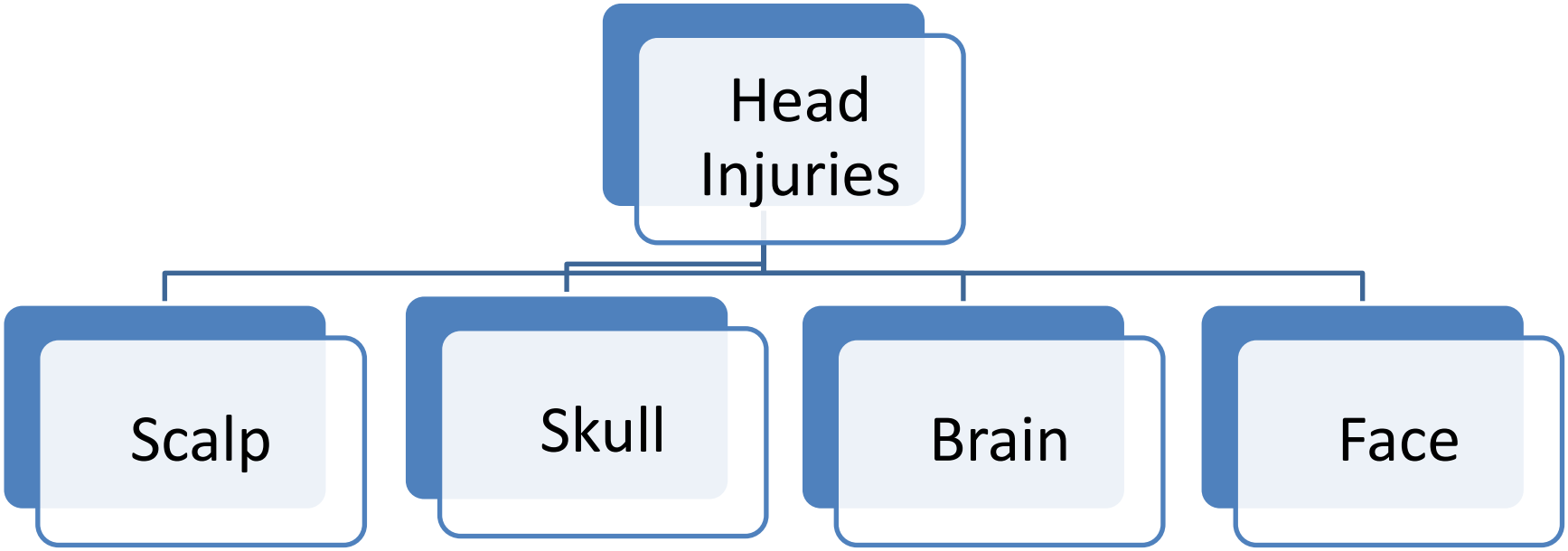
REGIONAL INJURIES

- Dr Kalpesh Zanzrukiya

In this session

- Head injuries
  - Scalp injuries
  - Face injuries
  - Skull Fractures
  - Brain injuries
- Vertebra & Spinal cord injuries
- Chest injuries
- Abdomen injuries
- Genital injuries
- Limb injuries


Head Injuries
Scalp
Skull
Brain
Face

- SCALP
  - Contusions
    - Scalp hematoma – Temporal, Perimustoid hematoma(Battle's sign)
  - Lacerations

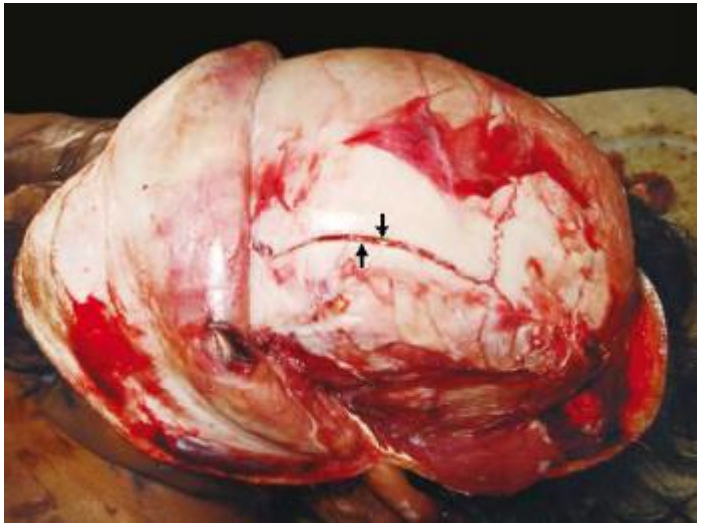
- FACE
  - Eyes – periorbital contusion (Target sign, Racoon eye)
  - Nose
  - Ears
  - Mouth & Teeth
  - Facial bones, sinuses

SKULL FRACTURES

- Mechanism
  1) Local deformation due to localised impact
  2) General deformation – skull compression between two surfaces/objects

Types of skull fractures

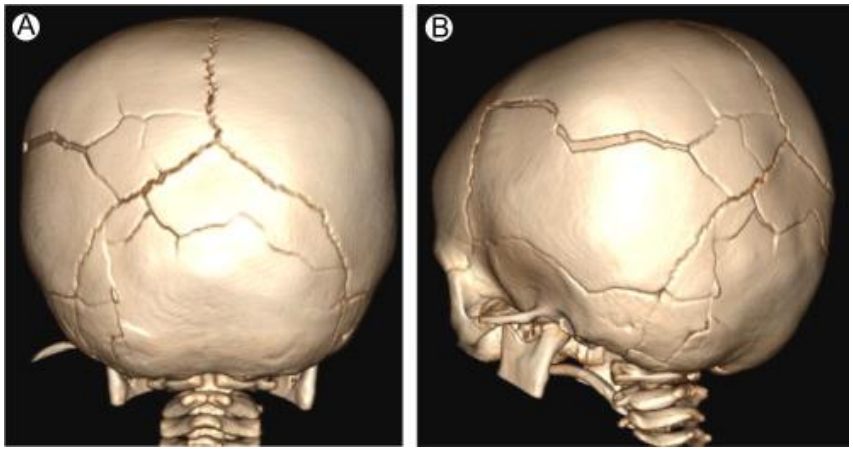
Fissured/ linear fracture



Depressed fracture

(Signature fracture)

Comminuated fracture



Pond fracture

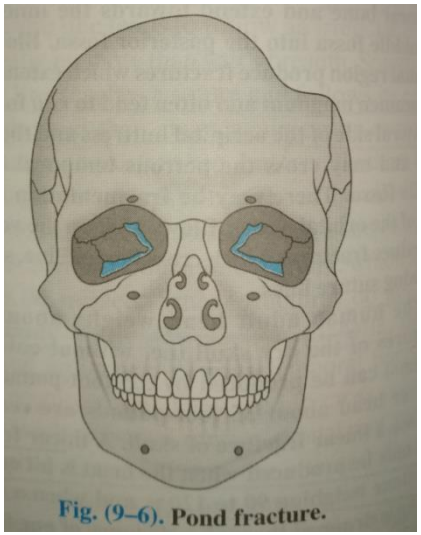
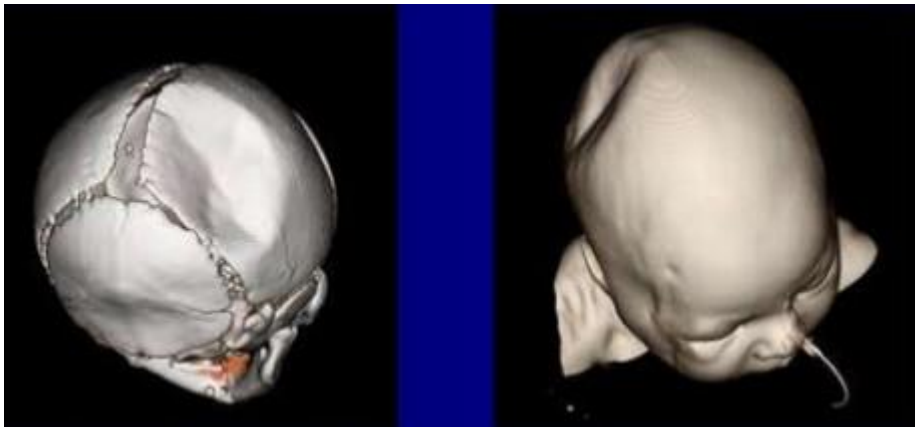
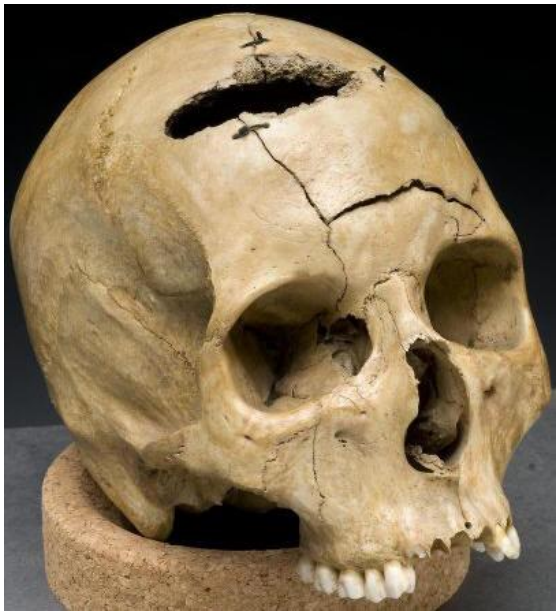


Fig. (9–6). Pond fracture.

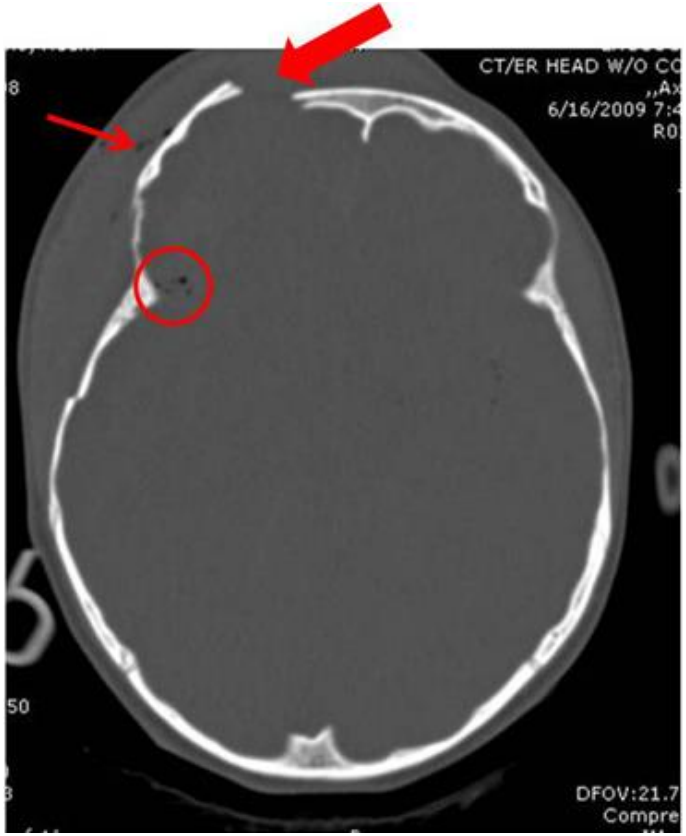


Gutter fracture



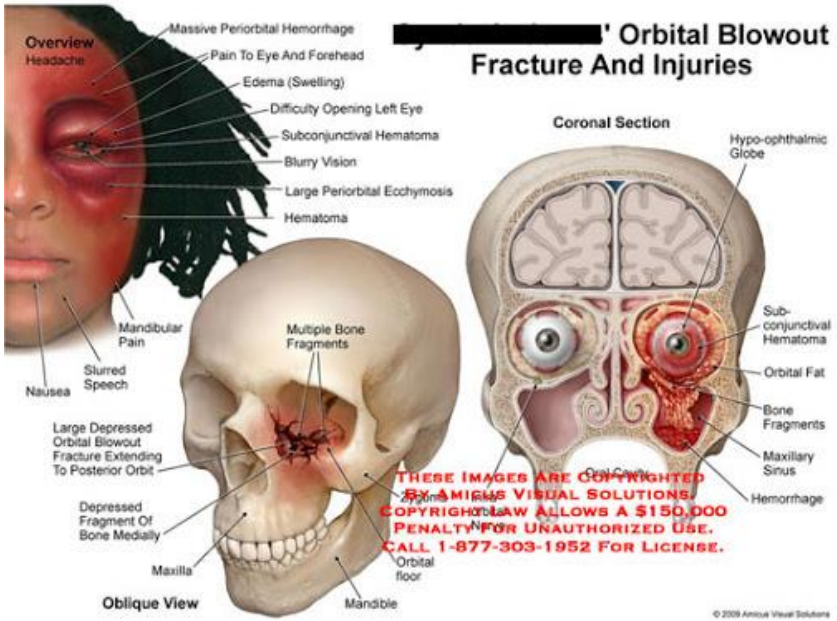
Ring fracture

Elevated fracture



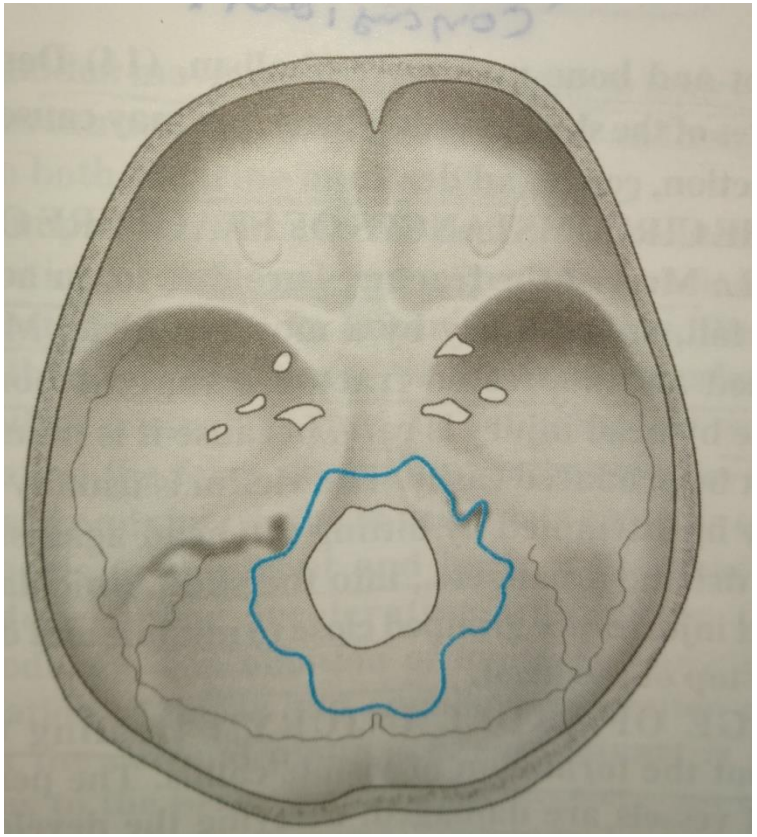
Perforating fracture

Blow out fracture

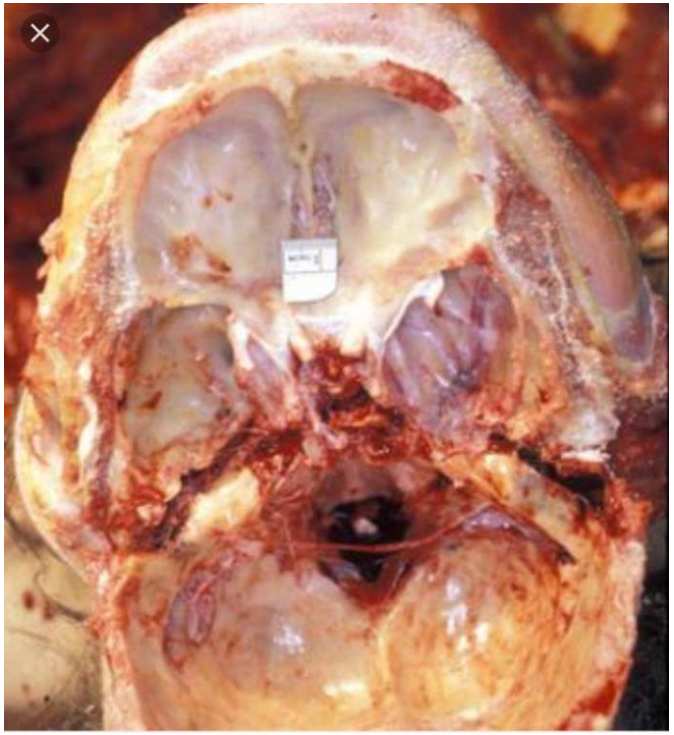


Diastatic/ Sutural fracture

Ring fracture



Hing fracture



Emedicine Medscape

Forensic Neuropathology: Overview, Definitions, Scene Findings

Hinge fracture extending across both middle crania

Anterior cranial fossa fracture

Middle cranial fossa fracture

Posterior cranial fossa fracture

Features & Complications of skull fractures

- Hemosinus
- Pneumatocele
- CSF rhinorrhoea
- Leptomeningitis
- Intracranial hemorrhages
- Embolism – fat/air/bone
- Brain damage, Sudden mass effect over brain ->coma/death

Brain injuries

- Brain Contusion
  - Coup – direct blow injury
  - Contrecoup – Holbourn Postulate – Shear strain
  - Dashboard injury
  - Avulsion injury
- Lacerations
  - Motor vehicle accidents- sudden hyperextension - lacerations at pontomedullary junction & fractures at base of skull and cervical spine
- Concussion
- Brain edema

- CONCUSSION – state of temporary unconsciousness due to head injury
- Mechanism- sudden acceleration/deceleratioin, shear strain, Diffuse Axonal Injuries
- Theories- Diffuse Axonal Injuries, Vasomotor disturbance
- Causes- head injuries
- Clinical features- Immediately after head injury F/b amnesia. Spontaneous recovery
  Lucid interval, automatism
- Concussion V/s Drunk

- Features of brain edema

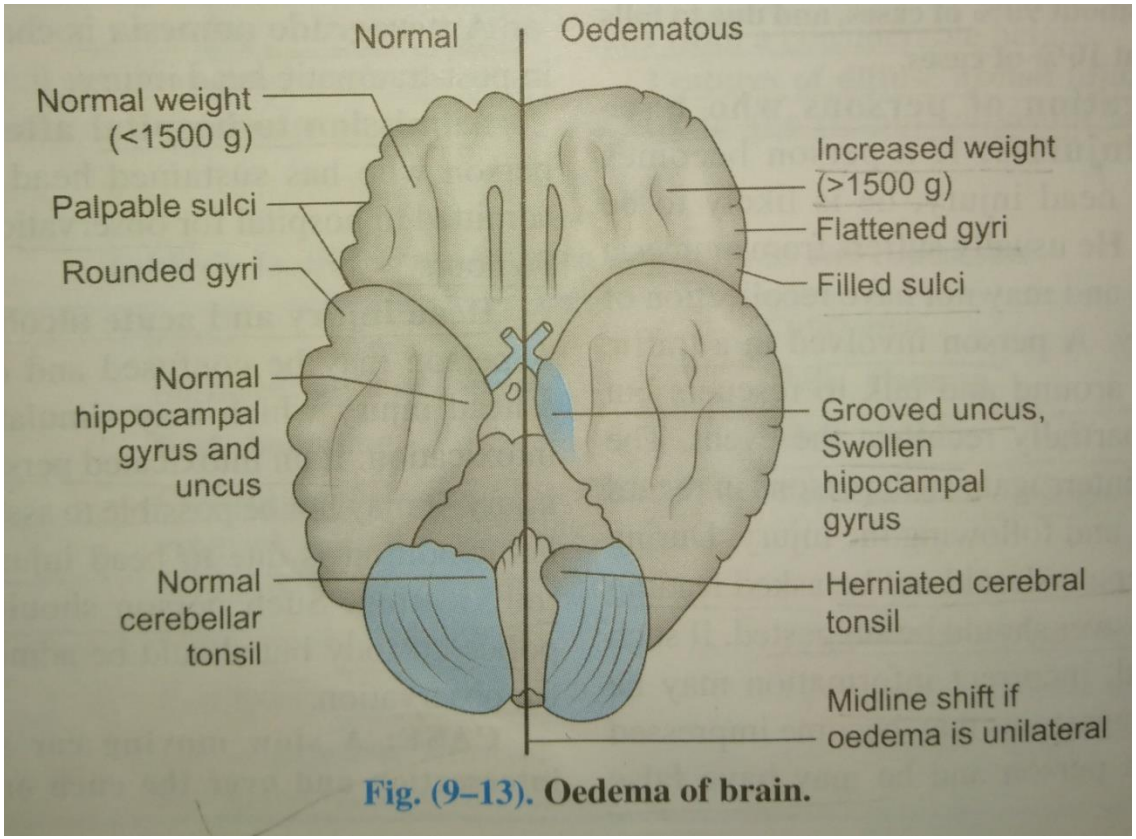


Fig. (9–13). Oedema of brain.

- Brainstem injuries

Intracranial Hemorrhages

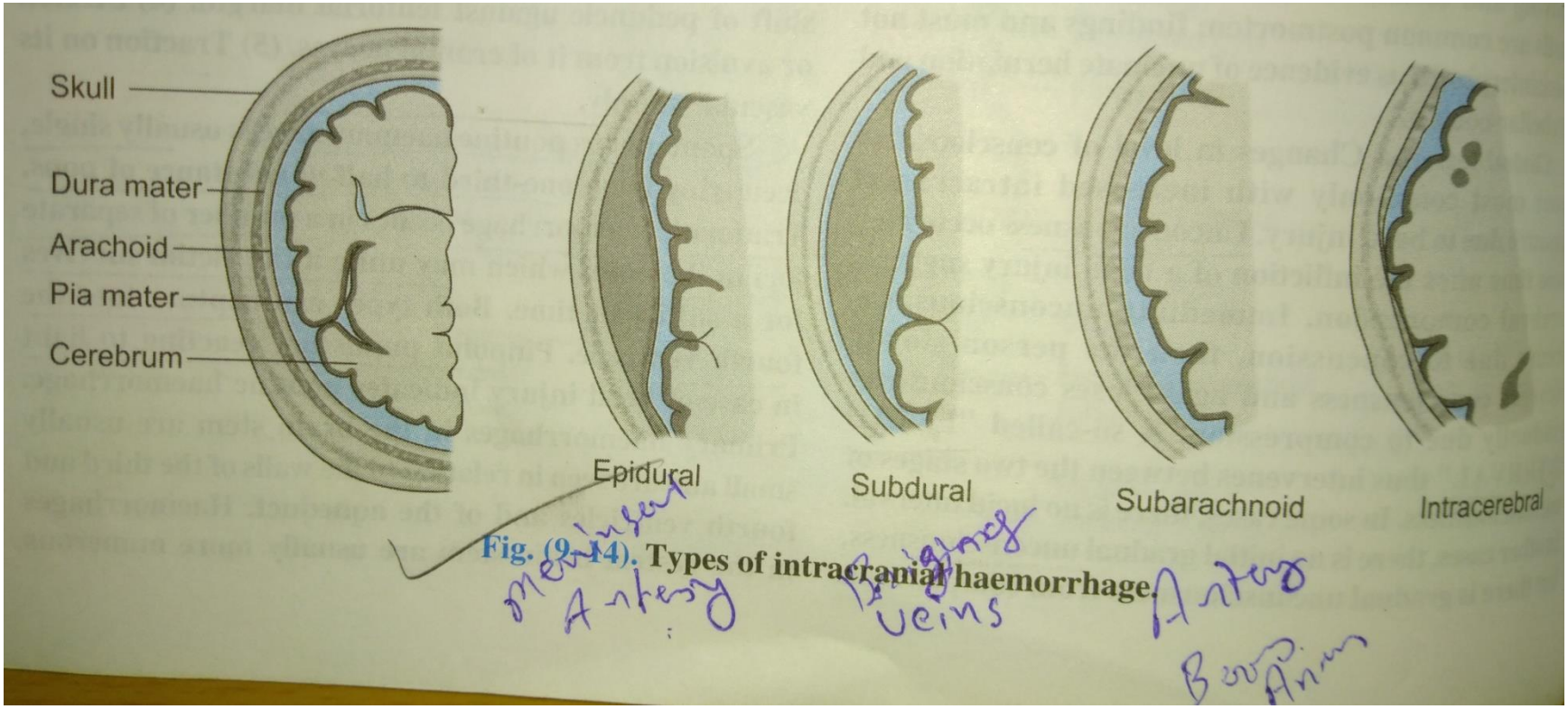
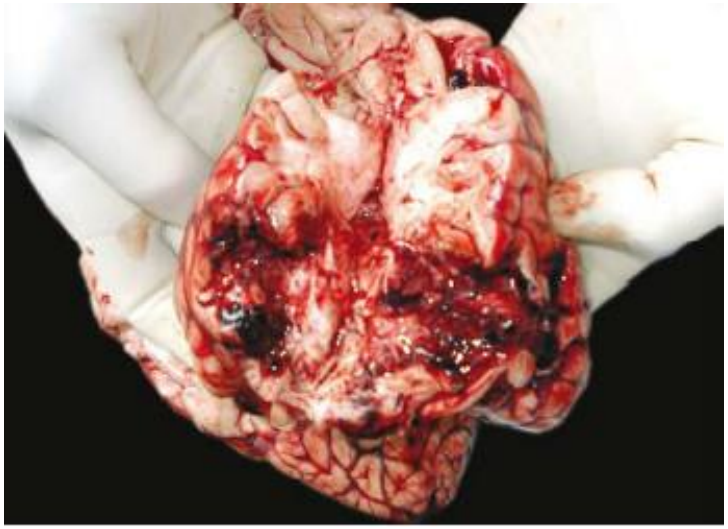


Fig. (9.14). Types of intracranial haemorrhage.



- Death may occur if hemorrhage is about 100-150ml
- Lucid interval

Vertebral column injuries

- Various parts of vertebra – transverse process, spinous process, laminae, pedicles, bodies
- Fall from height – compression type wedge fractures of vertebral bodies(usually T12-L1)
- If injury above level of C4 – instantly fatal – damage to phrenic nerves
- WHIPLASH Injury – Fractures of cervical vertebrae with spinal cord damage due to sudden hyperflexion F/b hyperextension in car accidents
- PITHING – Puncture wound to C1-C3 level spinal cord – instant death due to damage to medullary centres or its neural tracks
- RAILWAY SPINE – severe blow to back in fall injuries, bullet injury – Fracture-dislocation of vertebrae & effusion of blood – compression of spinal cord – temporary paralysis of upper limbs, lower limbs, bladder, rectum; recovery in 48hrs

Chest Injuries

- Closed injuries
- Open injuries – penetrating wounds(stab wounds)
- Fractures of ribs, sternum, thoracic spine
- FLAIL Chest – paradoxical respiration movements
- RS – pleural hemorrhage, effusion, pneumothorax, lung contusions, lacerations, hematoma
- Diaphragm
- CVS – Pericardial hemorrhage, effusion, pneumopericardium, cardiac contusions, concussion(commotio cordis), lacerations, valve ruptures
- Stab wound – right ventricle most commonly wounded
- 200-300ml pericardial hemorrhage

Abdominal Injuries

- Closed injuries
- Open injuries – penetrating wounds(stab wounds)
- Fractures of ribs, Lumber-Sacral spine
- Peritoneal hemorrhage, pneumoperitonium, contusions, lacerations, hematoma, crush injuries, perforations, herniation
- Diaphragm

Genital Injuries

- Male
- Female

Fall injuries

- Alcoholic – fall forwards or on to side
- Convulsions/epilepcy – falls backwards
- Brain Stroke – falls to side of hemiplegia
- Person pushed from front – falls backwards
- Sudden syncope (heart attack) – falls forwards

Reference books

1. The Essentials of FMT by Dr KSN Reddy
2. Forensic Medicine by Dr BK Bastiya
3. Essentials of FMT by Dr A Aggrawal
4. Review of FMT by Dr G Biswas
5. Textbook of FMT by Dr PC Dikshit
6. Textbook of MJFMT by Dr CK Parikh
7. Textbook of FMT by Dr VV Pillay