medullary tumor

2 differential diagnosis

Meningioma, schwannoma and neurofibroma

MNS

Station 2

Q2 GCS for patient

Open eye to painful stimuli ²

Inappropriate words ³

Decerbrate on both side ²

2

3

2

~~10~~ /15

(7)

40



Station 7

Mention 2 nerves exit from superior orbital?
fissureocculomotor , trochlear , abducent

Mention structure exit from foramen spinosum?
.....middle meningeal artery

Mention structure exit from foramen rotundum?
....maxillary division of trigeminal nerve

Station 8



1. What is this sign?

Battle's sign

2. What is these sign indicate?

Basal skull fracture

mastoid fracture

2
2
5



Q1: Opens his left eye to painful stimuli ²
Right eye : no response ¹
Incomprehensible sounds ²
Localizes pain ⁵

3
2

GCS 9/15

Q2:

What is the CPP ? **Cerebral perfusion pressure** •
pressure = mean arterial blood pressure
pressure – intracranial pressure

Normal CBF with unit ? **average CBF in** •
adults is 50ml /100g of brain/min (not
 sure if the number is accurate)

50-150 mm Hg

Q5: What is the mechanism of early morning headache in brain tumor patient's ?

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 .

Q8:

2 complications of VP shunt : **infection** •
/ **blockage**

Example of Pure sensory cranial nerve : •
olfactory nerve

Mention one Sign used for the diagnosis of lumbar PID : **bowstring** • *posterior
tibial n.
stress*

*prolapse
intervertebral
disc*

sign



1- What is this ?

stereotactic frame

2- Mention its uses ?

1- biopsy

2- deep brain stimulation

in case of movement

disorder

What is the type of enhancement ?

Ring enhancement

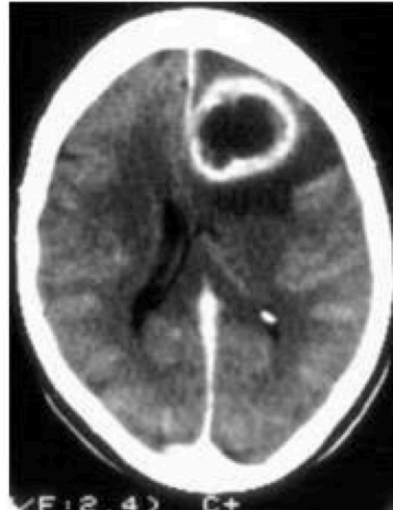
3 differential diagnosis?

GBM

abscess

Metastasis

Resolving hematoma




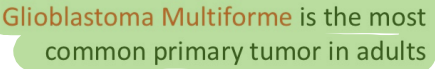

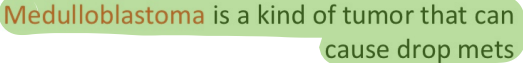

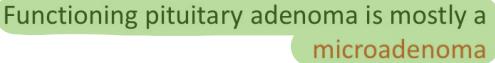

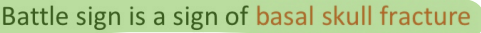
Q: What is Acetazolamide and mention one •
indication for it in neurosurgery?

A: Carbonic Anhydrase inhibitor, used in •
cases of increased ICP (Pseudotumor
cerebri) to decrease CSF production

Q: Write the pathway of CSF from secretion to absorption •

A: 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 •

Q: True or false, and correct the false statement

Meningioma is the most common primary tumor in adults		 Glioblastoma Multiforme is the most common primary tumor in adults
Craniopharyngioma is a kind of tumor that can cause drop mets		 Medulloblastoma is a kind of tumor that can cause drop mets
Functioning pituitary adenoma is mostly a macroadenoma		 Functioning pituitary adenoma is mostly a microadenoma
Battle sign is a sign of hydrocephalus		 Battle sign is a sign of basal skull fracture

• Glasgow Coma Scale;

One eye opens to pain – 2

The other eye does not open –

One side withdraws from pain – 4

The other side decorticate position –

Patient is confused – 4

2
2
2

A: (you take the higher number in GCS)

Eyes (2) + Verbal (4) + Movement (4) = 10

14?

???

2 + 4 + 4

Q3

- **Mention 4 congenital anomalies**
(related to CNS abnormality)

1. aqueductal stenosis

2. spina bifida

3. chiari malformation

4. dandy-walker malformation

5. anencephaly

6. arachnoid cysts

- 1- spina bifida
- 2- anencephaly
- 3- arachnoid cysts
- 4 - Chiari - malformation

Q4

Calculate GCS for this patient

- open left eye spontaneously 4
- incomprehensible sound 2
- Localize to pain right side 4
- Decorticate left side ~~5~~ 3

$$4 + 2 + 5 = 11/15$$

$$4 + 2 + 5$$

11

بتوخذ الأعلى

4
2
5

Q5



- **Mention 2 tumors occified?**

- 1 meningioma

- 2 oligodendrioglioma

- 3 ganglioma

*meningioma
ganglioma*

- **Mention 2 causes for communicating hydrocephalus?**

- 1 infection

- 2 subarachnoid hemorrhage



Calculate GCS for this patient

Open eyes to pain 2

Incomprehensible sounds 2

flexion
Decorticate on right side 3

extension
Decerebrate on left side 2

2
2
3

Gcs=7/15



1-what is phenytoin ?

-anticonvulsant

mention three side effect ?

Gingival hyperplasia

Vitamin b12 deficiency which lead to disc prolapse

Neural tube defect



Write the triad of normal pressure hydrocephalus ?

① Incontinence

* gait apraxia (magnetic gait)

② Dementia

* Dementia

③ Ataxia

* Ull

Incontinence
Dementia
Ataxia

Vp Shunt

What is the definitive treatment ?

Vp shunt

Spina bifida →

- 1- Lumbar Steinhilber
- 2- collection of fat
- 3- Hair

What is this sign ?

Hair tuft

What it's clinical importance ?

It indicate spina bifida occulta

Note : not the same picture



What is the anatomical site of the lesion ?

Right cerebellopontine angle

Write down 3 dd ?

- 1 Ddermoid cyst
- 2 Epidermoid cyst
- 3 Shwannoma

Benign



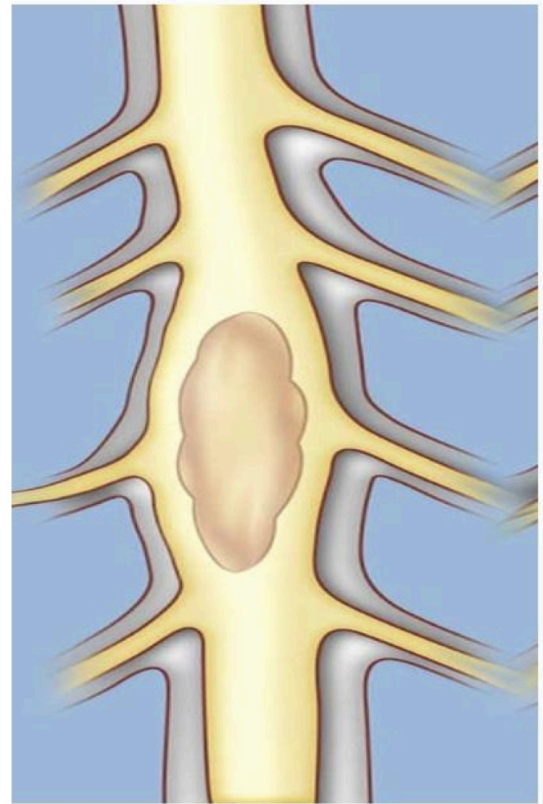
What is the classification of the tumor ?

Intradural intramedullary

Write down two Dd

Ependymoma

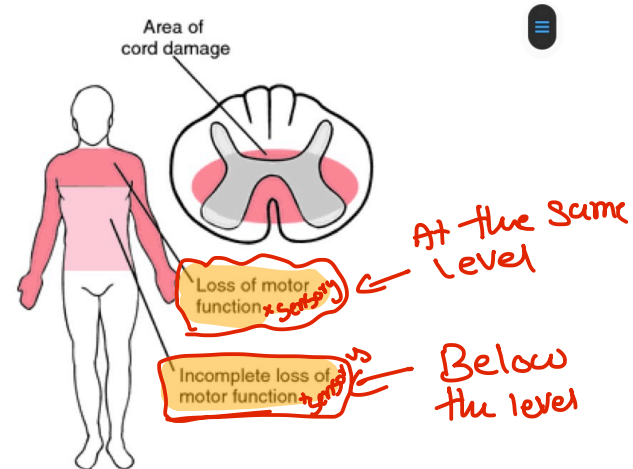
Astrocytoma



This patient complains from upper limb weakness and sensory loss,

What is this syndrome?

Central cord syndrome



Good luck

Q2

Fill the gap

-1 the vessel affected in epidural hematoma is:

middle meningeal artery

2- the artery may injured in endoscopic third ventriculostomy (ETV) is **basilar artery**

3- psammoma bodies found in

meningioma

4- tumor has dural tail sign is **meningioma**



Dumbbell shape tumor(hourglass)?? •

Schwannoma



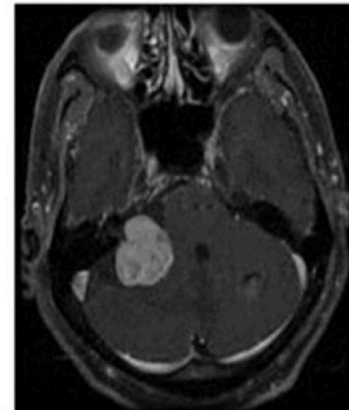
Q6

Q1 : patient present with dizziness, vertigo and hearing loss in his right ear what is the most probable diagnose ?

Vestibular schwannoma

Give me 3DDX ?

- 1 **Epidermoid cyst**
- 2 **Dermoid cyst**
- 3 **Meningioma**



Q10



1. Mention 2 sign

- setting sun eyes

- dilated superficial veins

* Pathogenesis of sun setting appearance : due to pr on superior collicular tract

(((Mechanism)))



Q 7

Diagnose? **Lumbar disk prolapse**

Site ? **L5 – S1**

2 Indications for surgery?

① **Progressive neurological deficit**

② **Intractable pain**

③ **Unstable fracture**

④ **Cauda equina syndrome**



1. Vascular injury
2. Upper motor weakness
3. nerve root compression

- Type of fracture ??

Burst

- Whats the level

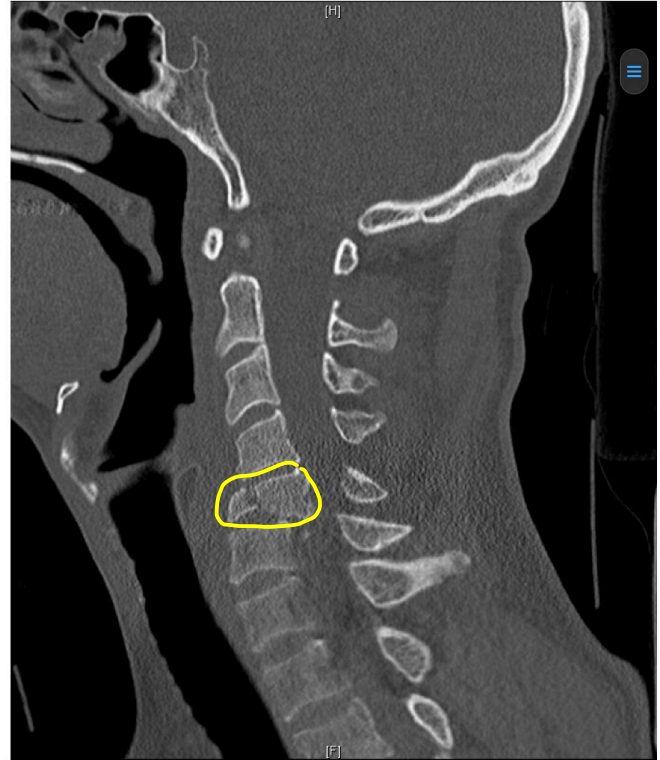
C5

- Write three complication

a-Nerve root compression ✓

b-Vascular injury ✓

c-Upper limb weakness ✓



**Burst fracture
compression fracture**

Calculate GCS for this patient

- open eye to pain 2
- incomprehensive sound 2
- Decerebrate right side
- Decorticate left side 3

2
2
3

بتوخذ الأعلى

Answer = 2+2+3 = 7/15

343

Q2 glasgow coma for Patient his eye open in
response to speech ³, confused ⁴, decelerate
and decorticate in response to pain? 10
³

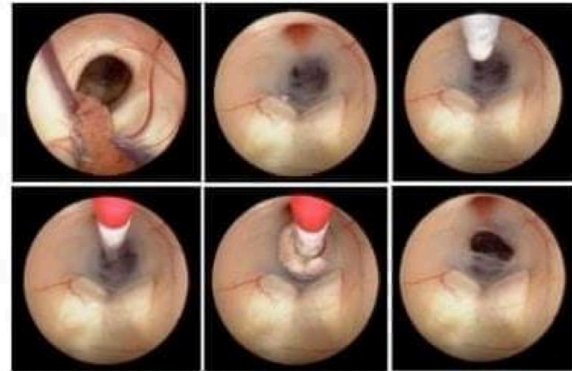
$$3 + 3 + 4 \rightarrow 10$$

Q5

What is the site of fenestration in this procedure ? The floor of 3rd ventricle

The artery affected ?

Basilar artery



Q 8 :Most tumor associated with ossification ?

Meningioma

meningioma
oligodendrioglioma
ganglioma

2ddx for tumor cause calcification ?

Oligodendrioglioma

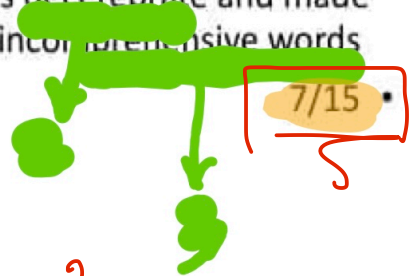
ganglioma

GCS to patient One of his eyes fixed dilated not response to light •
other eye response to pain The patient was decerebrate and made
incomprehensible words

2



3 2



2 3 3



• سؤال **gcs** جوابو 12

5

4

• Localize to pain +confused verbal
• eye opening to speech +response

3

12

What is **dexamethazone**?

Stroids

One use in neurosurgery?

Vasogenic edema (not sure)

Dexamethazone



1. Steroids
2. vasogenic edema



1- Dx :

Anencephaly

anencephaly

2-prevention :

4 mg folic acid started 3 M

Before contraception



*Start in 4mg folic acid before
3 M of pregnancy*

Spondylolisthesis
with secondary canal
stenosis

1-Dx :

L5-S1 spondylolisthesis with
Secondary canal stenosis

2- clinical picture :

radiculopathy



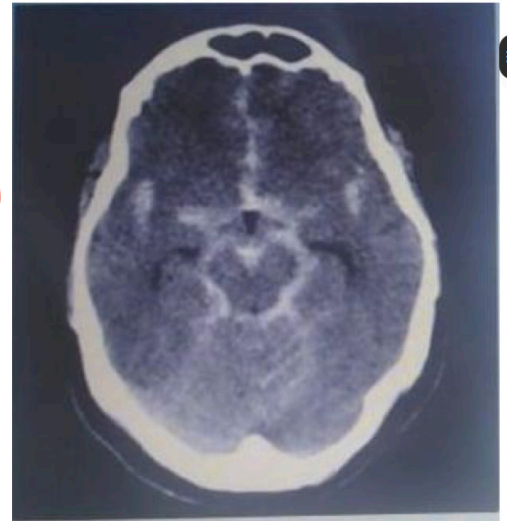
1- Dx :

Acute spontaneous SAH

2-gold stander investigation :

Digital subtraction angiography

DSA



GCS :

Open his eyes to pain ² → 2

Localized to pain ⁵ → 5

Confused and disoriented ⁴ → 4

(بتوخذ الاعلى)

Answer: 11



1-dermatome affected :

L4

2-reflex affected :

Knee jerk



Reflexes count up in order (main nerve root in bold):

- Achilles reflex** = S1, S2 ("buckle my shoe")
- Patellar reflex** = L2, L4 ("kick the door")
- Biceps and brachioradialis reflexes** = **C5, C6** ("pick up sticks")
- Triceps reflex** = C6, **C7**, C8 ("lay them straight")

Additional reflexes:

- Cremasteric reflex** = L1, L2 ("testicles move")
- Anal wink reflex** = S3, S4 ("winks galore")

Reflex grading:

- 0: absent
- 1+: hypoactive (L5/S1 lesion)
- 2+: normal
- 3+: hyperactive (Urad lesion)
- 4+: clonus



lateral
↓
compress
L4
post lateral
↓
L5

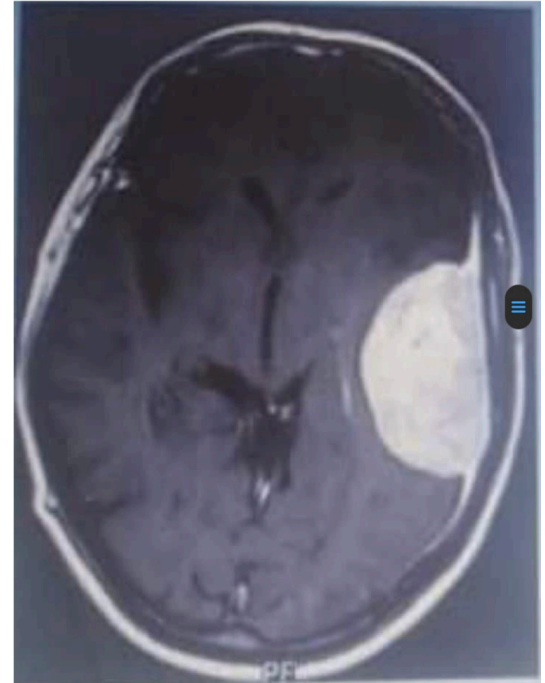
Lesion enhanced regularly after IV contrast administration

1-most likely Dx if this tumor is slowly growing :

Meningioma

2-this tumor originate from :

Arachnoid cap cells



meningioma
arachnoid cap cells

1-metopic suture

2-Trigonocephaly craniosynotosis

metopic → Trigonocephaly
Lambdoid → Brachycephaly



- What is the name of this abnormality and what is the suture?

- **Brachycephaly** or **posterior plagiocephaly** (not sure)

- **lambdoid sutures**



- what are the types of brain edema and the cause of each one

1- vasogenic : due to tumors, it responds well to steroid

2- cytotoxic : due to trauma



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

Chiari malformation type 4

2-Give 2 differential diagnosis?

① Dandy walker malformation

② Arachnoid cyst

③ Megacisterna magna

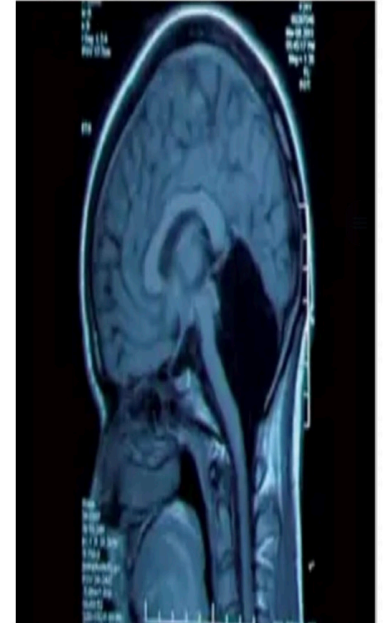
3-Mention two ways of spread of brain tumor to the spinal cord?

① Hematogenous spread

② Direct invasion

③ Drop metastasis

Lymphatic is WRONG answer



Q7:

1-Mention 2 devices used in monitoring of ICP ?

- ① Intraparenchymal catheter
- ② Subdural catheter
- ③ Subdural bolt

(lumber puncture is WRONG answer)

2-2 Indications for ICP Monitor insertion ?

- ① Head trauma
- ② Closed head injury
- ③ Normal pressure hydrocephalus (but hydrocephalus alone is WRONG answer)
- ④ Post brain tumor surgery or intracranial surgery (post operative alone is WRONG answer)
غلط بالنسبة للدكتور
المختص في الجراحة العصبية



Q12:

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%

He open his eyes when the doctor calls him, obeys command, disoriented to time palce and person

6

6

3

3

6

4

1-What is the GCS?

3 + 6 + 4 = 13/15

(if you don't write /15 the answer is WRONG)

2-What is the classification of injury according to GCS?

Moderate

mild?

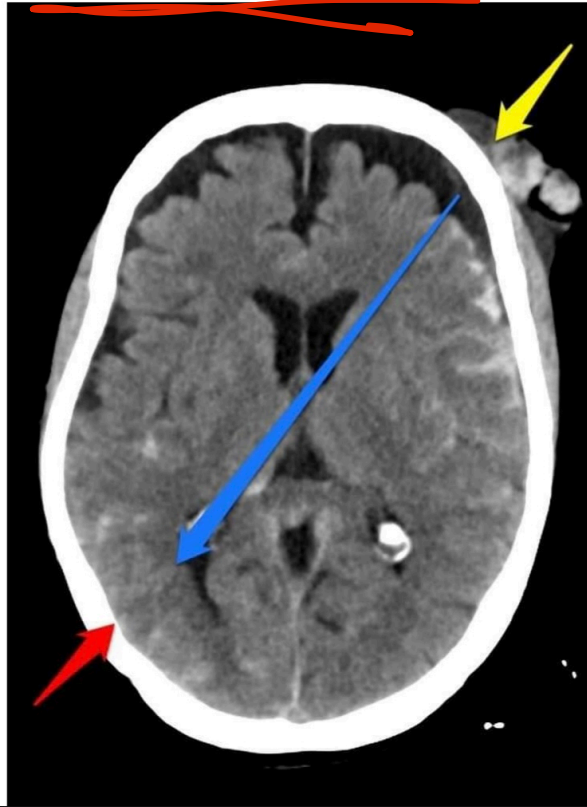
3-What is the Appropriate first measure to be taken MCQ?

Managing his airway at 1st



تابع لسؤال RTA

كانت صورتين لمقطعين CT واحد فوق و واحد تحت
وكل صورة فيها contusion بجهة عكس الثانية مش
نفس الصورة هاي



4 -What is th diagnosis according to these CT scan?

Hemorrhagic contusion coup counter- coup

OR

Post traumatic contusion coup counter coup

hemorrhagic contusion ~~coup~~ counter
coup coup

Case Scenario #1

Hx of 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 cremastic reflex , anal examination reveals weak anal tone

1) Calculate GCS (Glasgow Coma Scale)

5/15

1
2
2 } → 5
15

2) What is the severity according to GCS?

Severe

3) What is your next step in management : (MCQ)

a) intubation

b) urgent head CT

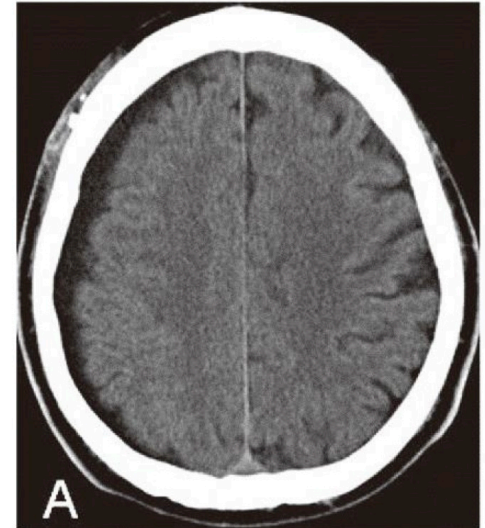
1
2
2



4) What is diagnosis and location ?

Right Fronto-Parieto-occipital Chronic Subdural Hematoma
كل نقطة مهمة

هاي الصورة والاسئلة الي عليها
ما الهم علاقة بالسيناريو**



5) What is the timing?

>14 days

if it was acute

6) What is your next step in management : (MCQ)

a) Craniotomy

b) Burr holes

if it was
Chronic

Diagnosis ?

*2 differentials? •

Chiari 4 malformation

- 1 dandy walker and
- 2 arachnoid cyst

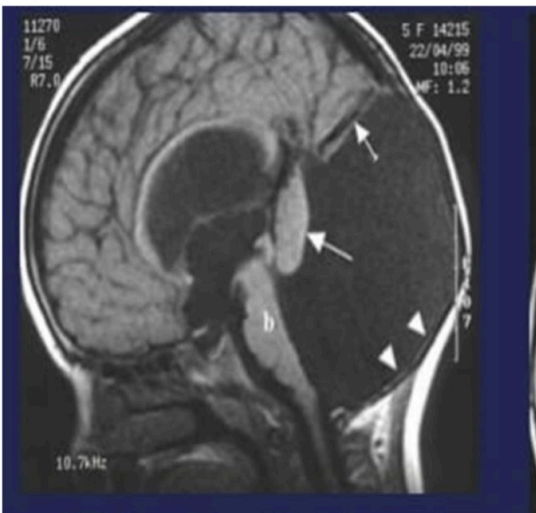


is neurological disorder caused by an unusual formation between the cerebellum and the fluid-filled spaces around it. ↑

Dandy-Walker

is condition in which brain tissue extends into the spinal canal. ↑

Chiari type 4



موذاكرة التفاصيل بس كان نفس النمط

Hx of 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 cremastic reflex , anal examination reveals weak anal tone

1) Calculate GCS (Glasgow Coma Scale)

5/15

Don't forget +T in case of tracheostomy

2) What is the severity according to GCS?

Severe

3) What is your next step in management : (MCQ)

a) intubation

b) urgent head CT



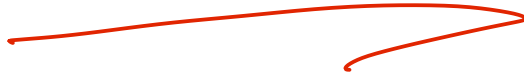
- Mention 2 roots via which tumor can spread to the spinal cord??

✓ - Hematogenous spread

✓ - Drop metastasis

✓ - Direct invasion

- **** No lymphatic :3



14-15>> mild

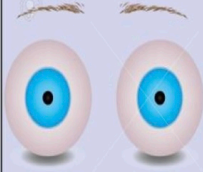


9-13>> moderate

3-8>> severe

****in severe cases we should intubate the patient**

If there is tracheostomy...verbal response = 1

T+ونكتب

Behaviour	Response
 Eye Opening Response	<ol style="list-style-type: none">1. No response2. To pain3. To speech4. Spontaneously
 Verbal Response	<ol style="list-style-type: none">1. No response2. Incomprehensible sounds3. Inappropriate words4. Confused5. Oriented to time, person and place
 Motor Response	<ol style="list-style-type: none">1. No response2. Abnormal extension3. Abnormal flexion4. Flex to withdraw from pain5. Moves to localised pain6. Obeys command

Mention 2 devices for ICP monitoring :

• indications for monitoring ICP :

1. patient with abnormal head CT (mass, edema, ...), and GCS (3-8) after CPR
patient with normal CT, GCS (3-8), with two of these (age over 40, systolic blood pressure < 90, unilateral or bilateral motor posturing)

2. post operative

3. hydrocephalus

4. reye syndrome

CB Seal head injury



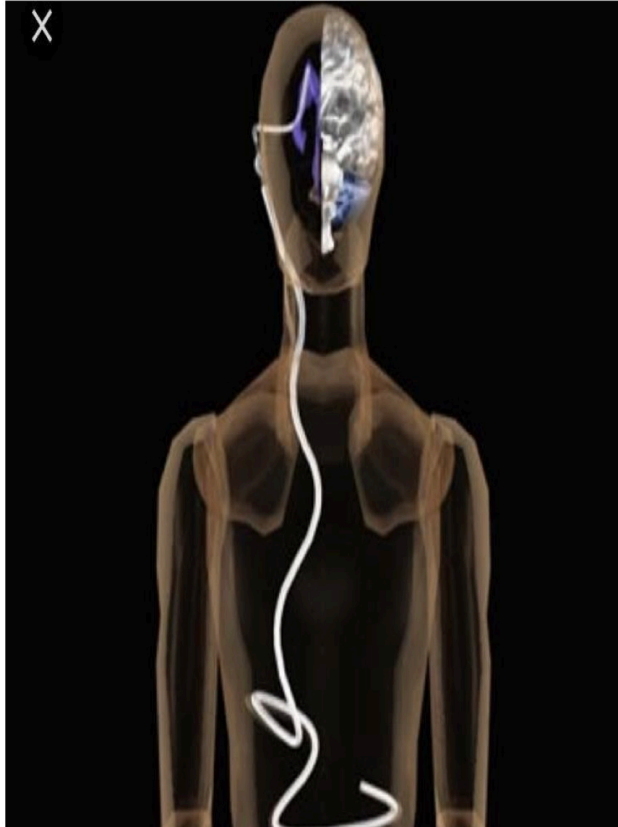
Patient opens his eye in response to pain ¹ •
and in verbal response has inappropriate ³
words and in motor response has
decorticate, calculate the GCS for this patient?

~~3~~ 3

Decorticate
↓
3

eight

Q4 :



1- What is this?

✓ **Ventriculo peritoneal shunt**

2- Mention 3 complications of it?

complications:

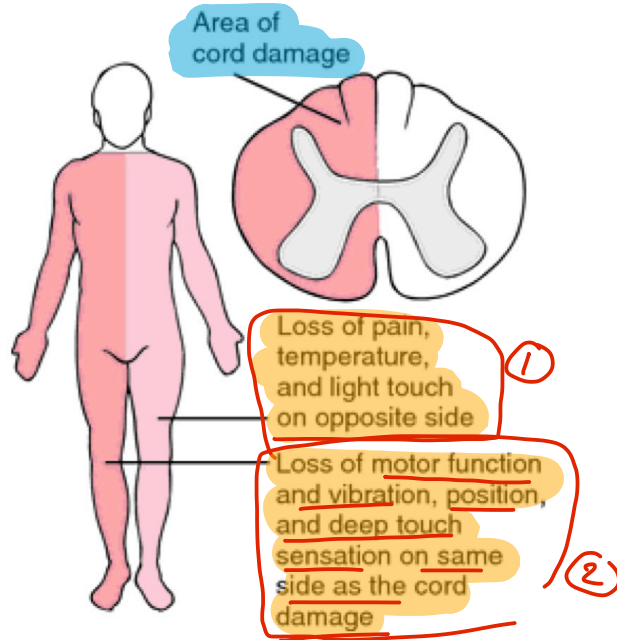
✓ **-obstruction**

✓ **-infection**

✓ **-haemorrhage**

Q5 :

*Brown
sequard
syndrome*



1- What Is The Name Of This Pathology?

Brown Sequard Syndrome

3- Mention 3 Spinal Tracts That Are Affected In This Pathology?

1- **Spinothalamic Tract** *← contralateral*

2- **Corticospinal Tract (Anterior & Lateral)**

3- **Dorsal Column**

↑ ipsilateral

1- What is (Acetazolamide)→ •

Carbonic Anhydrase Inhibitor •

**2- Mention one indication to use this •
medication in neurosurgery**

**used in case of increased ICP especially •
glaucoma (it inhibit enzyme in choroid
plexus so decrease CSF production)**

Calculate GCS for this patient

Eyes opening in response to pain 2

stimulus Inappropriate words 3

Decerebrate left side 2

Answer = 2 + 3 + 2 = 7

Q1) Calculate GCS for this patient

- open eye to speech 3
- confused 4
- Decerebrate right side 2
- Decorticate left side 3

بتوخذ الأعلى

Answer $\underline{=3+4+3=10}$

*30 years old male with a past history of laryngeal cancer and permanent tracheostomy

Presented to the emergency department following a fall.

There was no sensory or motor response in his right leg.

Opens his eyes to verbal command, localizes the pain.

=>

GCS: 9/15 + T

Moderate severity

Next step : Emergent non-contrast brain CT

Type of spinal injury : incomplete

* Picture of red eyes

Findings : periorbital ecchymosis, racoon or panda eyes

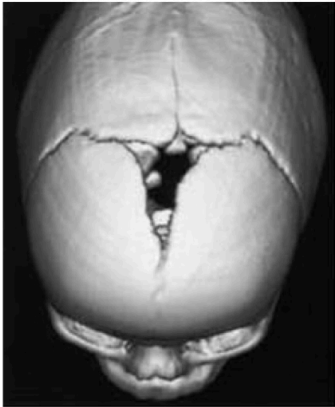
Clinical significance : Basal frontal skull fracture



radiographic pictures of a skull with
craniosynostosis

Dx : Scaphocephaly

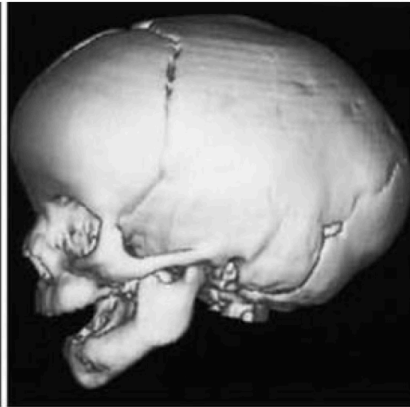
Affected skull suture : Sagittal



a.



b.



c.



d.

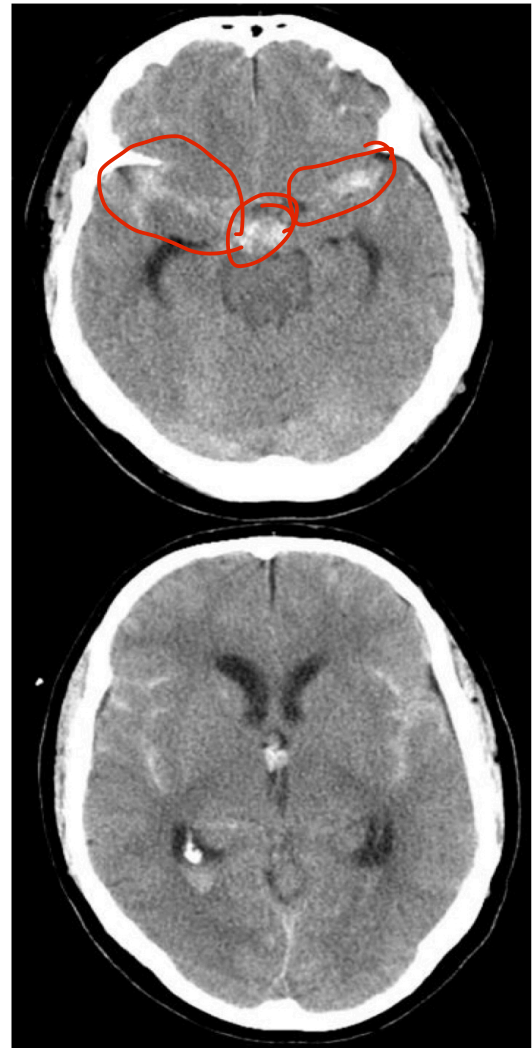
Q5

* Picture of subarachnoid hemorrhage in a man with no history of head trauma.

Dx : Spontaneous acute subarachnoid hemorrhage

Possible causes : Ruptured arterial aneurysm, AV malformation

Gold standard investigation : Digital subtraction angiogram



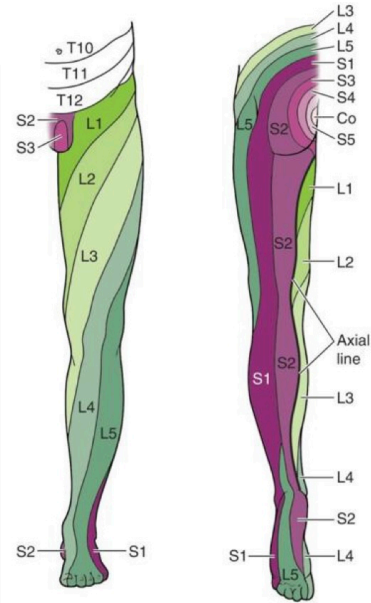
- Q1: Patient open his eyes to painful stimulus,
3 produce words, moves to localized pain. 2 5
- A. GCS?
2+3+5=10.
- B. Classification?
Moderate.
- C. Management?
Urgent CT (intubation or CT).

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

- 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

