

Unit VII – Problem 2 – Radiology: Types of Fractures

- Definition of a fracture: it is a break in the continuity of a bone (How?):

- **Due to a trauma:** in which an abnormal force is applied to a normal bone.
- **Pathological conditions:** in which the bone is weak and abnormal. When a low force is applied to it, this will lead to a damage/fracture. Underlying bone diseases can be:
 - ✓ *Systemic:* osteoporosis and postmenopausal.
 - ✓ *Local:* tumor
- **Stress:** in which repetitive micro-trauma is occurring to a normal bone. Eventually this will lead to a true fracture.

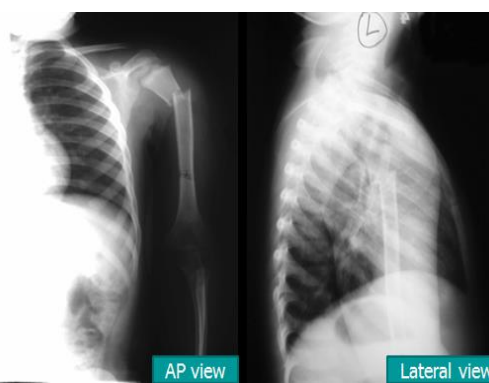
- When doing an X-ray for a patient with fracture:

- **It must be taken from 2 views at right angle to each other:**
 - ✓ *Anterior-posterior view.*
 - ✓ *Lateral view.*
- **A must to include in the X-ray is the proximal and distal joints.** For example, if a patient is presented with a fracture in the shaft of the humerus → the X-ray must include the shoulder joint & the elbow joint.

- Examples:



X-ray showing a fracture in the distal end of the humerus near the supra-epicondylar ridge

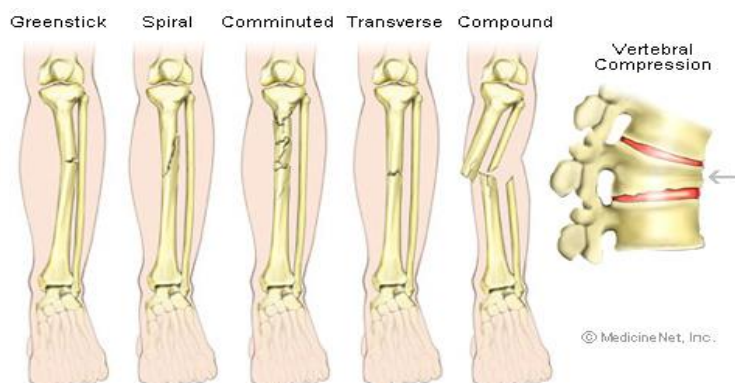


X-ray showing a fracture in the humerus near the surgical neck. This is a risk for axillary nerve damage

- Classification of a fracture is a must for appropriate management:

- **The bone:** your classification of the injury will start by coding the bone which is involved.
- **Location:** coding for the part of the bone which is involved (example: if the fracture is in the humerus, you must select if it is in the surgical neck, mid-shaft, distal end...etc).
- **Type:**
 - ✓ *Simple fractures:* also called closed fractures, are broken bones that remain within the body and do not penetrate the skin.
 - ✓ *Compound fractures:* also called open fractures, are broken bones that penetrate through the skin and expose the bone and deep tissues to the exterior environment

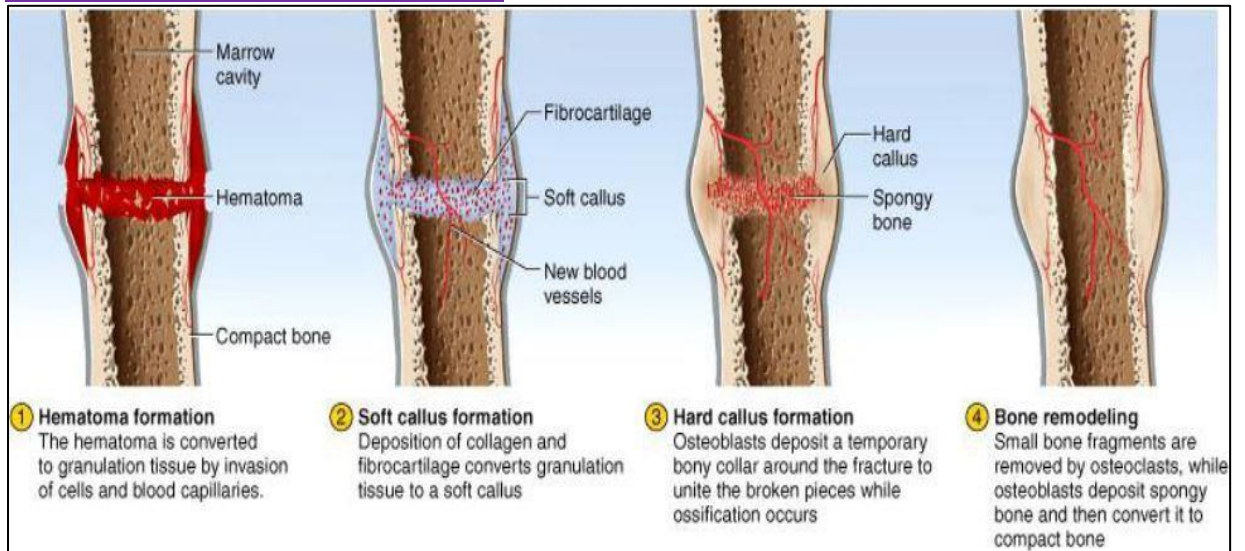
• Group:



Typical Bone Fractures



The healing process of bone fracture:



Notes:

- **Plain radiograph** is the 1st consideration in non-skull trauma.
- **CT**: in some anatomic regions usually after plain radiography.
- **MRI**: in certain situations (example: bone bruise).