

Common Traumatic Problems and Its Management

21.2.2017

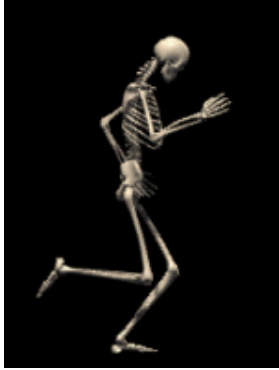
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NPT Orthopedic Hospital



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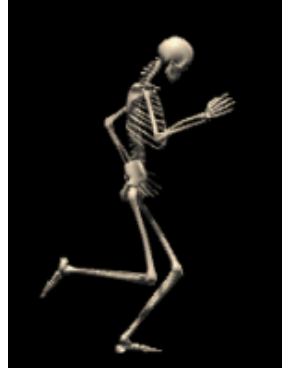
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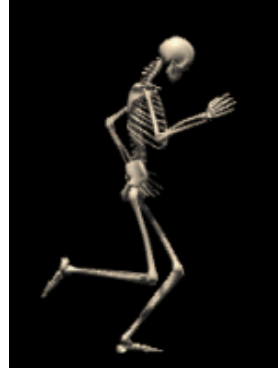
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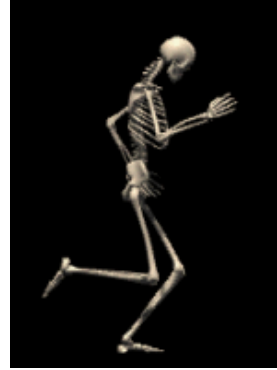
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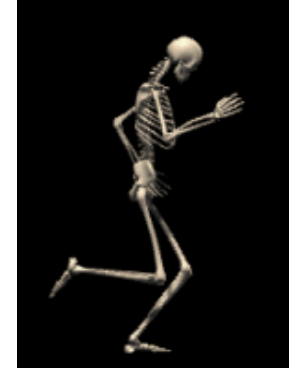
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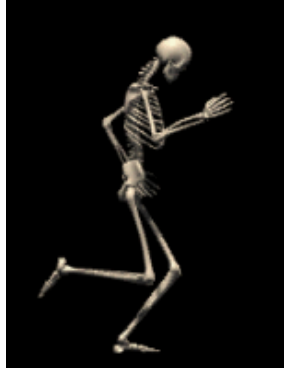
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No one is immune to TRAUMA

Trauma in Myanmar

- ▶ Leading cause of Death
- ▶ Leading cause of hospitalization

(Australia–Myanmar Trauma Management Program, 2013)



Approach to Trauma

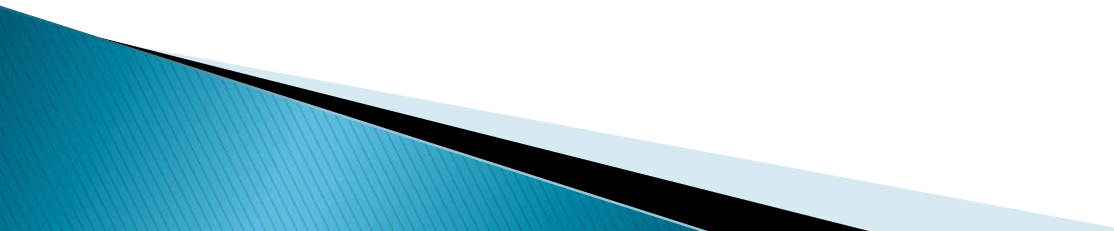
Primary Trauma Care



1



Primary Trauma Care (PTC)

1. Triage
 2. Primary survey
 3. Secondary survey
 4. Stabilisation
 5. Transfer
- 

Triage

Sorting patients according to priority

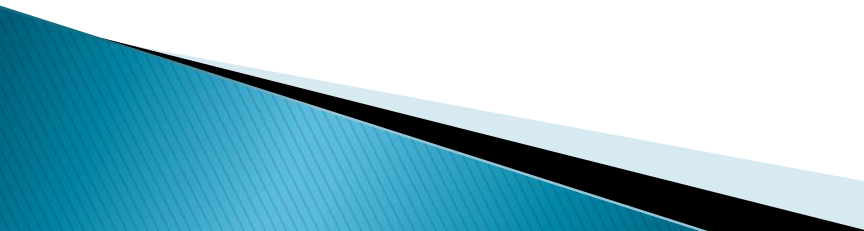


Triage

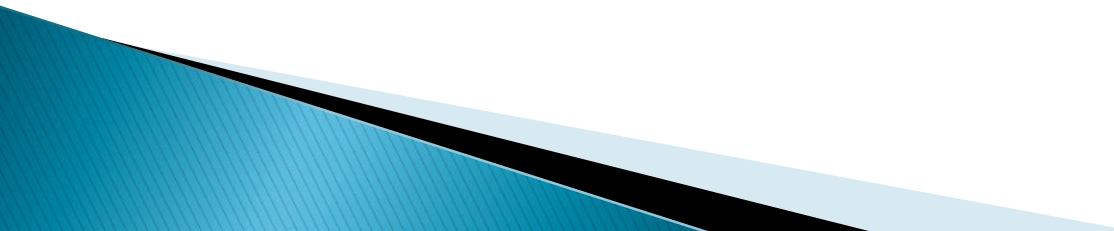
Sorting patients according to priority



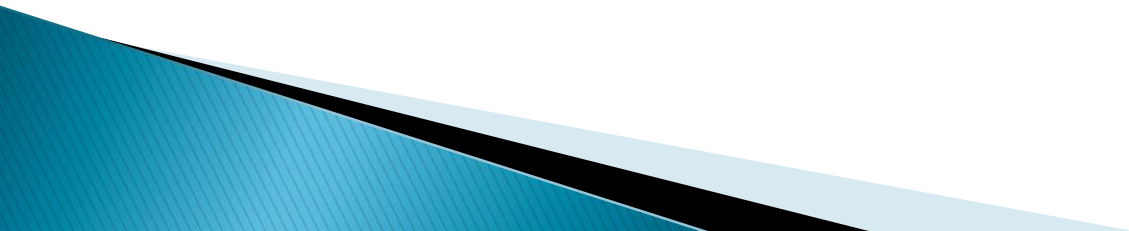
Primary survey

- ▶ **A** Airway and c-spine protection
 - ▶ **B** Breathing and ventilation
 - ▶ **C** Circulation with hemorrhage control
 - ▶ **D** Disability/Neurologic status
 - ▶ **E** Exposure/Environmental control
- 

Secondary survey

- ▶ Thorough head to toe examination
 - ▶ On completion of primary survey
 - ▶ When ABC's are stable
 - ▶ Aim to find any injury that may threaten life or limb
- 

Stabilisation & Transfer



Common Traumatic Problems



Common Traumatic Problems

- ▶ **Fracture and Dislocation**



Common Traumatic Problems

- ▶ Fracture and Dislocation
- ▶ Compartment Syndrome



Common Traumatic Problems

- ▶ Fracture and Dislocation
- ▶ Compartment Syndrome
- ▶ Septic Arthritis



Common Traumatic Problems

- ▶ Fracture and Dislocation
- ▶ Compartment Syndrome
- ▶ Septic Arthritis
- ▶ Severely Crush Injury
(Hands & Feet)



Fracture and Dislocation



Fracture

**Break in continuity of bone
(complete or incomplete)**

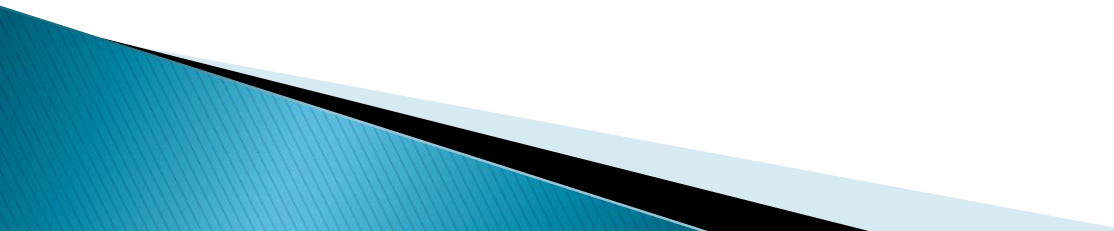
Fracture management overview

History

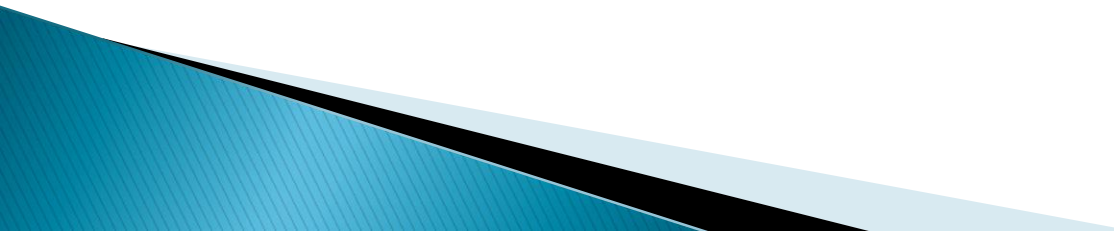
- ▶ Who
- ▶ what
- ▶ when
- ▶ where
- ▶ why



Examination

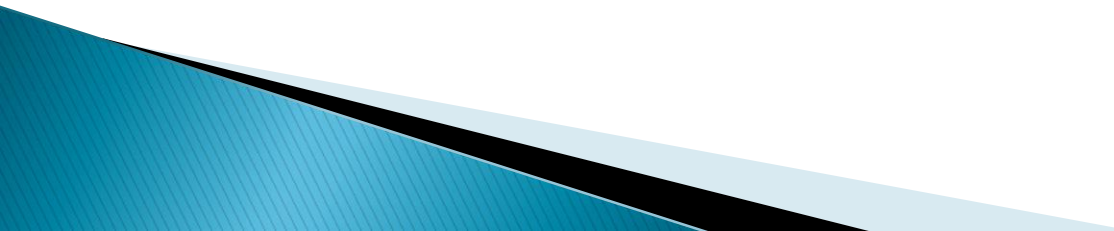
- ▶ Look
 - ▶ Feel
 - ▶ Move
 - ▶ Measure
 - ▶ Neurovascular status
- 

Imaging

- ▶ X-ray
 - ▶ USG
 - ▶ CT
 - ▶ MRI
- 
- A decorative graphic element in the bottom-left corner of the slide, consisting of overlapping blue and black geometric shapes.

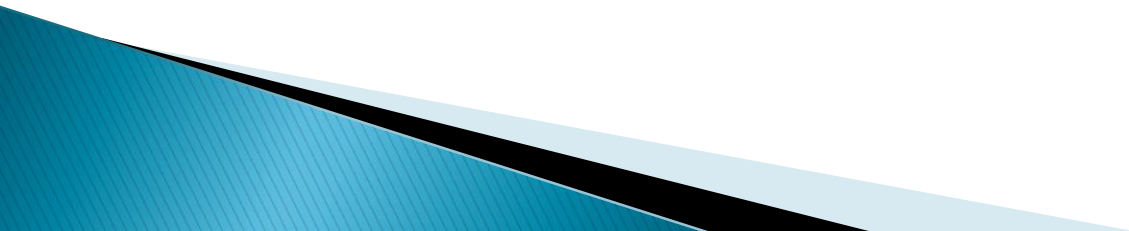
Management

4 Rs

- ▶ Resuscitate (ABCDEs)
 - ▶ Reduce (if displaced)
 - ▶ Retain (to maintain position while healing occurs)
 - ▶ Rehabilitate (to regain function)
- 

Open Fracture

**Fracture or Fracture hematoma
directly connected to exterior**



Open Fracture

**Fracture or Fracture hematoma
directly connected to exterior**

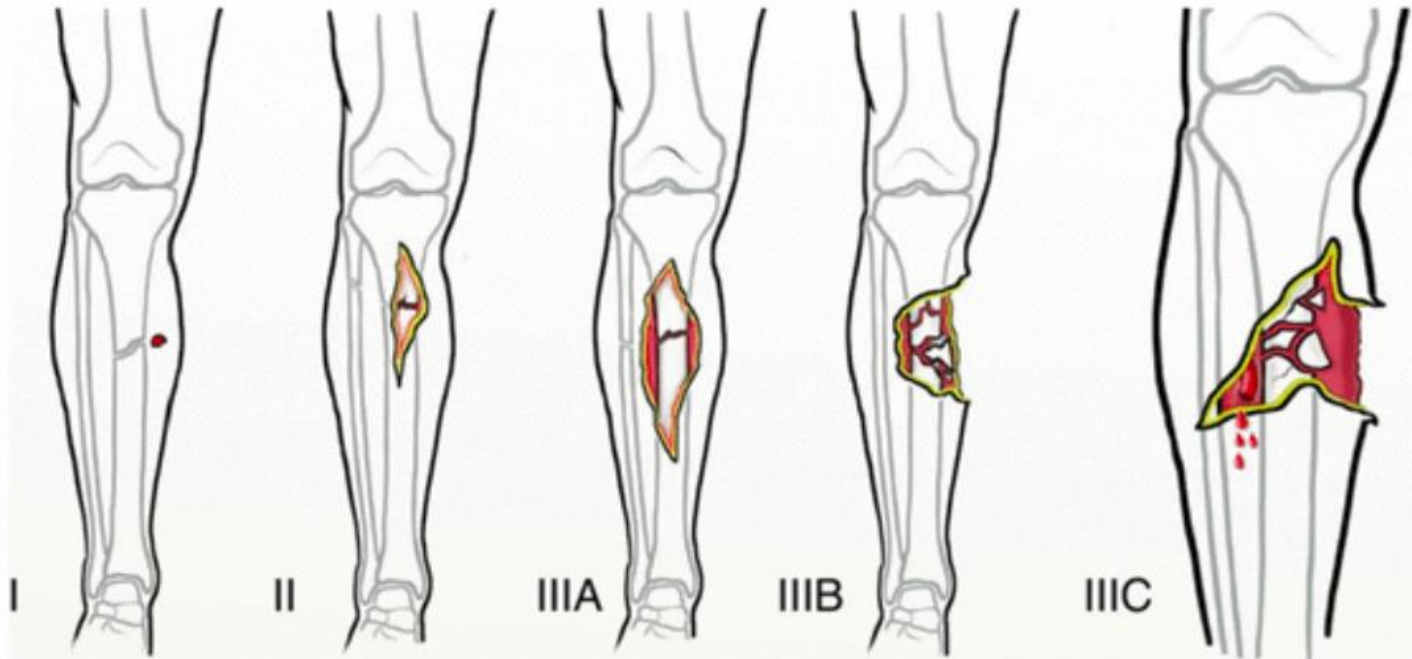


Open Fracture

**Fracture or Fracture hematoma
directly connected to exterior**



Type of open fracture



Type of open fracture

Classification of Open Fracture (Gustilo and Anderson)

Type	Wound	Level of Contamination	Soft Tissue Injury	Bone Injury
I	<1 cm long	Clean	Minimal	Simple, minimal comminution
II	>1 cm long	Moderate	Moderate, some muscle damage	Moderate comminution
III ^a				
A	Usually >10 cm long	High	Severe with crushing	Usually comminuted; soft tissue coverage of bone possible
B	Usually >10 cm long	High	Very severe loss of coverage; usually requires soft tissue reconstructive surgery	Bone coverage poor; variable, may be moderate to severe comminution
C	Usually >10 cm long	High	Very severe loss of coverage plus vascular injury requiring repair; may require soft tissue reconstructive surgery	Bone coverage poor; variable, may be moderate to severe comminution

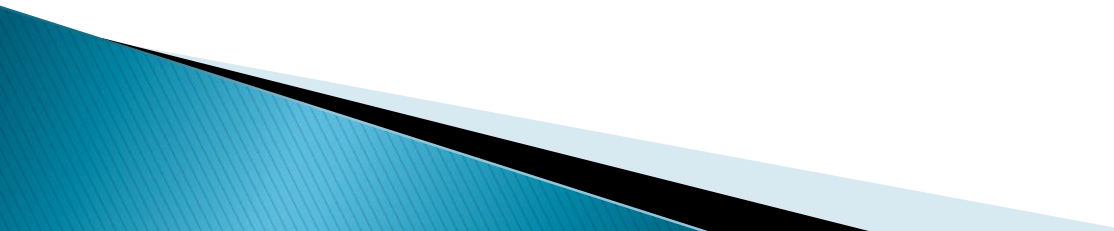
^a Segmental fractures, farmyard injuries, fractures occurring in a highly contaminated environment, shotgun wounds, or high-velocity gunshot wounds automatically result in classification as type III open fracture.
 From Chapman MW. The role of intramedullary fixation in open fractures. *Clin Orthop* 1986;212:27.

Management

Wound Debridement

- ▶ Removal of devitalized tissue and foreign body
- ▶ POP

Wound debridement procedure

1. Wound Excision
 2. Wound Extension
 3. Wound Debridement
 4. Wound Irrigation
 5. Bony Stabilization
 6. Wound Dressing
 7. +/- Redebridement
 8. Early Wound Closure / Coverage
- 

Distal Radius Fracture (DEOR #)

- ▶ **Colles #**

- ▶ **Smith #**

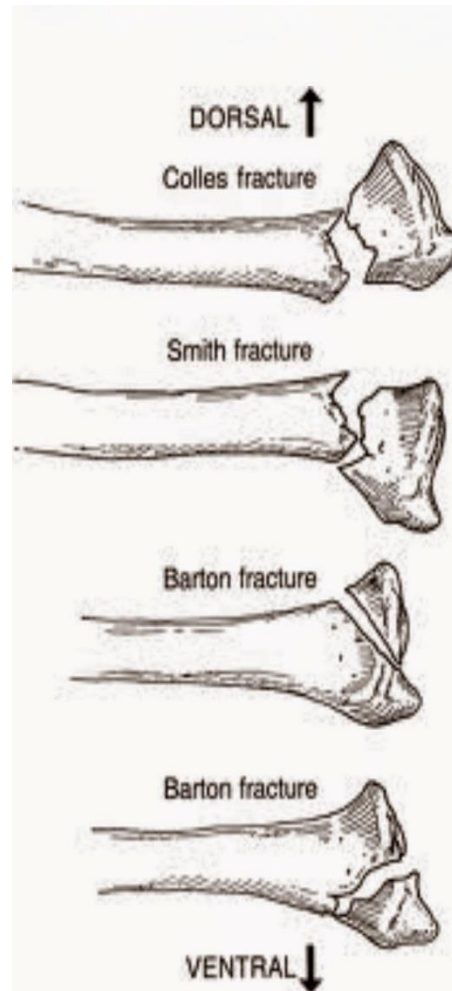
(Reverse Colles #)

- ▶ **Barton #**

(Volar vs Dorsal)

- ▶ **Radial Styloid #**

(Chauffeur, Backfire #)



Colles Fracture

of radius within 2.5cm of the wrist.

Distal fragment angulated to point dorsally.

Complications: stiffness, malunion, reflex sympathetic dystrophy (Sudeck's atrophy) - refer for physiotherapy, carpal tunnel syndrome, extensor pollicis longus rupture

Smith's, Barton's

By all means manipulate, but they are very unstable, so refer to ortho!

Colle's Fracture
(Outward)

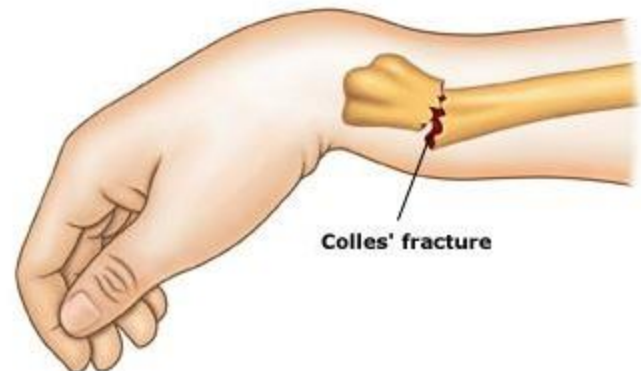


Smith's Fracture
(Inward)



Colles Fracture

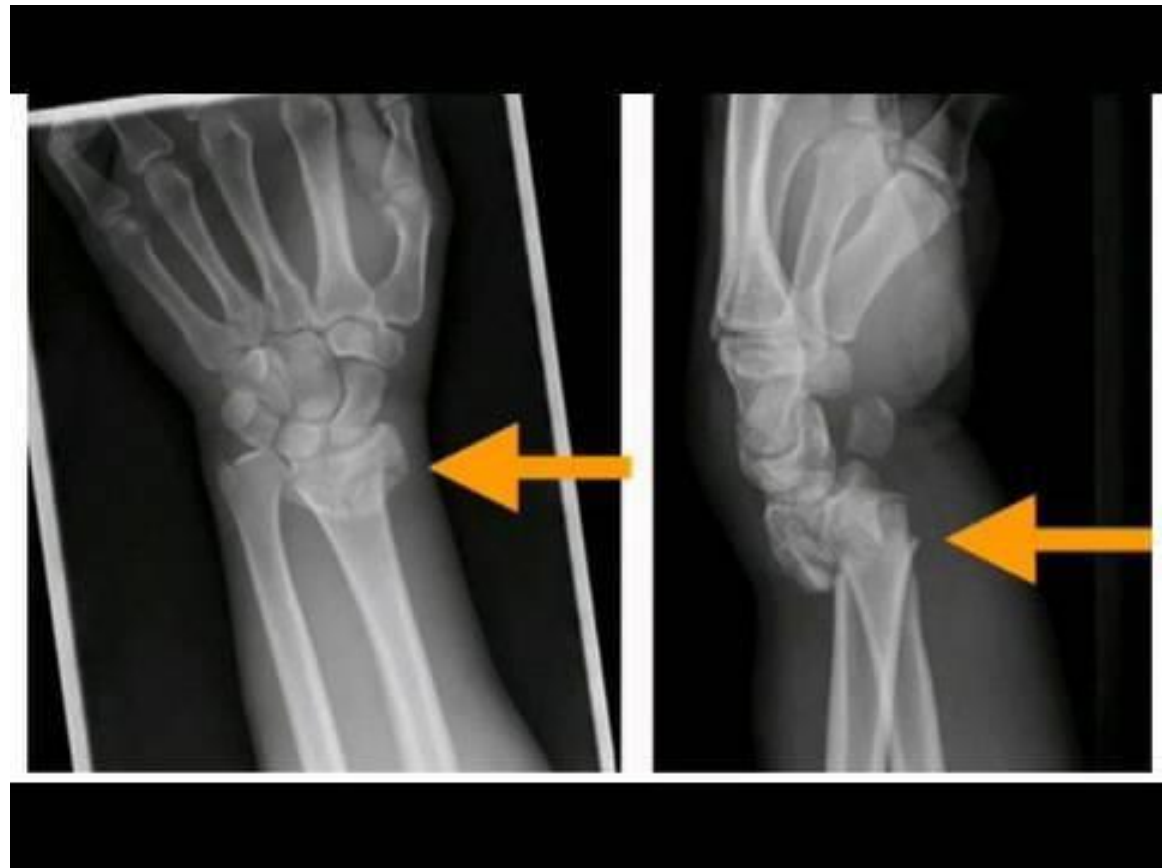
- ▶ Commonest (>90%)
- ▶ Old age
- ▶ Female
- ▶ Fall on outstretched hand
- ▶ Dinner fork deformity



X-ray

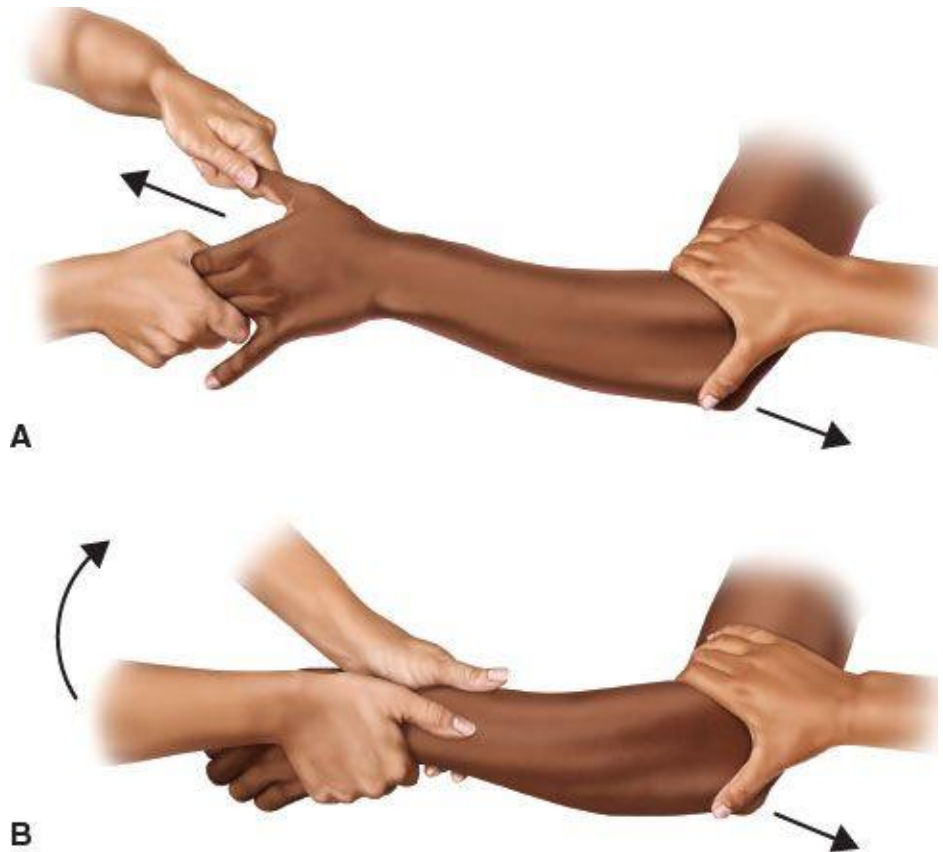
6 Displacement

- ▶ Radial tilt
- ▶ Radial shift
- ▶ Dorsal tilt
- ▶ Dorsal shift
- ▶ Supination
- ▶ Impaction



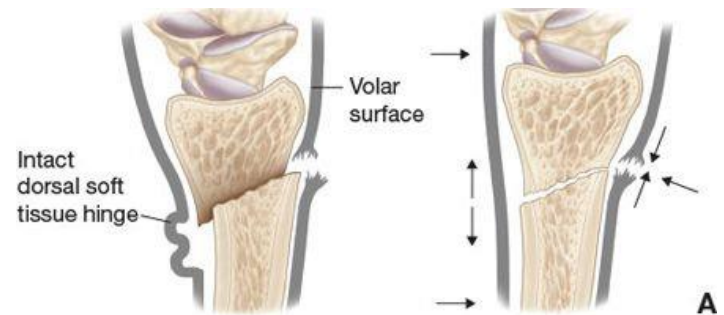
Management

- ▶ Reduction under anesthesia
- ▶ MUA
- ▶ POP Colles Cast
- ▶ Recheck X-ray
- ▶ Exercise
- ▶ Follow up



Management

- ▶ Reduction under anesthesia
- ▶ MUA
- ▶ POP Colles Cast
- ▶ Recheck X-ray
- ▶ Exercise
- ▶ Follow up

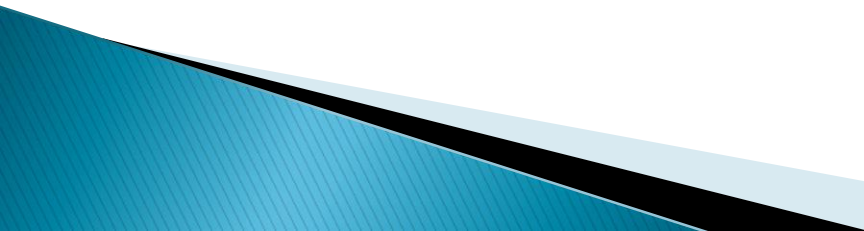


Management

- ▶ Reduction under anesthesia
- ▶ MUA
- ▶ POP Colles Cast
- ▶ Recheck X-ray
- ▶ Exercise
- ▶ Follow up



Both Bone Fracture Forearm (BB # FA)

- ▶ Very common
 - ▶ 40% of all pediatric #
 - ▶ Mechanism
 - Direct – Direct trauma to radial or ulnar shaft
 - Indirect – Fall on outstretched Hand
- 

Clinical Feature

- ▶ Pain
- ▶ Swelling
- ▶ Variable gross deformity
- ▶ Refusal to use injured limb



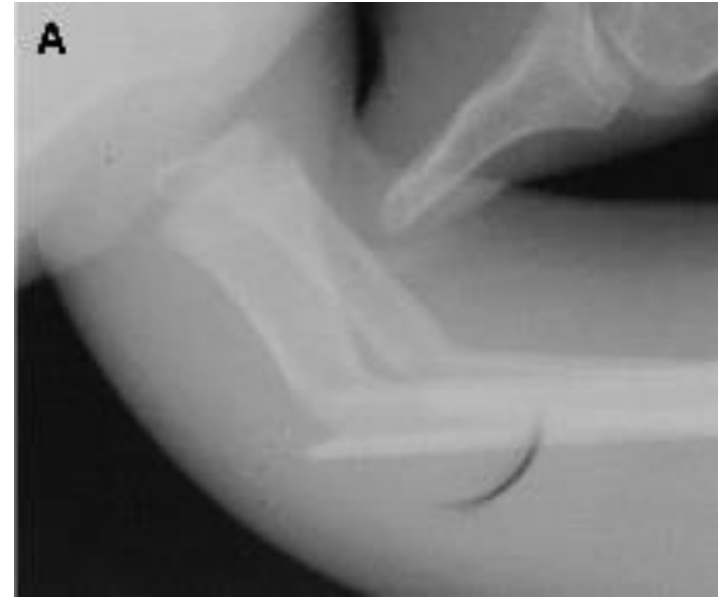
Clinical Feature

- ▶ Pain
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- ▶ Refusal to use injured limb

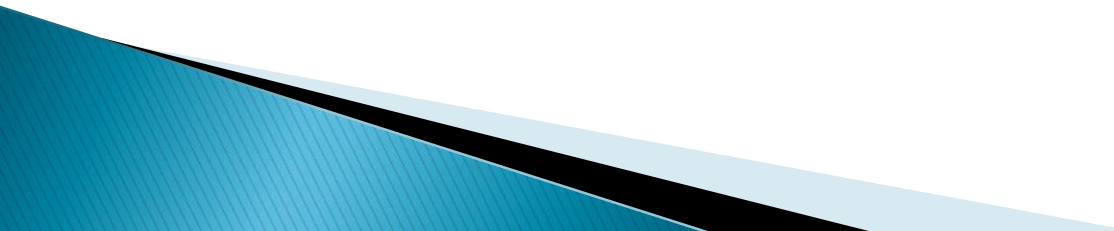


Management

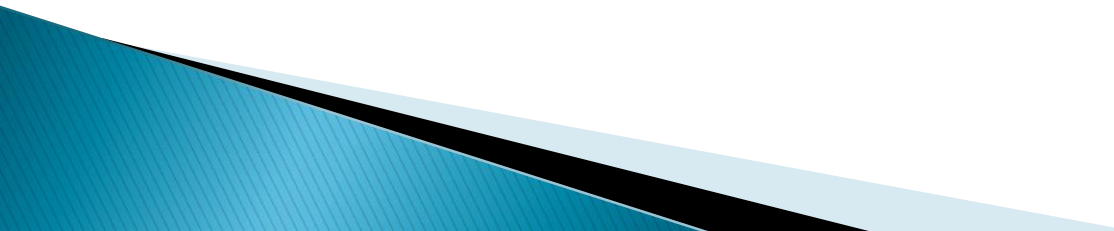
- ▶ Reduction under anesthesia
- ▶ MUA
- ▶ **POP Long Arm Cast**
- ▶ Recheck X-ray
- ▶ Exercise
- ▶ Follow up



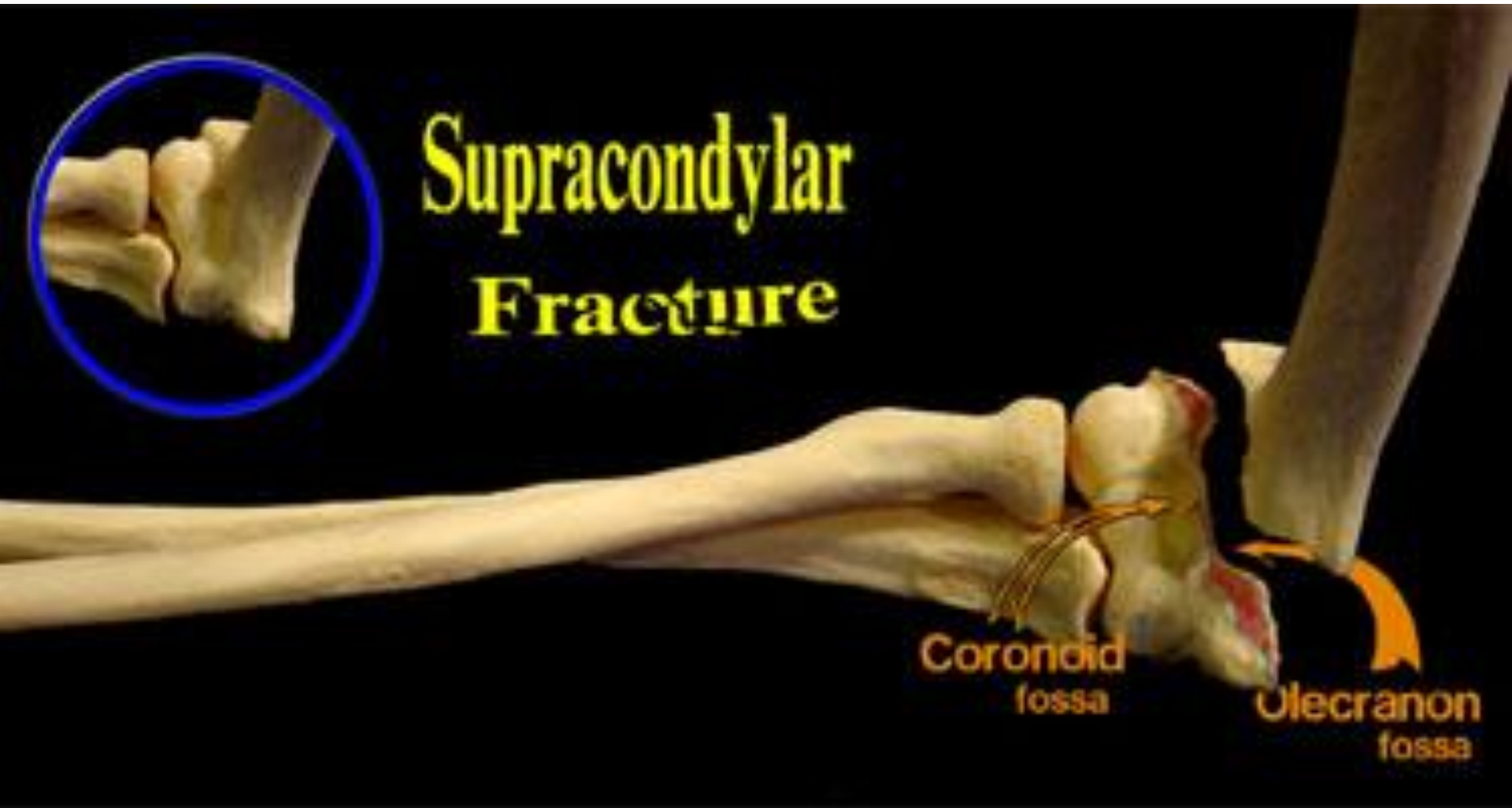
Supracondylar fracture Humerus (SC# Humerus)

- ▶ Most common # around the elbow in children
 - ▶ 60 % of elbow #
 - ▶ Occurs from a fall on an outstretched hand
- 

Clinical Feature

- ▶ Swelling
 - ▶ Tender elbow
 - ▶ Painful range of motion
 - ▶ Deformity
 - ▶ Distal neurovascular status
- 

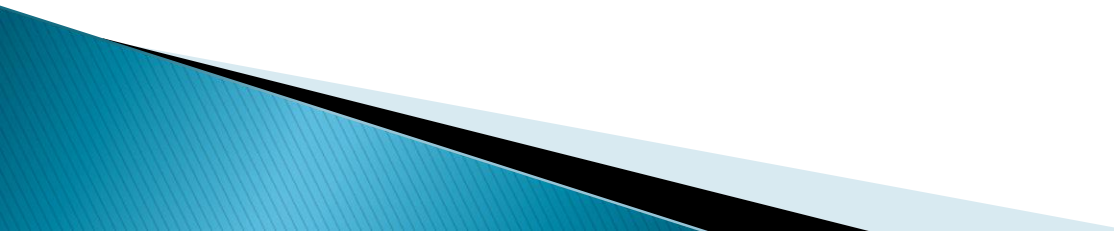
Supracondylar Fracture



X-ray



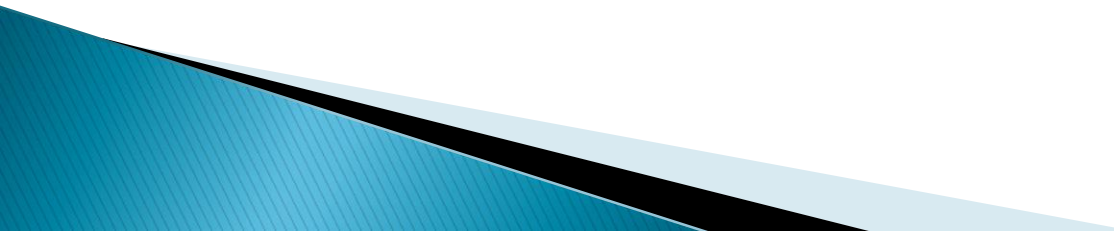
Management

- ▶ Manipulation under anesthesia
 - ▶ POP long posterior slab
 - ▶ Recheck X-ray
- 

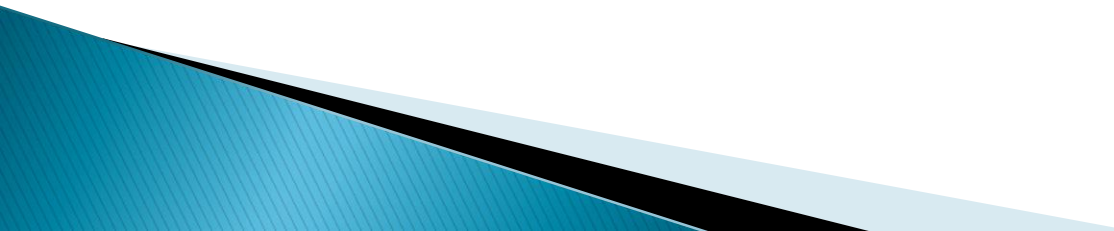
BB # Leg



Clinical Features

- ▶ H/O – Mechanism of Injuries
 - ▶ Deformity
 - ▶ Tenderness
 - ▶ Distal N/V status
- 

Management

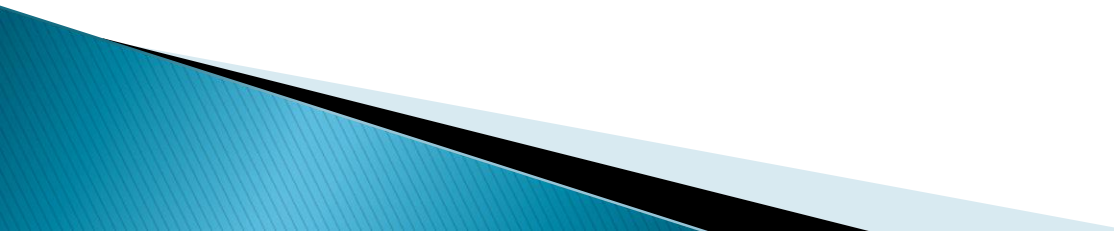
- ▶ Leg X-ray – AP & Lateral
 - ▶ MUA
 - ▶ POP long leg cast
 - ▶ POP long posterior slab
 - ▶ Recheck x-ray
- 

Pott's

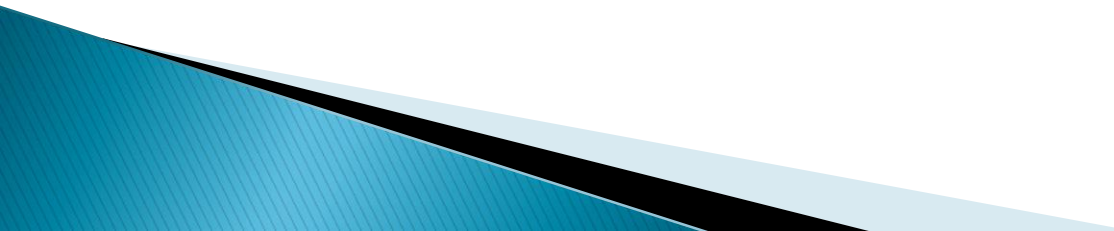
- ▶ Fractures around the Ankle Joint



Clinical Features

- ▶ H/O – Mechanism of Injuries
 - ▶ Deformity
 - ▶ Tenderness
 - ▶ Distal N/V status
- 

Management

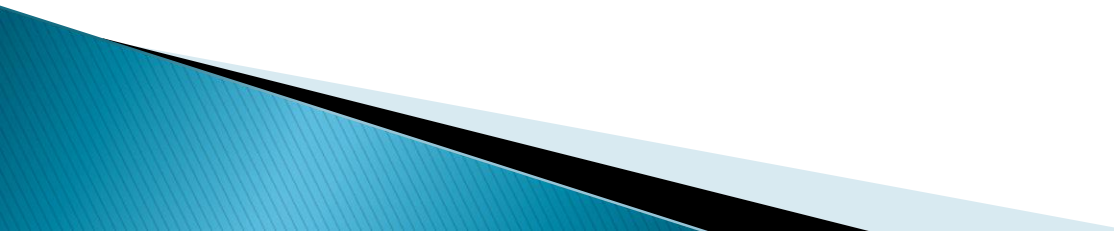
- ▶ Ankle X-ray – AP & Lateral
 - ▶ MUA
 - ▶ POP long/short leg cast
 - ▶ Recheck x-ray
- 

Dislocation


Total displacement of 2 articular surface of joint



Orthopedic emergency

- ▶ Shoulder
 - ▶ Elbow
 - ▶ Hip
 - ▶ Knee
- 

Shoulder dislocation

- ▶ Commonest
 - ▶ 45% of all dislocation
 - ▶ Mechanism – direct/indirect trauma
 - ▶ Anterior – 95%
 - ▶ Posterior
 - ▶ Inferior (Luxatio Erecta)
- 

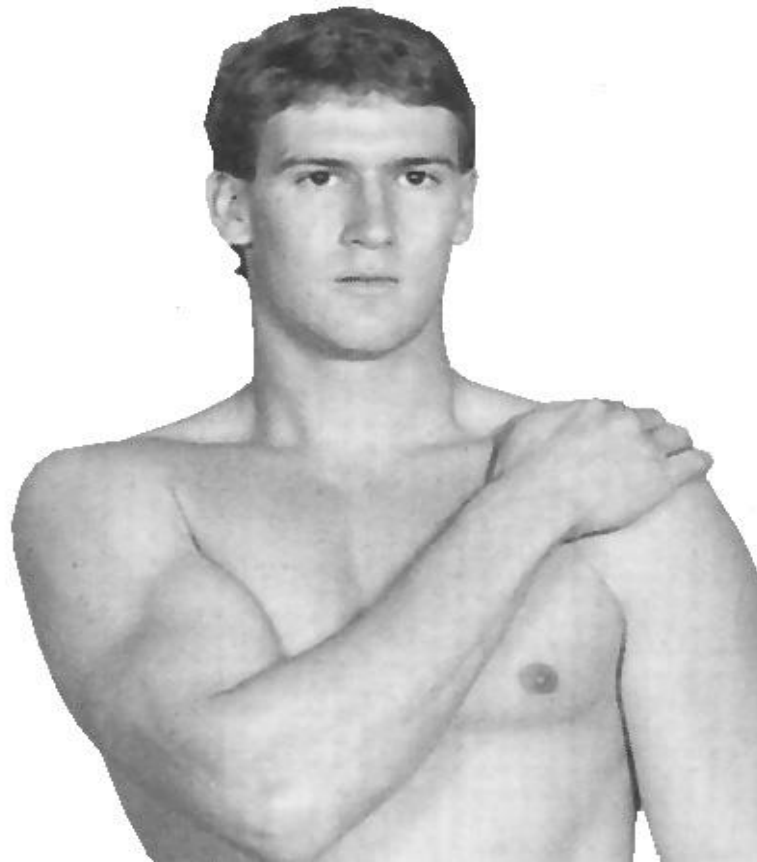
Clinical Feature

- ▶ Severe Pain
- ▶ argue to permit
any kind of exam
- ▶ Flattening of Deltoid



Dugas test

unable to touch the opposite shoulder
with the hand of affected side



R
MKN

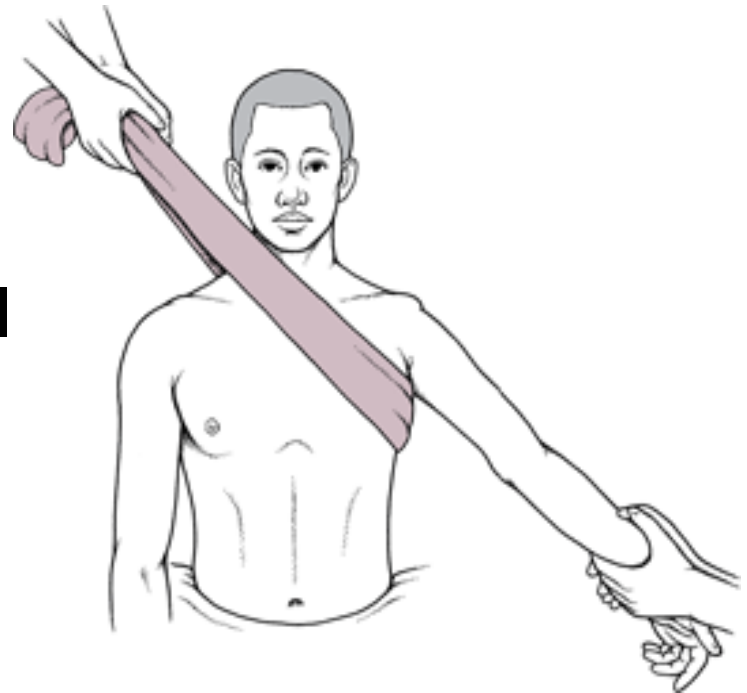
Empty
glenoid

Anterior, medially
and inferiorly
positioned humerus



Reduction

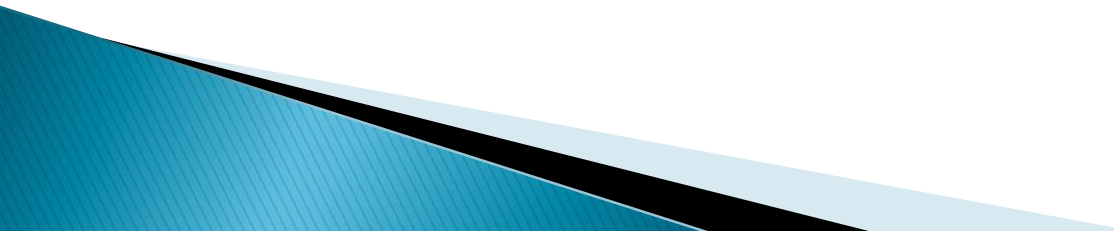
- ▶ Reduction under anesthesia (regional or general)
- ▶ As soon as possible with good muscle relaxation
- ▶ Many reduction techniques
- ▶ **Traction Counter–traction**
easy, effective and less painful



Spinal Injury



Clinical Feature

- ▶ Fall from height, RTA
 - ▶ Tender
 - ▶ Deformity
 - ▶ Deficit +/-
 - ▶ Stable/unstable
- 

Stable fracture



Stable fracture

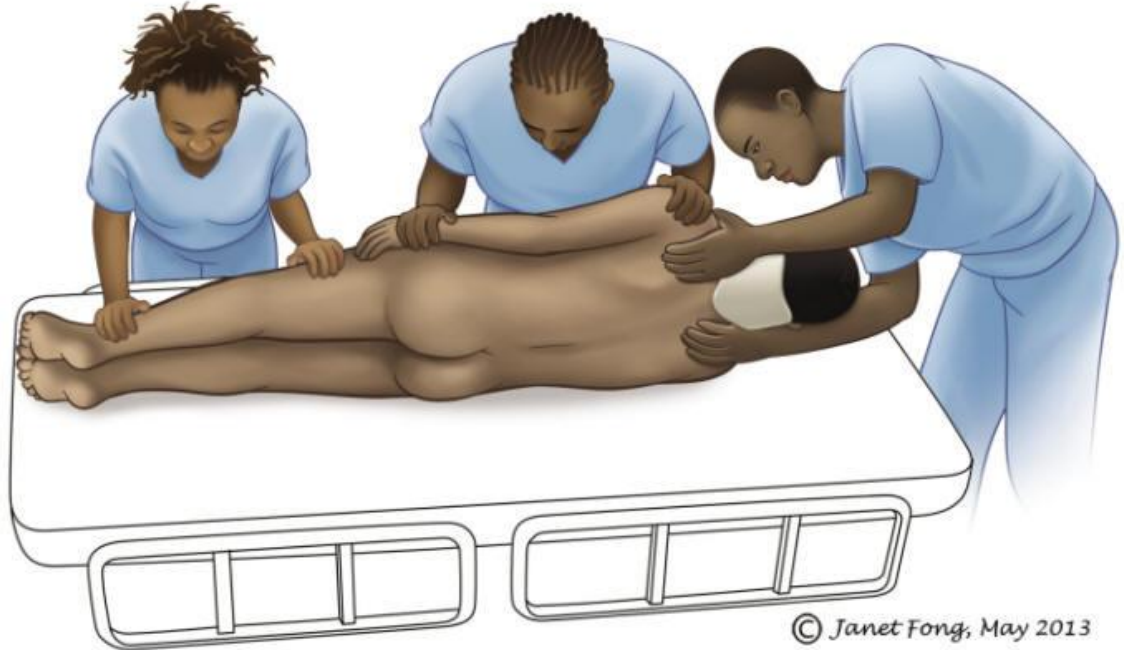


Unstable Fracture



Management

- ▶ Nursing Care
- ▶ Log roll
- ▶ transfer



Compartment Syndrome



Clinical Feature

- ▶ Injury, swelling
- ▶ Excruciating pain without proportionate to injury/fracture

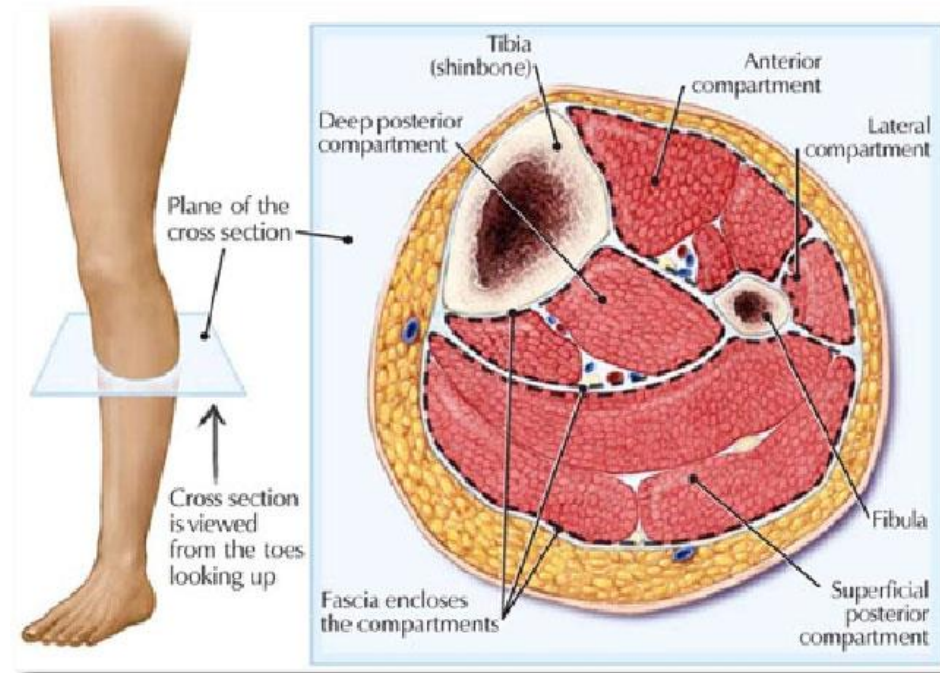
5P + Pressure

1. Pain (passive stretch test)
2. Pallor
3. Pulseless
4. Paraesthesia
5. Paralysis



Site

- ▶ Hand (3rd)
- ▶ Forearm (2nd)
- ▶ Arm
- ▶ Foot
- ▶ Leg (1st, commonest)
- ▶ Thigh



Fasciotomy



Fasciotomy



Septic Arthritis



Clinical Feature

- ▶ Swelling
- ▶ Fever
- ▶ Loss of function
- ▶ Loss of joint movement



Management

- ▶ Arthrotomy
- ▶ Irrigation
- ▶ Wd closed back in layer
- ▶ drain



Severely Crushed injury Hands / Feet

**Irreparable vascular injury is
absolute indication for Amputation**

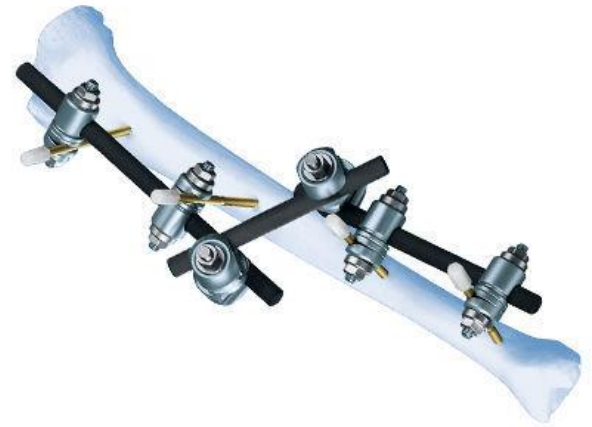


Level depend on
Skin condition and muscle crush

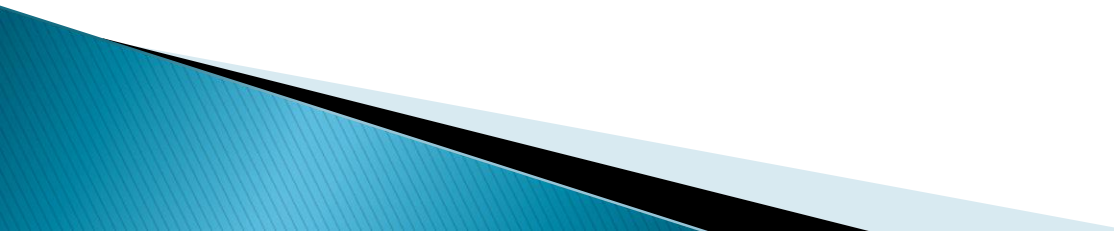


Splintage

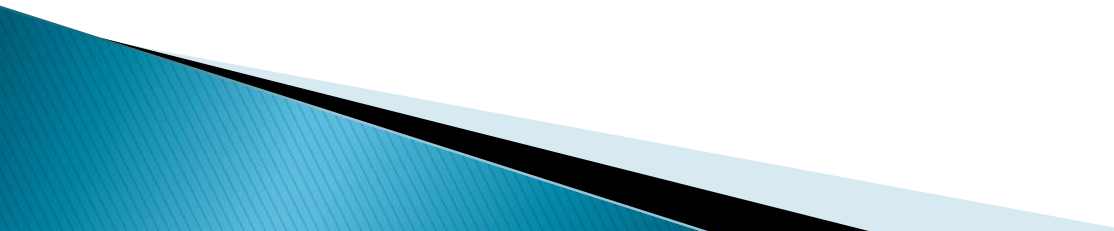
- ▶ Fracture stabilization through external support, such as casts, braces, and external fixators



Fundamental rules of splinting

- ▶ 2 joint
 - ▶ Functional position
 - ▶ Well padding
 - ▶ Comfortable and light
- 

Casting

- ▶ Proper position of limb
 - ▶ Good looking & good working plaster
 - ▶ Adequate extent & strength
 - ▶ well padded , well moulded
 - ▶ Neither loose or tight
 - ▶ No pressure effects
- 

Cast padding

- Roll distal to proximal
- 50 % overlap
- 2 layers minimum
- Extra padding at
fibular head, malleoli,
patella, and olecranon



Thank You!

