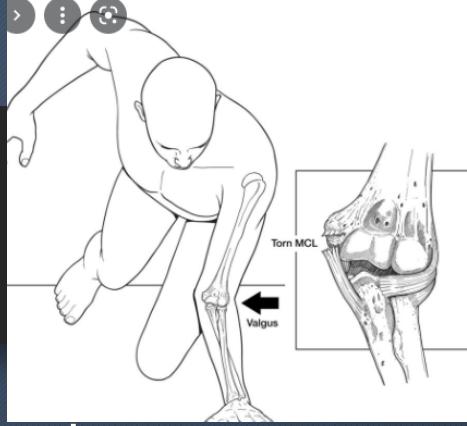
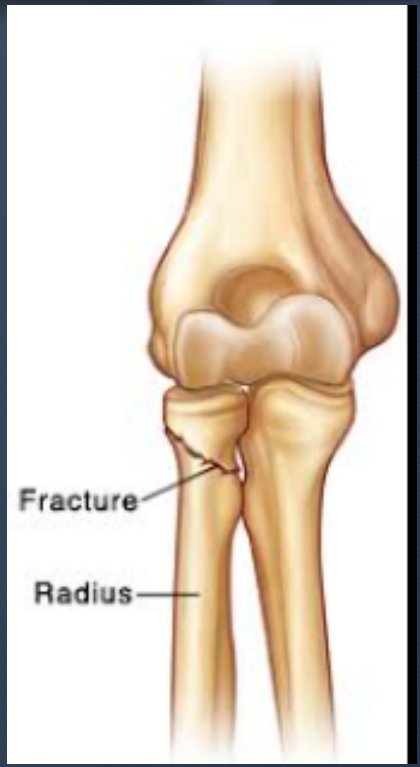
Proximal Fracture Of The Radius



- Proximal radius fractures include fractures of the radial neck and head.
- There may be elbow swelling and ecchymosis. Patients will exhibit pain and limited range of motion. A careful neurovascular examination is important.
- The typical mechanism of injury is a fall over an extended and outstretched arm associated with a valgus force.

Radial Head Fracture X-Ray



Treatment & Prognosis

- immobilisation in cast for the majority of injuries.
- internal fixation may be required.
- reduced range of motion may occur.
- Fractures treated with an open surgical approach have worse prognosis and higher complication rate.

Night Stick Fracture

- A nightstick fracture is a fracture resulting from a direct blow to the ulnar shaft. It is an isolated fracture of the middle third of the ulna.

- This injury is commonly caused when a victim raises their arm to protect themselves against trauma to the head. The forearm is used to block the blows from an oncoming offending bar or stick.

Night Stick Fracture X-Ray

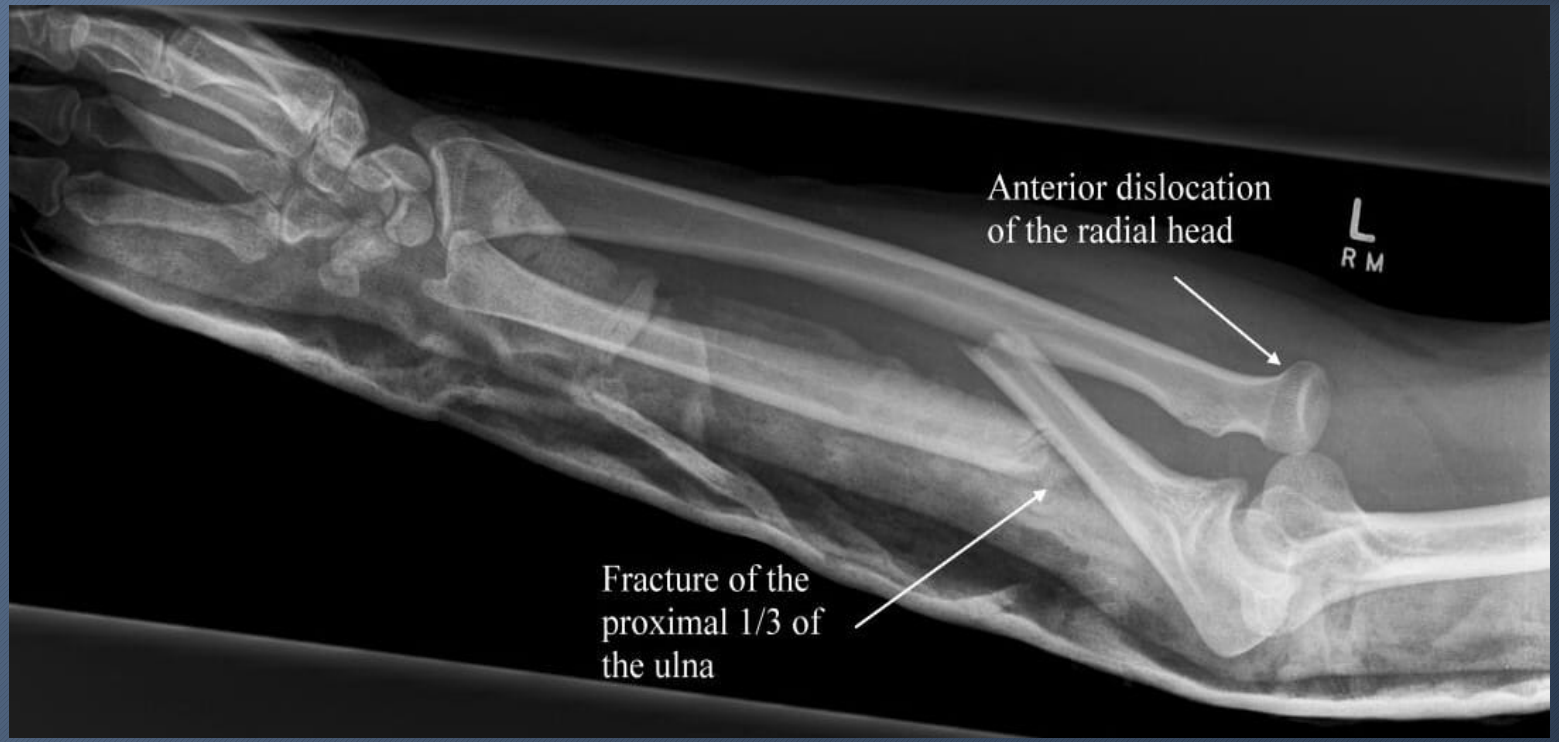
Treatment & Prognosis

- For a minimally displaced fracture, treatment varies from the use of an ace bandage to plaster immobilization.
- The fracture usually heals, but there may be some concern related to non uniuon and malunion.
- Displaced fractures are treated by surgery as it allows better healing and early return in function.

Monteggia fracture

- F**racture** of the proximal third of the ulna with dislocation of the proximal head of the radius.
- These injuries are relatively uncommon, The mechanism of injury is most often a fall on an outstretched hand.
- The radial head dislocation may not be apparent and will possibly be missed if the elbow is not included in the radiograph.

Monteggia Fracture X-Ray



Treatment & Prognosis

- The best treatment includes ORIF of the ulna fracture.
- The ulna fracture is approached and reduced first.
- The radial head dislocation then usually reduces indirectly and is stable. (More than 90% of radial head dislocations are stable after fixation of the ulna).
- Failure of the radial head to reduce with the ulna reduction is usually due to interposed annular ligament or, rarely, to interposed radial nerve.

Galeazzi Fracture

- **fracture** of the distal third of the radius with dislocation of the distal radioulnar joint.

- Pain and soft-tissue swelling are present at the distal-third radial fracture site.

Galeazzi Fracture X-Ray

Treatment & Prognosis

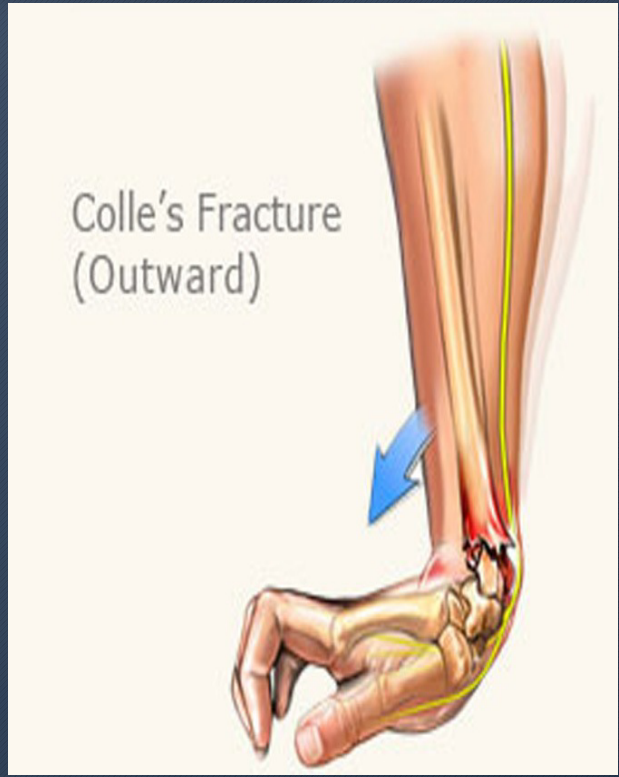
- **Galeazzi fractures** are best **treated** with open reduction of the radius and the distal radio-ulnar joint. It has been called the " **fracture** of necessity," because it necessitates open surgical **treatment** in the adult.

- Nonsurgical **treatment** results in persistent or recurrent dislocations of the distal ulna.

Distal Radius Fractures

Colle’s Fracture

- A transverse fracture in the radius just above the wrist, with DORSAL displacement (angulation) of the distal fragment.
- Very common extra-articular fracture of the distal radius that typically occurs as the result of a fall onto an outstretched hand with an extended wrist.
- It is the most common of all fractures in older people, the high incidence being related to the onset of postmenopausal osteoporosis.
- So Bone scan is necessary in those cases to detect osteoporosis.



Clinical Features

- “Dinner-fork” deformity (not present in all cases)
- Swelling, tenderness
- Localized pain on wrist movement.

Diagnosis

- Usually confirmed by X-ray (AP + Lateral views)

- Classical findings:

1. Transverse fracture of the radius.

2. Dorsal angulation of the distal fracture fragment.

3. Ulnar styloid process fracture (60% of cases)

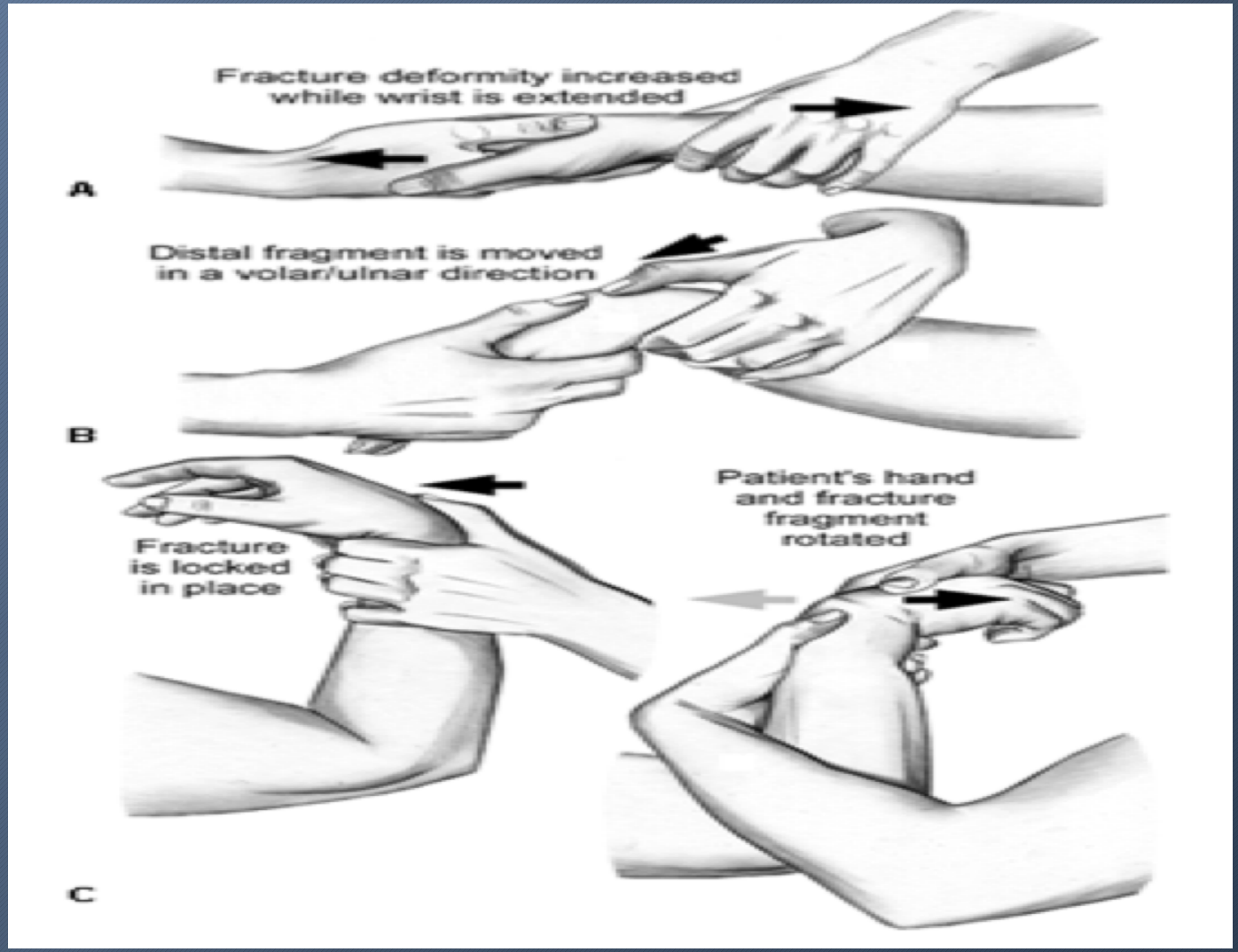
Management

- Undisplaced fracture:

- Dorsal splint is applied for 1–2 days until the swelling resolved, then the cast is completed and usually be removed after 4 weeks to allow mobilization.

Management

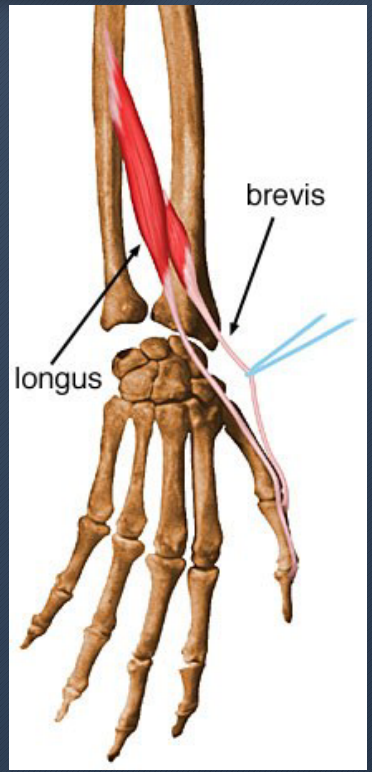
- Displaced fracture:
- Closed reduction done under general or local anesthesia.
- Applying longitudinal Traction, with Ulnar Deviation and Flexion of the wrist.
- The position is then checked by X-ray. If it is satisfactory, a dorsal plaster slab is applied. If unsatisfactory, ORIF is applied.


Fracture deformity increased while wrist is extended
A
Distal fragment is moved in a volar/ulnar direction
B
Fracture is locked in place
Patient's hand and fracture fragment rotated
C

Complications

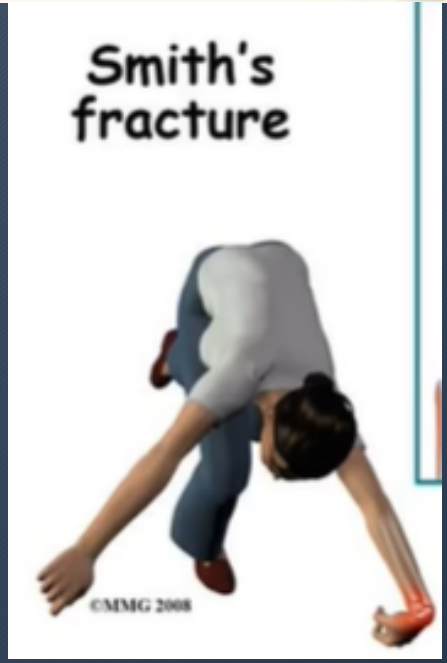
- Early
1. Circulatory problems
2. Carpal tunnel syndrome (median nerve compression)

- Late
3. Malunion, delayed union
4. Stiffness
5. Extensor pollicis longus rupture



Smith’s Fracture

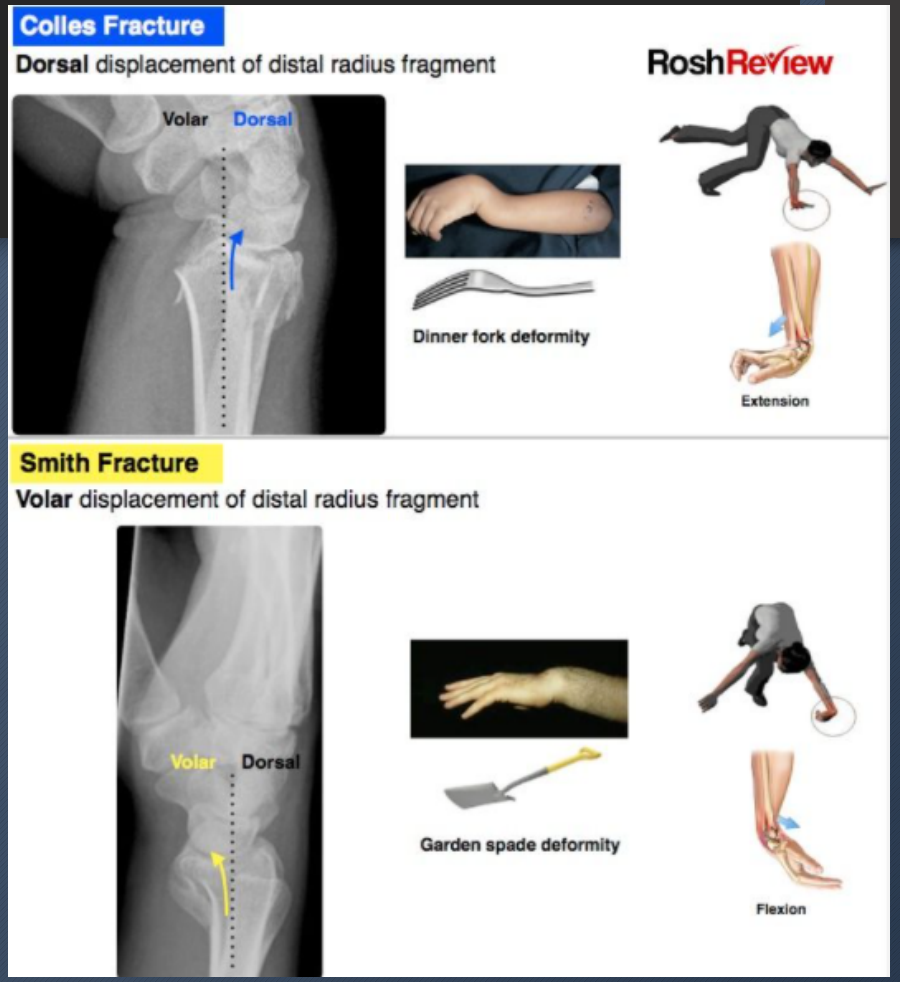
- Also known as “Reverse Collen”
- Fractures of the distal radius with anterior angulation of the distal fracture fragment.
- Classically causes by falling on the back of the hand with flexed wrists or direct blow to the back of the wrist.

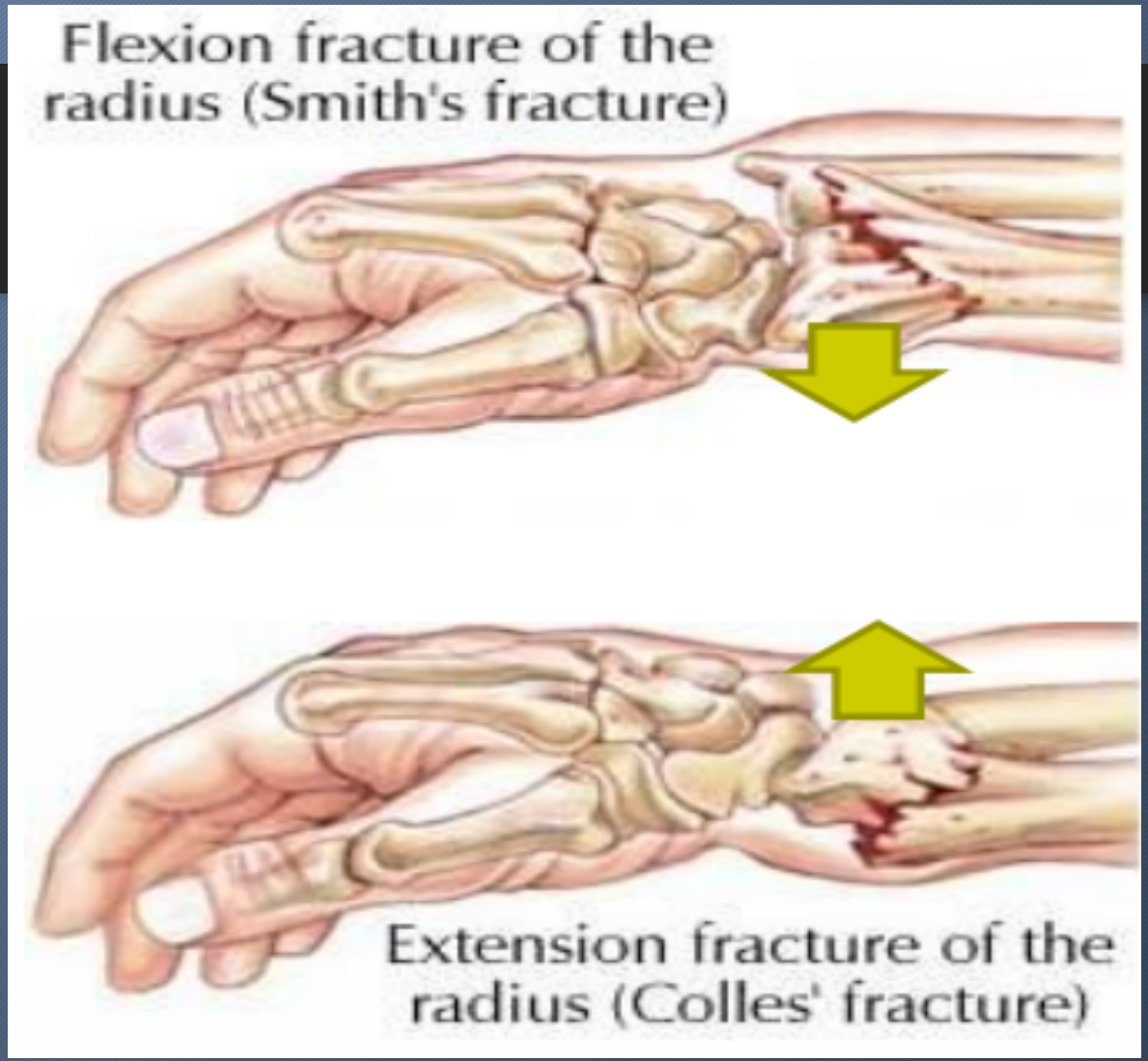


Clinical Features

- The patient present with wrist injury.
- ‘Garden Spade’ deformity.

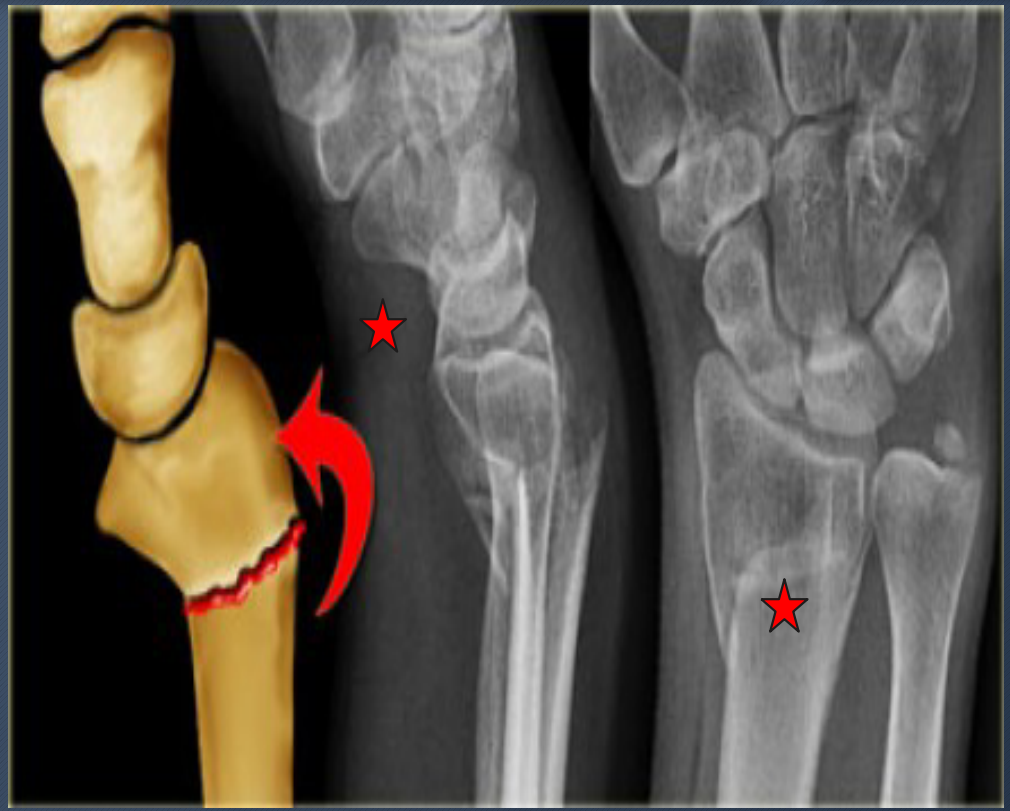
Colles Fracture

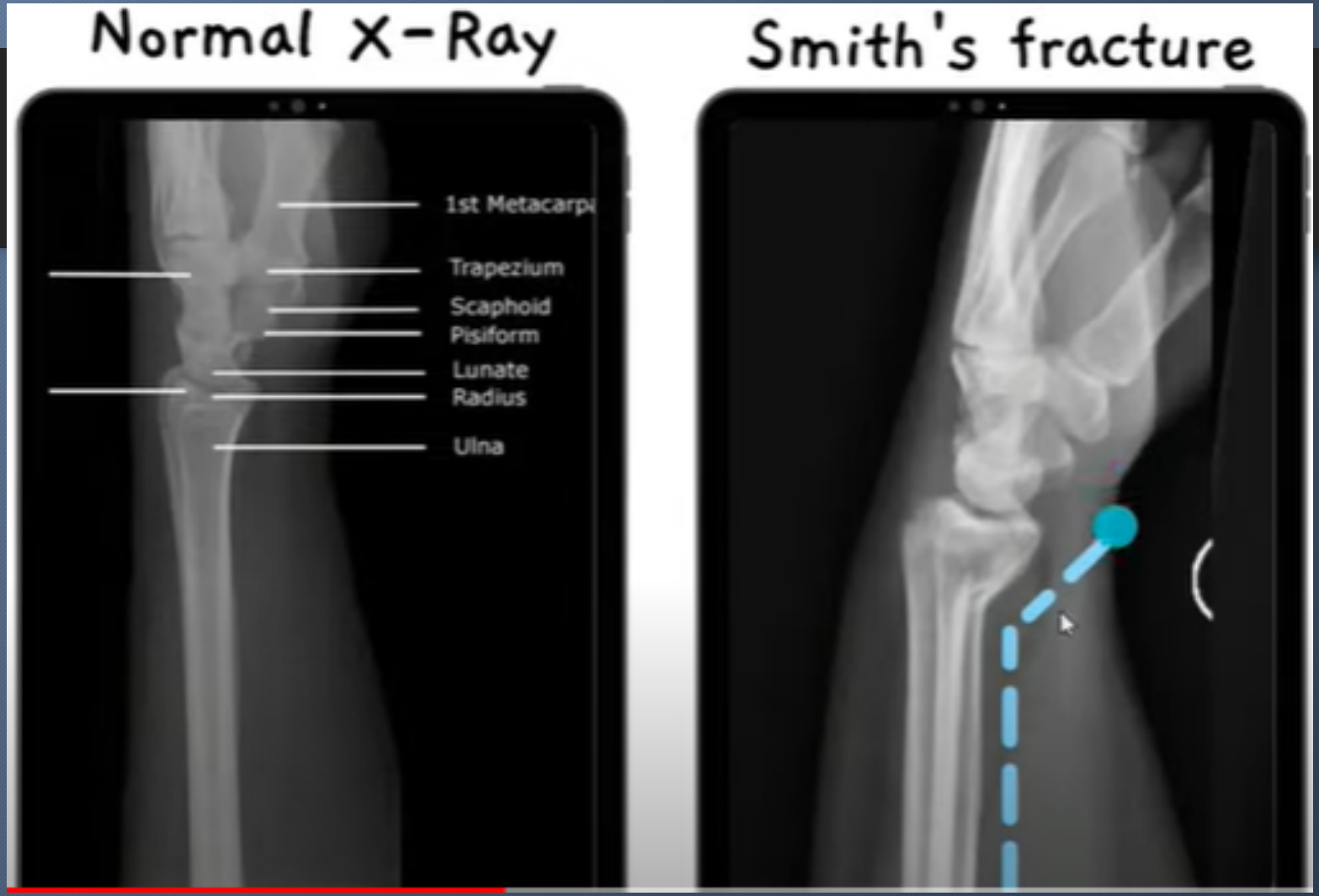


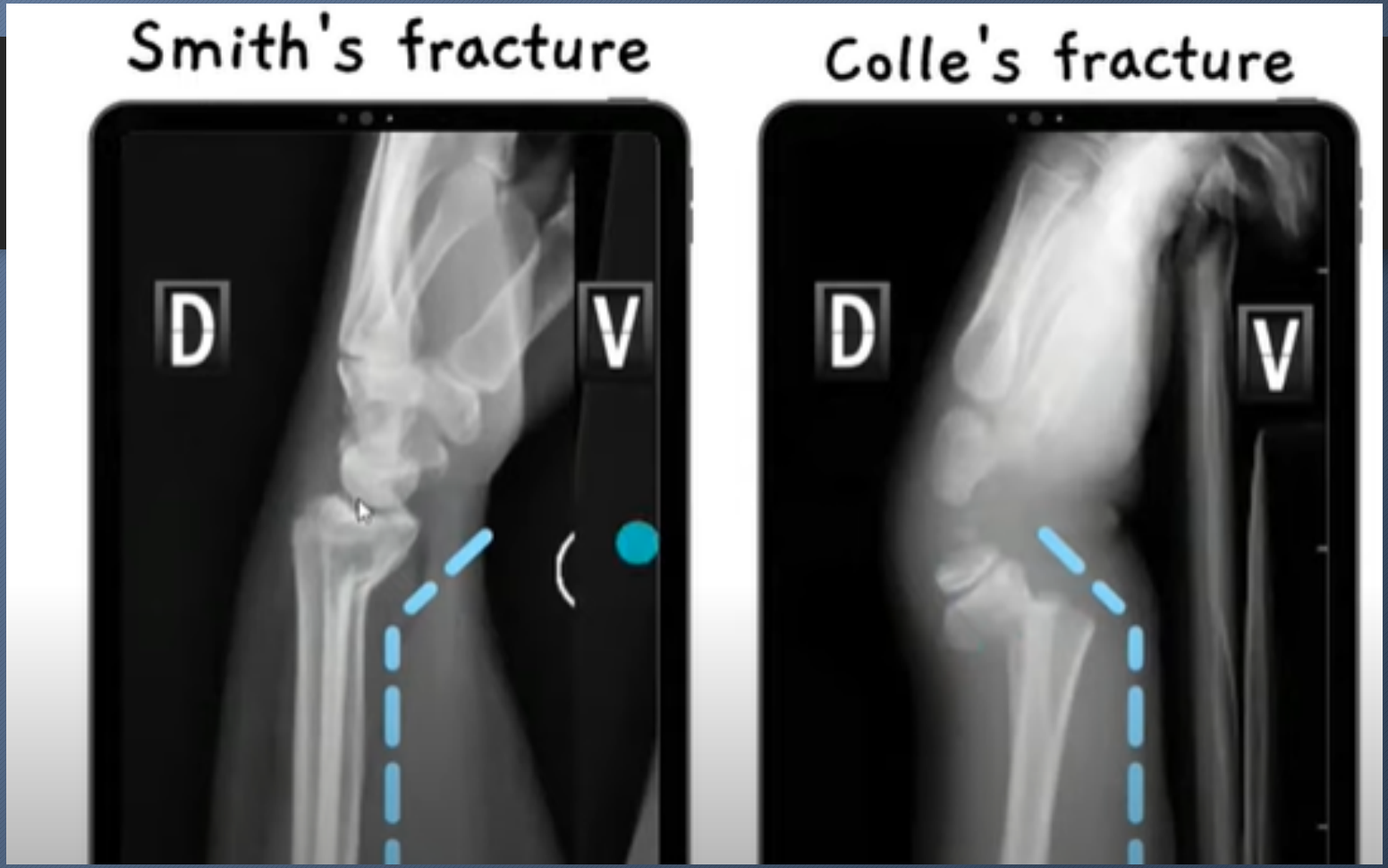

Flexion fracture of the radius (Smith's fracture)
Extension fracture of the radius (Colles' fracture)

X-ray

- Transverse fracture of the distal radial metaphysis
- Anterior (volar) angulation of the distal fragments.




Normal X-Ray
1st Metacarpa
Trapezium
Scaphoid
Pisiform
Lunate
Radius
Ulna
Smith's fracture

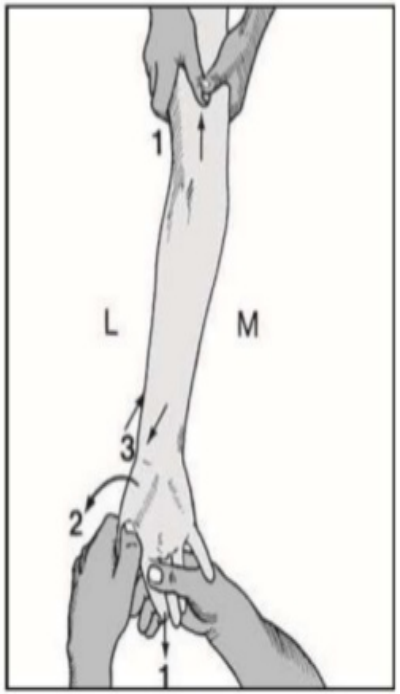

Smith's fracture
D
V
Colle's fracture
D
V

Management

- The fracture is reduced by traction, supination and extension of the wrist, and the forearm is immobilized in a cast for 6 weeks.
- X-rays should be taken at 7–10 days to ensure the fracture has not slipped.
- Unstable fractures should be fixed with percutaneous wires or a plate.

Treatment

- The fracture is reduced by traction, supination and extension of the wrist, and the forearm is immobilized in a cast for 6 weeks.



Fractured radial styloid (Chauffeur's)

- Intra-articular fractures of the radial styloid process.

- May occur after a fall on an outstretched hand, or starting an old-fashioned car with a hand crank.

X-ray

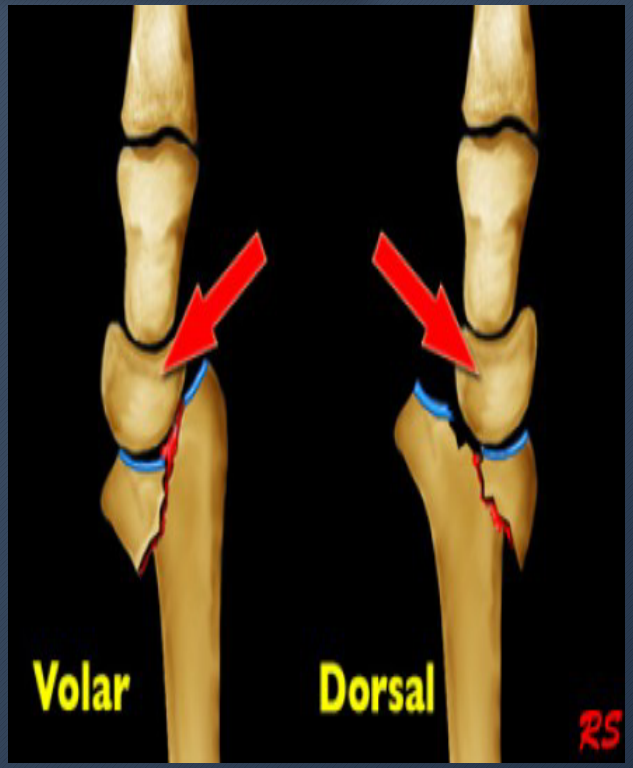
- The fracture line is transverse, extending laterally from the articular surface of the radius

Management

- If there is displacement, it’s reduced by ulnar deviation.
- X-ray should be taken to check for complete reduction.
- Incomplete reduction may lead to osteoarthritis.
- In this case => ORIF (Open reduction and internal fixation)

Barton’s fracture

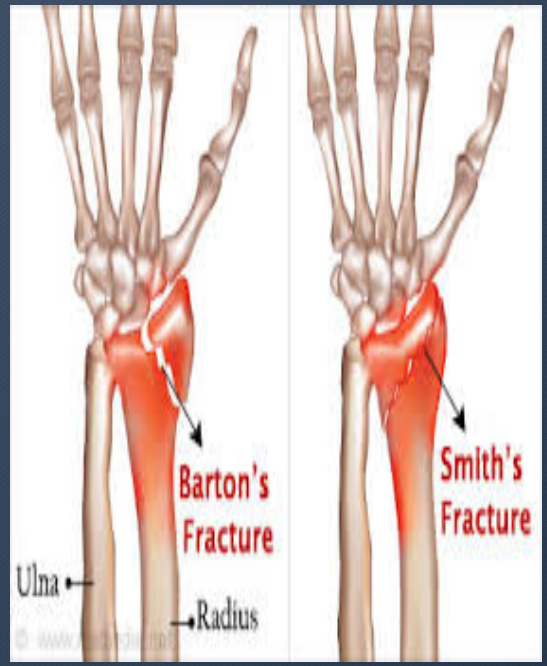
- An intra-articular fracture of the distal radius with associated dislocation of the radio-carpal joint.
- Barton fracture can be described as volar (more common) or dorsal.
- Dislocation of the radiocarpal joint is the hallmark of Barton's fractures.
- These fractures have a great tendency for re-dislocation and malunion.



Volar subluxation (True Barton)

- It can be mistaken with Smith's Fracture, but it differs in that the fracture is oblique which extends from the articular surface to the volar aspect of the radius.

- This will lead to the anterior displacement of the radiocarpal joint.



Dorsal Sublaxation

- Could be mistaken with Colle's fracture, but it differs in that the fracture is oblique which extends from the articular surface to the dorsal aspect of the radius.

- This will lead to the posterior displacement of the radiocarpal joint.

Management

- Closed reduction: Dorsal subluxation is easier to reduce.
- Since both can easily be re-displaced => ORIF.

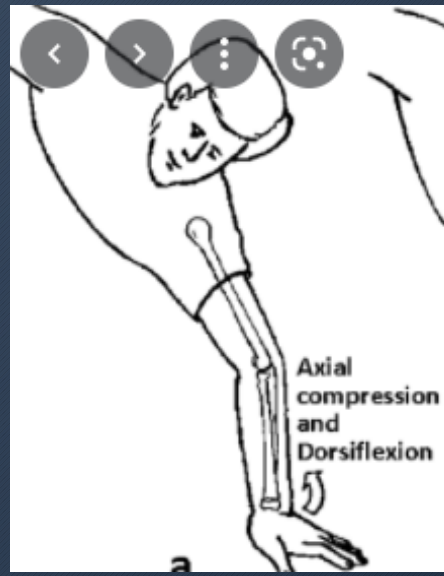
Complications of Radiocarpal Injuries

- Re-displacement (Barton's fracture)
- Carpal instability/injury
- Secondary osteoarthritis: Warning symptoms are restricted wrist movement and loss of grip strength.

Carpal Injuries

Carpal Injuries

- Most carpal bone fractures occur in the **proximal carpal rowe**
- The **scaphoid is the carpal bone most commonly fractured.**
- Carpal bone fractures usually occur in **younger people**, often from **high-energy falls on an outstretched** wrist such as may occur **while skiing**.

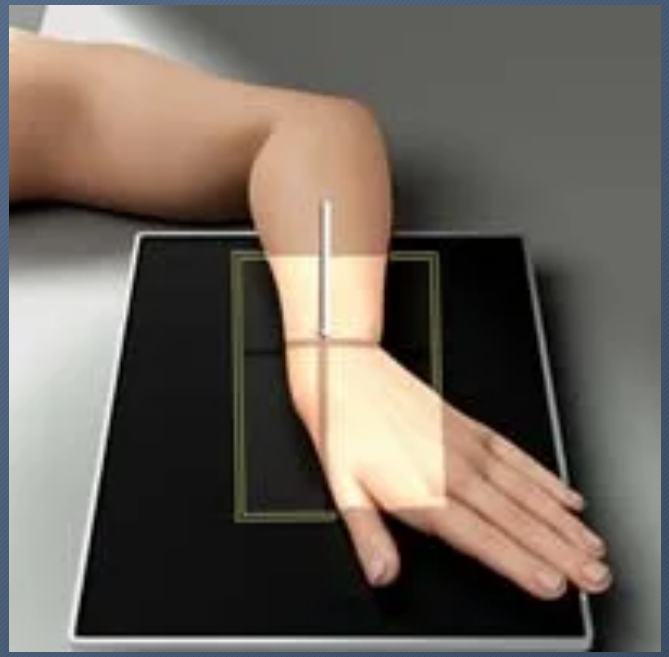


Principle of Management

- -X-rays are the key to diagnose, and there are golden rules to follow:

1. Accept only high-quality films.
2. Initially 3 standard views are obtained: -Anteroposterior. -lateral with the wrist neutral. -oblique ‘scaphoid’ view.
3. If the initial X-rays are ‘normal’, treat by clinical diagnosis, THEN repeat the X-ray 2 weeks later.

Scaphoid View



- THANK YOU