



RAMA
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FACULTY OF NURSING

FRACTURE



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Introduction

- Break in the structural continuity of a bone
- If the overlying skin remains intact - closed (simple fracture)
- If skin or one of the body cavities is breached-open (compound fracture)

TYPICAL BONE FRACTURES



Greenstick



Simple



Open



Comminuted

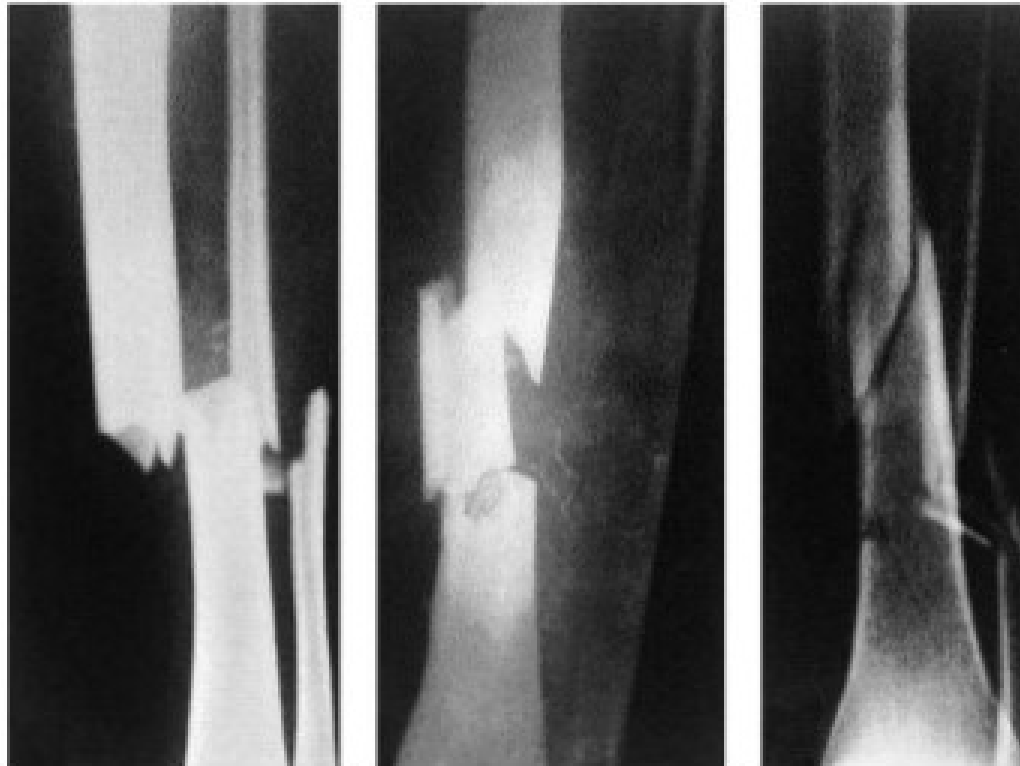
Types of Fracture

- Divided in to
 - Complete
 - Incomplete

Complete fracture

Bone is split into two or more fragments. The fracture pattern on x-ray can help predict behaviour after reduction

- in a transverse fracture the fragments usually remain in place after reduction
- if it is oblique or spiral, they tend to shorten and re-displace even if the bone is splinted.
- In an impacted fracture the fragments are jammed tightly together and the fracture line is indistinct.
- A comminuted fracture is one in which there are more than two fragments



Complete fractures: **(a) transverse; (b) segmental and (c) spiral**

Incomplete fracture

- The bone is incompletely divided and the periosteum remains in continuity
- Greenstick fracture : bone is buckled or bent
 - Mainly seen in children, because of their springy bones
 - Plastically deformed bones
- Compressed fracture: crumpled cancellous bone
 - Seen in adults, mainly in vertebral bodies, calcaneum and tibial plateau



Incomplete fractures:
(a) buckle or torus and (b,c) greenstick.

Causes

Some of the many ways that fractures occur in children include:

- Falling into an awkward position
- Getting a finger wedged between objects
- Getting limbs accidentally twisted

How fractures are displaced

- Fractures can be displaced by:
 - Force of the injury
 - Effects of gravity
 - Pull of muscles attached to the site

Types of displacement

- Translation (shift)- the fragments may shift sideways, backwards or forwards
- Angulation (tilt)- mal alignment if unconnected will lead to limb deformity
- Rotation (twist)- rotational deformity
- Length- can cause shortening of the bone

Mechanism of injury

- Injury
- Repetitive stress
- Pathological fractures

- INJURY

- Direct force- With a direct force, the bone breaks at the point of impact; the soft tissues also are damaged.
- Indirect force-the bone breaks at a distance from where the force is applied.

Some fracture patterns reveals the dominant mechanism:

- Spiral pattern- twisting
- Oblique- compression
- Triangular- bending
- Transverse- tension

- FATIGUE OR STRESS FRACTURES-

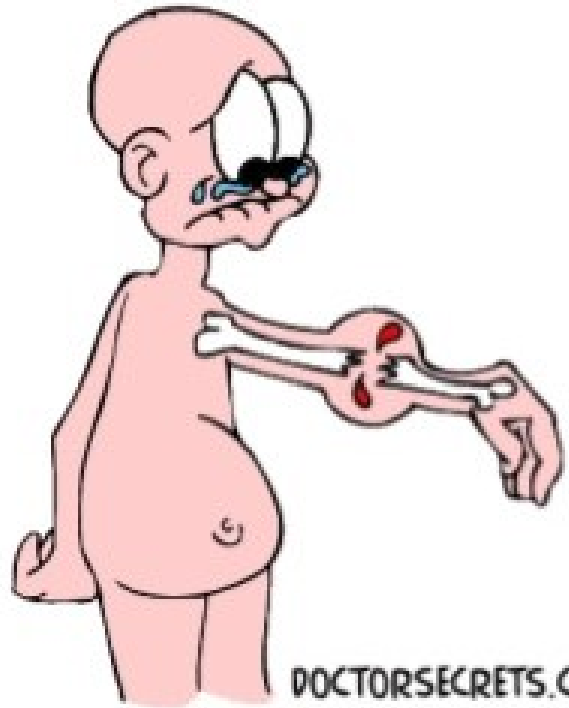
- ✓ Occur in normal bone, subject to repeated heavy loading, typically in athletes, dancers or military personnel.
- ✓ Drugs like steroids and methotrexate

- PATHOLOGICAL FRACTURES- Occurs in a bone that is made weak by some disease.

Causes-

- ✓ Inflammatory- Osteomyelitis
- ✓ Neoplastic- giant cell tumour, Ewings sarcoma, secondaries

- ✓ Miscellaneous bone conditions- simple bone cyst, aneurysmal bone cyst
- ✓ Hereditary- Osteogenesis imperfecta, Osteopetrosis
- ✓ Other acquired generalised diseases- Osteoporosis, osteomalacia, rickets



Sign and Symptoms of a Bone Fracture in Children

- These include:
- Swelling
- Visible deformity
- Pain
- Difficulty in moving the injured limb

Diagnosed

Some diagnostic procedures include:

X-Ray

- This procedure uses electromagnetic waves to get pictures of internal parts of the body such as bones.

CAT scan

- Short for computer tomography, CAT scan is a more detailed X-ray that uses technology to produce images of the body from different angles. The quality of imaging is greater than an X-ray.

Ultrasound

- A device known as a transducer uses sound waves to map out the internal structure of the body. Similar in capabilities to an X-ray, an ultrasound can be used in children, especially for shoulder related injuries.

Treatment

- Treatment of the fractured bones is done with the help of cast in children.
- Surgery is usually not recommended. If the bone is not properly aligned, then they are placed back to their original position and held there which is known as reduction.

Home Treatment

- Some of the ways that a fracture can be dealt with at home include
- Applying a cold compress will help reduce the swelling.
- Consuming pineapple which contains bromelain which is known to reduce swelling.
- Consuming turmeric which contains curcumin has anti-inflammatory properties that help reduce the swelling.

THANK YOU