Fractures

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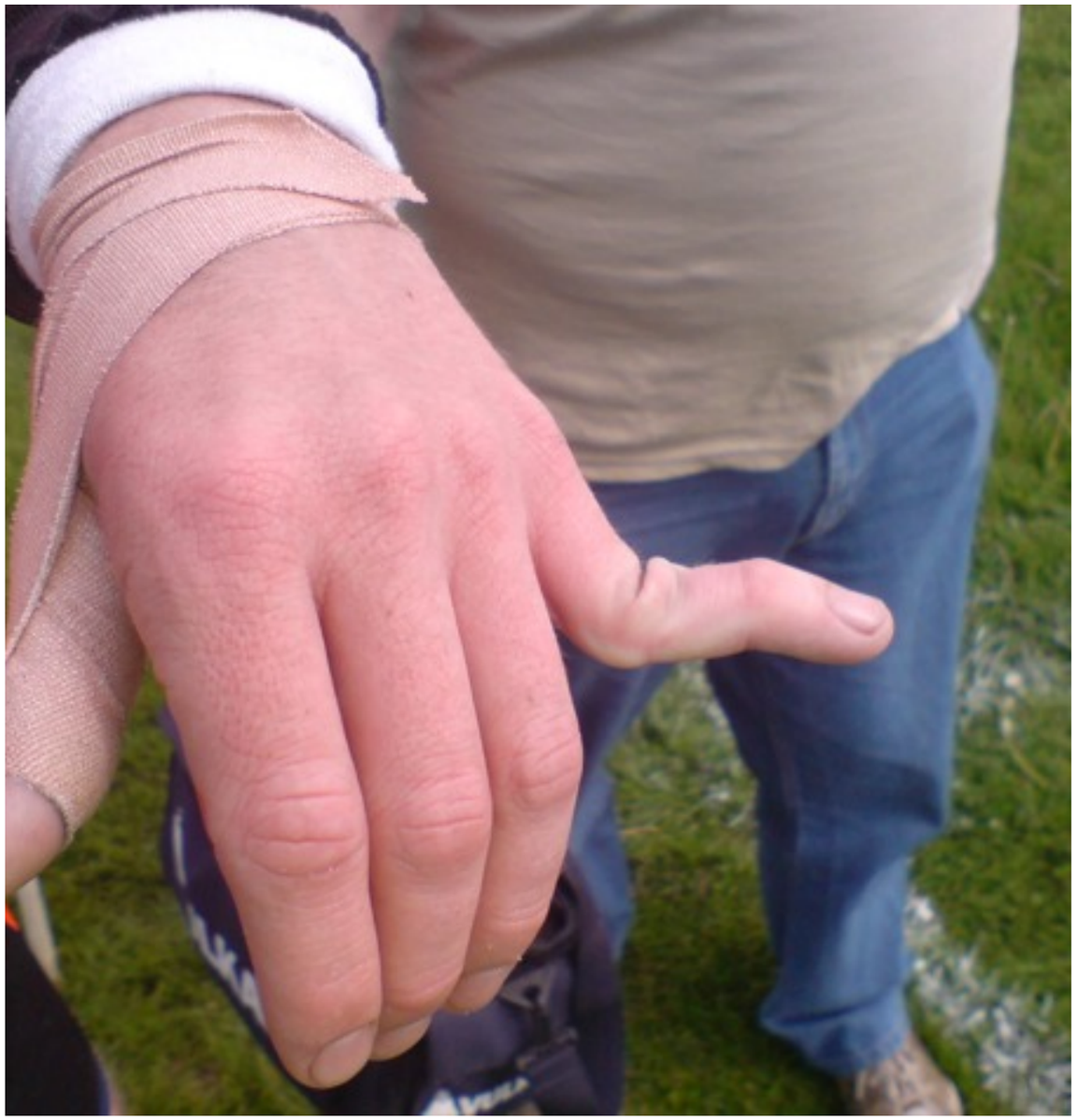
North Manchester General Hospital

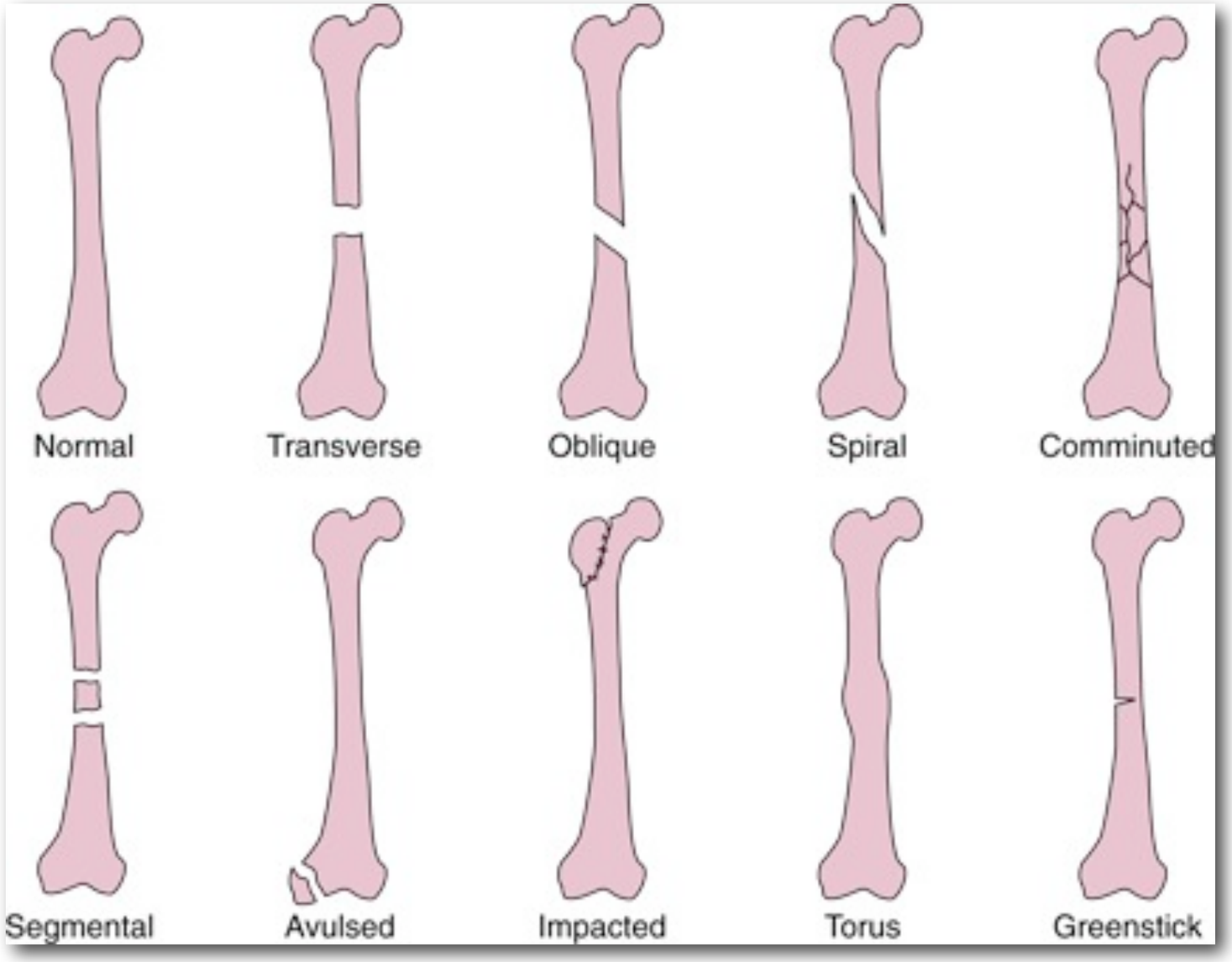
Contents

Introduction



- Common: 3452 attended NMGH A&E diagnosed as fracture April 07-April 08
- Always deal with other life threatening conditions first (ABCDE)
- Can have significant long term consequences and legal repercussions if missed or mismanaged
- Can have variation in management between orthopaedics consultants

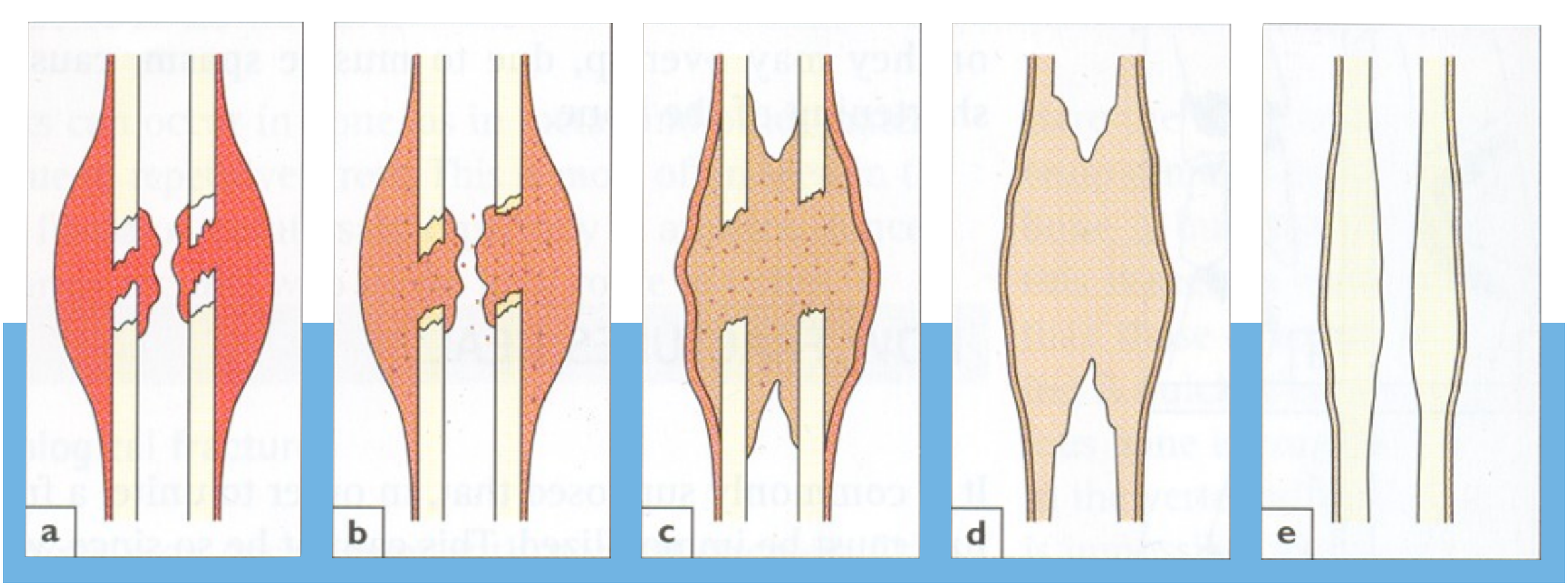
Direct
Twisting
Compression
Bending
Distraction



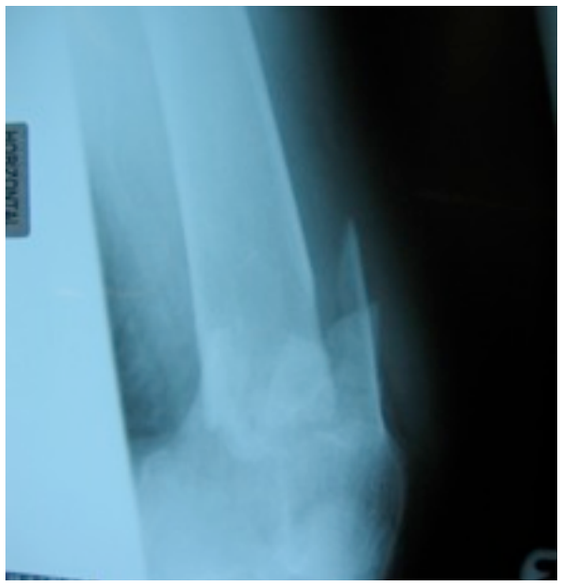
Mechanism

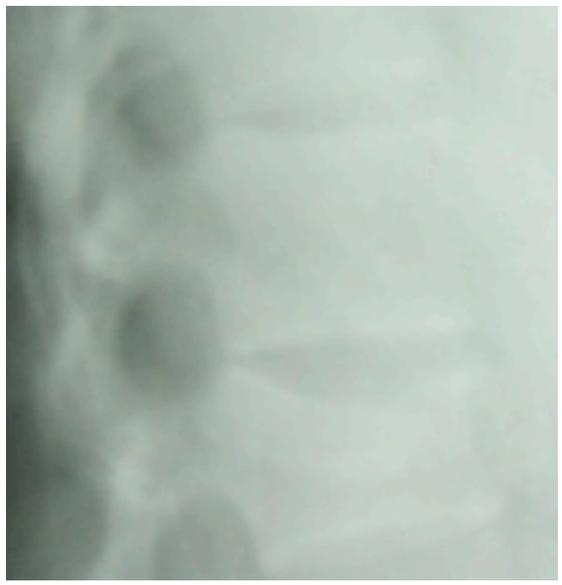
Fracture Healing

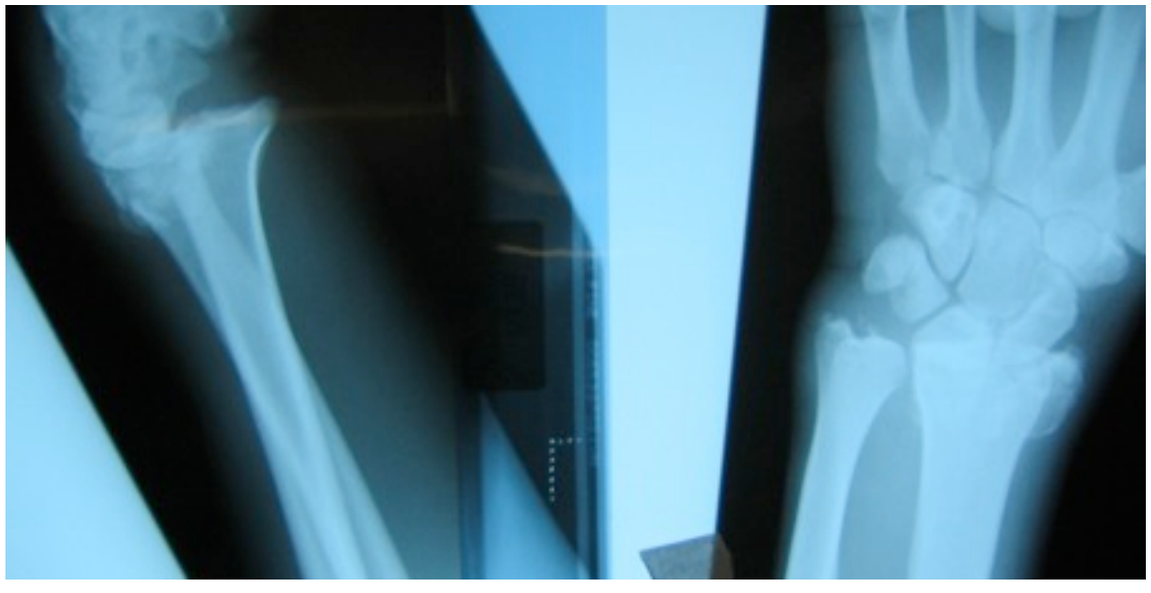
- a. Haematoma: immediate. Bone dies 1-2mm back
- b. Inflammation: <8hrs then haematoma resorption and capillary growth across gap
- c. Callus from 1 week: osteogeneic/chrondrogenic/ osteoclasts
- d. Consolidation 3-4 weeks
- e. Remodelling months/years, based on stress applied



Description







Anatomical Site/Side

Open/Closed

Simple/Complicated

Angulated/displaced/hitched

Shortening/overlap

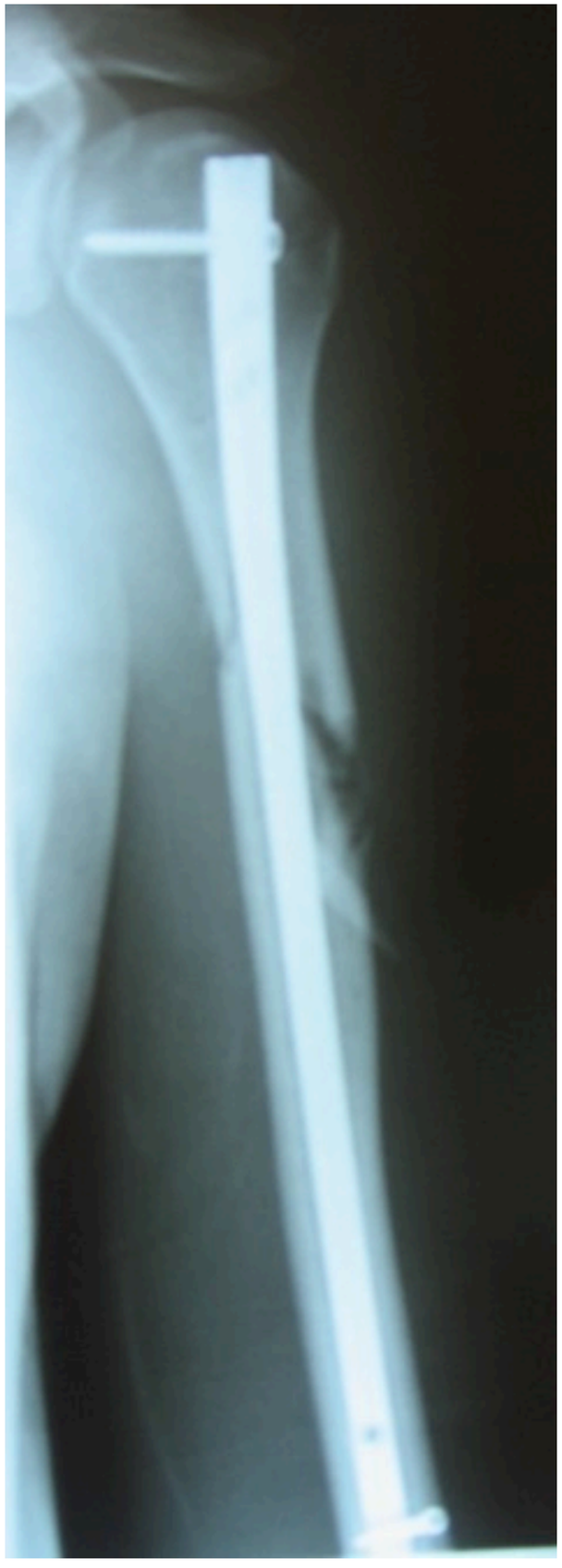
Transverse/spiral

Butterfly fragment/
Communited

Impacted

Intra-articular

Greenstick/Torus/Buckle



Treatment Principles

Reduction

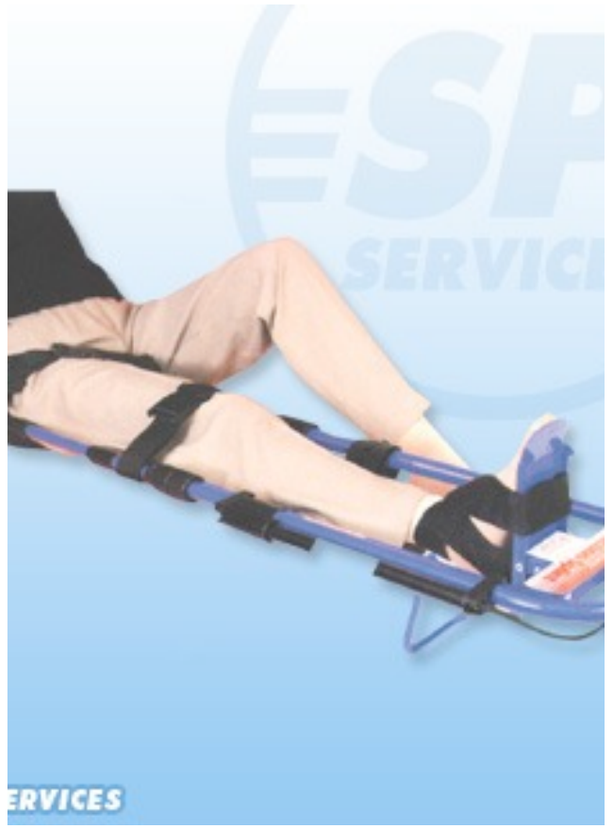
Immobilise joint above and below

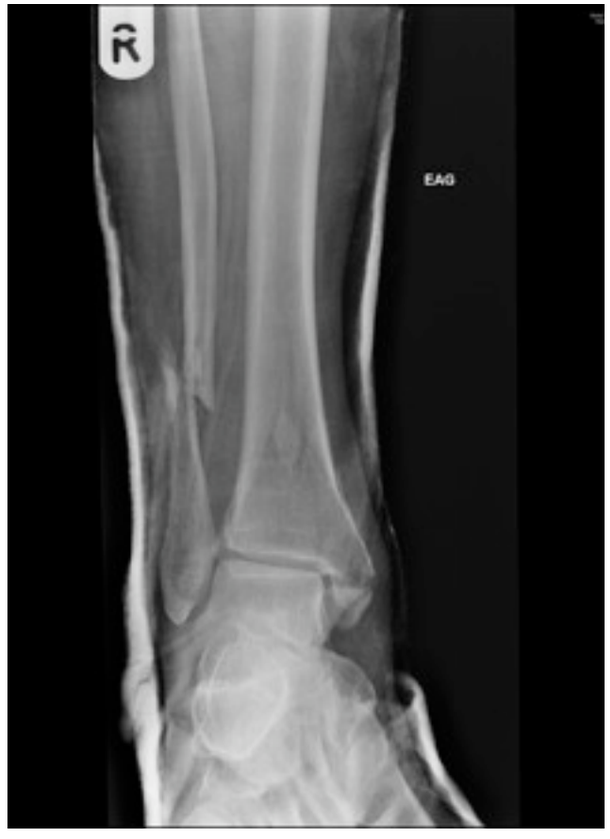
Backslab until fracture clinic

ORIF if unstable

Compound: IV cef/met and debridement <6hrs, ATT

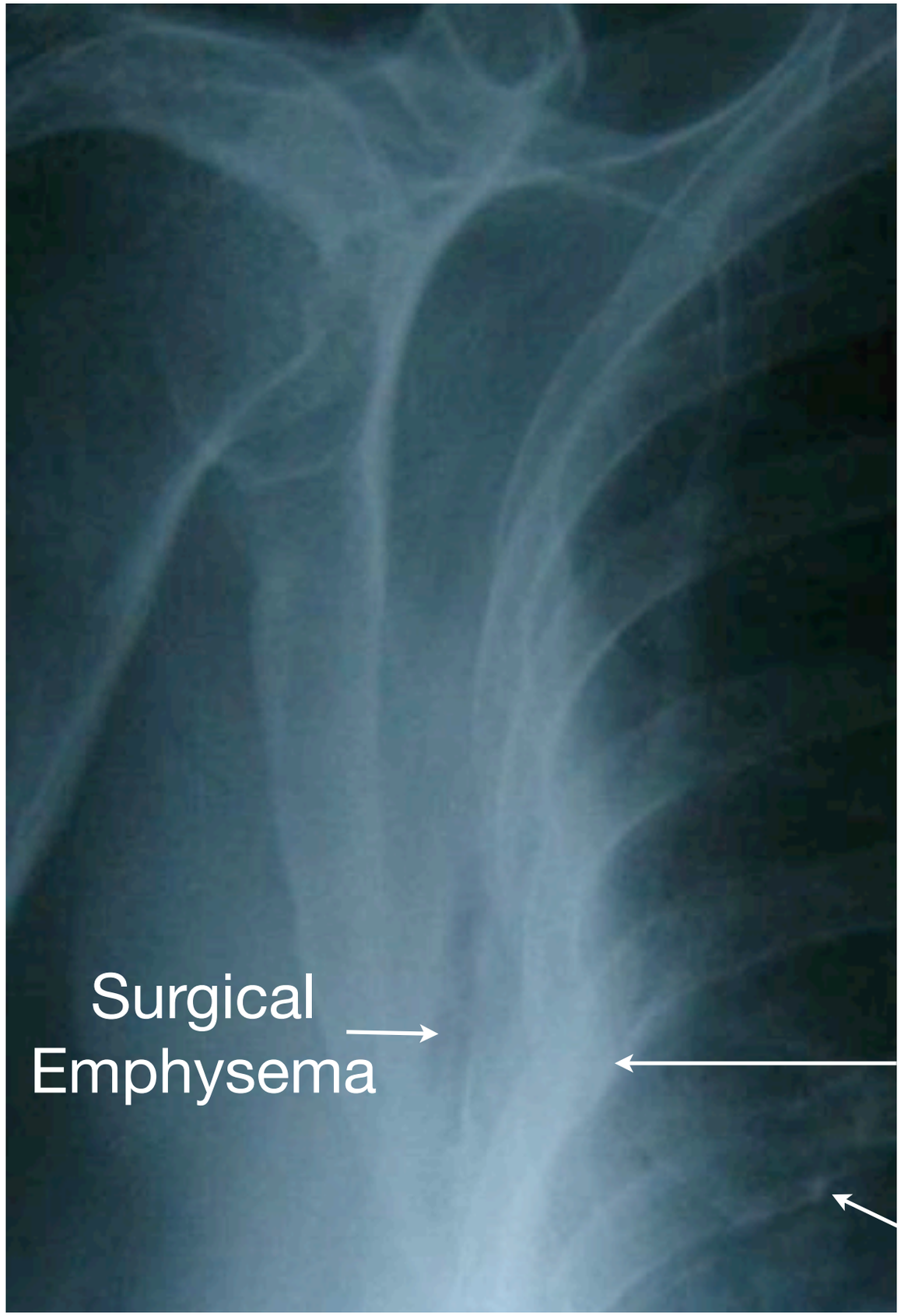
Traction





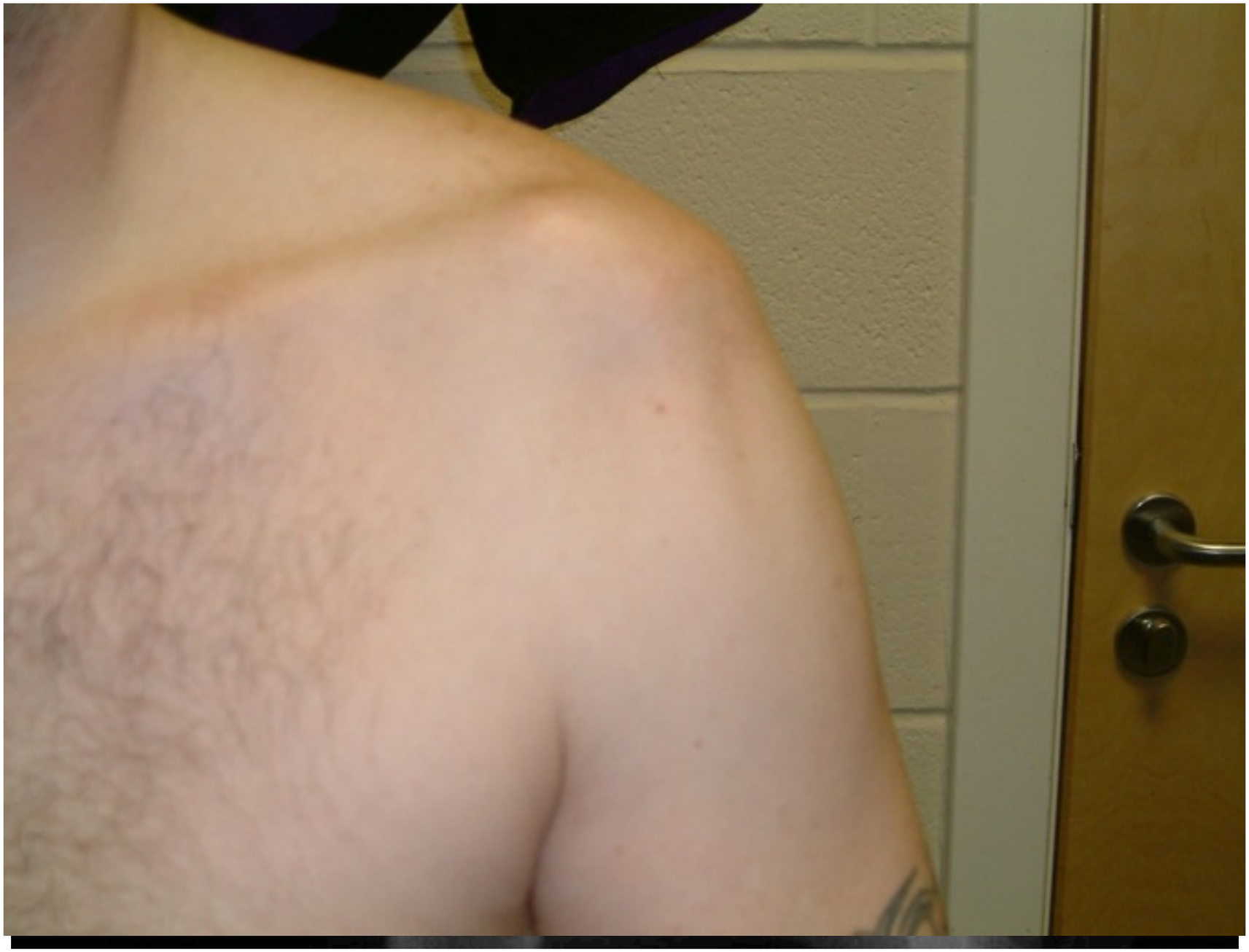
Rib Fractures

- Don’t x-ray routinely
- In significant mechanism/? complications: x-ray
- Be wary of multiple rib fracture-underlying
- May be seen on shoulder views or on trauma series CXR
- Proper analgesia and rib advice
- May get haemoptosis, pneumothoarax, pneumonia



Anterior Dislocation

Step off clinically
Check axillary nerve
Needs MUA under propofol
May fracture at MUA
Collar'n'cuff (C-n-C) post MUA
clinic f/u



Upper Limb

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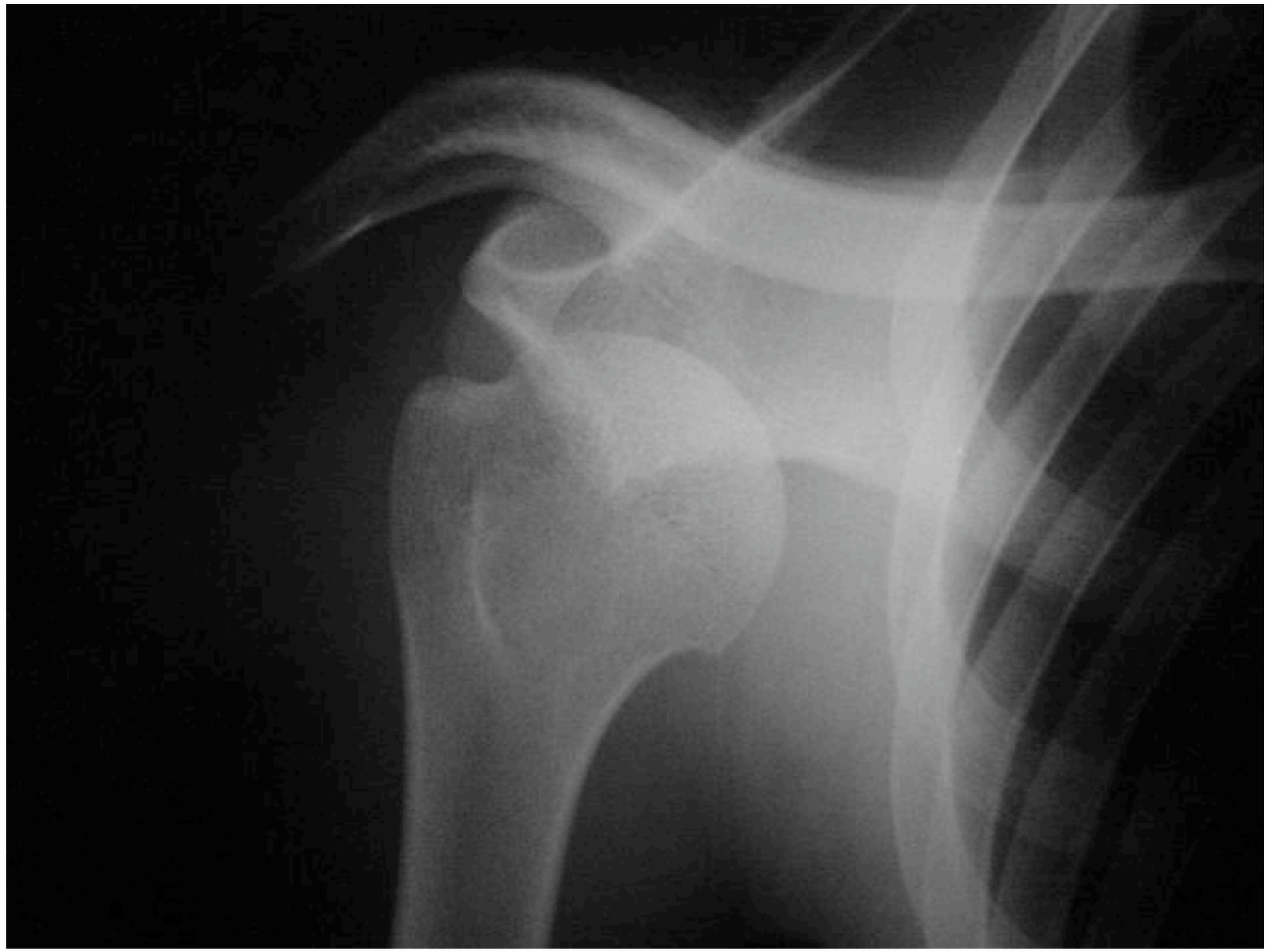

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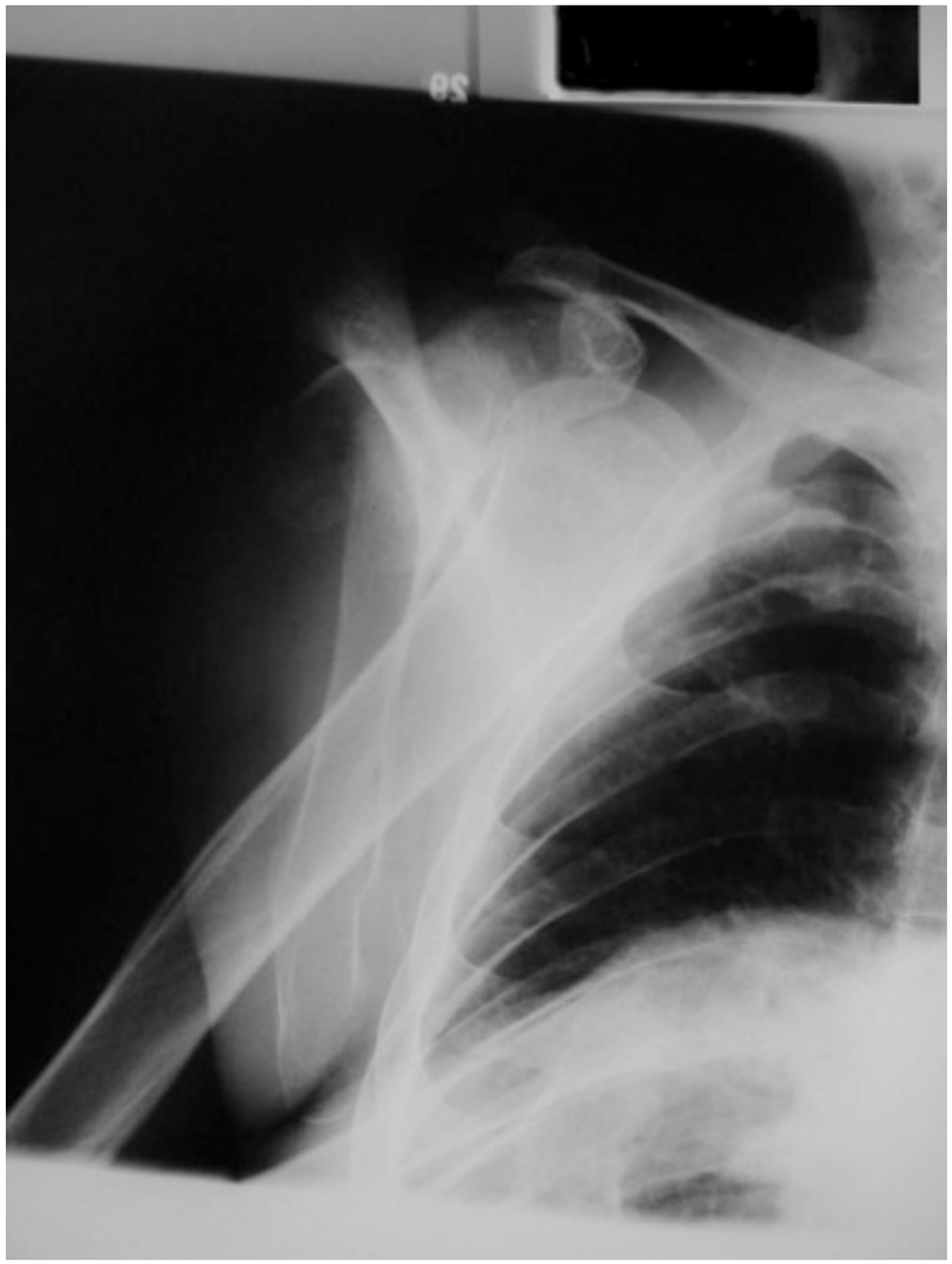
Posterior Dislocation

Unable to externally rotate upper limb
"Light Bulb Sign"
Check axillary nerve
Needs MUA then C-n-C
clinic f/u



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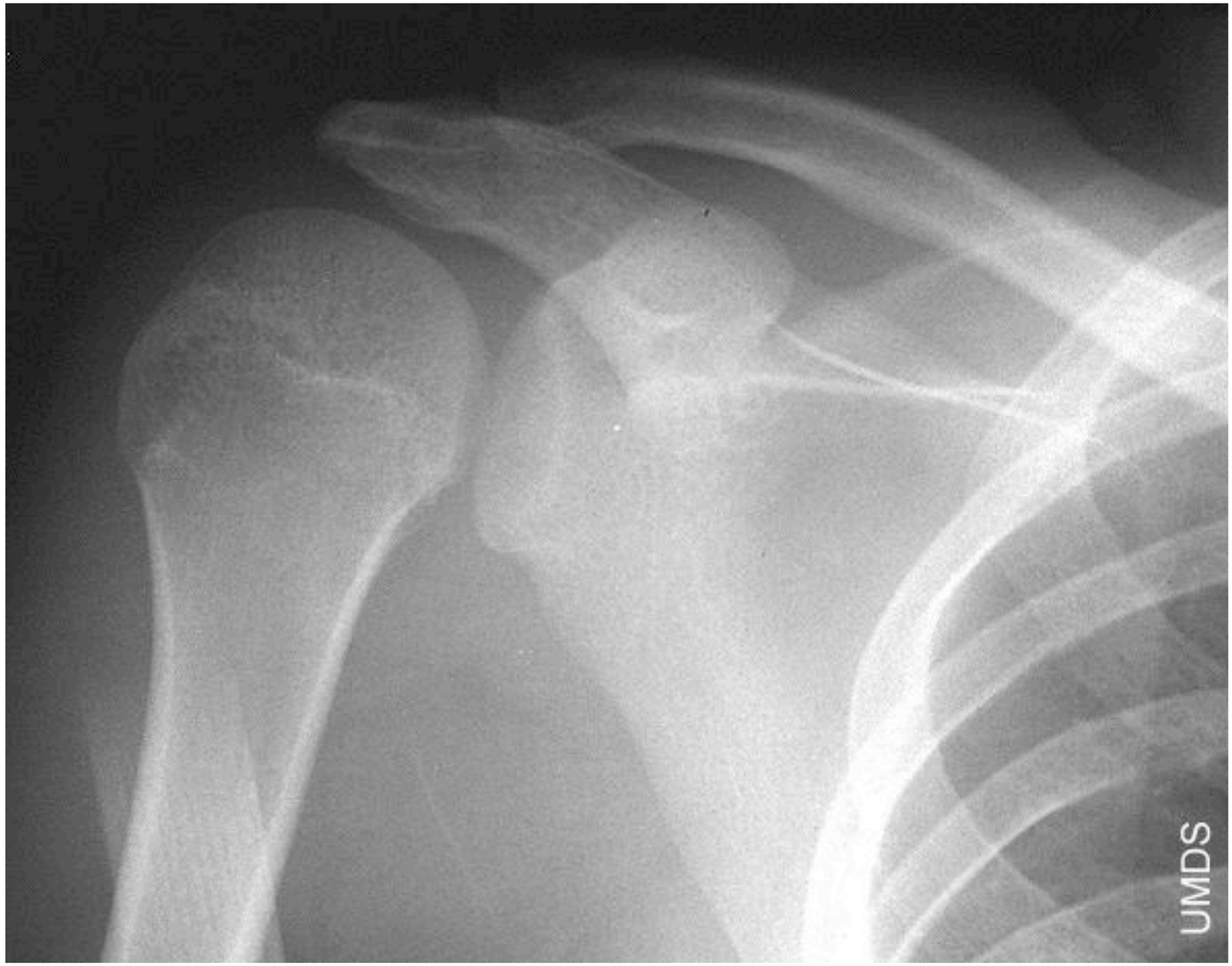

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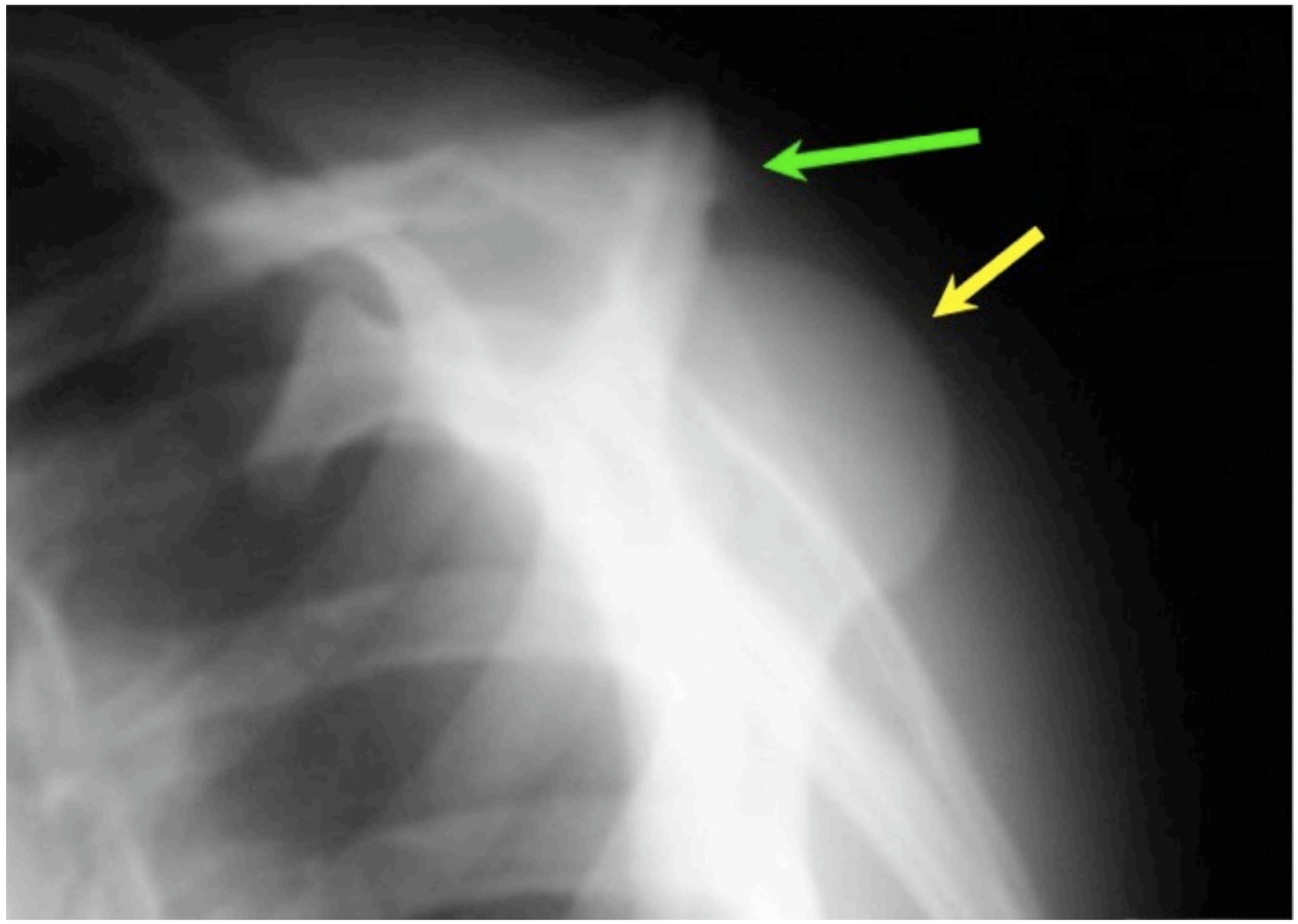
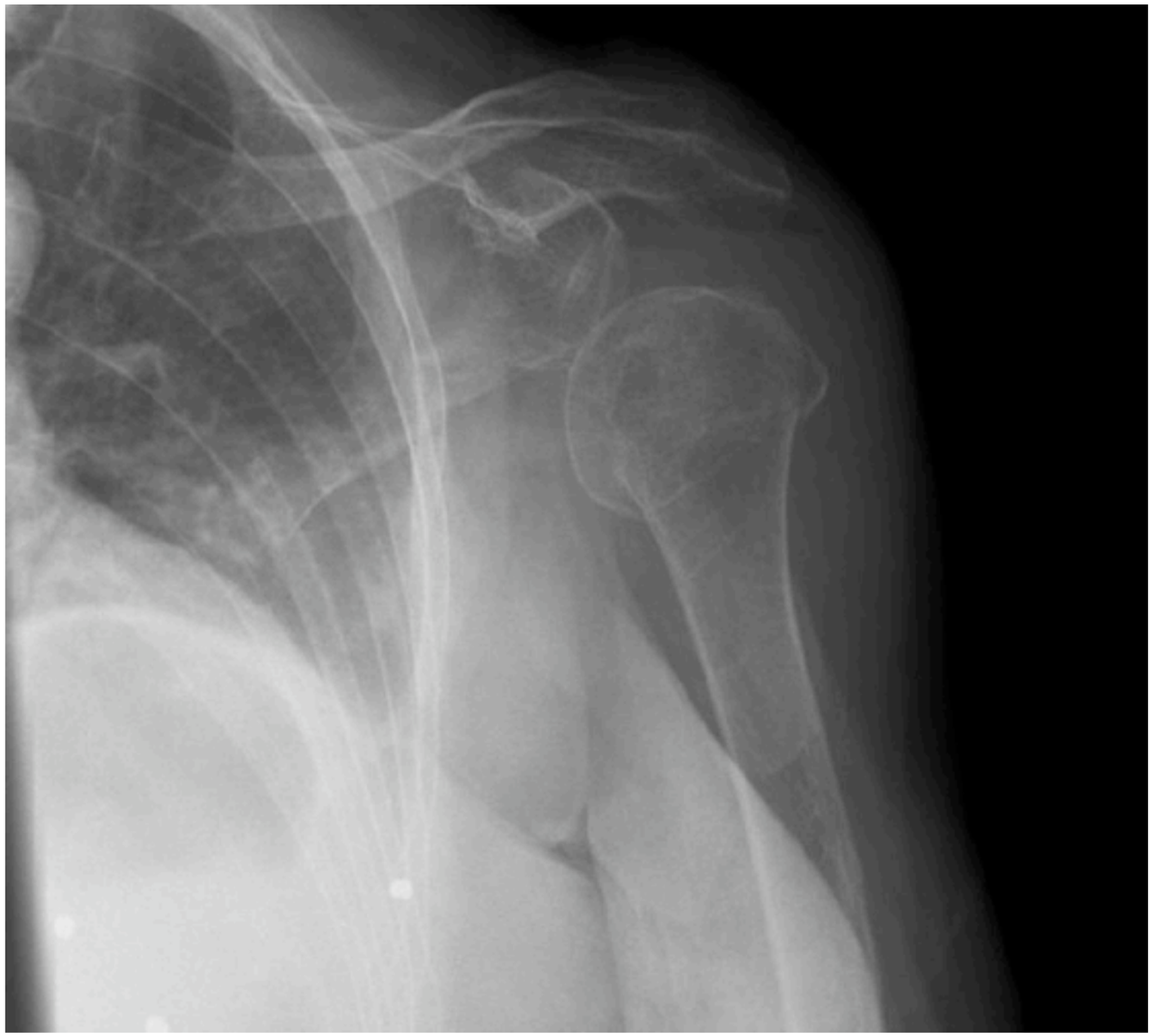


Upper Limb

Fracture Surgical Neck

Pain and swelling
FOOSH
May have dislocation; don't MUA-Ortho ref.
Often elderly/young
Described by number of parts
C-n-C. Unless sig. displaced-# clinic f/u



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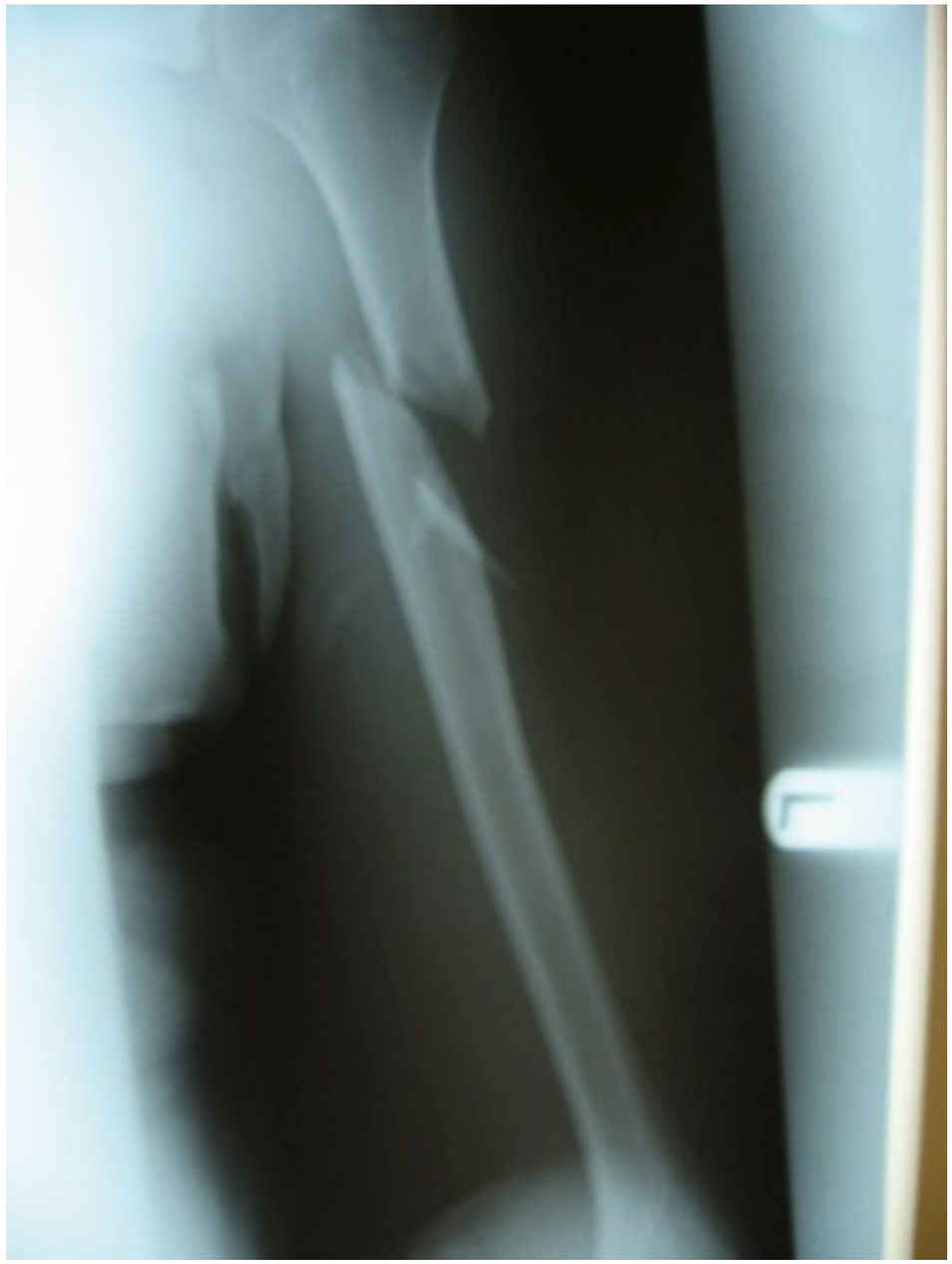
Fracture Humerus

Pain and swelling
FOOSH
Check radial nerve and pulse
Rx: Usually C-n-C / U-slab/Hanging cast
Ref Ortho



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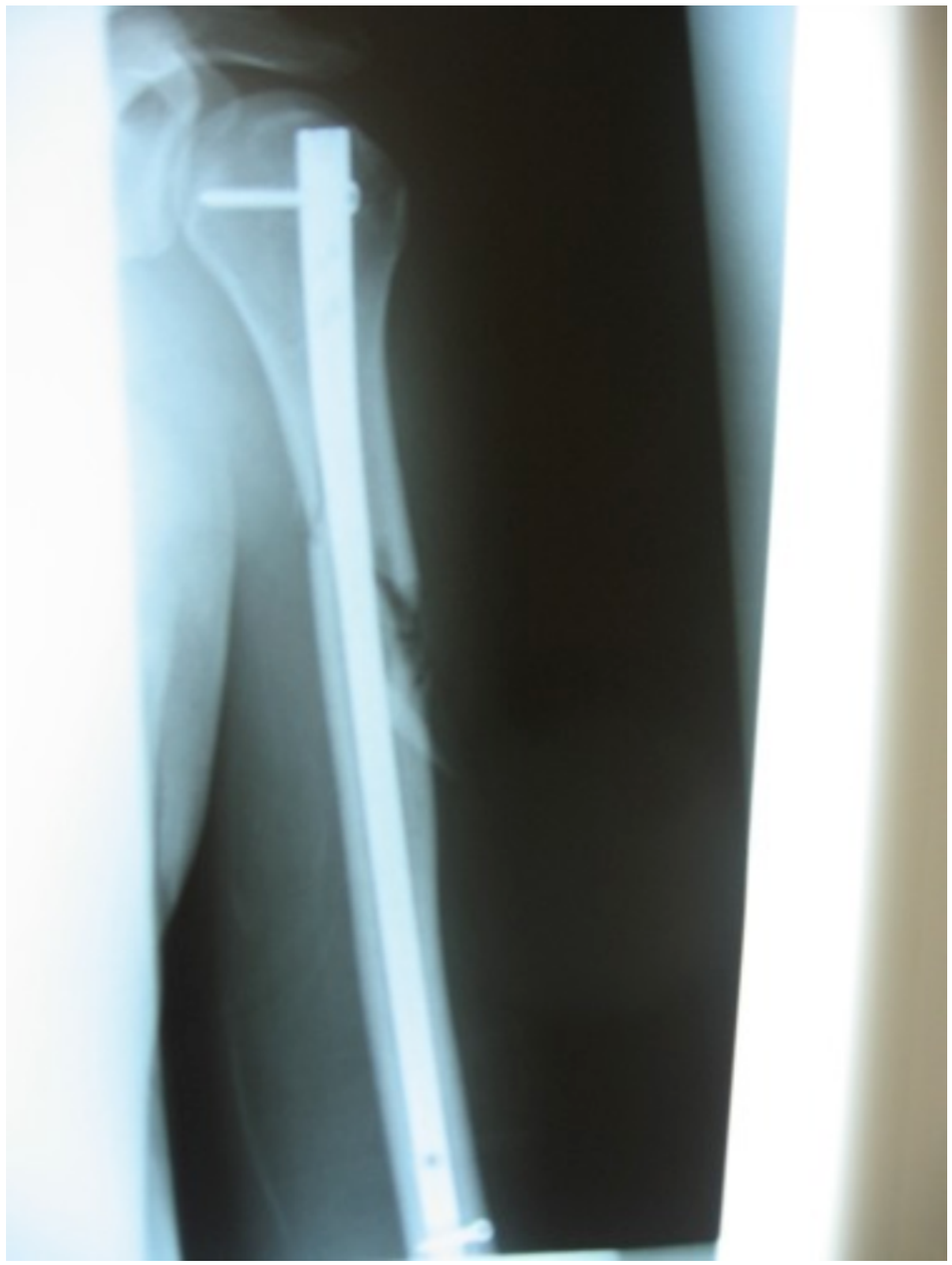

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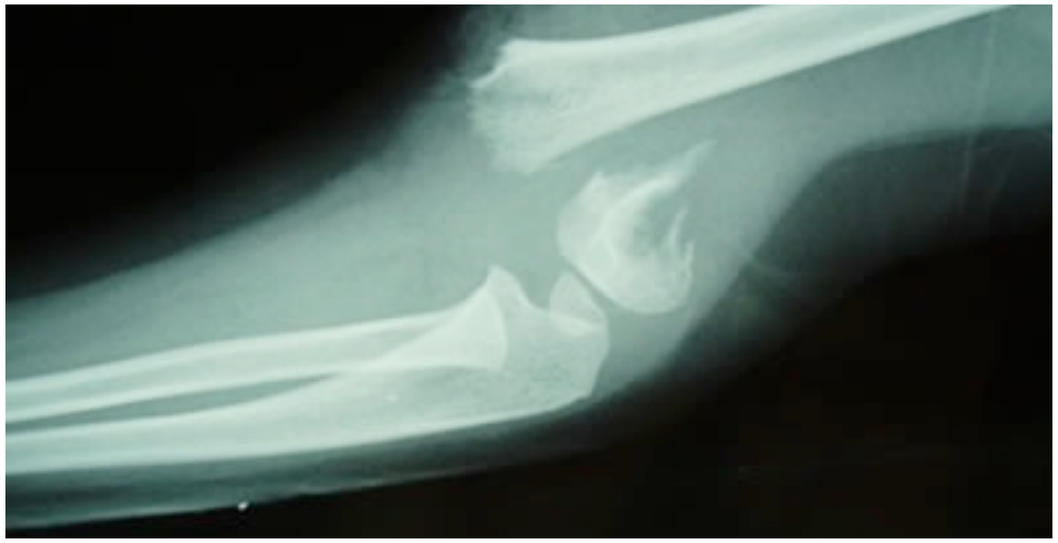
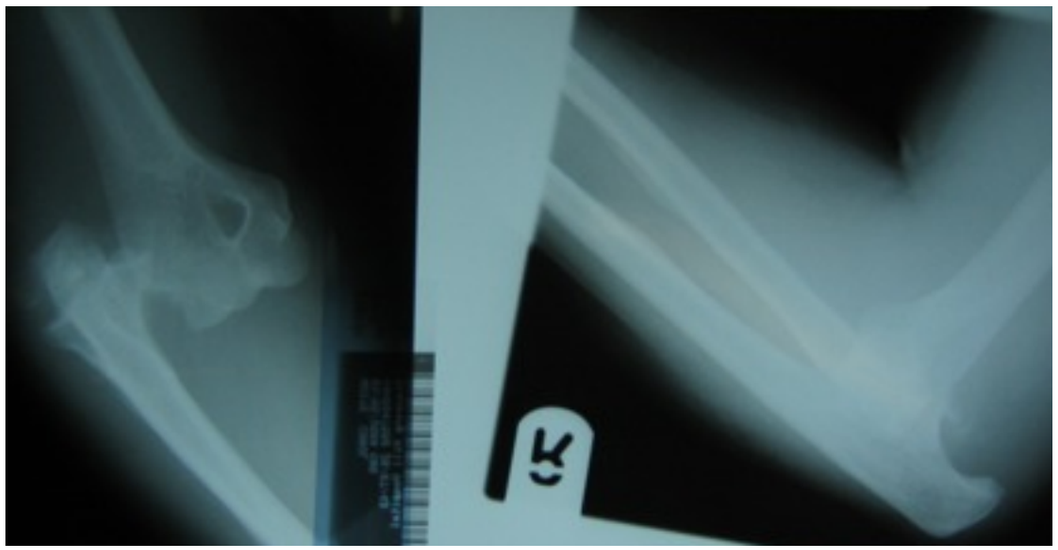


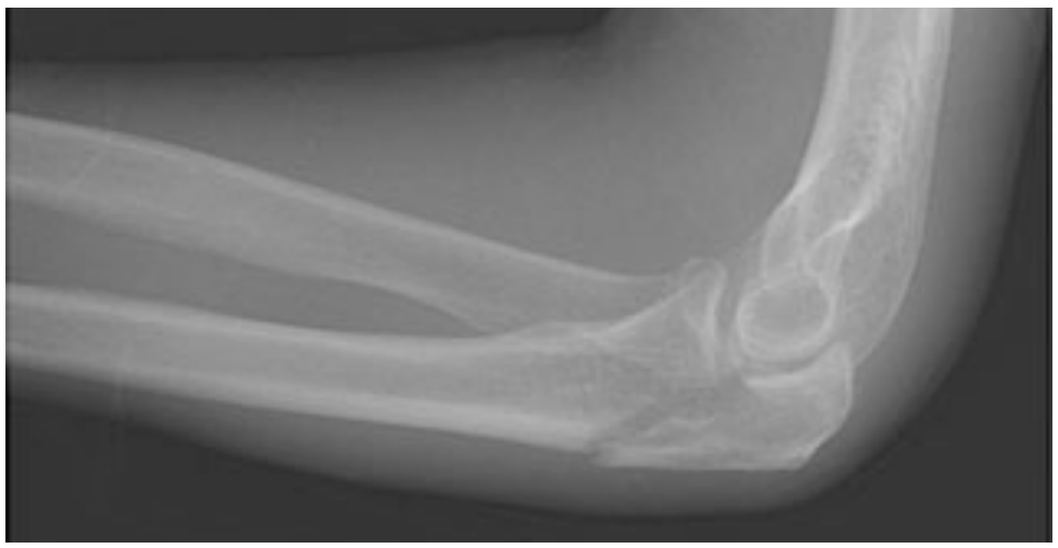
Supracondylar

Children with FOOSH, posterior 95%
Check pulses/neuro. Analgesia.
Back-slab in undisplaced
Refer Ortho Booth Hall for MUA if not



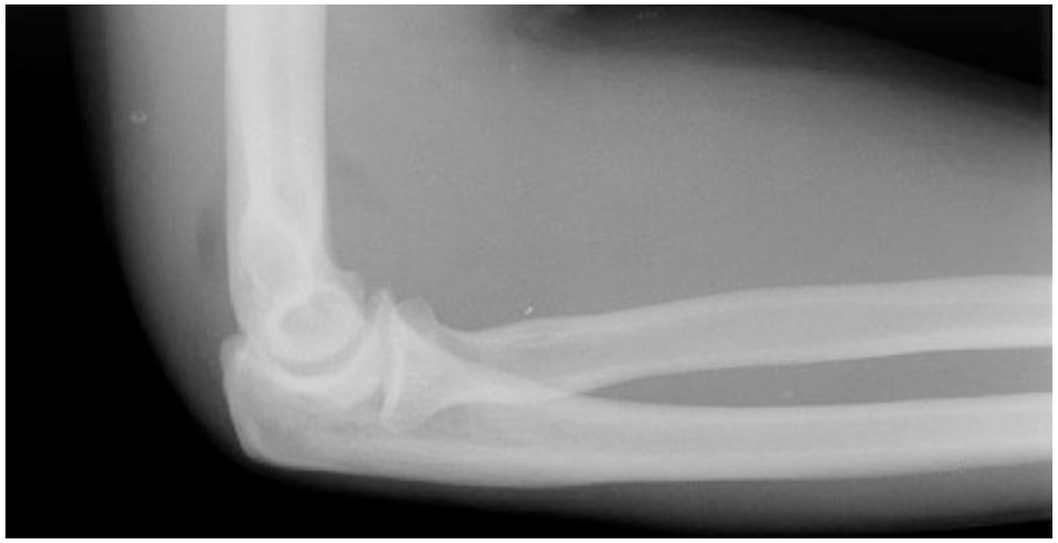
Dislocated Elbow

Adults
Check pulses/neuro
Give morphine
Will need MUA to reduce then C-n-C



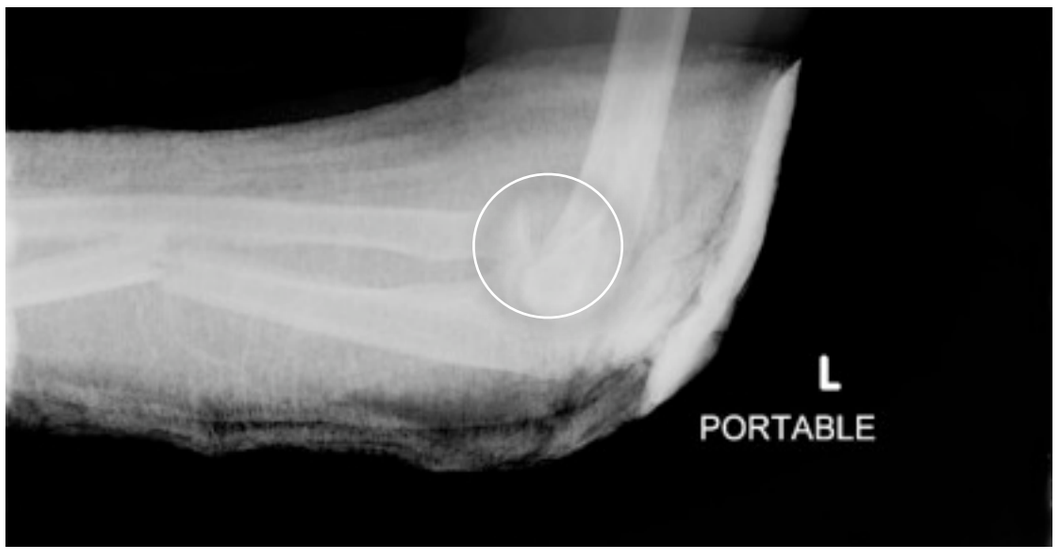
Olecranon Fracture

Fall onto elbow
Pulled on by triceps-angulates/distracts
Back slap if undisplaced
refer Ortho for ORIF if displaced



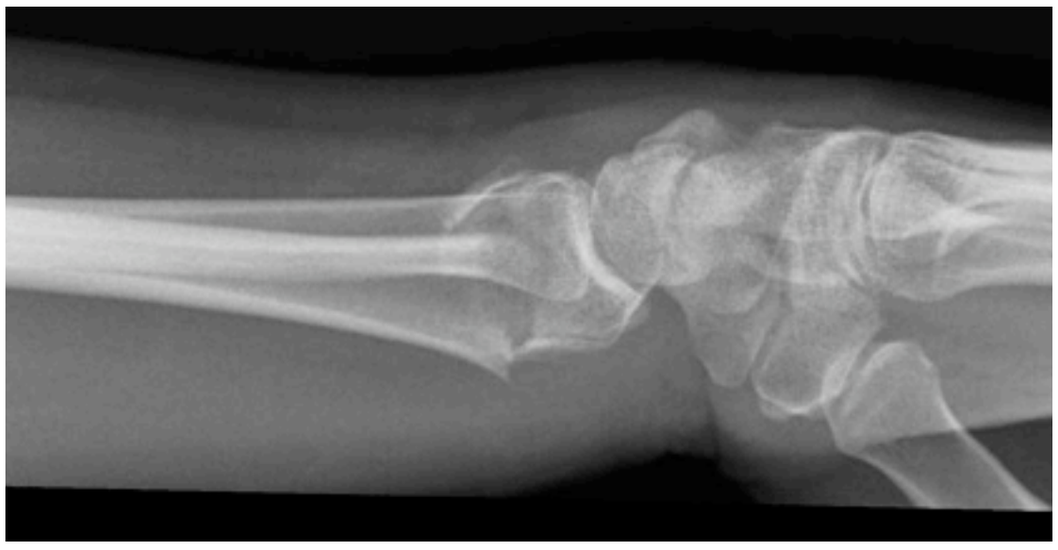
Radial head

FOOSH in adults
May only have “fat pad” sign
C-n-C if undispaced
Refer Ortho of angulated/displaced



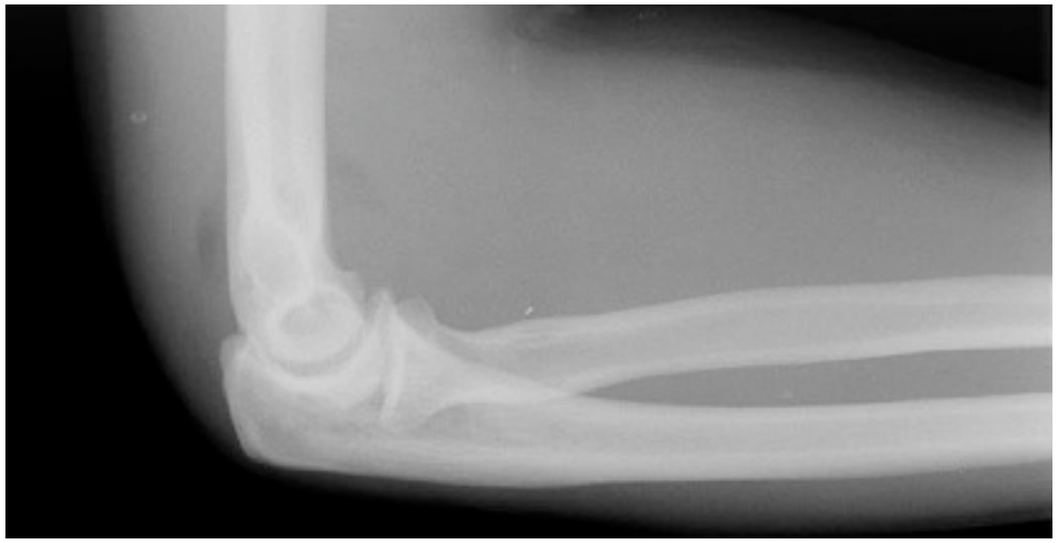
Radius/Ulna

FOOSH
Usually need ORIF so refer Ortho
Undisplaced usually in kids-back slab and # clinic f/u
Don’t miss fracture/dislocations



Distal Radius/Colles

FOOSH, esp elderly
If MUA if angulation >10° or displaced under propofol/haematoma block. Then back slab and # clinic f/u
Refer if particular severely displaced especially if young



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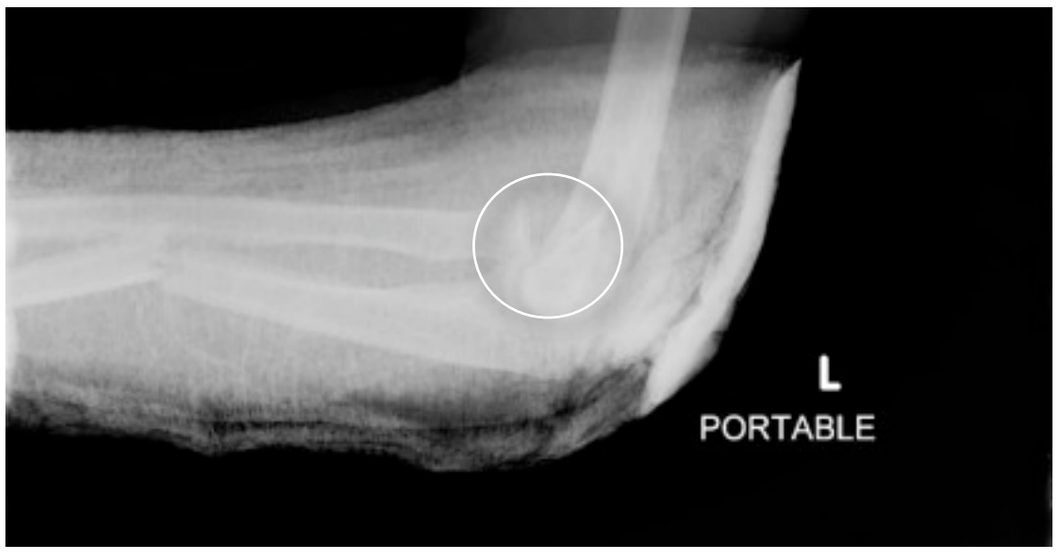

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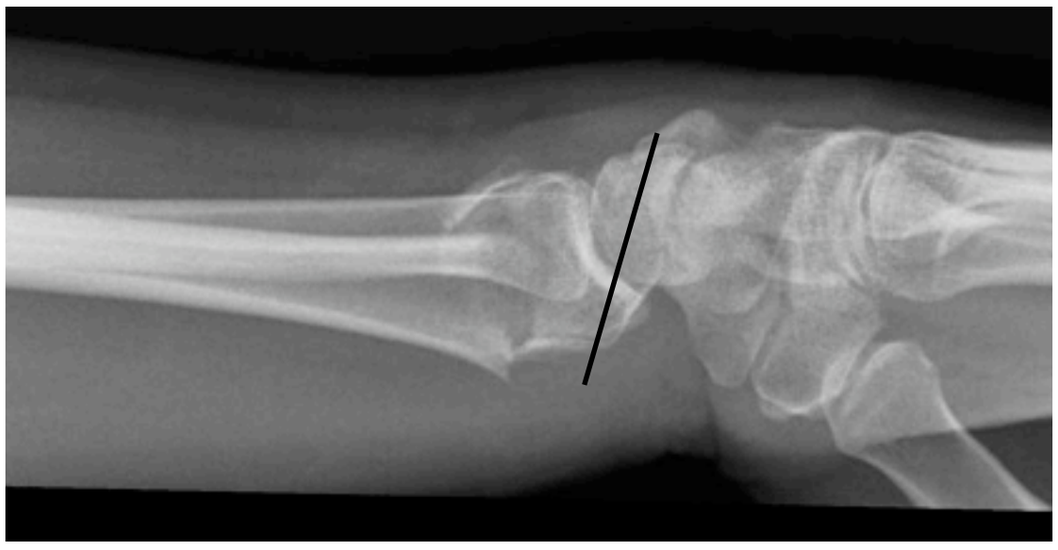

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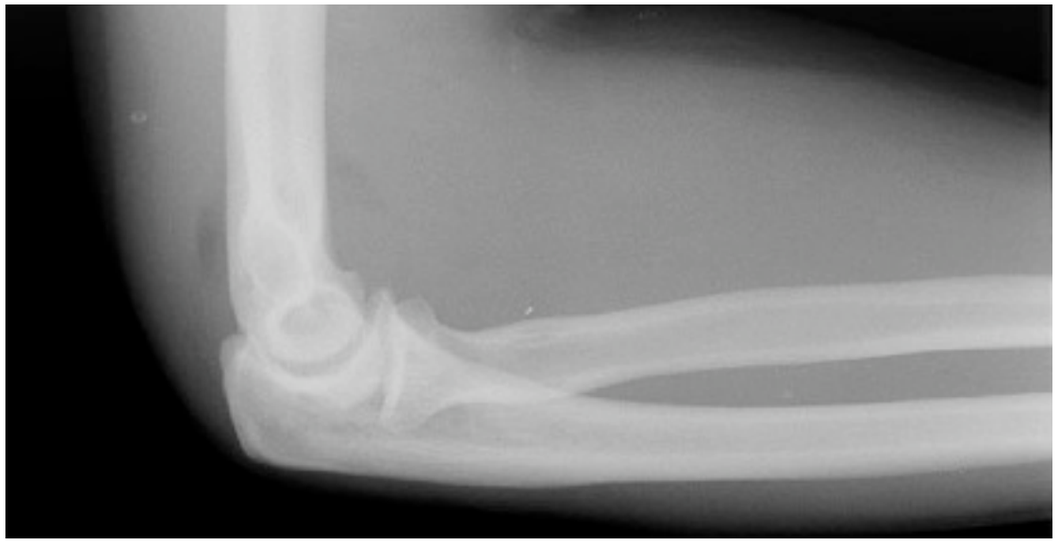

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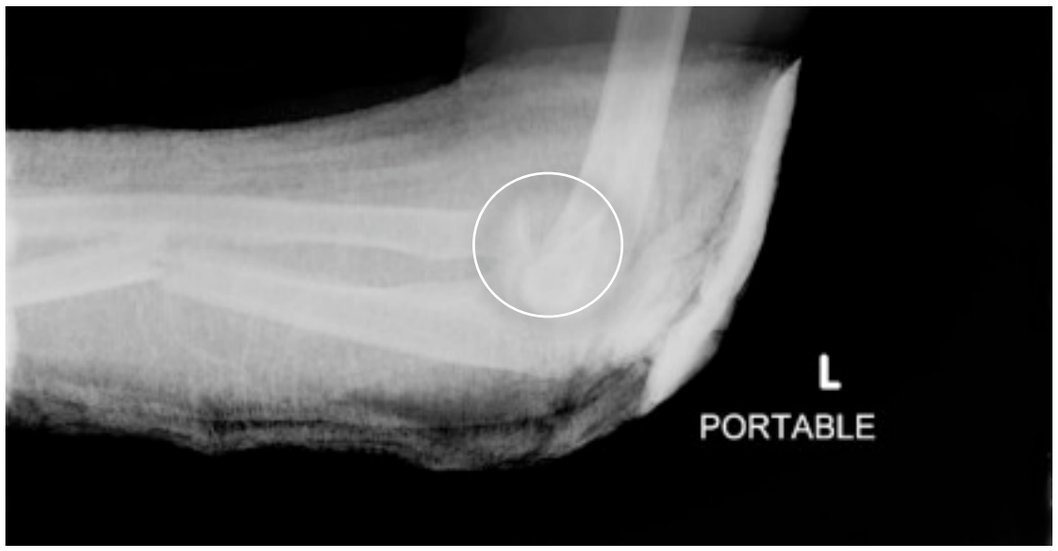

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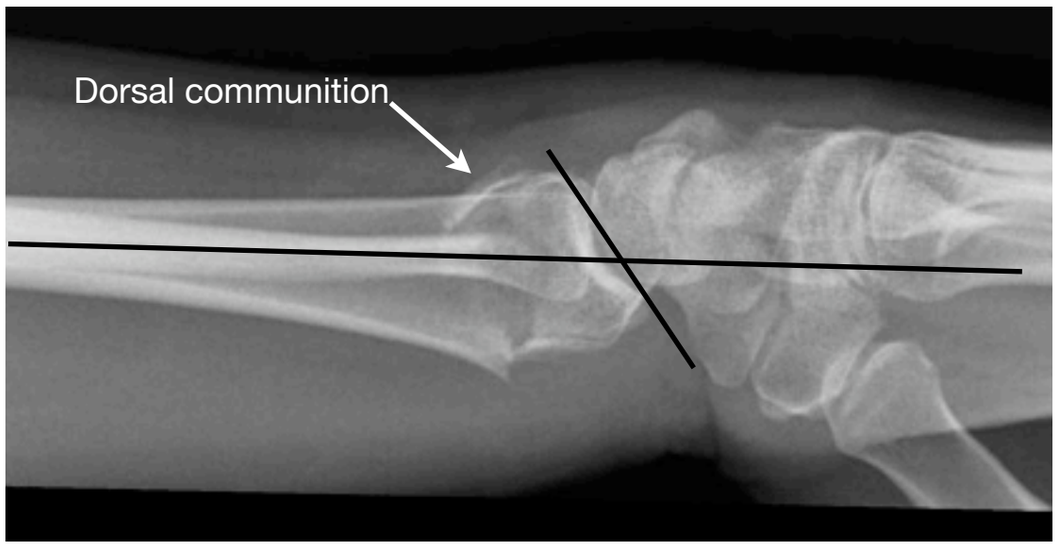

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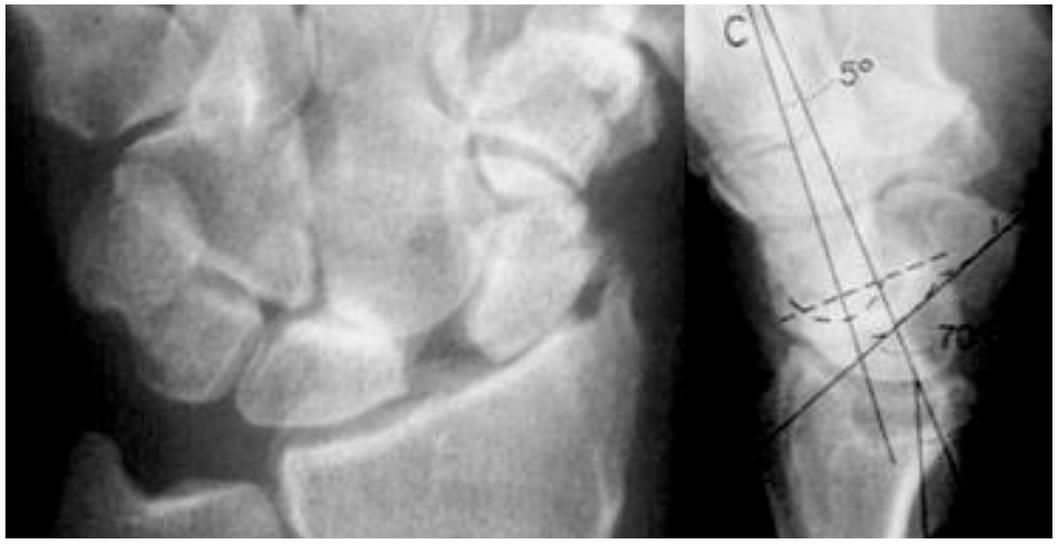
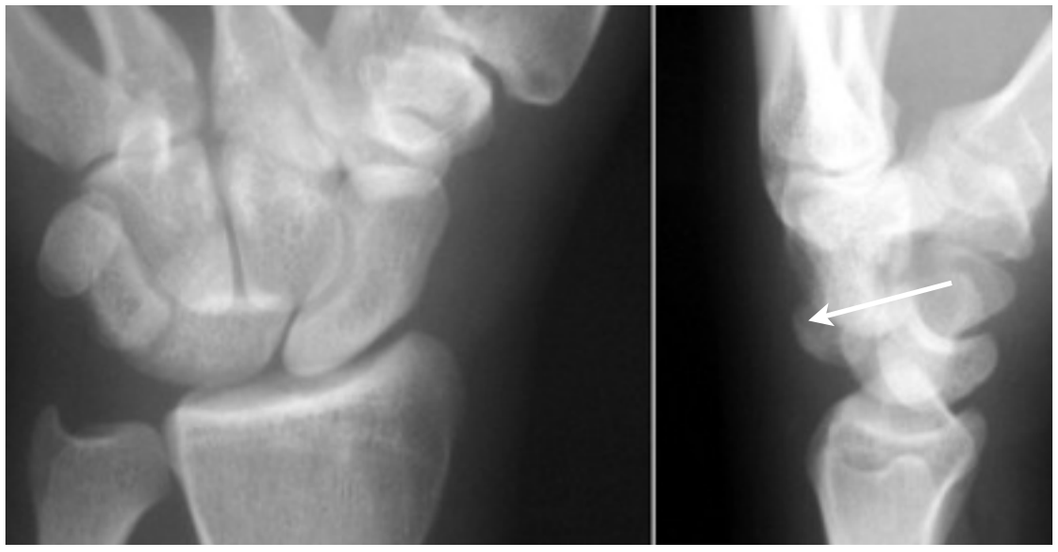


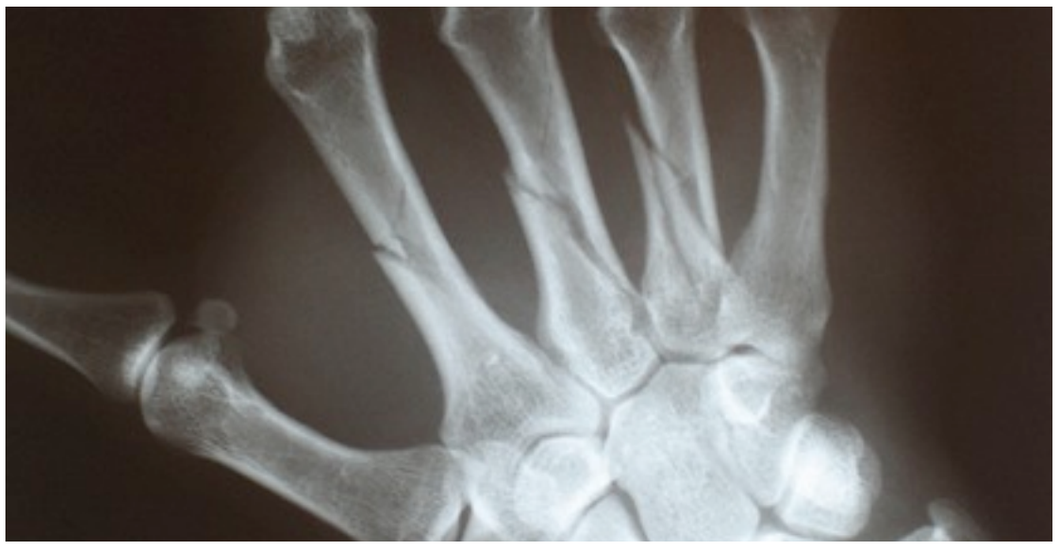
Scaphoid Fracture

FOOSH
Tender ASB/thumb telescoping
Needs POP if xray normal and F/U
All followed up in # clinic
Refer scapholunate dissociation



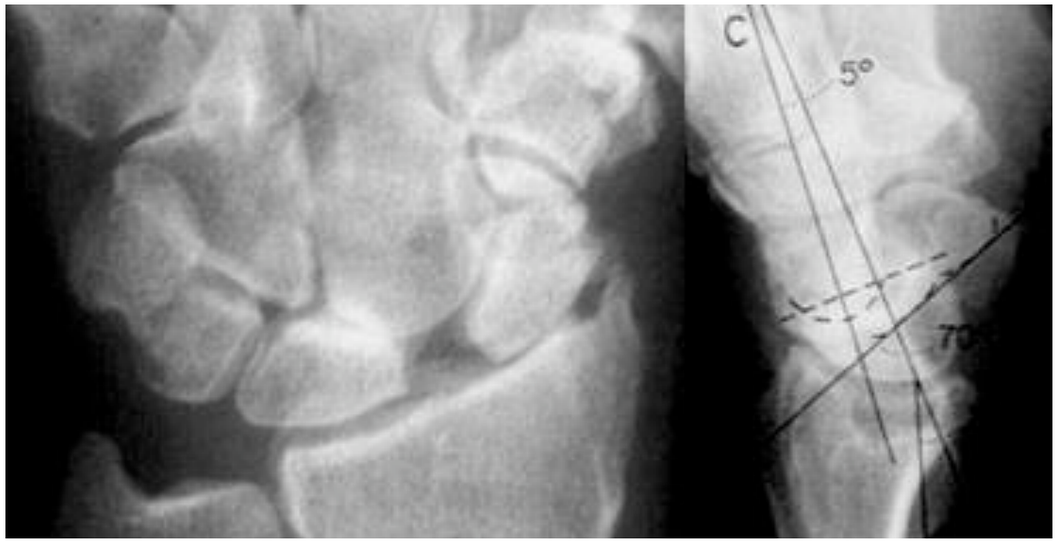
Lunate/Perilunate dislocations

Hyperextension injury
Carpus doesn't "look right"
Devastating if missed
Refer Ortho



Metacarpal Injuries

Punch and direct trauma
Undisplaced-wool/crepe # clinic
Displaced/angulated/rotated MUA or refer Ortho
Boxers: neck of 5th MC allow 40° angulation



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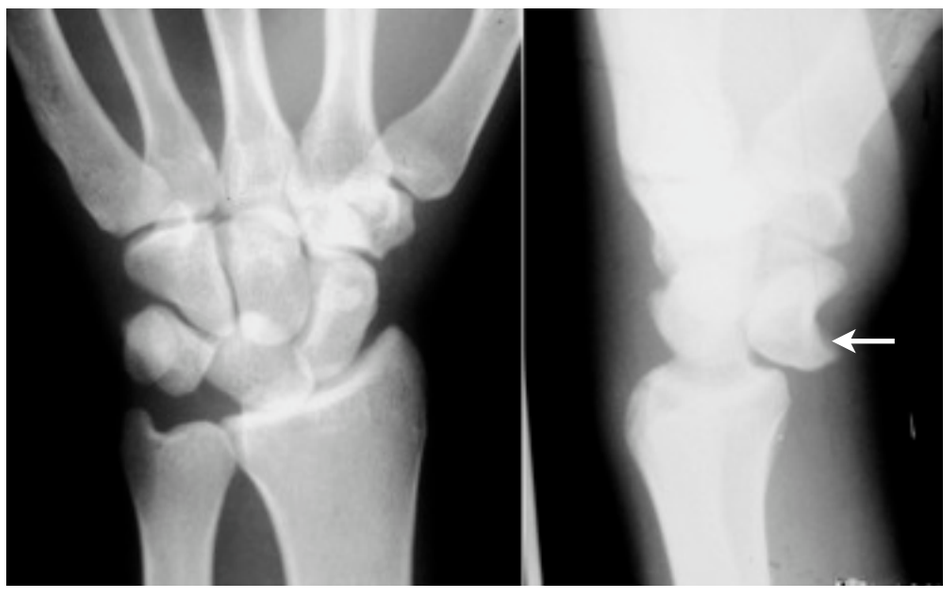

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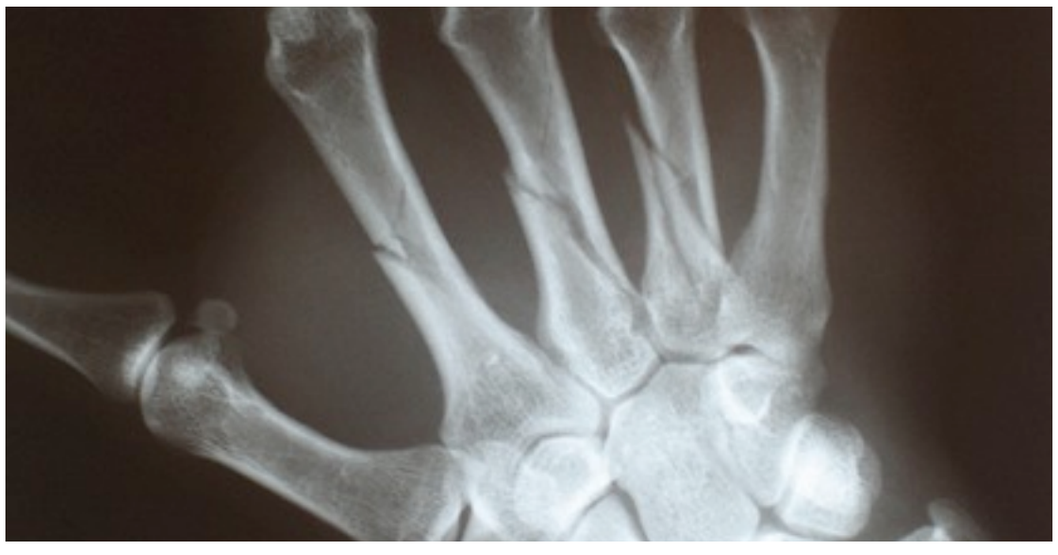

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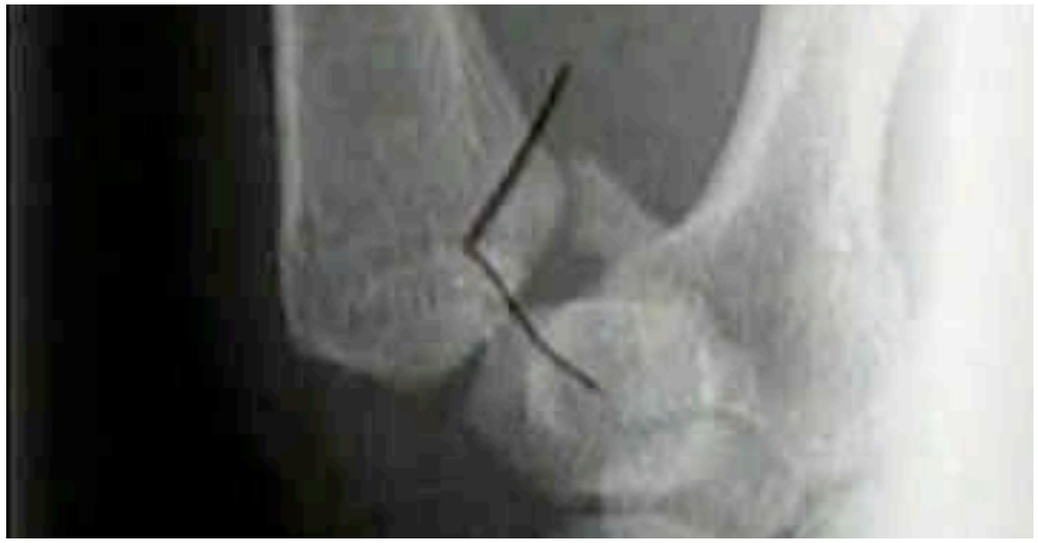
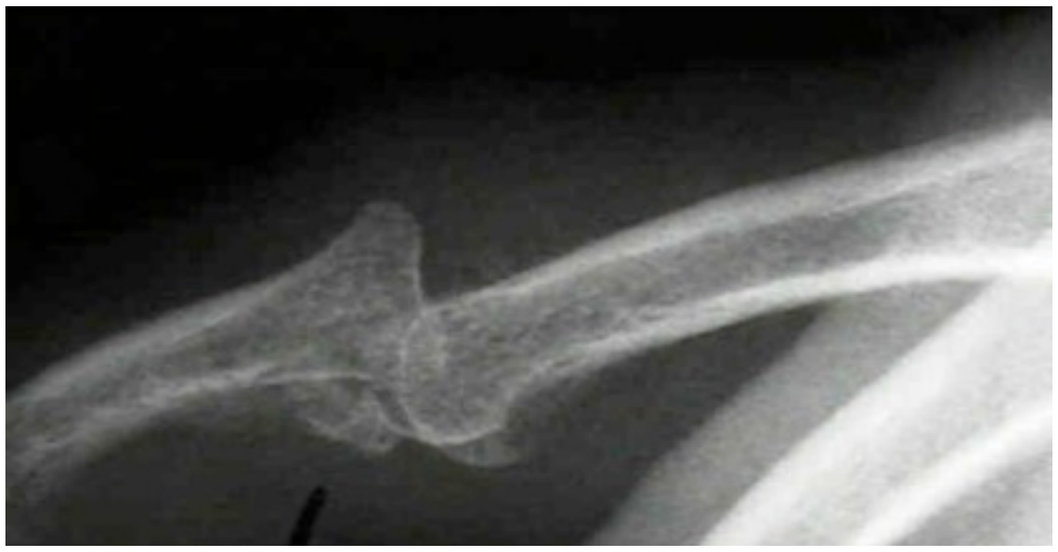


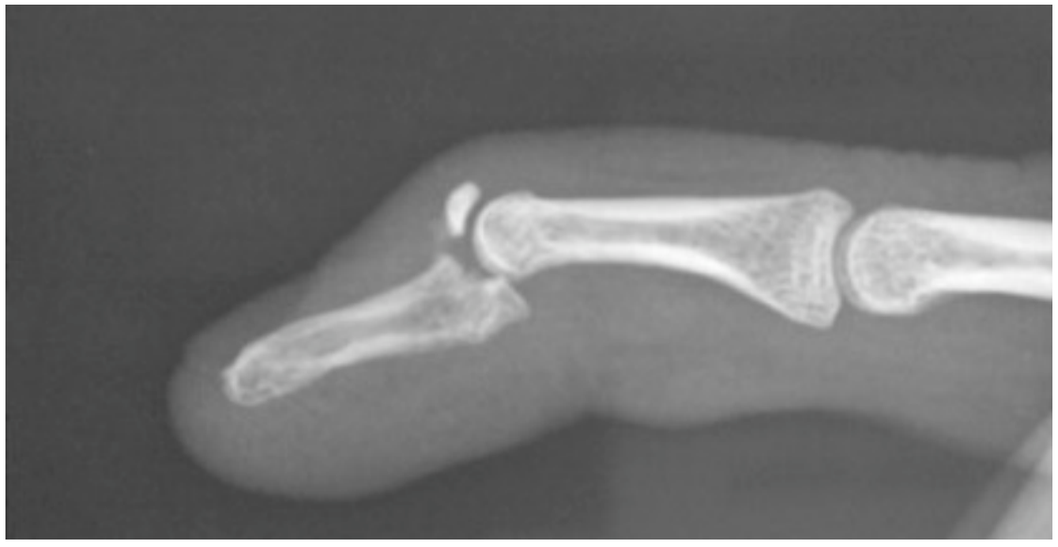
Bennetts Fracture

Hyperextension injury
Check ulna collateral if no fracture
Refer Ortho for ORIF



Pilon

Axial load
Refer for ORIF (SSSS)



Other phalanges

Mallet-refer large fragment or splint and fracture clinic f/u
Undisplaced fractures-neighbour strap
Displaced MUA/refer Ortho esp spiral

Pelvis Fractures

Stable/Unstable

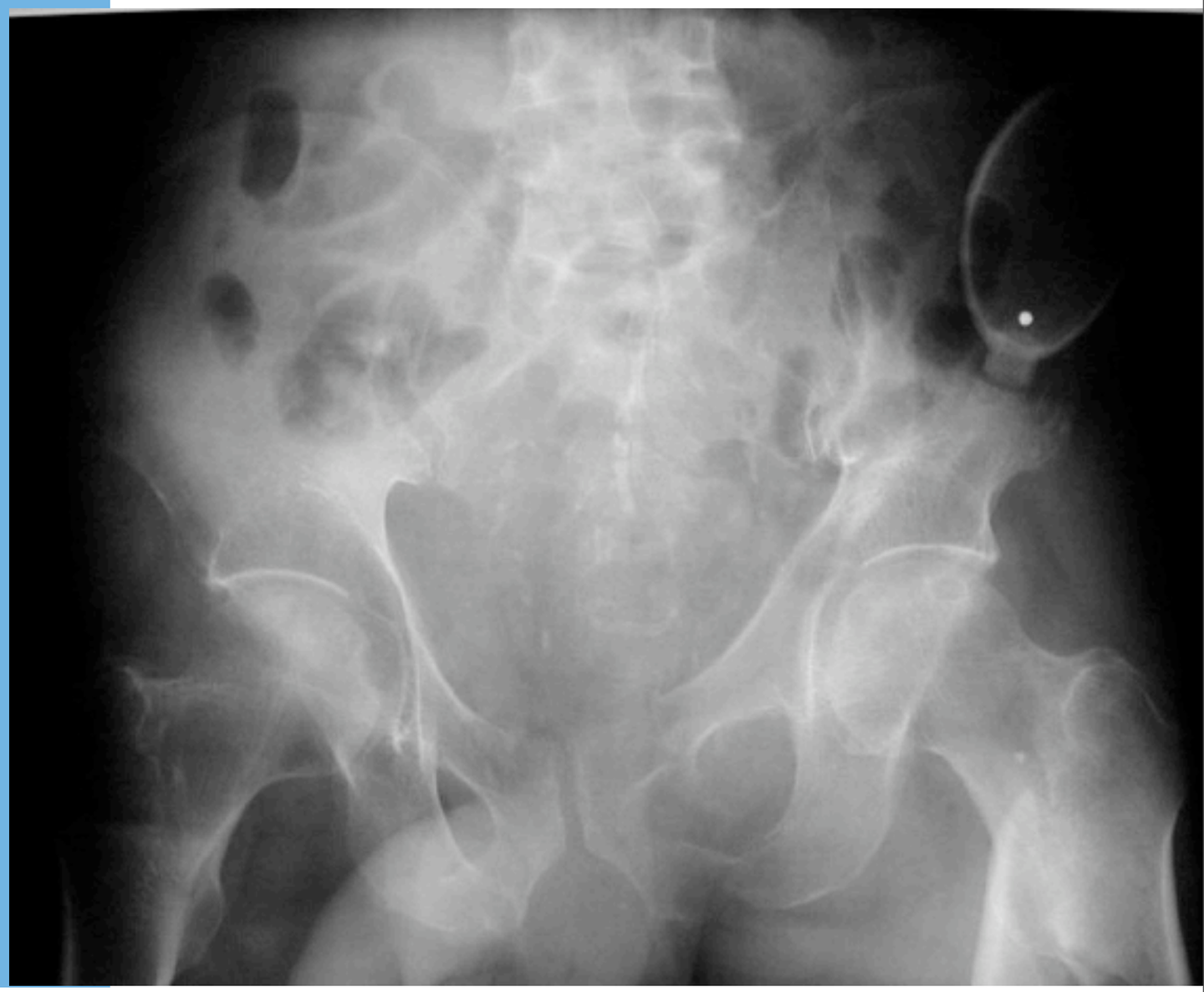
Can be life threatening

May need embolisation or external fixation

Pubic rami-analgesia/rest, if displaced/multiple-refer (?urethra injury)

Iliac wing-analgesia/rest

SIJ/pelvis ring-refer Ortho. May need to ‘close book’



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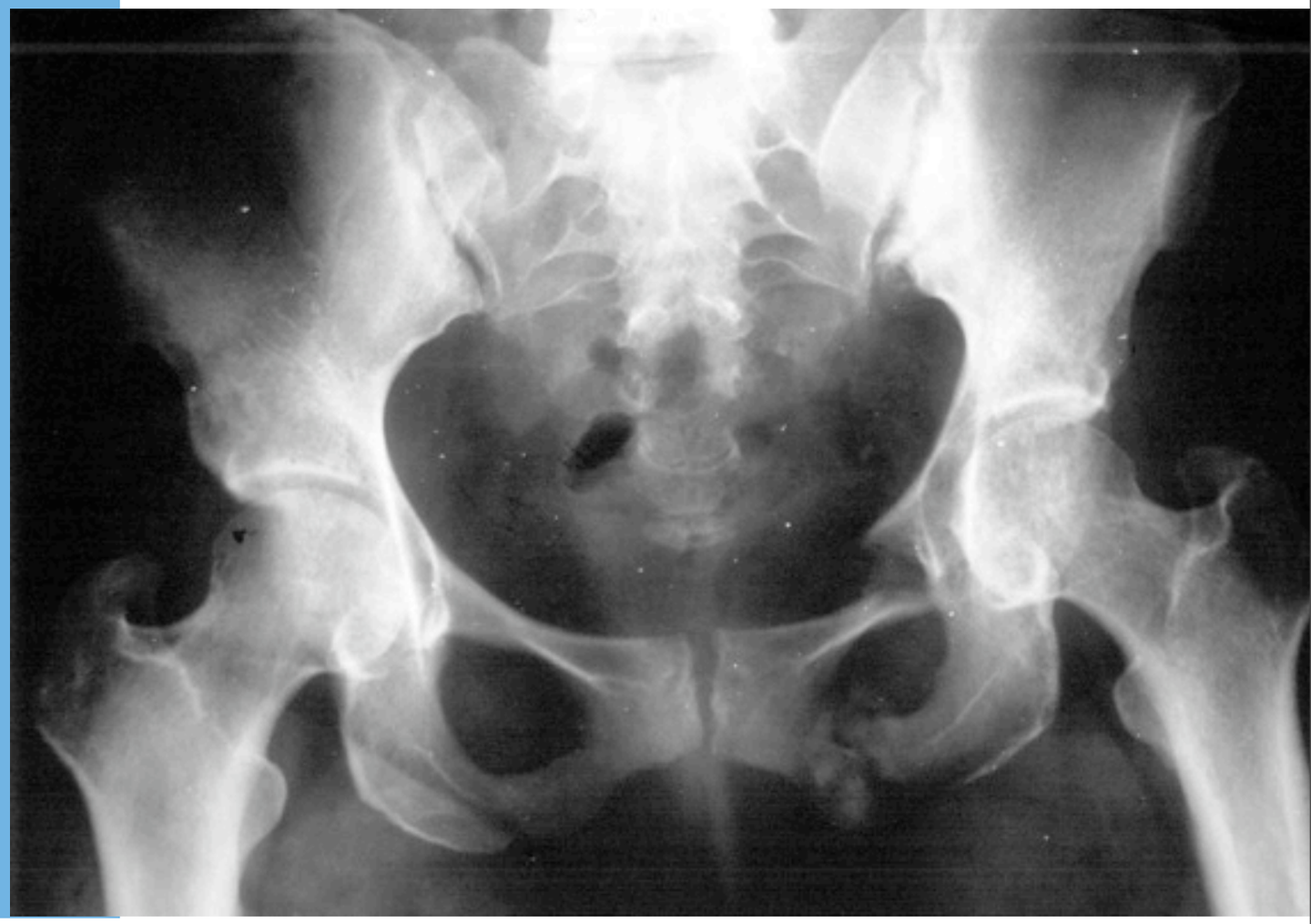

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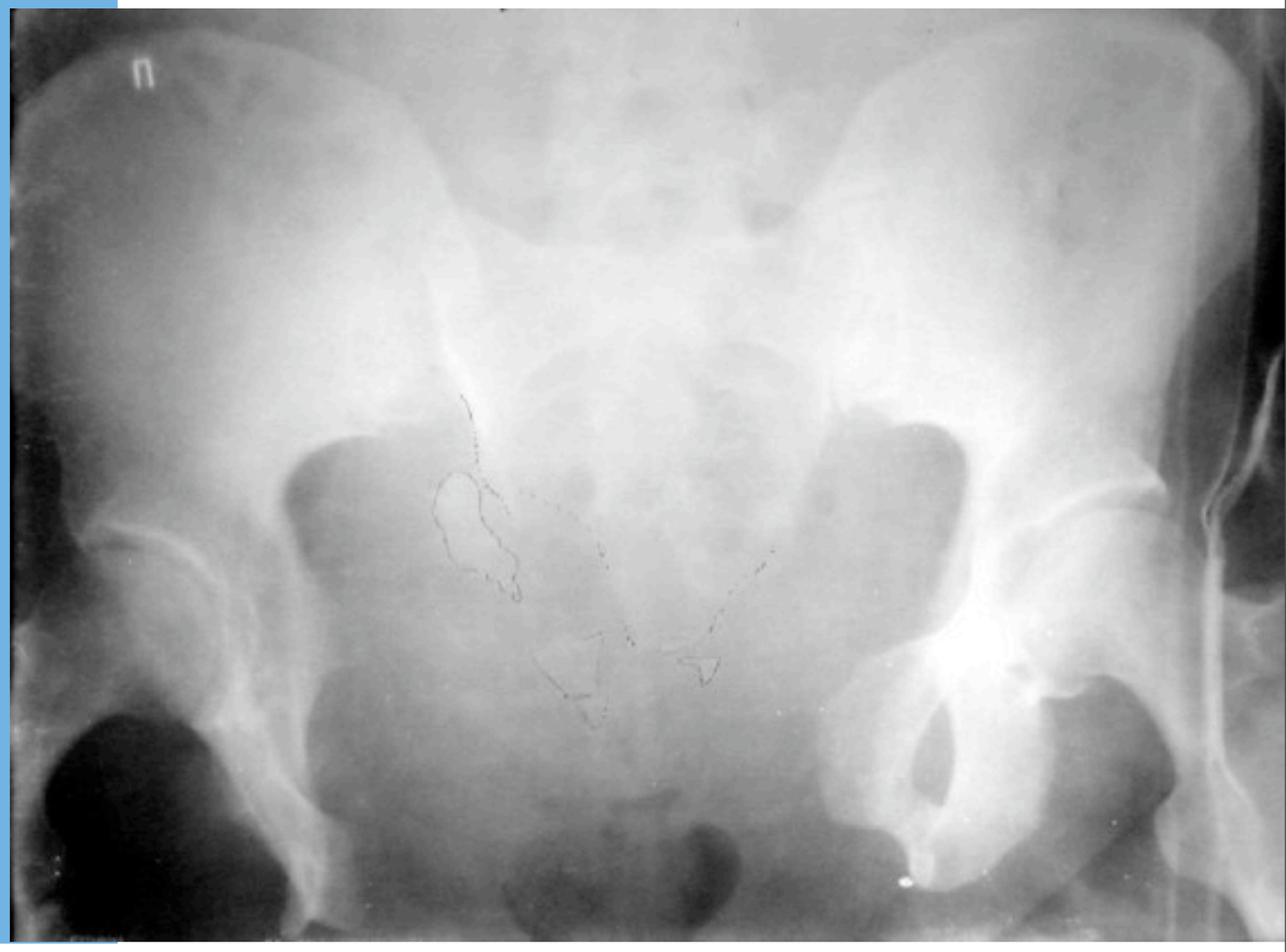
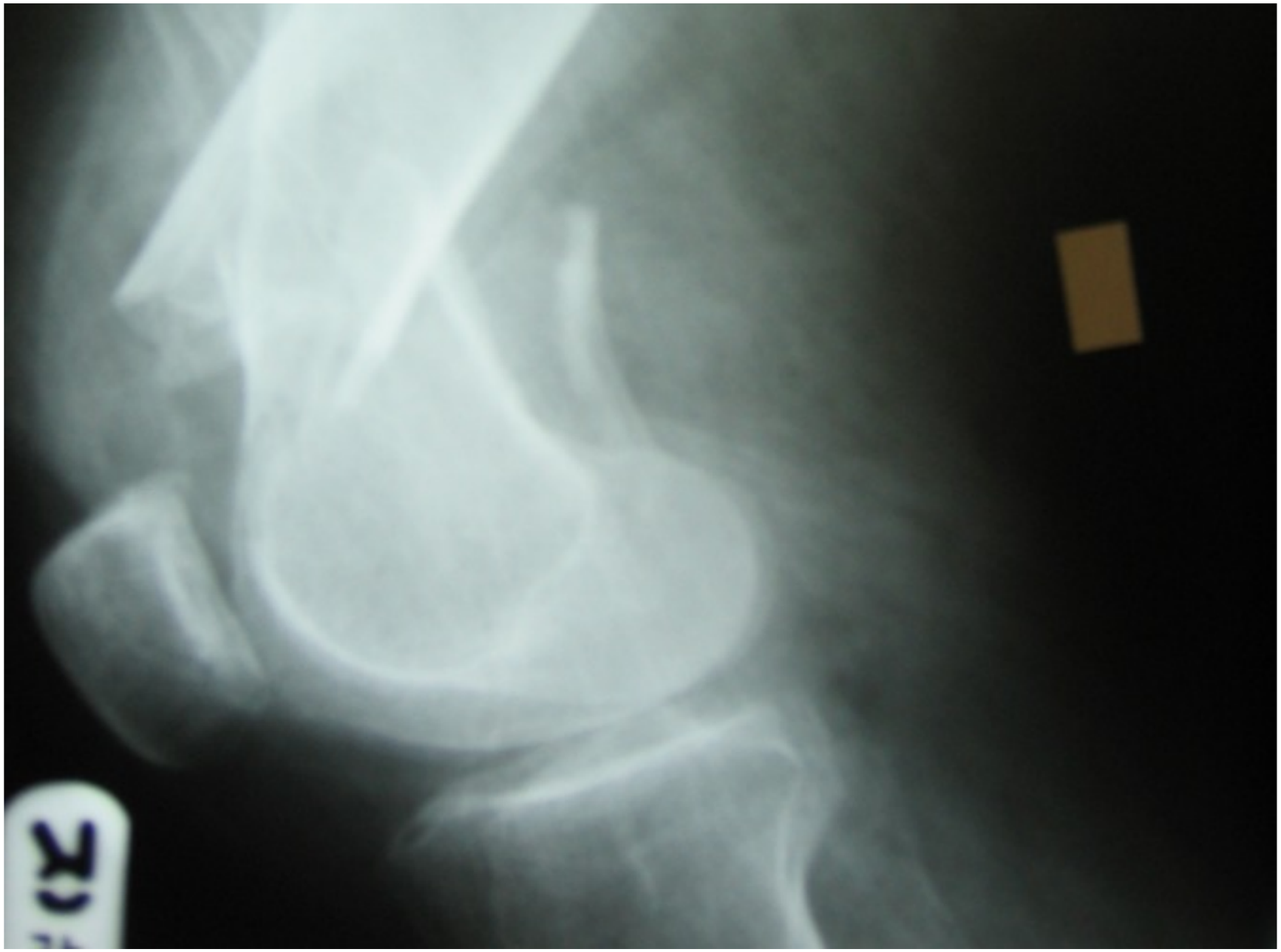
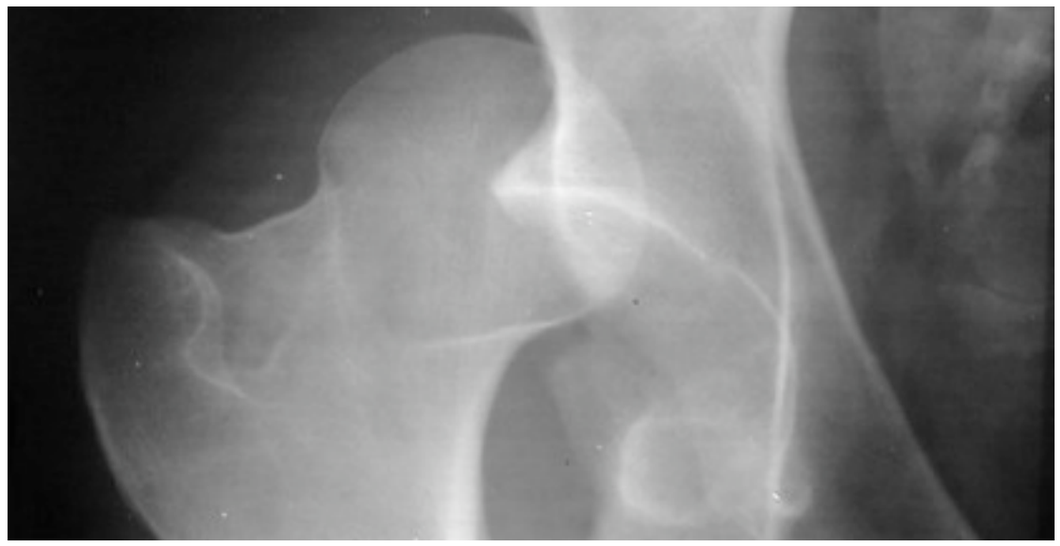




Lower Limb Fractures

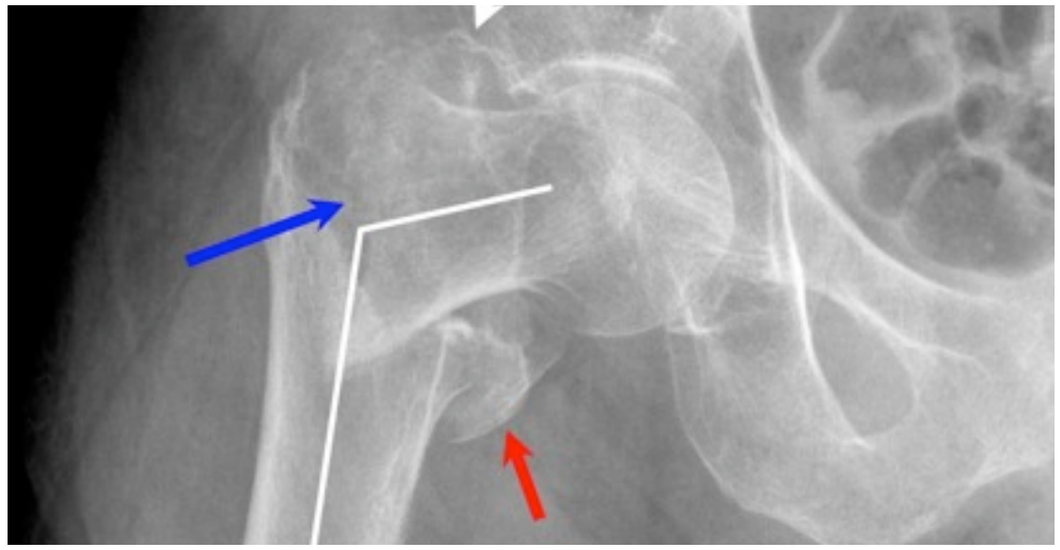
Hip Dislocation

RTA and dashboard strike on knee
Look for knee/femur/acetabular rim #
May occur in THR patients
Need analgesia and MUA in theatre.
Refer Ortho



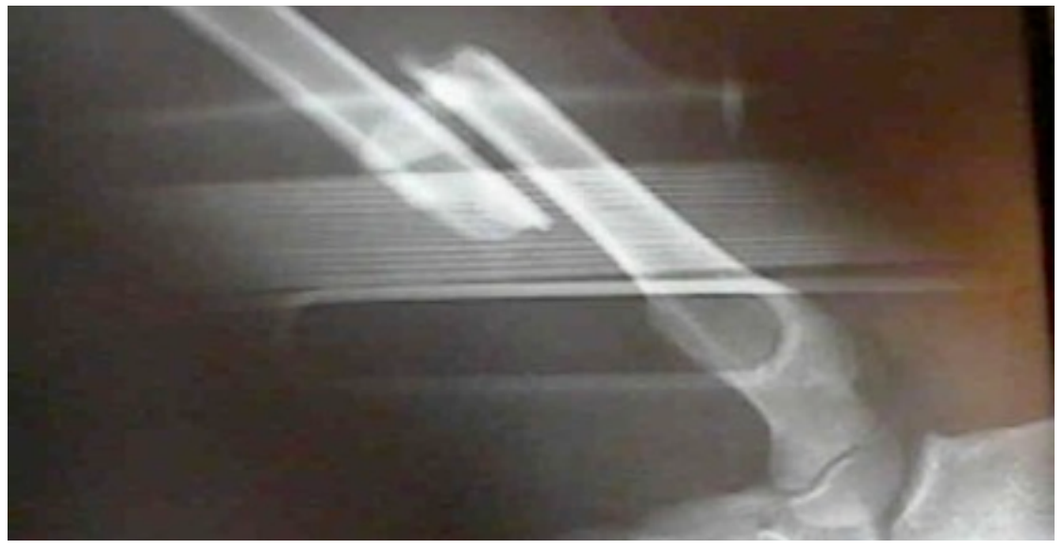
Neck of Femur

Elderly
Fast track run by nurses-check medical problems and if there is a fracture
O2, iv access/fluids/morphine and admit ref. Ortho



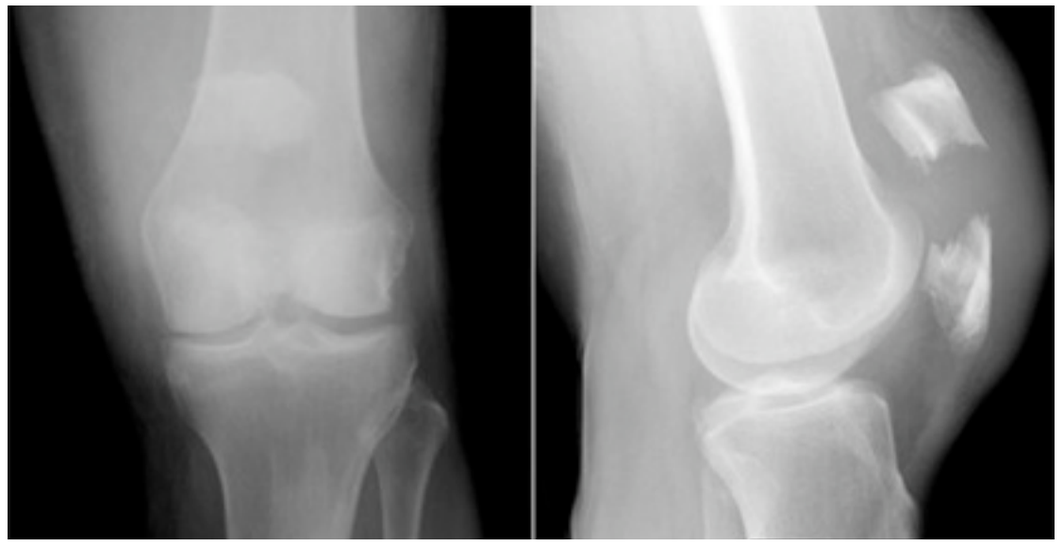
Femur

Can lose >1L blood
Significant trauma mechanism
Needs femoral nerve block
Thomas splint and refer Ortho for ORIF



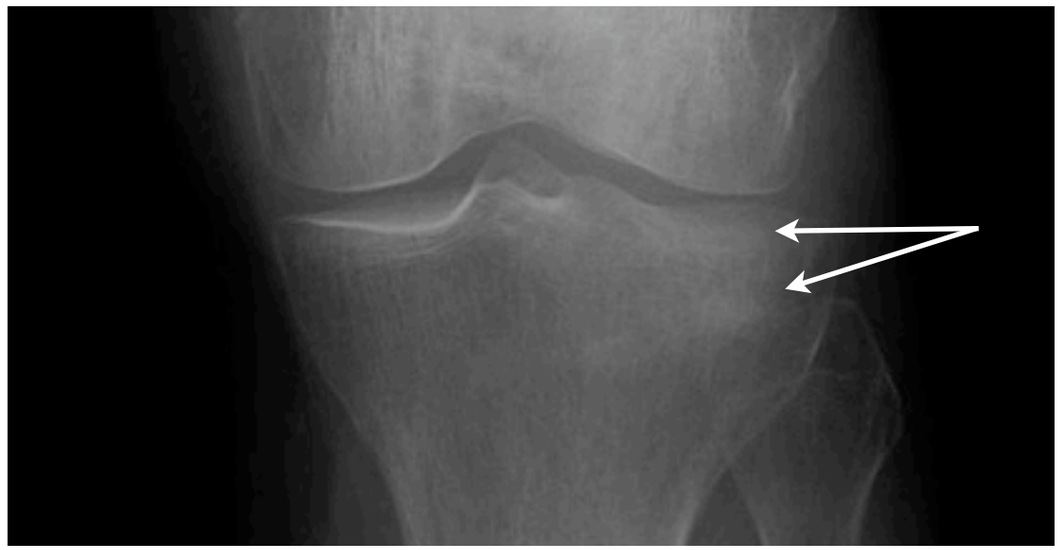
Patella

Direct or kicked ground
Usually displaced and need ORIF Refer to Ortho
Dislocated-straighten leg under Entonox and it should reduce-Cricket pad splint



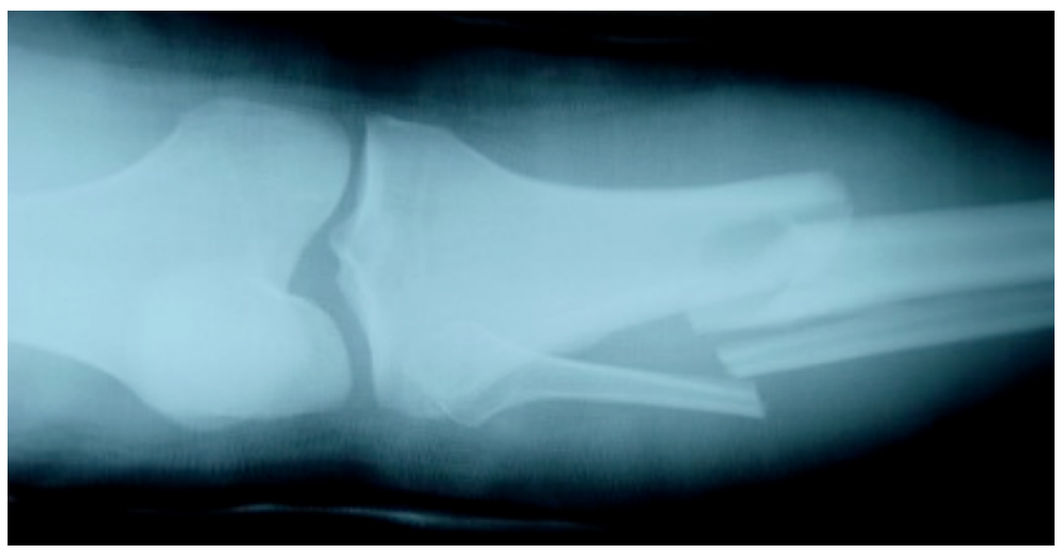
Tibial Plateau

Haemarthrosis
Sometimes can weight bear
Subtle findings often missed
Refer Ortho-often need CT
Analgesia and full leg back slab



Tibia/Fibula

Direct/twist (spiral) of fall
most require refer Ortho-beware compartment syndrome
Undisplaced-POP



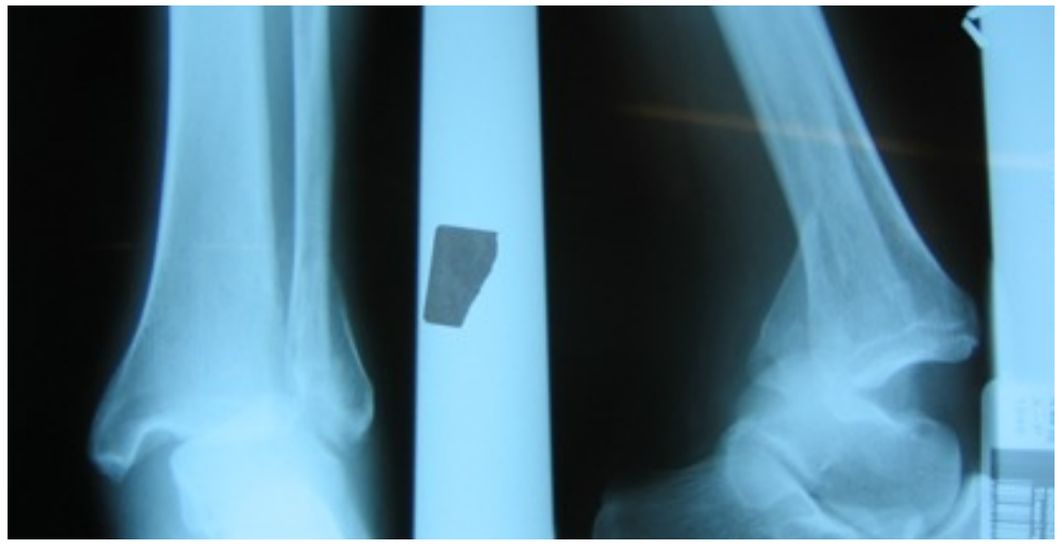
Ottawa Knee Rules

A knee x-ray is only required for knee injury patients with any of these findings:

- age 55 or over
- isolated tenderness of the patella (no bone tenderness of the knee other than the patella)
- tenderness at the head of the fibula
- inability to flex to 90 degrees
- inability to weight bear both immediately and in the casualty department (4 steps - unable to transfer weight twice onto each lower limb regardless of limping).

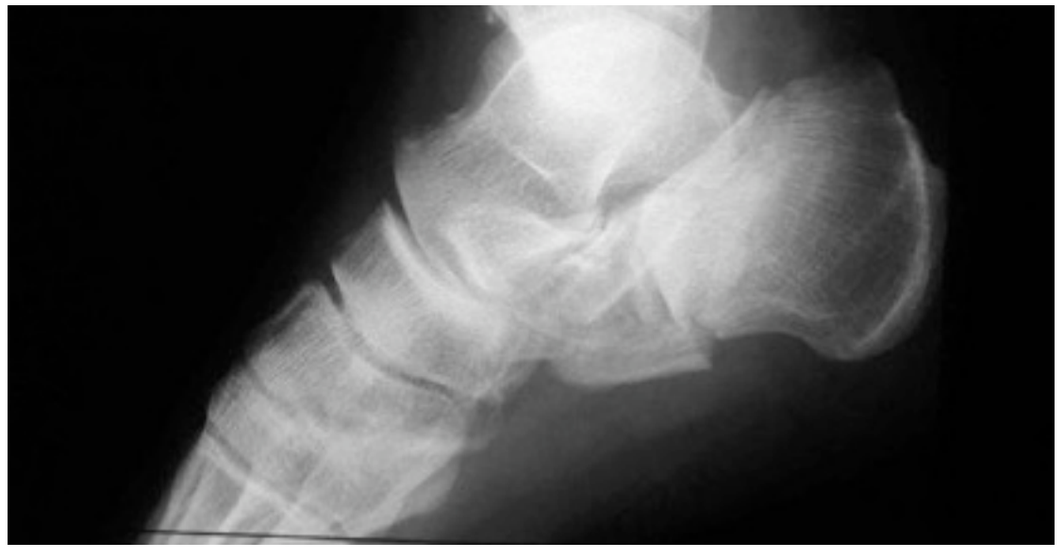
Ankle Fractures

If clinical dislocated-reduce before xray
Weber classification
Stable-back slab/NWB crutches
Unstable refer Ortho for ORIF



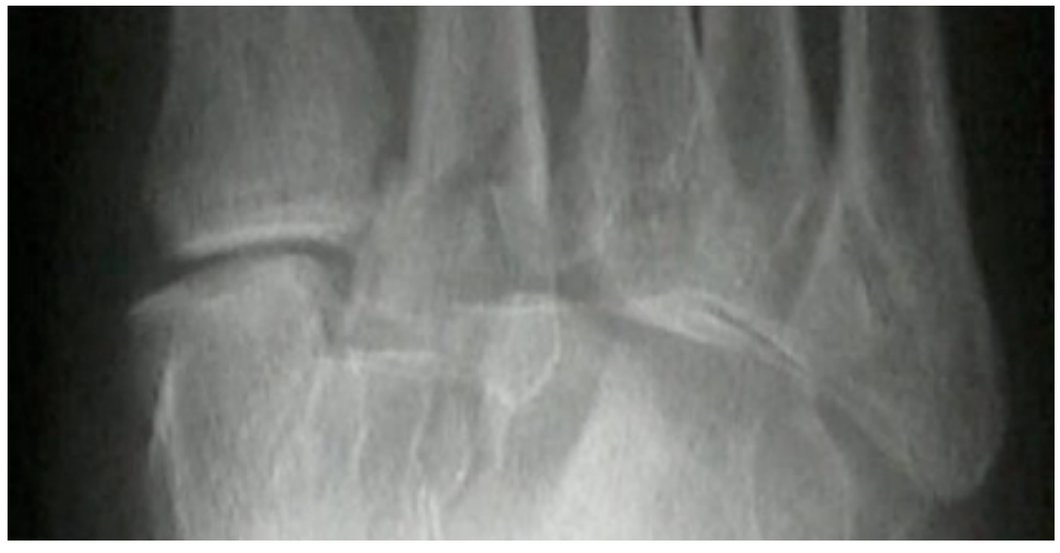
Calcaneal Fractures

Fall from height. Always check spine
Any displacement-Ortho referral (most)
May need CT to determine severity

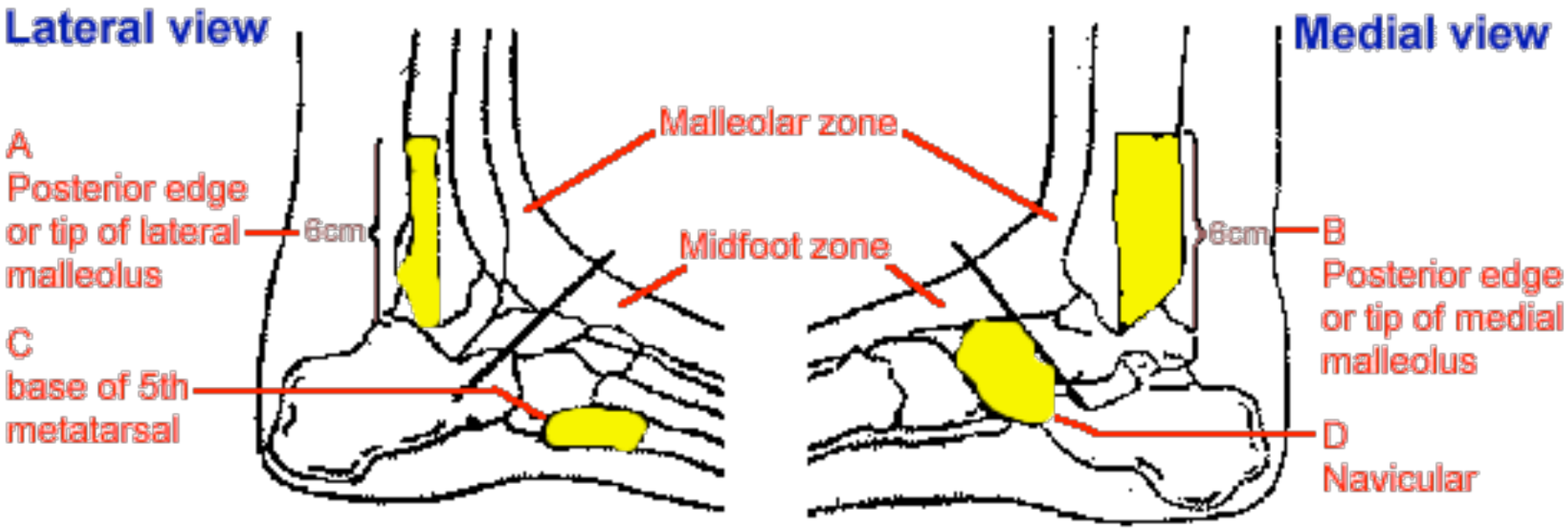


Foot Fractures

Sig. mechanism and swelling: don't
miss LisFranc's-refer Ortho
eg Commonest 5th MT base-
Rx usually wool & crepe and crutches



Ottawa Ankle Rules



An ankle x-ray is required only if there is any pain in malleolar zone and any of these findings:

- bone tenderness at A
- bone tenderness at B
- inability to weight bear both immediately and in the casualty department.

A foot x-ray is required if there is any pain in the midfoot zone and any of these findings:

- bone tenderness at C
- bone tenderness at D
- inability to weight bear both immediately and in the casualty department.

Questions?