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A BRIEF REVIEW ON TYPES OF BONE FRACTURES

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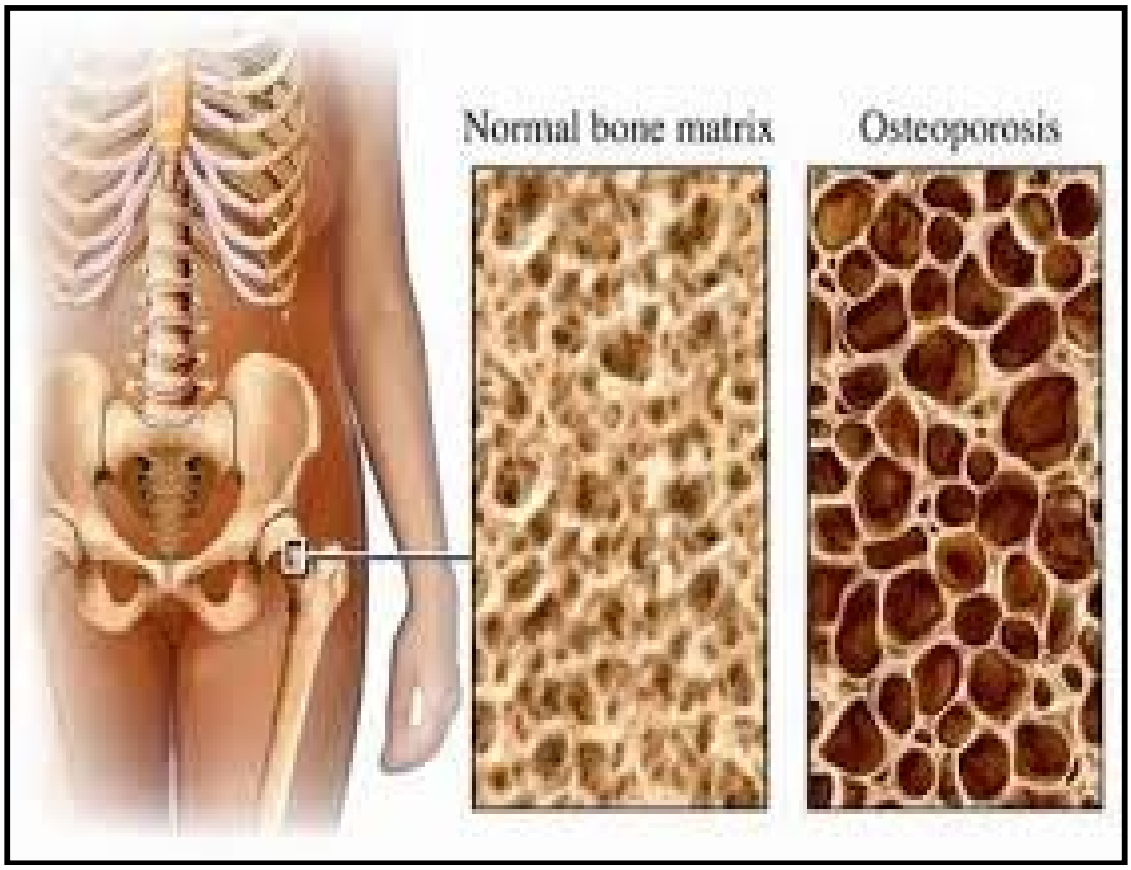
Abstract:

A broken bone, or fracture, happens when excessive force applied to your bone causes it to break or shatter. Some fractures break the bone completely, while others just cause a crack in the bone. Fracture types vary depending on the circumstances of your injury and the amount of force applied to the bone.

Key Words: Injury & Force

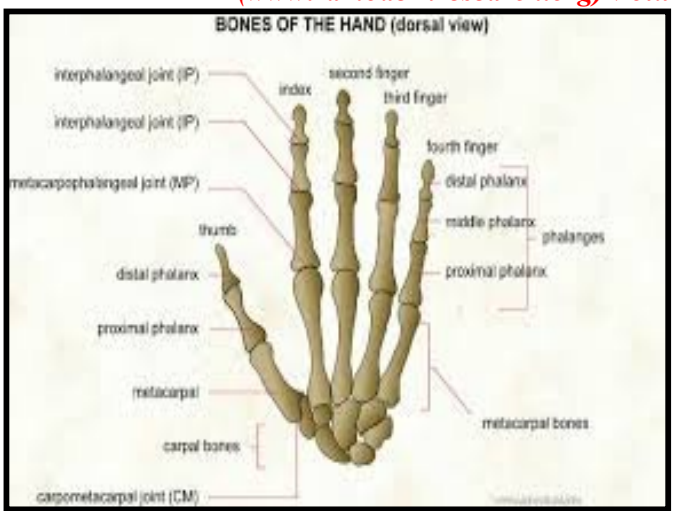
Introduction:

Generally, the differential diagnosis here is fairly logical. The thing to remember is that a bone needs a reason to break. Usually, that reason is that a substantial force has been applied to the bone. If there is no evidence of such a force, we must look for some other reason.



Types of Bone Fractures:

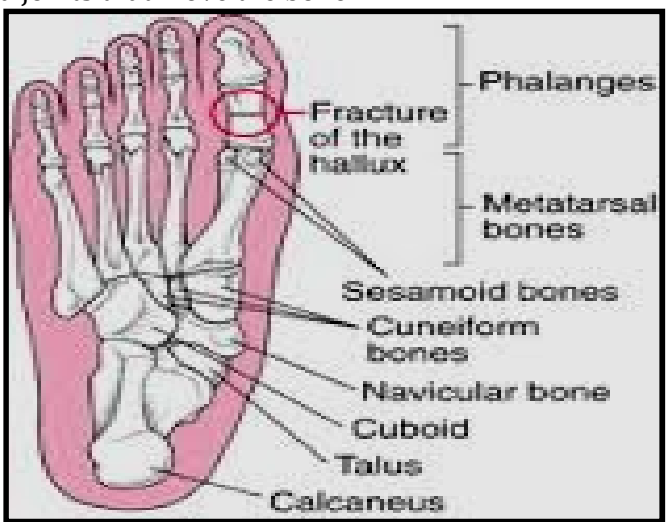
As rugged as our bodies are, they are often susceptible to painful and disabling injuries such as strains, sprains, dislocations and fractures. Fractures are simply a break in a bone caused by forces that exceed the strength of the osseous tissue in the bone. Most fractures are caused by excessive external forces and are classified as traumatic fractures. A rarer type of break known as a pathologic fracture may be caused by diseases or disorders, such as osteoporosis, that weaken the bone to the point of fracturing under normal strain



All bone fractures, regardless of cause, are sorted into two major classes: simple and compound fractures.

- **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.
- Compound fractures are considered much more serious than simple fractures because they may be complicated by deep infections if pathogens enter the body through the wound. Antibiotics are often used to prevent possible infections that may be associated with compound fractures.
- Within the dichotomy of simple and compound fractures are many specific types of fractures.
- **Comminuted fractures** are severe fractures that involve the breaking of a bone into several smaller pieces.
- **Greenstick fractures** are breaks in bones along only one side of the bone caused by a force perpendicular to the bone's long axis. Greenstick fractures are seen only in children whose developing bones are more flexible than adult bones and therefore tend to bend and only partially break instead of breaking completely.
- Another type of fracture known as **avulsion fractures** involves a small piece of bone being torn off from the main bone due to an extreme force applied to a ligament or tendon. Avulsion fractures may be caused by overexertion of muscles or sudden traumatic pulling of part of the body during an accident.
- Bone fractures may occur at many different angles depending on the direction in which a force is applied to a bone.
- **Transverse fractures** form perpendicular to the long axis of a bone and are the result of a force applied at a right angle to the bone.
- **Oblique fractures** are slanted fractures that occur when a force is applied at any angle other than a right angle to the bone.
- **Spiral fractures** are the result of an extreme twisting force being exerted on a bone.
- The period immediately after a bone fracture is critical for the proper repair of the bone and healing of the affected tissues. Bones begin to heal very quickly after a fracture and the bone tissue will knit together with any nearby bone

fragments to form a callus of cartilage and eventually new bone tissue. The ultimate goal of bone healing is to reach a proper union of the fractured bone pieces that restores the original bone anatomy and restores full function to the muscles and joints that move the bone.



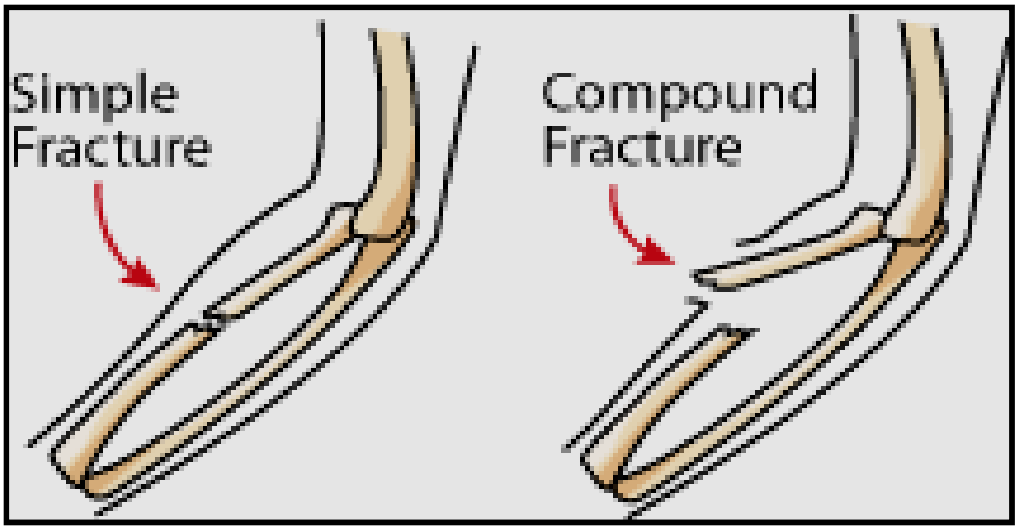
X – Rays for Bones:

When a bone is broken, the first step in repair is to take an X-ray to confirm the diagnosis and to provide a clear picture of the type of fracture and the degree of displacement and misalignment. The first aim in treatment is to see that bone ends that about each other are in alignment so that, when the fracture heals, the bone will retain its previous shape. Bone ends that have been displaced are manually maneuvered back into position. The bone may be manipulated through the skin using a local or general anesthetic, or the bone may be repositioned by means of an operation during which the site is opened.

Once the fracture has been placed in proper position, the bone is immobilized to allow the broken pieces to reunite firmly. In most cases a rigid cast is used to immobilize the bones for several weeks and achieve the proper union. In severe cases, the ends of the fractured bone may be fixed in place by metal pins connected to an external frame; once the fracture has healed, the pins and frame are removed. In other cases an operation is performed to open up the injury site and fasten together the bone pieces with metal

screws, nails, plates, rods, or wires. Even after the bones have healed the metal hardware is left within the body permanently to prevent possible infection from a removal surgery.

Broken Bones:



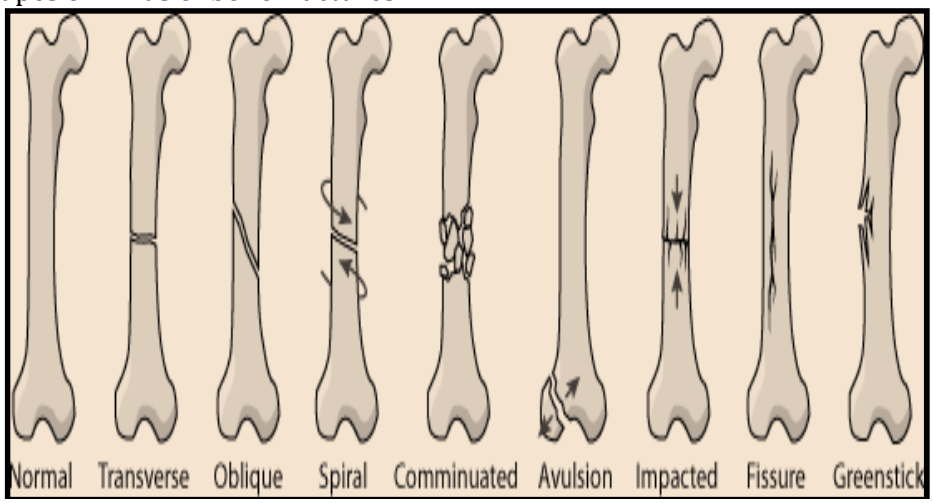
Now that you understand how bones break, let's take a look at the many different kinds of fractures.

When a movie character breaks a bone, they usually end up with part of the bone poking out of their skin. This can happen, but doesn't happen every time a bone breaks. Fractures can be closed (simple) or open (compound). This tells you whether or not the bone has broken through the skin.

A **simple fracture**, also known as a closed fracture, means that no part of the bone has broken through the skin.

A **compound fracture**, also known as an open fracture, means that the bone has broken through the skin. There is a much higher risk of infection with compound fractures since the bone gets exposed to air, dirt, and bacteria from the environment. Because of this, compound fractures must be treated and watched much more carefully than simple fractures.

Fractures are also categorized based on the shape of the break. There are eight main shapes or kinds of bone fractures.



Some Different Types of Fracture:

- **Avulsion fracture** - a muscle or ligament pulls on the bone, fracturing it.
  Comminuted fracture - the bone is shattered into many pieces.
  Compression (crush) fracture - generally occurs in the spongy bone in the spine. For example, the front portion of a vertebra in the spine may collapse due to osteoporosis.
  Fracture dislocation - a joint becomes dislocated, and one of the bones of the joint has a fracture.
- **Greenstick fracture** - the bone partly fractures on one side, but does not break completely because the rest of the bone can bend. More common among children, whose bones are softer and more elastic.
  Hairline fracture - a partial fracture of the bone. Often this type of fracture is harder to detect.
  Impacted fracture - when the bone is fractured, one fragment of bone goes into another.
  Longitudinal fracture - the break is along the length of the bone.
- **Oblique fracture** - A fracture that is diagonal to a bone's long axis.
- **Pathological fracture** - when an underlying disease or condition has already weakened the bone, resulting in a fracture (bone fracture caused by an underlying disease/condition that weakened the bone).
  .**Spiral fracture** - A fracture where at least one part of the bone has been twisted.
- **Stress fracture** - more common among athletes. A bone breaks because of repeated stresses and strains.
  Torus (buckle) fracture - bone deforms but does not crack. More common in children. It is painful but stable.
  Transverse fracture - a straight break right across a bone.

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