

FRACTURE CLASSIFICATION



FRACTURE

A fracture is a break in the continuity of hard tissue like bone , cartilage etc

ETIOLOGY

1) Extrinsic

Extrinsic cause

1) Indirect trauma:-Bending force.

2) Direct trauma. Tensional force.

Shearing force.

Compressive force.

2) Intrinsic

Intrinsic cause

1) Muscular Contraction:-

Avulsion fracture.

2) Pathological fracture:-

-bone tumors & cysts.

-Osteoporosis.

-Localized bone infection
(osteomyelitis).

-Osteoporosis caused by prolonged
fixation .

CLASSIFICATION OF FRACTURE

On the basis of communication of fractured site to the environment.

- 1) **Simple fracture (Close fracture) :-** The fracture site does not communicate with the environment.
- 2) **Compound fracture (Open fracture):-** A fracture which is communication with an open wound on the skin .



3) Complicated fracture :- A closed fracture in which there is considerable injury to important neighbouring vessels or nerves or accompanied by the opening of a joint or vascular cavity.



On the basis of extent of bond damage.

3 types

1) **Incomplete fracture** :- Fracture which does not extended through complete thickness of the bone.

❖ **Greenstick fracture**:- In such fractures, the cortex opposite to the bending force fractures completely , while the cortex under the force remain intact . Fracture occurs in young animal.

❖ **Fissured fracture**:- fissure (crack)

-In fissured fracture there is a direct trauma applied to a bone is not sufficient to cause a complete fracture , fissure line will occur.

-The fissure formed in one cortex of the bone & generally the periosteum remains intact.

-The fissure line may be longitudinal, transverse or oblique.

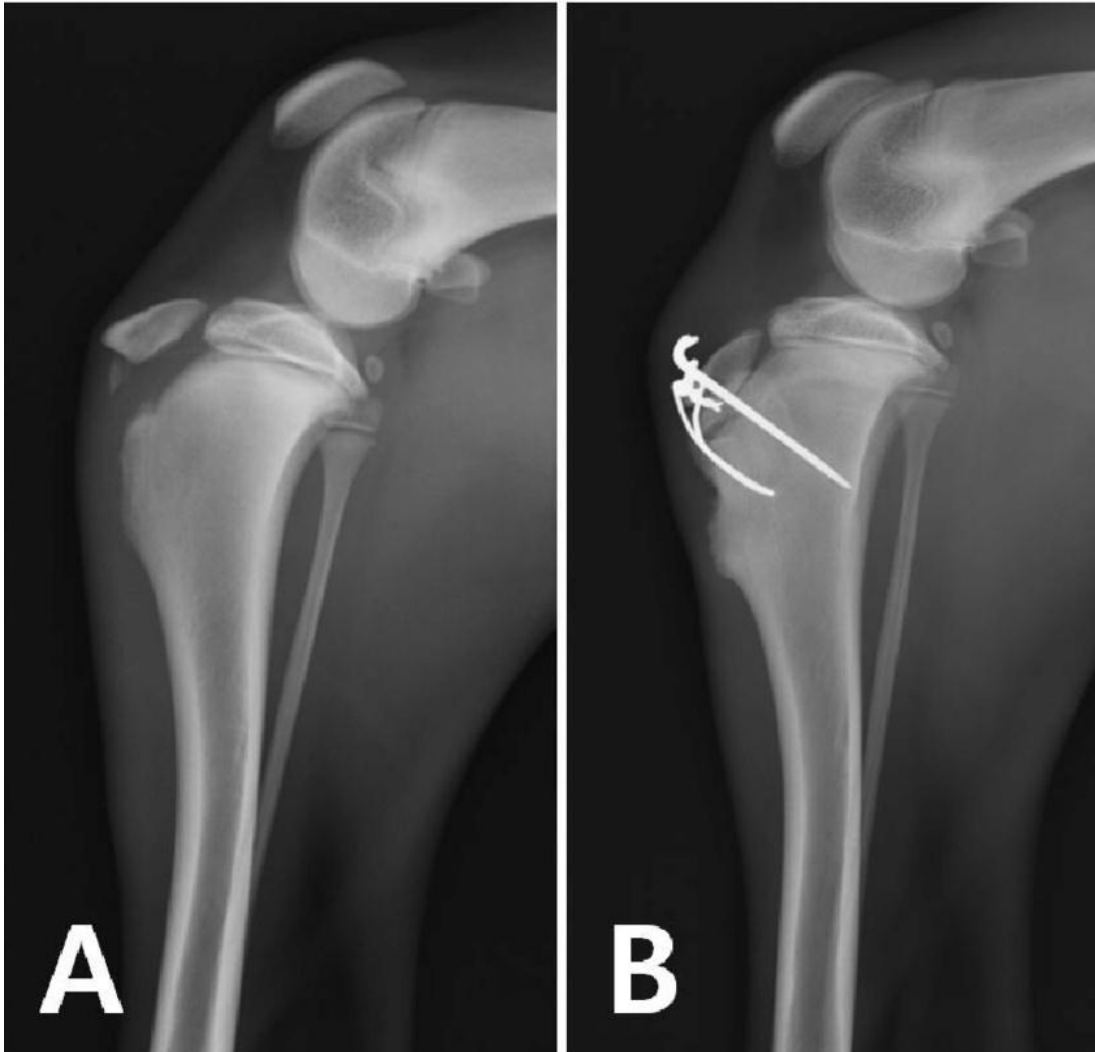
- ❖ **Splintered or Partial fracture:-** When splinters of bone are separated from the main bone .Ex- Fire arms.
- ❖ **Subperiosteal (Intraperiosteal) fracture:-** A fracture of the cortical bone without rupture of the periosteum.
- ❖ **Deferred fracture:-** In which separation of fragments occurs only after a varying period after incident due to subsequent violence, strain or concussion .Ex- Broken back is horse.

2) A Complete fracture :- It is a fracture in which the bone is broken completely through its thickness.

- **Single fracture:-** When the bone is broken at one place only.
- **Double fracture:-** When there are two fracture in the same bone.
- **Multiple fracture :-** when there are two fractures in the same bone.
- **Comminuted fracture:-** At least three fracture lines inter connect each other at one point.

3) Avulsion fracture :-

The tearing of bony prominences (like tuberosity) by forcible pull of its tendinous or muscular attachments.



Based on the portion of the bone involved

1) **Diaphysary fracture** :- A fracture involving the diaphysis (shaft) of a long bone.

2) **Epiphysary fracture:- (Epiphysary separation)** :- Fracture at the junction of the epiphysis & shaft of the bone.

- This type of fracture common in young animals (whom the calcification of epiphysis is incomplete).

Ex- Proximal end of tibia in calves.

Distal end of femur of dogs.

3) **Supracondyle fracture**:- A fracture above the condyle.

Ex:- Supracondylar fracture of humerus.

4) **Condyloid fracture (Condylar fracture)**:- A fracture in which small fragments including the condyle is separated from the bone.

Ex- Condyloid fractures of humerous , femur etc

5) **Transcondylar fracture** :- A fracture of the humerus or femur in which the line of fracture is at the level of the condyles.

6) **Intercondylar fracture** :- A fracture between the condyles of the humerus.

7) **Pertrochanteric fracture** :- Fracture of the femur passing through the greater trochanter.

8) **Transcervical fracture** :- Fracture through the neck of the femur.

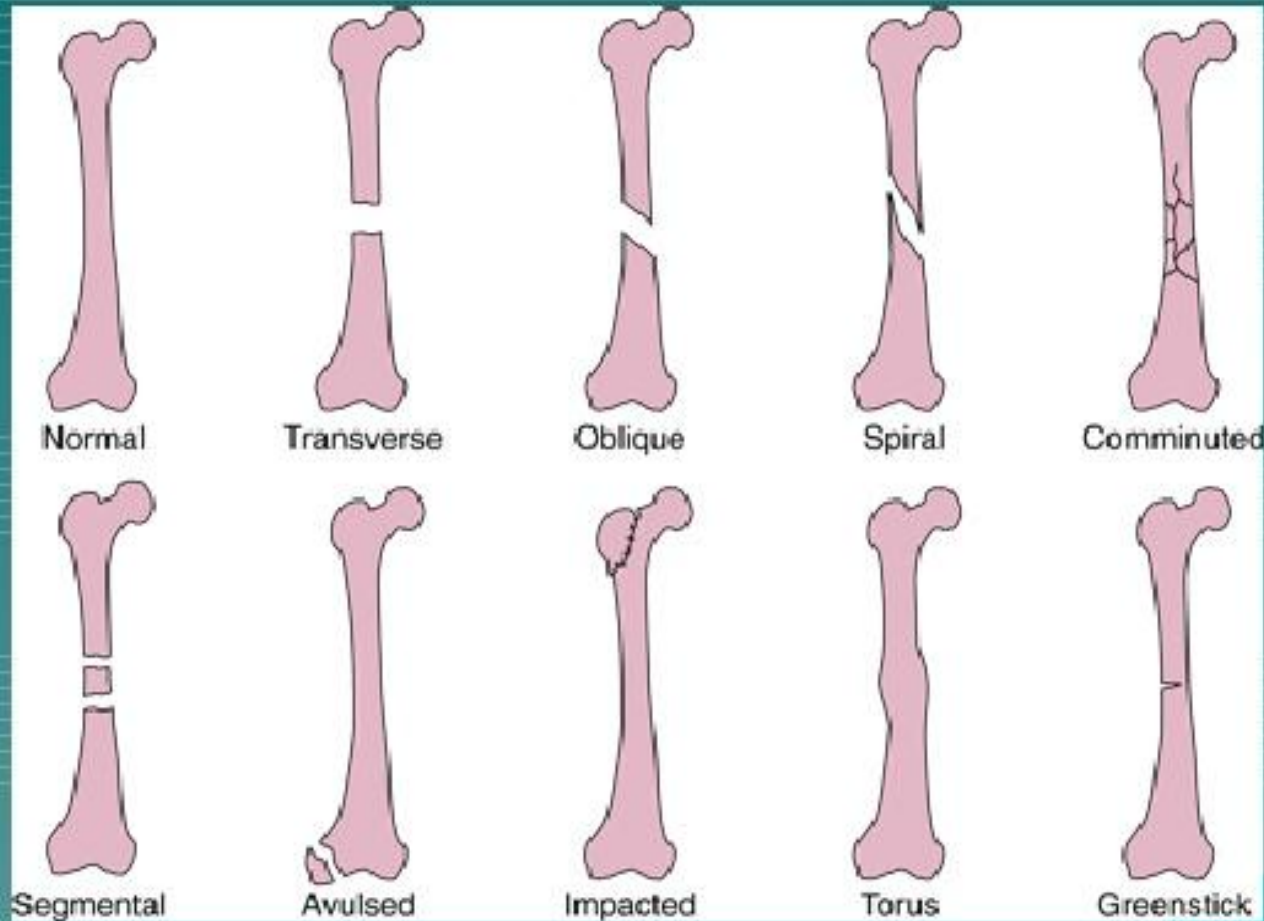
9) **Periarticular fracture** :- When the bone is fractured close to its articulating extremity without extending into the joint, a periarticular fracture results.

10) Articular fracture (joint fracture):- Fracture involving the articular surface of a bone.

11) Extracapsular fracture :- A fracture near a joint but not entering with in the joint capsule.

12) Intercapsular fracture :- A fracture with in the joint capsule.

Types of Bone Fractures

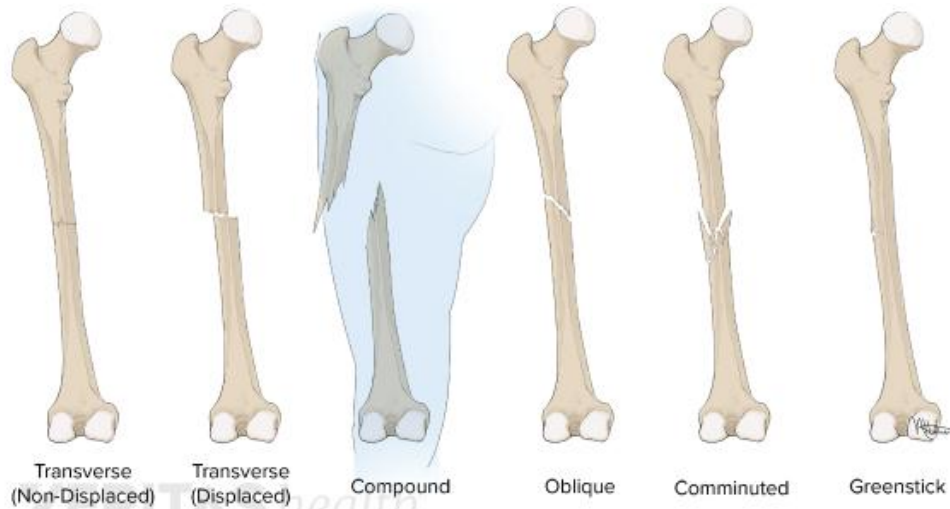


Depending on the direction of the fracture

- 1) **Transverse fracture** :- A fracture at right angles to the axis of the bone.
- 2) **Longitudinal fracture** :- A fracture extending in a longitudinal direction .

Ex- “split pastern” in horse.

- 3) **Oblique fracture** :- A break in a bone extending in an oblique direction.
- 4) **Spiral fracture** :- A fracture which in a spiral direction.



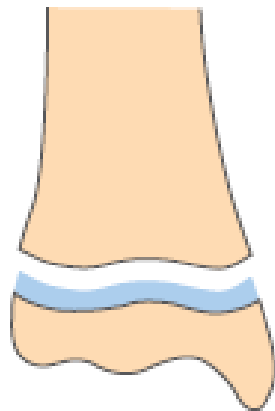
Depending on relation between the fragments in the fracture.

- 1) **Torsion fracture** :- A fracture in which one of the fragments has been twisted & separated.
- 2) **Impacted fracture** :- Fracture in which one fragment is firmly driven into another or one bone is driven into the fracture site of another. Ex:- Head of femur being driven into a fractured acetabulum.
- 3) **Dentate fracture** :- A fracture in which the ends of the fragments are toothed & interlocked.
- 4) **Riding fracture (Over- riding fracture)** :- A fracture in which fragments lie side by side , causing shortening of the limb.
- 5) **Distracted fracture** :- A fracture in which the fragments are separated by muscular pull. Ex- Fracture of olecranon.

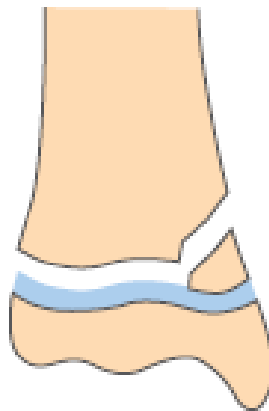
A FRACTURE COULD BE

- 1) **Compression fracture** :- A fracture produced by compression , causing apparent reduction in the size of the bone due to pressure .
Ex:- Some fracture occurring in cancellous bones like vertebrae.
- 2) **Depressed fracture** :- A fracture of the skull in which a fragment is depressed below the surface .
- 3) **Colle's fracture** :- Fracture of the distal end of radius. Abduction a paw is noticed in colle's fracture.
- 4) **Pathological fracture** (Spontaneous fracture, secondary fracture):- A fracture occurring due to a weakening of bone by disease & not due to trauma.
- 5) **Congenital (Intrauterine) fracture**:- Fracture of the bone of a foetus in the uterus.

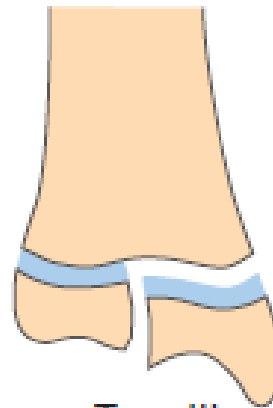
Salter-Harris-Physeal Fracture



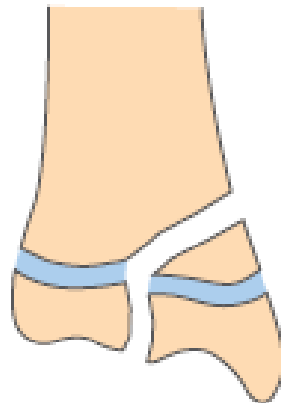
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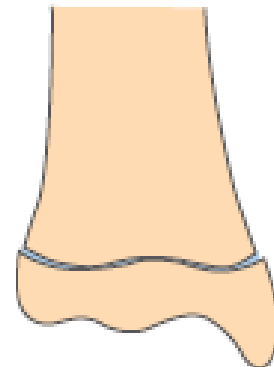
Type II



Type III



Type IV



Type V

*Thank
You*

