Types of fractures in skull bone

1. Linear (Break in a cranial bone resembling thin line)
   This is the most common simple type. It is typically in the temporal or parietal area.
2. Basilar (Fracture any bone in base of the skull)
3. Diastatic (Fracture occurs in sutures result in separation of sutures)
   Diastatic fractures occur when there is a separation of the cranial sutures, most commonly with the lambdoid suture.
4. Depressed (Break in cranial bone with depression towards brain)
   This is usually caused by a direct blow to the head and requires a neurosurgical opinion.
   A depressed skull fracture can sometimes be referred to as a ping-pong fracture.

Fractures in skull base

Anterior skull base	Intraorbital injury, 1st Cranial Nerve - Anosmia Nasal cerebrospinal fluid leak
Central skull base	Vascular injury (Intracranial artery occlusion) Cranial Nerve injury (III, IV, V, VI)
Posterolateral skull base	Vascular injury (Intracranial artery occlusion) Cranial Nerve injury (VII, VIII) Mastoid CSF leak
Posterior skull base	Vascular injury – Vertebrobasilar injury Cranial Nerve injury (IX, X, XI, XII) Craniocervical junction & C-Spine injuries.

According to fossa

Anterior fossa	Partial/ Total loss of vision & smell Eye movement defects
Middle fossa	Damage to carotid artery Hearing loss

	Loss of balance Battle sign
Posterior fossa	Vertebral artery injury Cervical spine injury

Head Trauma (Craniocerebral trauma)

- Craniocerebral trauma, often referred to as a traumatic brain injury (TBI), is a type of injury that affects the brain due to a traumatic event.
- It can range from mild to severe and can have a wide range of symptoms and consequences.

Causes:- Traumatic brain injuries can result from various causes, including falls, automobile accidents, sports injuries, workplace accidents, assaults, and more.

Types

- Concussion:- A mild form of TBI often associated with temporary loss of consciousness, confusion, and memory problems.
- Contusion:- A bruise or bleeding within the brain tissue.
- Hematomas:- They are bleeding in and around the brain caused by a rupture to a blood vessel.
- Different types of hematomas form depending on where the blood collects relative to the meninges, the protective membranes surrounding the brain, which consist of three layers: dura mater (outermost), arachnoid mater (middle), and pia mater (innermost).
- Diffuse axonal injury (DAI):- It is one of the most common types of brain injuries, refers to widespread damage to the brain's white matter.
    - White matter is composed of bundles of axons (the projections of nerve cells that carry electrical impulses and connect various areas of the brain to one another).
    - DAI usually results from rotational forces (twisting) or sudden forceful stopping that stretches or tears these axon bundles.
    - This damage commonly occurs in auto accidents, falls, or sports injuries.
    - DAI can disrupt and break down communication among nerve cells (neurons) in the brain.
    - It also leads to the release of brain chemicals that can cause further damage.
    - Brain damage may be temporary or permanent and recovery can be prolonged.

Symptoms:- TBI symptoms can vary but may include headaches, dizziness, confusion, memory problems, mood changes, nausea, vomiting, and loss of consciousness. In severe cases, symptoms can be more profound and include coma or paralysis.

Diagnosis: - Medical professionals typically diagnose TBIs through a combination of physical exams, imaging (like CT scans or MRIs), Glassglow scale, and assessments of cognitive function.

Treatment: - Treatment for a traumatic brain injury depends on its severity.

Mild cases often require rest and symptom management.

- Over-the-counter or prescribed pain medicines
- Anticonvulsant drugs to treat seizures
- Anticoagulants to prevent blood clots
- Diuretics to help reduce fluid buildup and reduce pressure in the brain
- Stimulants to increase alertness
- Antidepressants and anti-anxiety medications to treat depression and feelings of fear and nervousness

Surgical management:-

- Relieving pressure inside the skull (inserting a special catheter through a hole drilled into the skull to drain fluids)
- Removing debris or dead brain tissue (especially for penetrating TBI)
- Removing hematomas
- Repairing skull fractures

Brain tumors

- Brain tumors are abnormal growths of cells in the brain or the surrounding structures.
- They can be benign (non-cancerous) or malignant (cancerous).
- Brain tumors can develop in various parts of the brain (i.e Brain vessles, Lymphatic tissue, Skull, Meninges, Peneal gland, Pitutary gland. and can cause a wide range of symptoms and health effects.

Types of Brain Tumors:

I. Primary Brain Tumors: These tumors originate in the brain or its surrounding tissues. Common types include gliomas (e.g., glioblastoma), meningiomas, pituitary adenomas, and acoustic neuromas.
II. Metastatic Brain Tumor:- These are secondary tumors that have spread (metastasized) to the brain from cancer in other parts of the body. Common primary cancers that can metastasize to the brain include lung, breast, and melanoma.

Symptoms:-

- The symptoms of a brain tumor can vary widely depending on its location and size.
- Common symptoms may include headaches, seizures, changes in vision or hearing, speech difficulties, balance problems, memory issues, personality changes, and weakness in limbs.

Diagnosis:-

- The diagnosis of a brain tumor typically involves a combination of imaging tests, such as CT scans and MRIs, as well as a neurological examination.
- In some cases, a biopsy may be necessary to determine the type and grade of the tumor.

Treatment Options:-

i. **Surgery**:- Surgery is often the primary treatment for brain tumors, especially for tumors that are accessible and can be safely removed without causing significant neurological damage.
ii. **Radiation Therapy**:- Radiation therapy, including external beam radiation and stereotactic radiosurgery, is used to target and destroy tumor cells.
iii. **Chemotherapy**: - Chemotherapy involves the use of drugs to kill cancer cells or slow their growth. It may be used in combination with other treatments.
iv. **Targeted Therapy**:- Some brain tumors have specific genetic or molecular characteristics that can be targeted with specialized drugs.
v. **Supportive Care**:- Treatment plans often include supportive care to manage symptoms, improve quality of life, and address side effects.

Prognosis:- The prognosis for brain tumors varies widely based on factors such as the type of tumor, its grade (degree of malignancy), location, and the patient's overall health.

- Some brain tumors are highly aggressive, while others are slower-growing and more treatable.
- It's important to consult with a medical team, including neurologists, neurosurgeons, oncologists, and radiation oncologists, to develop a personalized treatment plan based on the specific characteristics of the tumor and the patient's unique needs.
- Early diagnosis and treatment are critical in improving outcomes for individuals with brain tumors.

Ulcer

Important Types of Ulcers

Ulcers	Description

Marjolijn's ulcer	Ulcer developed in chronic scars or malignant cells most commonly squamous cell carcinoma.
Martorell's ulcer	Hypertensive ulcers seen in leg/ calf region. They are due to hypertension and atherosclerosis. Seen in calf region.
Trophic ulcers (Neuropathic ulcers)	Painless, punched out ulcers due to impaired nutrition, defective blood supply, neurological deficit (so also known as neurogenic ulcers) Important causes are: Diaætes, peripheral neuritis, tabes dorsalis, spina bifida, leprosy (Hensen's disease,spinal injury, paraplegia, syringomyelia.
Decubitus ulcer	Also known as Bed sores. Sites: Most common Ischium (trochanter > sacrum > heel > malleolus (lateral > medial) > occiput.
Collar button/Collar stud ulcer	Seen in mucosa & submucosa of colon In Crohn's disease and Ulcerative colitis
Cortisol ulcers	Formation due to long term application of steroid creams. Callous ulcers with no healing tendency.

Edges Of Ulcers

Undetermined edge	Tubercular ulcer
Punched out margin	Diabetic ulcer, Trophic ulcer, Shyphilis
Slopping edge	Healing ulcer
Everted margin	Sqamous cell carcinoma
Rolled out margin	Basal cell carcinoma

Floor of Ulcer

Spreading ulcer	Floor is covered by slough
Healing ulcer	Floor is covered by Granulation tissue
Callus Ulcer	Floor is covered by pale granulation tissue

- Purpura – Heamorrage of 2-5mm of skin or mucus membrane
- Malena – Dark stool
- Heamatocolpos – Blood filled filled vagina
- Longest duration of blood preservation is
- Citrate phosphate dextrose adenine (CPDA)
- Sidine adenine glucose mannitol (SAGM)
- One unit of citrate phosphate dextrose (CPD) raised Hb by 10%
- Huntarian chancre – Shyphillis & TB of skin

<u>According to Pathological classification ulcer's are</u>

1. <u>Non specific infection</u>

- Non-specific infections refer to infections that are not caused by a specific pathogen or agent, and may not have a clearly defined cause or diagnosis.
- These infections are typically characterized by symptoms such as fever, inflammation, and general malaise. Some examples of non-specific infections include:
- Example:- Trauma, Arterial Ulcer (Gangrene), Venous (Varicose), Neurological (Tropical), Ulcer associated with malnutrition

2. <u>Specific Infections</u>

- Specific infections are caused by a specific pathogen or agent, such as a virus, bacteria, fungi, or parasite.
- These infections are usually diagnosed based on the symptoms, clinical findings, and laboratory tests that identify the specific causative agent.
- Specific infections are treated based on the causative agent and can involve antiviral, antibacterial, antifungal, or antiparasitic medications, as well as supportive care to manage symptoms and prevent complications.
- It is important to seek prompt medical attention if you suspect you have a specific infection, as early diagnosis and treatment can help prevent serious complications and promote healing.
- Example: - Syphilis, Tuberculosis, HIV/AIDS, Gonorrhea, Tetanus, Leprosy, Poliomyelitis, Fungal.
    - <u>Tuberculosis</u> - caused by the bacterium Mycobacterium tuberculosis, which can affect the lungs and other parts of the body and cause symptoms such as cough, fever, and weight loss.
    - <u>HIV/AIDS</u> - caused by the human immunodeficiency virus (HIV), which attacks the immune system and can lead to acquired immunodeficiency syndrome (AIDS).
    - <u>Gonorrhea</u>, also known as "the clap," is a sexually transmitted infection (STI) caused by the bacterium Neisseria gonorrhoeae. It is one of the most common STIs, especially among sexually active young adults.It is usually transmitted through sexual contact with an infected person.

- Tetanus, also known as lockjaw, is a serious bacterial infection caused by the bacterium Clostridium tetani, which produces a toxin that affects the nervous system. The toxin can enter the body through a cut, wound, or puncture, particularly if the wound is deep, dirty, or not properly cleaned.Symptom mostly: Lockjaw
- Leprosy, also known as Hansen's disease, is a chronic bacterial infection caused by the bacterium Mycobacterium leprae. The disease primarily affects the skin, nerves, and mucous membranes of the nose and throat.
- Poliomyelitis, commonly known as polio, is a highly infectious viral disease caused by the poliovirus. The virus spreads through contaminated food and water, and can also be transmitted through direct contact with infected fecal matter.
- Syphilis
  - Syphilis is a sexually transmitted infection caused by the bacterium Treponema pallidum.
  - It can be transmitted through sexual contact with an infected person, including vaginal, anal, or oral sex, as well as through non-sexual contact such as from mother to baby during childbirth or through blood transfusions.
  - Syphilis can occur in several stages, each with different symptoms:
    i. Primary syphilis - A painless sore or ulcer called a chancre appears at the site of infection, usually the genitals, anus, or mouth.
    ii. Secondary syphilis - A rash develops on the skin, often on the palms of the hands and soles of the feet. Other symptoms may include fever, swollen lymph nodes, sore throat, and hair loss.
    iii. Latent syphilis - The infection remains in the body but does not cause any symptoms.
    iv. Tertiary syphilis - This stage occurs in about 15% of untreated cases and can lead to serious complications such as heart disease, brain damage, blindness, and even death.
  - Syphilis is diagnosed through blood tests and examination of bodily fluids from a sore or ulcer.

- Fungal ring worm
  - Tinea corporis = Neck, Back
  - Tinea capitis = Head/ hair
  - Tinea barbae = Hair / hair follicle, beard
  - Tinea crusis = Ginital inner thick, Buttocks.

3. Malignant ulcer

Example: - Squamous cell carcinoma, Basal cell carcinoma, Malignant melanoma.