

Top 30 Neurosurgery Concepts

1. HEAD INJURY & ICP

Concept	Exam Pearl / Clinical Scenario
1. Extradural Hematoma (EDH)	Lucid Interval. Middle Meningeal Artery. Biconvex/Lens shape (Lemon). Pterion fracture.
2. Subdural Hematoma (SDH)	Elderly/Alcoholics. Bridging Veins. Crescent shape (Banana). Crosses suture lines.
3. Cushing's Triad	Sign of Raised ICP (impending herniation): Hypertension + Bradycardia + Irregular Respiration.
4. Uncal Herniation	Ipsilateral Dilated Pupil (CN III) + Contralateral Hemiparesis.
5. Basal Skull Fracture	Raccoon Eyes, Battle's Sign (Mastoid), CSF Rhinorrhea. NG Tube Contraindicated!
6. Diffuse Axonal Injury (DAI)	Comatose patient with Normal CT (or tiny hemorrhages). History of high-speed deceleration.
7. Management of ICP	Head up 30°. Mannitol (Osmotic diuretic). Hyperventilation (vasoconstriction).
8. Glasgow Coma Scale (GCS)	E4, V5, M6. Total 15. Coma = 8 or less ("GCS 8, Intubate"). Decorticate (Flexion)=3, Decerebrate (Extension)=2.

2. BRAIN TUMORS (ICSOL)

Concept	Exam Pearl / Clinical Scenario
9. Glioblastoma (GBM)	Most common adult malignant. Butterfly Glioma (crosses midline). Ring enhancement. Poor prognosis.
10. Meningioma	Benign. Extra-axial. Dural Tail sign on MRI. Psammoma bodies.
11. Pituitary Adenoma	Bitemporal Hemianopsia (Tunnel vision). Prolactinoma = Galactorrhea/Amenorrhea.
12. Acoustic Neuroma	CP Angle tumor. Unilateral hearing loss + Tinnitus + Corneal reflex loss (CN V).
13. Metastasis	Most common brain tumor overall. Multiple lesions at Grey-White Junction . Lung/Breast origin.
14. Medulloblastoma	Pediatric. Midline Cerebellum. Ataxia/Falls. "Drop mets" to spine.
15. Craniopharyngioma	Suprasellar. Calcified on CT. Growth retardation/Vision loss in child.
16. Brain Abscess	Triad: Headache + Fever + Focal Deficit. Ring enhancing. Source: CSOM (Temporal lobe).

3. SPINE & VASCULAR

Concept	Exam Pearl / Clinical Scenario
17. Subarachnoid Hemorrhage	"Thunderclap Headache". Ruptured Berry Aneurysm. Xanthochromia. Vasospasm risk (Nimodipine).
18. PCOM Aneurysm	Posterior Communicating Artery. Presents with Painful CN III Palsy (Ptosis + Dilated Pupil).
19. Cauda Equina Syndrome	Surgical Emergency. Saddle anesthesia + Urinary retention/incontinence + Bilateral leg pain.
20. Disc Herniation Levels	L4/L5 Disc: Compresses L5 Root (Foot Drop/Dorsiflexion weak). L5/S1 Disc: Compresses S1 Root (Ankle Jerk lost/Plantarflexion weak).
21. Syringomyelia	Cape-like loss of Pain/Temp. Dissociated sensory loss. Associated with Chiari I.
22. Pott's Disease	TB Spine. Gibbus deformity (Kyphosis). Cold Abscess. Paraplegia.
23. Brown-Sequard	Hemisection. Ipsilateral Motor/Proprioception loss. Contralateral Pain/Temp loss.
24. Anterior Cord Syndrome	Loss of Motor + Pain/Temp. Proprioception Preserved. (Vascular cause).

4. PEDIATRIC & MISCELLANEOUS

Concept	Exam Pearl / Clinical Scenario
25. Hydrocephalus	"Sun-setting" eyes. Bulging fontanelle. Dilated veins. Rx: VP Shunt.
26. Normal Pressure Hydrocephalus	Triad: Wet (Incontinence) + Wobbly (Gait) + Wacky (Dementia). Reversible.
27. Neural Tube Defects	Folic acid deficiency. Elevated Alpha-Fetoprotein (AFP). Meningomyelocele (Spinal cord in sac).
28. VP Shunt Infection	Fever + Headache + Abdominal pain (Peritonitis). Commonest organism: Staph Epidermidis.
29. Neurogenic Shock	High spinal injury. Hypotension + Bradycardia (Loss of sympathetic tone). Warm skin.
30. Spinal Shock	Temporary loss of all reflexes below injury. Flaccid paralysis. Bulbocavernosus reflex return marks end.