



RRM'S NEET SS NEUROSURGERY –AIIMS MOCK EXAM

AIIMS model Neurosurgery exam 2020- RRM NEXT- NeuroSurgery Paper

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Correct marks-1 Negative- 1/3rd

Q.1) A 58-year-old chronic alcoholic is found to have severe hyponatremia when brought to the emergency room. He was started on 3% sodium chloride and monitored carefully. On 3rd day of admission, he develops a rapidly progressive motor deficit, with flaccid paralysis of all limbs and inability to speak or swallow, along with a facial diplegia. Ocular motility is preserved, and although he is unable to speak, he can communicate by eye-blinking responses. Why did he deteriorate?

- A. Acute infarct in pons
- B. Central pontine myelinolysis
- C. Acute haemorrhage in pons
- D. Bleed into a diffuse pontine glioma

Answer option B

This is the classical presentation of Central pointing myelinolysis.

It usually occurs after results following rapid correction of hyponatremia.

Patient goes into acute quadriplegia and paralysis of all facial muscles.

Only the extra ocular muscles which are innervated by nerves derived from midbrain are intact.

Hence patient can communicate with extra ocular movements.

Q.2) Which among the following is not true regarding Rods?

- A. Respond to low intensity stimulation
- B. Mediate night vision, colour vision
- C. Responsible for perception of movement
- D. Absent in macula

Answer option B

Ref. DEJONG 7th edition.

Rods respond to lie intensity stimulation.

Hence are responsible for night vision and dark vision also, they are responsible for perception of movement.

They are absent in macula.

Whereas cones are present in macula

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Q.3) Distance of optic chiasm from pituitary is ____?

- A. 1mm
- B. 1cm
- C. 2mm
- D. 2cm

Answer option B

The distance between optic chiasm and pituitary is 1cm.

Q.4) Broadman's area of primary visual cortex is?

- A. Area 17
- B. Area 18
- C. Area 19
- D. Area 22

Answer Option A

Primary visual cortex is area 17

Visual association areas are area 18, 19.

Q.5) Enlarged physiological blind spot is referred to as ____?

- A. Central scotoma
- B. Centrocecal scotoma
- C. Peripapillary scotoma
- D. Cecocentral scotoma

Answer option C

Reference Dejong 7th edition.

Enlarged physiological blind spot is referred to as peripapillary scotoma.



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6. A 30 year old male presents with complains of headache and visual disturbances. On examination he is found to have an asymmetrical bitemporal field defect involving both the upper quadrants. What do you expect to be found in MRI of this patient?

- A. Pituitary macroadenoma
- B. Craniopharyngioma
- C. Rathkes cleft cyst
- D. None of the above

Answer option A.

Pituitary adenoma grows from below above, compressing the lower fibers of optic chiasm producing bitemporal field defects that are initially observed in the upper quadrants as lower fibers in optic chiasm are responsible for upper quadrant field of vision.

7. A person with sudden onset severe headache presents with the following ocular findings, right sided Ptosis with right pupil unreactive to direct or consensual light exposure and right external ophthalmoplegia limiting all EOM except elevation of right eye with impaired elevation of left eye. Localise his level of lesion?

- A. Right midbrain tegmentum at superior colliculus.
- B. Right midbrain base at superior colliculus
- C. Right midbrain tegmentum at inferior colliculus
- D. Right midbrain base at inferior colliculus

Answer option A

Reference Dejong 7th edition

The given clinical picture is suggestive of midbrain lesion at the level of superior colliculus.

The nucleus lie at the tegmentum.

In right nucleus third nerve palsy, it results in left superior rectus palsy as the fibers side from right oculomotor nucleus to supply the opposite superior rectus. Hence right superior rectus gets spared.

8. Which among the following is not seen in internuclear ophthalmoplegia?

- A. Abduction of the involved eye
- B. Failed adduction of the opposite eye
- C. Nystagmus of the abducting eye
- D. Pupillary asymmetry

Answer option D

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Pupillary fibers are not at all involved in internuclear ophthalmoplegia. Hence, no pupillary anomaly.

9. Which of the following cranial nerve attaches to the pons ?

- A. Trigeminal nerve CN V
- B. Optic nerve CN II
- C. Oculomotor nerve CN III
- D. Vagus nerve CN X

Answer option A

Cranial nerves and their origin from brain stem.

Midbrain 3,4

Pons 5,6,7,8

Medulla 9,10,11,12.

10. Which of the following is not a purely motor nerve?

- A. Facial nerve CN VII
- B. Oculomotor nerve CN III
- C. Trochlear nerve CN IV
- D. Spinal accessory nerve CN XI

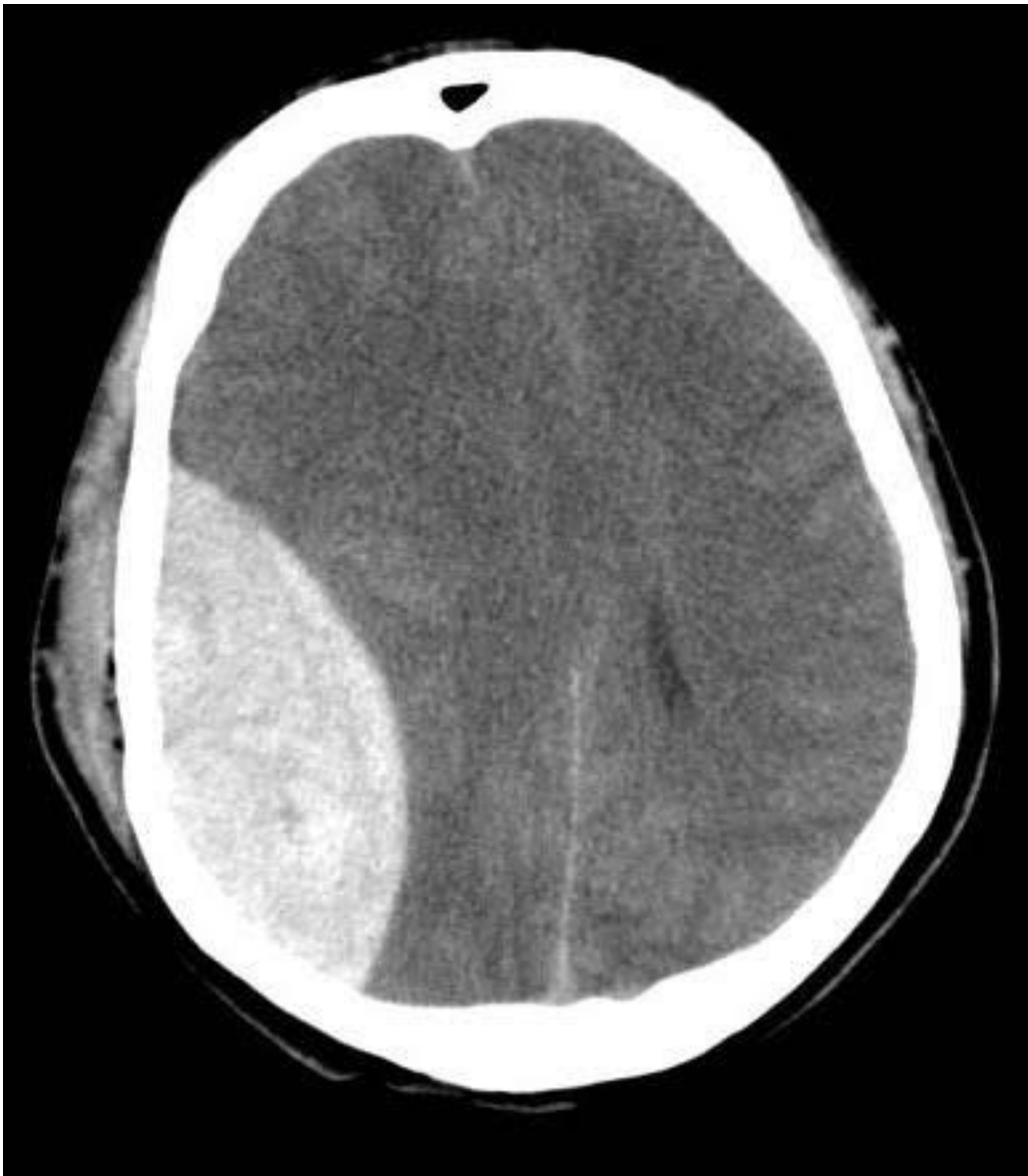
Answer option A

Facial nerve is a mixed nerve carrying both motor and sensory fibers.

11. Identify the pathology



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- A. Extra dural hematoma
- B. Sub dural hematoma
- C. Subarachnoid haemorrhage
- D. Intracerebral hemorrhage

Answer option A

This is the characteristic picture of EDH.

LENTICULAR shape

Source of bleed - Middle meningeal artery.

12. Identify the pathology

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- A. Extra dural hematoma
- B. Sub dural hematoma
- C. Subarachnoid haemorrhage



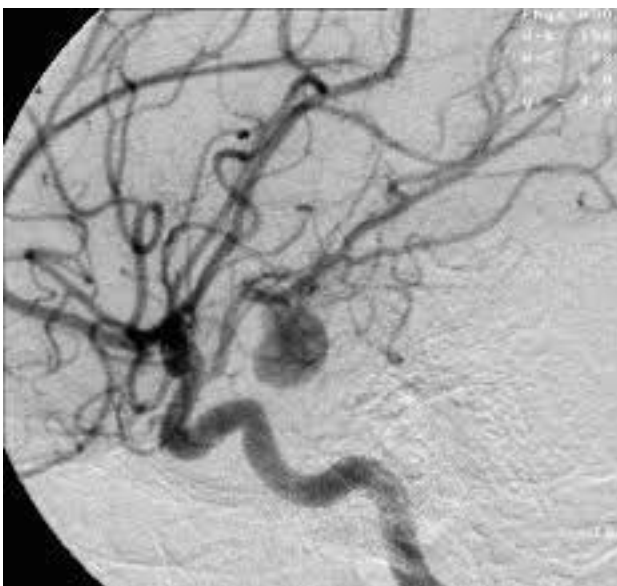
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D. Intracerebral hemorrhage

Answer option B

This is characteristic picture of sub dural hematoma. Showing crescentic shape.
Usually due to rupture of bridging veins.

13. Identify the pathology



- A. Aneurysm
- B. AVM
- C. Cavernoma
- D. Venous angioma

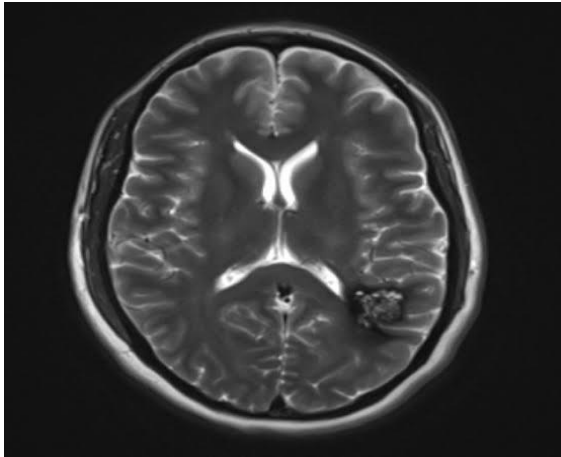
Answer option A

This is DSA image showing a saccular aneurysm.

14. Identify the pathology



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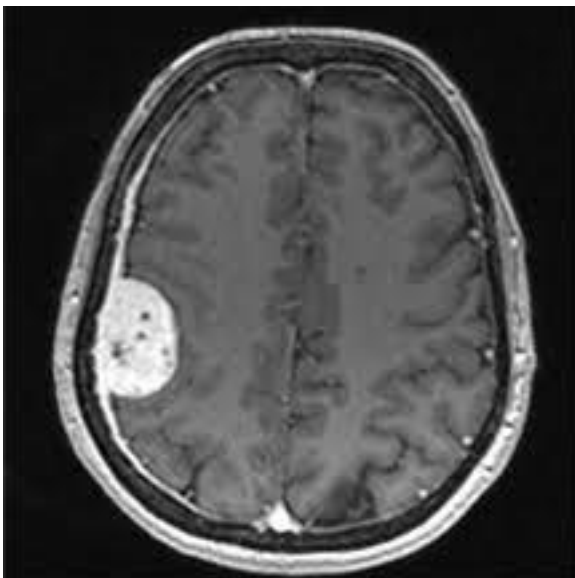


- A. Aneurysm B. AVM C. Cavernoma D. Venous angioma

Answer option C

This is the characteristic popcorn appearance or reticulated appearance suggestive of cavernoma.

15. Identify the pathology



- A. Glioma
B. Meningioma
C. Gliosarcoma
D. Oligodendroglioma

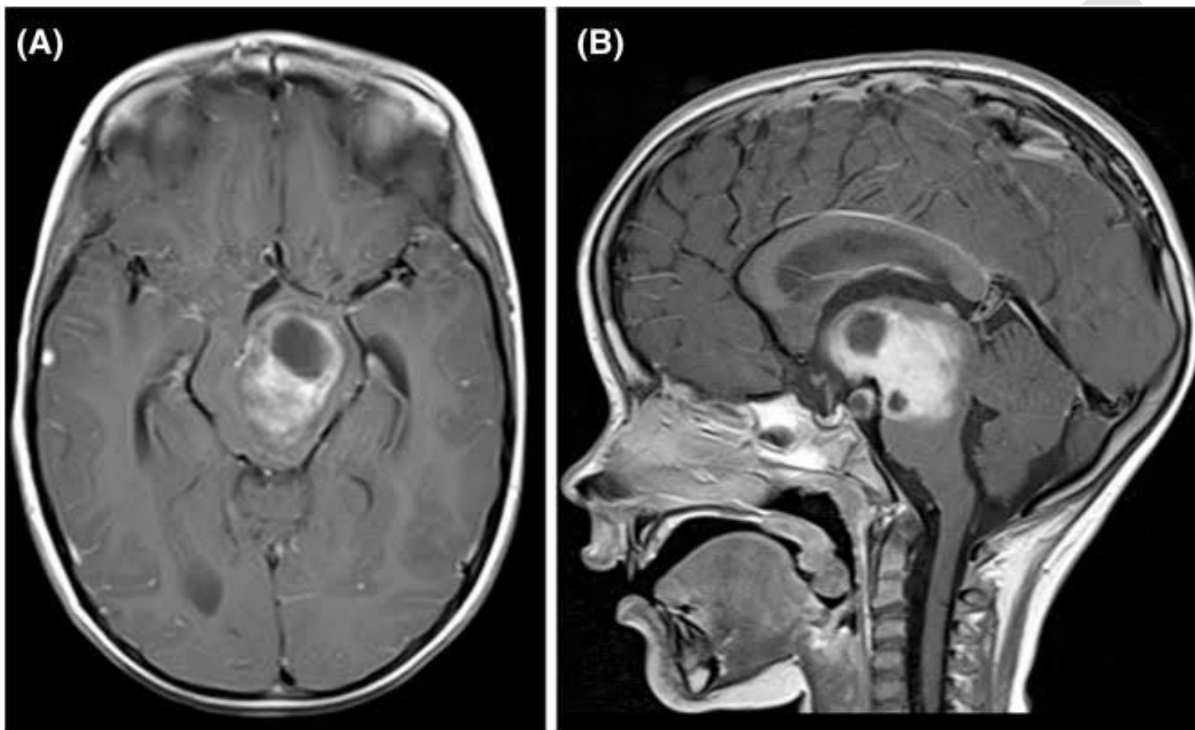
Answer option B



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This is characteristic picture of meningioma showing uniform enhancement with dural tail.

16. Identify the pathology



- A. Glioma
- B. Meningioma
- C. Gliosarcoma
- D. Oligodendroglioma

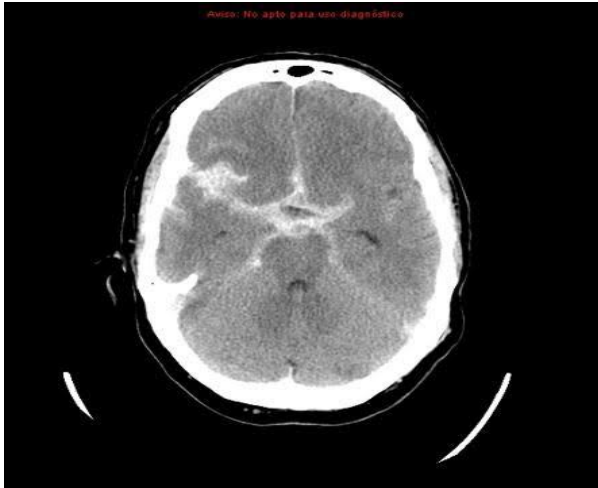
Answer option A

This is the MRI image of a child with brainstem glioma. The lesion is showing cystic components and enhancing solid portions too.

17. Grade the SAH based on modified hunt Hess scale



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- A. Grade 1
- B. Grade 2
- C. Grade 3
- D. Grade 4

Answer option C

Grade 0 - no SAH

Grade 1 - SAH less than 1mm with no IVH

Grade 2 - SAH less than 1mm with IVH

Grade 3 - SAH more than 1mm with no IVH

Grade 4 - SAH more than 1mm with IVH

18. Most common source of brain abscess is

- | | |
|-------------------------------|----------------------|
| A. Hematogenous dissemination | B. Contiguous source |
| C. Cryptogenic | D. Iatrogenic |

Answer: Option B (ref page no: 350) Youmans 7th edition

25-50% of infections are via contiguous source of infection.

Hematogenous 20-30%

10-35% cryptogenic.



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19. Which among the following is not a component of classic triad of brain abscess?

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- A. Fever
- B. Headache
- C. Seizure
- D. Focal neurological deficits

Answer: Option C (ref page no: 350) Youmans 7th edition

Fever, headache and Focal neurological deficits are the classic triad of brain abscess seen in about 50% individuals.

20. Diagnostic modality of choice in Brain abscess is

- A. CT(plain) brain
- B. Contrast CT brain
- C. MRI brain
- D. PET scan

Answer: Option C (ref page no:350) Youmans 7th edition

Diffusion weighted image shows restricted diffusion and is characteristic in distinguishing brain abscess from necrotic neoplasms.

21. A 56 year old man with cervical disc prolapse admitted for surgery suddenly develops diplopia to near objects and ptosis on the right side. His visual acuity is 20/20. He has a long standing history of poorly-controlled Type II Diabetes Mellitus and no other comorbidities. On examining his eyes you notice that his right eye is deviated inferolaterally. You suspect the probable cause of his neurological status as Diabetic third cranial nerve palsy. What would be his pupillary findings to light reflex?

- A. Constricts to both direct and consensual
- B. Constricts to direct but not to consensual
- C. Constricts to consensual but not to direct
- D. Doesn't constrict to both direct and consensual.

Ans. Option A

It's a pupil sparing third cranial nerve palsy!!!



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22. BARAGNOSIA IS ASSOCIATED WITH LESION OF

- a.spinothalamic tract
- b.spinocerebellar tract
- c.dorsal column
- d.cuneocerebellar tract

Answer Option C

Baragnosia is the inability to discriminate between different weights.
Dorsal column is concerned with tactile discrimination.

23. Identify the pupillary abnormality that is best demonstrated by the swinging flashlight test where pupil constricts less when a bright light is swung from unaffected eye to affected eye.

- A. Marcus gunn pupil
- B. Holmes Adie pupil
- C. Argyll Robertson pupil
- D. Third nerve palsy

Answer Option A

This is RAPD. Relative afferent pupillary defect.
AKA Marcus Gunn pupil

24. Which among the following is not a feature of optic nerve leison?

- A. Blindness
- B. Absent direct reflex
- C. Absent consensual reflex
- D. Absent accommodation reflex

Answer Option D

Accommodation reflex is mediated by cerebral cortex and executed by third cranial nerve.

25. Which among the following is not true regarding trigeminal neuralgia?

- A. Vessel impinging on CN V is AICA

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- B. Attacks last for over an hour
- C. Pain distributed along V2,V3 distribution usually
- D. May provoke a spasm of facial muscles

Answer option B. Youmans 7th edition

Explanation

Vessel compression by SCA or AICA

Lasts for few seconds

Pain distributes along maxillary and mandibular nerves

May provoke a spasm of facial muscles

26. Identify the pupillary abnormality which is tonically dilated, reacts slowly to light but shows more definite response to accommodation.

- A. Marcus gunn pupil
- B. Hutchinson's pupil
- C. Holmes adie pupil
- D. Argyll Robertson pupil

Answer C Youmans 7th edition

Let's get it straight

A. Marcus gunn pupil is RAPD

Where pupil in affected eye doesn't react or dilates when light is shifted from normal eye.

Demonstrated by swinging flash light test.

B. Hutchinson's pupil is third nerve palsy due to uncal herniation.

C. Holmes adie pupil is tonically dilated pupil it constricts slowly to light but constricts briskly on accommodation. Seen in young women with prolonged knee jerk.

D. ARP is absent light reflex and intact accommodation reflex

27. Which of the following statements about neuroradiologic imaging modalities is not correct?

A. Diffusion-weighted MRI can differentiate tumor from edema and identify the nonenhancing part of the tumor.



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- B. For evaluating the stenosis of the carotid bifurcation, MR angiography (MRA) is the most accurate imaging modality.
- C. Myelography is still useful in detecting some diffuse spinal disease such as cerebrospinal fluid (CSF) seeding.
- D. For evaluating the bony detail of patients with facial trauma, CT is a better imaging modality than MRI.
- E. Decreased amount of N-acetyl aspartate (NAA) and increased amount of lactate can be shown in the MR spectroscopy (MRS) of a patient with acute stroke.

Answer Option B Youmans 7th edition

DSA is the most accurate imaging modality in all Vascular pathologies.

28. Which of the following statements is true?

- A. Extradural neoplasms are usually benign.
- B. A typical type of intramedullary tumor is a meningioma.
- C. An intradural extramedullary neoplasm is ordinarily treated by a combination of surgical resection and radiotherapy.
- D. A hemangioblastoma is a benign intramedullary tumor that has the potential for surgical cure.

Answer D

Ref Youmans 7th edition

Extra dural tumors are usually metastasis. Hence malignant.

Meningioma is a intradural extra medullary tumor.

Intradural extra medullary tumors are usually benign. Hence no need for RT.

29. Which of the following statements is true?

- A. A symptomatic cervical disc herniation usually occurs in an anterolateral or anterior direction and can be removed by a surgical approach through the front of the neck.

- B. The joints of Luschka are the main spinal facet joints.

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- C. The term cervical myelopathy refers to pain and/or neurologic dysfunction in the distribution of one or more cervical nerve roots.
- D. Full neck extension frequently accentuates the neck and arm pain of a patient with a cervical disc herniation.

Reference Youmans 7th edition

Answer D

Cervical discs are usually posterior or posterior lateral.

Joints of Luschka are unco-vertebral joints. They are not facet joints.

Myelopathy is involvement of spinal cord not nerve roots.

Nerve root involvement is called as radiculopathy.

Neck extension will increase pain in cervical disc.

Similarly back extension will increase pain in lumbar canal stenosis.

30. Which among the following is not a true regarding criteria to conduct an APNEA test in a brain dead patient?

- A. Core temperature $\geq 34.5^{\circ}\text{C}$ or 96.7°F
- B. Positive fluid balance in the previous 6 hours
- C. Arterial $\text{PCO}_2 \geq 40$ mm Hg
- D. Normal PO_2

Answer option A Ref Youmans 7th edition

- A. Core temperature $\geq 36.5^{\circ}\text{C}$ or 97.7°F
- B. Euvolemia. Option: positive fluid balance in the previous 6 hours
- C. Normal PCO_2 . Option: arterial $\text{PCO}_2 \geq 40$ mm Hg
- D. Normal PO_2 . Option: pre-oxygenation to arterial $\text{PO}_2 \geq 200$ mm Hg



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31. The following descriptions of abscess evolution best fits to which stage of abscess formation?

Description: An enlarging necrotic center with appearance of fibroblasts with rapid formation of reticulin, prominent cerebral edema.

- A. Early cerebritis
- B. Late cerebritis
- C. Early capsule formation
- D. Late capsule formation

Answer option B

The four stages of abscess formation are

Early cerebritis (days 1-3)

Late cerebritis (days 4-9)

Early capsule formation (days 10-13)

Late capsule formation (days 14 and later)

Few important points.

Early cerebritis stage will have acute inflammatory cells

Early capsule formation will show increasing fibroblasts and macrophages and evolution of mature collagen.

Late capsule formation will have a fully formed capsule by the end of second week and marked gliosis outside the capsule.

Ref. Table 39-2 page e190 Youman's 7th edition

32. Which among the following increases the blood brain barrier permeability?

- A. Steroids
- B. TGF BETA
- C. Nor adrenalin
- D. Endothelin 1

Answer option D.

Nitric oxide, free radicals, tumor necrosis factor, Endothelin1 increases the blood brain barrier permeability.

Ref. Table 51-4 page e386 Youman's 7th edition



33. Which among the following factors (treatment goals) does not favour globus pallidus interna as the target for DBS in Parkinson disease?

- A. Greater decrease in levodopa requirements
- B. Lower chance of cognitive decline
- C. Earlier postoperative programming
- D. Mood stability.

Answer: A.

Greater decrease in levodopa requirements is for subthalamic nucleus as the target selection.

Whereas all the other options and maintenance of letter verbal fluency are the treatment goals for GPi stimulation.

Ref. Table 89-2 page 621 Youman's 7th edition

34. Based on modified ash worth scale, marked increase in the tone but affected parts are easily flexed is score ____

- A. 1
- B. 2
- C. 3
- D. 4

Answer: C

Modified ash worth scale is used for assessment of spasticity.

- 1 No increase in tone
- 2 slight increase with a catch while moving the limb
- 3 more marked increase in tone but affected parts easily flexed
- 4 considerable increase in tone and passive movement is difficult
- 5 affected parts rigid in flexion or extension

Ref. Table 104-2 Youman's 7th edition

35. Marshall score for traumatic brain injury is based on

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- A. CT
- B. MRI
- C. XRAY
- D. CSF cisternography

Answer: A.

CT is the best investigation for trauma as images can be obtained rapidly in cases of emergency.

36. Denver's grading scale is used in

- A. Diffuse axonal injury
- B. Grading prognosis in TBI
- C. Blunt cerebrovascular injuries
- D. Traumatic CSF leaks

Answer option C.

Ref. Page number 2836, Youman's 7th edition

Grades 1-5

1 irregularity in vessel wall or dissection or intramural hematoma with less than 25% luminal stenosis.

2 intra luminal to thrombosis or raised intimal flap or dissection or intramural hematoma with more than 25% luminal stenosis.

3 Pseudoaneurysm

4 occlusion of vessel

5 transection of vessel

37. Based on head injury severity scale, the injury category severe refers to

- A. GCS 14-15
- B. GCS 9-13
- C. GCS 5-8
- D. GCS 3-4

Answer: C

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Classified as

Minimal GCS 15 no amnesia or loss of consciousness

Mild GCS 14-15 with amnesia or brief loss of consciousness

Moderate GCS 9-14

Severe GCS 5-8

Critical GCS 3-4

Ref page number 2845 table 346-2 YOUUMAN'S 7th edition.

38. Which of the following is not a diffuse brain injury

- A. Contusion
- B. Concussion
- C. Diffuse axonal injury
- D. None of the above

Answer option A.

All Contusions are considered to be focal injuries.

Concussion and diffuse axonal injury constitute diffuse brain injuries.

Ref page number 2845 Box 346-1 YOUUMAN'S 7th edition.

39. Based on Neuropathological classification of diffuse axonal injury, axonal injury in parasagittal white matter of cerebral hemispheres plus focal lesion in Corpus callosum is considered as grade ____

- A. Grade 1
- B. Grade 2
- C. Grade 3
- D. Grade 4

Answer: B Youmans 7th edition

There are 3 grades only

1 axonal injury in parasagittal white matter of cerebral hemispheres

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- 2 grade 1 plus focal lesion in Corpus callosum
- 3 grade 1 plus focal lesion in cerebral peduncle

40. Which among the following structures herniates in subfalcine herniation?

- A. Pericallosal artery
- B. Posterior cerebral artery
- C. Perforating branches of basilar artery
- D. Oculomotor nerve

Answer: A

Cingular gyrus and pericallosal artery herniate in subfalcine herniation leading to leg weakness.

Ref page number 2854 YOUMAN'S 7th edition.

41. Which among the following is best in identifying CSF?

- A. B2 transferrin
- B. Glucose concentration
- C. Chloride concentration
- D. All of the above

Answer: A

Beta 2 transferrin. It is exclusively found only in CSF, perilymph and vitreous. It is important to identify penetrating eye injuries before interpreting results.

Ref page number 2982 YOUMAN'S 7th edition.

42. The risk of meningitis in untreated CSF rhinorrhea is

- A. 15%
- B. 25%
- C. 35%
- D. 55%



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Answer: B

Ref page number 2984 YOUMAN'S 7th edition.

43. A 20 year old male is brought to emergency department with a head injury. On examination, his GCS is 8/15. E2V2M4. Pupils are displayed on left side and reacting on right side. What is his GCS P score?

- A. 9
- B. 8
- C. 7
- D. 6

Answer: C

GCS P score is GCS - NUMBER OF ABNORMAL PUPILS.

Score ranges between 1-15.

44. A 30 year old male is brought to emergency department with a head injury. On examination, he is not opening his eyes to pain. Local examination reveals no interfering factors to restrict eye opening. He's groaning to pain.

On giving pressure to trapezius, he's localising pain.

What is his GCS?

- A. 7/15
- B. 7NT/15
- C. 8/15
- D. 8NT/15

ANSWER: C.

E1V2M5. 8/15.

If there were a factor interfering with eye opening of verbal response or motor response, then we don't add 1 to the score but just substitute it with NT.



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For example, if the same patient had a orbit injury restricting his eye opening, then instead of E1, we just use E NT(NON TESTABLE). Hence, score would be E NT V2 M5 = 7NT/15.

45. Incidence of multiple aneurysms is

- A. 5-10%
- B. 15-20%
- C. 25-30%
- D. 50%

Answer: B

Ref page number 3215 YOUMAN'S 7th edition.

46. Which among the following locations has the highest mortality at 6 months?

- A. Anterior communicating Artery
- B. Anterior Cerebral Artery
- C. Middle Cerebral Artery
- D. Vertebral- Basilar artery

Answer: D

Mortality of 60.9% is associated with VBA.

Ref page number 3218 YOUMAN'S 7th edition.

47. The size cut off to call blister aneurysms or microaneurysm is

- A. 3mm
- B. 5mm
- C. 3cm
- D. 5cm

Answer: A

Ref page number 3246 YOUMAN'S 7th edition.



48. Gold standard investigation of spontaneous SAH is

- A. CT angiography
- B. MR angiography
- C. Digital subtraction angiography
- D. Plain CT

Answer: C

Ref page number 3262 YOUMAN'S 7th edition.

Despite the increased use of CT Angiography for diagnosing cause of SAH, DSA is still considered to be the gold standard in investigating the cause of SAH.

49. Which among the following is not a clinical grading scale for Aneurysmal SAH?

- A. BOTTERELL scale
- B. HUNT HESS scale
- C. FISHER scale
- D. WFNS grading

Answer: C Youmans 7th edition

Fisher and modified fisher are grading scale based on CT for vasospasm.

50. Based on Simpson grading system, the operating Neurosurgeon had completely excised the tumor macroscopically with coagulation of its Dural attachment. What grade does it belong to?

- A. 1
- B. 2
- C. 3
- D. 4

Answer: B Youmans 7th edition

1 complete tumor removal with removal of involved Dura

2 complete tumor removal with cauterization of involved Dura

3 complete tumor removal without addressing the dura

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- 4 subtotal excision
- 5 biopsy of the lesion

51. Which among the following areas is responsible for conjugate movement of eye?

- A. Area 3
- B. Area 4
- C. Area 8
- D. Area 17

Answer: C

- 3 primary sensory area
- 4 primary motor cortex
- 8 frontal eye field responsible for conjugate movement of eye
- 17 primary visual cortex.

Ref page number 284 Snell's 8th edition.

52. Middle meningeal artery passes through

- A. F.ovale
- B. F.rotundum
- C. F.Lacerum
- D. F.spinosum

Answer: D

- F.ovale - mandibular division of trigeminal nerve
- F.rotundum - maxillary division of trigeminal nerve
- F.lacerum - ICA
- F. SPINOSUM - Middle meningeal artery

Ref page number 195 Snell's 8th edition.

53. Which among the following is a projection fiber?



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- A. Corpus callosum
- B. Internal capsule
- C. Uncinate fasciculus
- D. Habenular commissure

Answer: B

Projection fibers connect higher cortical centers to spinal cord. The best example is internal capsule.

Commissural fibers connect to the identical areas of the contralateral side. The largest commissural fiber is Corpus callosum.

Association fibers connect different parts of the brain on the same side. Example is arcuate fasciculus, uncinate fasciculus.

Ref page number 265 Snell's 8th edition.

54. Myelination of CNS is done by

- A. Schwann cells
- B. Oligodendrocytes
- C. Astrocytes
- D. Both A and B

Answer: B

Schwann cells myelinate PNS

Oligodendrocytes myelinate CNS

Ref page number 58 Snell's 8th edition.

55. RMP of a neuron is

- A. -40mV
- B. -60mV
- C. -80mV
- D. -100mV

Answer: C

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Ref page number 45 Snell's 8th edition.

56. Superior sagittal sinus continues as

- A. Straight sinus
- B. Inferior sagittal sinus
- C. Right transverse sinus
- D. Left transverse sinus

Answer: C

Ref page number 75 gray's Neuroanatomy.

57. Which among the following is referred to as leptomeninges

- A. Dura and arachnoid
- B. Arachnoid and pia
- C. Dura
- D. Arachnoid

Answer: B

Arachnoid and Pia are referred to as leptomeninges.

58. Volume of CSF contained in the ventricles is

- A. 150ml
- B. 100ml
- C. 75ml
- D. 25ml

Answer: D

The total volume of CSF in any given time is 150ml, 125ml is intracranial - of which only 25ml are within the ventricles and 100ml in the SUBARACHNOID space.

Ref page number 89 gray's Neuroanatomy.



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59. A 30 year old male presents with sudden onset speech difficulty. He's able to understand your questions. But his speech is severely restricted to only a few words. He's not able to repeat after you. What type of aphasia is he suffering from?

- A. Wernicke's aphasia
- B. Broca's aphasia
- C. Transcortical motor aphasia
- D. Transcortical sensory aphasia

Answer B

This is the classical example of Broca's aphasia.

Where speech is telegraphed.

Patient is able to understand the speech (comprehend).

But is unable to deliver adequate words due to a lesion in the inferior frontal lobe.

Ref Table 9.2 Dejong's 8th edition

60. A 25 year old male presents with headache that is disturbing his daily activity. There no other neurological complaint or deficit.

Imaging shows a 5cm large AVM over the right motor cortex with the draining vein being the superficial middle Cerebral vein.

What is his spetzler Martin grading?

- A. 2
- B. 3
- C. 4
- D. 5

Answer: B

Size less than 3cm 1 point

Size between 3-6cm 2 points

Size larger than 6cm 3 points

Draining into deep venous system 1 point

Eloquent cortex involvement 1 point

Here, $2+0+1=3$.

Ref page number 3469 YOUMAN'S 7th edition.

Date- Nov 1st 2020

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28



61. Which among the following part of the brain gives rise to acetylcholinergic projection?

- A. Basal fore brain
- B. Locus ceruleus
- C. Midbrain raphe nuclei
- D. Ventral midbrain

Answer Option A

Ref Snell's Neuroanatomy

Basal forebrain - cholinergic

Locus ceruleus - noradrenergic

Midbrain raphe nuclei - serotonergic

Posterior hypothalamus - Histaminergic

Ventral midbrain {red nucleus} - dopaminergic

62. What is the normal height of posterior fossa?

- A. 30 mm
- B. 40 mm
- C. 50 mm
- D. 60 mm

Answer Option B

Ref 7th edition Youmans

63. Cranial settling is seen in?

- A. Chiari 1 malformation
- B. Rickets
- C. Rheumatoid arthritis
- D. Achondroplasia

Answer Option B

Cranial settling is typically associated with settling of the odontoid process into the skull base.

Reference Youmans 7th edition



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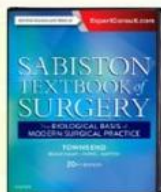
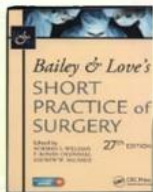
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64. The line connecting posterior edge of the hard palate to the most caudal point of the occipital curve is referred to as?

- A. Chamberlain's line
- B. McRae's line
- C. McGregor's line
- D. Klause index

Answer Option C

65. All are true about conus syndrome except

- A. Begins at the level of lower 3 sacral and coccygeal segments
- B. Absent knee and ankle jerks
- C. Flexor plantar reflex
- D. Saddle anesthesia

Answer Option B

S2-coccyx cord segments are called as conus medullaris. Lies at L1 vertebral level.
Only ankle jerk is lost.
Since it is LMN lesion, plantar is flexor.
Saddle anesthesia is symmetrical bilaterally.

Reference Dejong 6th edition

66. According to Collin's law, the risk of tumor recurrence for a patient presenting at the age of 2 years with medulloblastoma is within ___?

- A. 32 months
- B. 33 months
- C. 34 months
- D. 35 months

Answer Option B

Collin's law is to predict the risk of tumor recurrence.
Age at the time of diagnosis in months + 9 is Collin's law.

$$2 \times 12 + 9 = 33$$

67. Brain tumor responsible for highest risk of DVT and Pulmonary embolism is:

- A. Meningioma
- B. Malignant glioma
- C. Metastasis
- D. Medulloblastoma

Answer Option A meningioma

DVT risk in meningioma 72%

Glioma 60%

Mets 20%

Venous thromboembolism (VTE), including deep vein thrombosis (DVT) and pulmonary embolism (PE), is the most common overall complication in meningioma surgery and is fatal in up to 34% of subjects. The VTE risk is three times higher in meningioma patients than in patients with other brain tumors, such as gliomas or brain metastases.

The incidence of VTE in meningioma was shown to be as high as 72% using sensitive methods such as 125I-fibrinogen-uptake tests. Several factors explaining this high incidence of VTE have been discussed in the past. The observed hypercoagulable state may be tumor induced

Brain surgery releases brain thromboplastin, altering the coagulative state. Immobilization, due to intraoperative muscle relaxation, surgery of long duration or preoperative tumor-related muscle weakness of the lower extremities, results in a venous stasis that can be aggravated by postoperative bed rest. Furthermore, the perioperative use of high-dose steroids as a treatment for tumor-induced vasogenic brain edema was reported as another contributing factor.

68. Which among the following anti epileptic drugs is an NMDA antagonist?

- A. Topiramate
- B. Felbamate
- C. Valproate
- D. Levitiracetam

Ans B

Felbamate is a NMDA antagonist.

Decreases slow excitatory neurotransmission

Decreases excitatory amino acid neurotoxicity

delay epileptogenesis

Date- Nov 1st 2020



RRM'S NEET SS NEUROSURGERY –AIIMS MOCK EXAM

Reference Youmans 7th edition

69. Therapeutic index of phenytoin is ____ microgram/mL

- A. 0-10
- B. 10-20
- C. 20-30
- D. 30-40

Answer option B

Reference Youmans 7th edition

70. Which of the following is not a feature of extramedullary tumour?

- a. Early corticospinal signs
- b. Root pain
- c. Abnormal CSF findings
- d. Sacral sparing

Answer Option D

A. Early UMN signs because, it is extra dural. At the level you get LMN. Below that due to compression, you get UMN.

B. ROOT PAIN is nothing but radicular pain. Seen in NF, SCHWANNOMA

C. You can get abnormal csf finding especially elevated protein count.

C-T-L-S (pneumonic for order of laminations of tracts in spinal cord)

In intramedullary, medial most fibers would be compressed resulting in sacral sparing.

In extra medullary lesions, sacral fibers being lateral will be compressed first.

So you can't get sacral sparing!!

71. Which of the following tumour is associated with Tuberous sclerosis

- A) Pilocytic Astrocytoma
- B) Pleomorphic Astrocytoma
- C) Subependymal giant cell astrocytoma
- D) Diffuse Astrocytoma

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Answer option C

Subependymal giant cell astrocytoma are WHO grade 1 tumors that are associated with tuberous sclerosis.

72. Which among the following is not true regarding melatonin?

- A. Secretion from pineal gland is influenced by environmental factors like light.
- B. Induces skin pigmentation.
- C. Suppresses ovarian function.
- D. Regulates biological rhythms.

Answer option B

Ref. Youmans 7th edition

73. Ependymoma is immunoreactive to

- A. GFAP
- B. S-100
- C. Vimentin
- D. All of the above

Answer Option D

All of the above are immunoreactive to Ependymoma.

IHC markers!!!

74. Name the structure which straddles posterior to sylvian fissure.

- A. Angular gyrus
- B. Supramarginal gyrus
- C. Superior temporal gyrus
- D. Superior parietal lobule

Answer option B

Supramarginal gyrus straddles posterior to the Sylvian fissure.

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Lesions here the to result in Alexia especially in the dominant lobe.

75. Normal cerebral blood flow is

- A. 50 mL/100mg/min
- B. 50 mL/100g/min
- C. 50 mL/mg/min
- D. 50 mL/g/min

Answer option B

Ref Youmans 7th edition

Normal cerebral blood flow is 50-60mL/100g/min.



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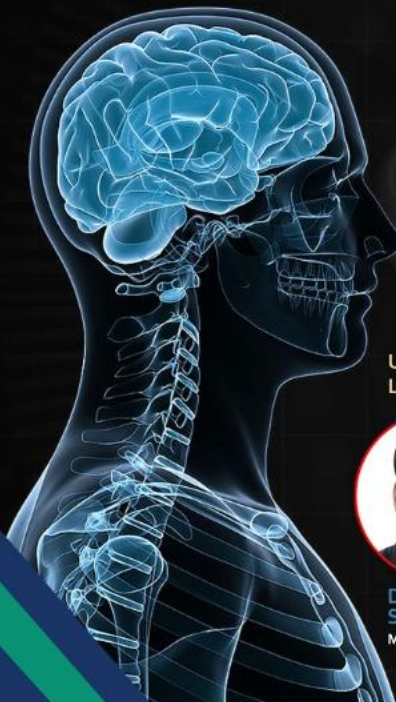


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76. Which cranial nerve exits the brainstem between the pyramid and the olive?

- A. CN IX
- B. CN X
- C. CN XI
- D. CN XII

Answer option D

Hypoglossal nerve exits between the pyramid and the olive.

77. Grestmann's syndrome includes all except

- A. Agraphia without Alexia
- B. Right left confusion
- C. Finger agnosia
- D. Astereognosis

Answer option D.

Acalculia along with agraphia, right left confusion and finger agnosia are components of grestmann's syndrome.

Seen in leisons involving the dominant parietal lobe.

78. Peg like tonsils are seen in

- A. Chiari 1 malformation
- B. Chiari 2 malformation
- C. Dandy walker malformation
- D. Aqueductal stenosis

Answer option A

Peg like tonsils are a feature of chiari 1 malformation.

79. Which among the following is not associated with disc prolapse?

- A. Endplate changes
- B. Enhancement of nerve roots
- C. Epidural hematoma
- D. T2 hyperintensities within the disc



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Answer option D

The disc loses its water content and becomes hypointense in T2 MRI.

80. Most common complication of aneurysmal SAH is

- A Rebleed
- B Hydrocephalus
- C vasospasm
- D Electrolyte Imbalance

Answer option A

Reference Youmans 7th edition

Most common complication after aneurysmal SAH rebleed.

81. Most common cause of morbidity after clipping aneurysm in SAH

- A Rebleed
- B Hydrocephalus
- C vasospasm
- D Electrolyte Imbalance

Answer option C.

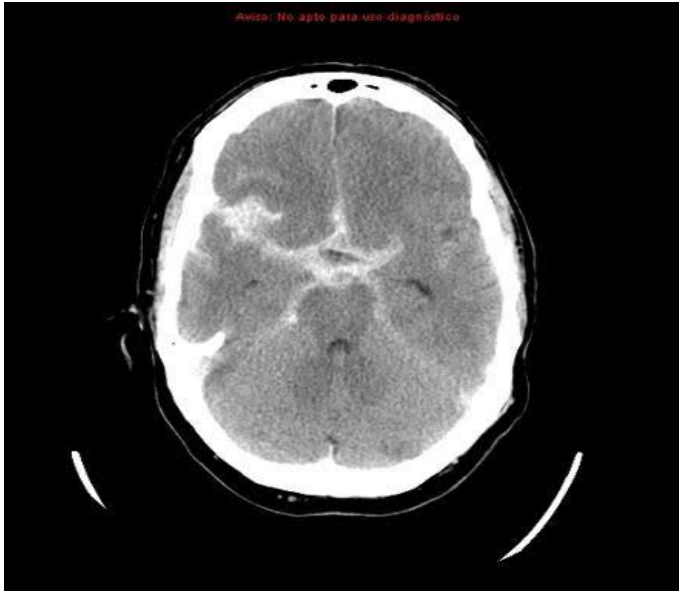
Reference Youmans 7th edition

Vasospasm leads to delayed neurological deficits and it's the most common cause of morbidity after clipping an aneurysm.

A 52 year old female with H/O migraine and hypertension presents to emergency room with a different onset severe headache which is unlike her usual migraines. The headache started while she was exercising 4 hours ago. Bright light makes her headache worse. She walked into the ER awake and alert. But gradually she's becoming drowsy. On examination, her vitals are stable. Temperature is 100.7 F. She's lethargic, but opens eye to pain and is minimally verbal. Cranial nerve examination is normal. She follows commands with all 4 extremities which are all anti gravity and symmetric. Her neck had limited range of movement due to pain. CT image shows as given below.



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82. What is her clinical grade based on Hunt and Hess grading system?

- A. 1
- B. 2
- C. 3
- D. 4

Answer option C

Ref Youmans 7th edition

The image shows clot thickness more than 1mm with no IVH hence grade 3



Table 6.2 Hunt and Hess criteria

Grade	Criteria	Mortality (%)
1	Asymptomatic or minimal head-ache with slight nuchal rigidity	11
2	Moderate to severe headache, nuchal rigidity, no neurological deficit other than cranial nerve palsy	26
3	Drowsy, confused, mild focal deficit	37
4	Stupor, moderate to severe hemiparesis	71
5	Deep coma, decerebrate rigidity	100

83. What is clinal grade based on WFNS grading system?

- A. 1
- B. 2
- C. 3
- D. 4

Answer Option C

Ref Youmans 7th edition

84. Based on the CT image, what is the modified Fischer grading?

- A. 1
- B. 2
- C. 3
- D. 4

Answer Option C

Ref Youmans 7th edition

**Table 6.3** Fisher scale

Grade	Head computed tomography (CT) findings
1	No subarachnoid hemorrhage (SAH) seen on CT of the head
2	Diffuse SAH with layers of blood < 1 mm
3	Diffuse SAH with layers of blood > 1 mm
4	Intraventricular hemorrhage or IPH

85. Based on the image, what is the most probable location of aneurysm?

- A. A com A
- B. DACA
- C. MCA
- D. ICA - Pcom junction

Answer Option A
Ref Youmans 7th edition

DACA usually present as frontal hematoma

MCA aneurysms present as SAH in Sylvian fissure

ICA-Pcom aneurysm present as SAH usually on the same side in the basal cisterns

Acom aneurysm presents as SAH in suprasellar cistern.

86. Which of the following increases the chances that a patient with headache has SAH, according to Ottawa SAH rule?

- A. Age >60 years
- B. Witnessed seizure
- C. Limited neck flexion
- D. Smoking history



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Answer Option C

Ref Youmans 7th edition

Ottawa SAH Rule

- Age > 40 years
- Neck pain or stiffness
- Witnessed loss of consciousness
- Onset during exertion
- Thunderclap headache
- Limited neck flexion on exam

87. The following statements is true regarding medical management of vasospasm.

- A. Oral nimodipine is administered prophylactically.
- B. Cerebral perfusion is augmented through hypervolemia and the avoidance of hypertension.
- C. Intracisternal thrombolysis and oral statins are useful.
- D. The infusion of i.v phosphorus may be beneficial in prevention of symptomatic vasospasm.

Answer Option A

Ref Youmans 7th edition

88. Which among the following patient factors increases the risk of vasospasm?

- A. HIGH because of Distribution of SAH
- B. Low because of female gender
- C. Not more than 15%
- D. Directly related to aneurysm location



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Answer Option A

Ref Youmans 7th edition

Thick SAH is the single most important predictive feature of vasospasm.

89. Which among the following is not a component of HHH regimen?

- A. Hypertension
- B. Hyperventillation
- C. Hypervolemia
- D. Hemodilution

Answer Option B

Ref Youmans 7th edition

Hyperventilation is not a component of triple H Therapy.

90. All except which of the following favor microsurgical over endovascular treatment of a ruptured cerebral aneurysm?

- A. A 5mm Pcom artery aneurysm with a neck that incorporates the origin of fetal PCA
- B. Presence of ipsilateral hematoma
- C. A giant MCQ aneurysm that is partially thrombosed
- D. A patient multiple medical comorbidities

Answer Option D

Ref Youmans 7th edition

91. Which of the following represents a clinical scenario in which SAH had been successfully ruled out?

- A. Negative non contrast head CT and reassuring physical examination
- B. Negative brain MRI and LP with visually clear CSF
- C. Negative CT angiogram and LP with CSF having stable red cell counts over 4 tubes
- D. Negative non contrast head CT and LP with CSF having diminishing red cell counts over 4 tubes and no xanthochromia



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Answer Option D

Ref Youmans 7th edition

Negative CT WITH progressively decreasing red cell counts in successive tubes and no xanthochromia essentially rules out SAH.

92. Which among the following is true regarding PNETs in children?

- A. More common supratentorially.
- B. Role of surgery is limited to biopsy and management of hydrocephalus.
- C. All PNETs are biologically aggressive and tend to spread through CSF pathways.
- D. Grossly PNETs are poorly circumscribed lesions that infiltrate the surrounding parenchyma.

Answer Option C

Ref Youmans 7th edition

93. Most appropriate management strategy for these medulloblastoma is

- A. Stereotactic biopsy followed by SRS to tumor bed.
- B. Biopsy of the lesion followed by Chemotherapy with follow up imaging and RT to tumor site if lesion persists.
- C. Aggressive resection of lesion followed by fractionated radiation to both tumor bed and cranio spinal axis followed by Chemotherapy.
- D. Resection followed by MRI follow ups

Answer Option C

Ref Youmans 7th edition

94. When compared to infratentorial PNETs, supratentorial PNETs:

- A. Have a more favorable prognosis.
- B. Are more rare.
- C. Have recurrence almost always at the primary tumor site.
- D. Are more common in older children.

Answer Option B

Ref Youmans 7th edition



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95. Medulloblastomas represent ___ % of primary brain tumors in pediatric population?

- A. 5-10
- B. 15-30
- C. 50
- D 70-80

Answer Option B

Ref Youmans 7th edition

96. Which among the following is the most common cytogenetic anomaly associated with medulloblastoma?

- A. Amplification of the gene encoding p53
- B. Amplification of beta catenin gene
- C. Suppression of c-myc gene
- D. Deletions on short arm of Ch 17

Answer Option D

Ref Youmans 7th edition

97. A child found to have posterior fossa medulloblastoma presents with multiple skeletal abnormalities and cutaneous lesions including basal cell carcinoma and dyskeratosis. What is the most likely diagnosis of this patient?

- A. Turcot syndrome
- B. Gorlin syndrome
- C. Li Fraumeni syndrome
- D. NF 1

Answer Option B

Ref Youmans 7th edition

Primitive neuroectodermal tumors (PNETs) are often classified based on their location above or below the tentorium cerebelli. Those located below the tentorium are medulloblastomas, whereas those that are above are known simply as supratentorial PNETs (sPNETs). Some further subclassify



RRM'S NEET SS NEUROSURGERY –AIIMS MOCK EXAM

sPNETs into cerebral (previously known as cerebral neuroblastoma) and pineal, which is known as a pineoblastoma.

sPNETs are rare, malignant neoplasms that represent approximately 2.5 to 6% of all pediatric primary brain tumors and usually present in children < 5 years of age. They are rapidly growing, aggressive tumors that historically have a worse prognosis than their infratentorial counterparts, with 5-year survival rates ranging from 30 to 75%.

Medulloblastomas, on the other hand, account for 15 to 30% of all brain tumors in children and 30 to 55% of posterior fossa tumors in children. The median age at diagnosis is 5 to 7. Overall, the 5-year survival rates for children with average-risk disease and high-risk disease are 70 to 80% and 60 to 65%, respectively.

Based on the image of a patient who meet with a RTA and CT imaging showing a L3 fracture, answer the following questions.

98. Which among the following pathogens cause the most fulminant of the CNS infections

- A. Candida
- B. Aspergillus
- C. Mucorales
- D. Scedosporium

Answer: Option C (ref page no: e189)

CNS disease from Mucorales esp mucormycosis occurs as a result of direct extension from infected sinus, direct trauma or hematogenous dissemination.

99. The patient had been placed in a cervical collar at the scene of accident. According to the NEXUS criteria, which among the following is an indication for radiographic assessment?

- A. Age more than 65
- B. Delayed onset neck pain
- C. Painful distraction injury
- D. Sitting position in emergency room

Answer Option C

Ref Youmans 7th edition

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The National Emergency X-Radiography Utilization Study (NEXUS) identified five criteria that need to be met to determine a low probability of injury.

Patients with no midline cervical tenderness, no focal neurological deficit, normal alertness, no intoxication, and no painful distracting injury are determined to have a low probability for injury, and therefore may not require cervical spine radiography.

100. The recommended initial imaging modality for evaluation of potential acute cervical spine injury is?

- A. 3 view cervical spine
- B. Non contrast MRI C spine
- C. Xray C spine flexion and extension
- D. Non contrast CT C spine

Answer Option D

Ref Youmans 7th edition

THE MOST IMPORTANT IMAGING MODALITY TO RULE OUT CERVICAL SPINE INJURY IS CT CERVICAL SPINE.