Orthopaedische valkuilen op de spoedgevallendienst

Journal Club
28 januari 2016
Spoedgevallendienst
UZ - Gent

- Orthopedic Pearls and Pitfalls, Carl Menckhoff, MD
  Department of Emergency Medicine, Georgia Regents University

- Emergency Orthopedics, Kevin P. Kilgore, MD

- Four Hand Injuries Not to Miss: Avoiding Pitfalls in the Emergency Department
  Yoong, Johnson, Chojnowski
  European Journal of Emergency Medicine, 2011

- Common Orthopedic Pitfalls for Emergency Specialists (SlideShare)

ACHTERGROND

Many patients with musculoskeletal symptoms will initially present to the ED.

Many problems can be avoided if the following **9 general principles** are kept in mind:

1. History and physical examination will predict x-ray findings with a high degree of accuracy.

2. If x-ray films appear negative but a fracture is suspected clinically, treat for a fracture.

3. Be familiar with proper x-ray views and do not accept inadequate studies.

4. Perform x-ray examinations before reductions, unless a delay may prove injurious.

5. Neurovascular competence should be checked and recorded before and after all reductions.

6. Circumferential casting in plaster is usually not prudent for the emergency physician.

7. The ability to ambulate safely before being discharged from the emergency department.

8. Explicit after-care instructions should be provided before leaving the department, including instruction in monitoring signs of neurovascular compromise, splint care, and follow-up.

9. In the multiple trauma patient, non-critical orthopedic injuries can be diagnosed and treated after airway, head, and intracavitary injuries are addressed.

Nomenclature: A fracture is defined as a break in the continuity of bone or cartilage.

Clinical features of a fracture includes a loss of function, tenderness, swelling, abnormal mobility, and deformity. Radiographic studies are used to confirm your clinical suspicion.

Terms Used to Describe a Fracture:

1. Open vs. closed
2. Exact anatomic location (involvement of articular surface?)
3. Direction of fracture line
4. Simple/comminuted/avulsion/impaction
5. Position (displacement, alignment)

Een alternatieve definitie van FRACTUUR

zoals geformuleerd door de AO

(Arbeitsgemeinschaft für Osteosynthesefragen)

A fracture is a soft tissue injury,
in which happens to be a broken bone.

Common pitfalls:

1. Orthopedic injuries are quite dramatic and tend to distract an examiner from other, potentially life-threatening, injuries.

Remember to do your ABC's and address orthopedic injuries during your resuscitation.

2. Always assess neurovascular status distal to the injury

- during the initial assessment
- after reduction (if applicable)
- and after application of a splint.

3. A common issue in fracture care is that

"the most commonly missed fracture is the second one."

Be sure to look for a second fracture after finding one fracture on a radiograph.

Valkuilen bovenste lidmaat:

Digital Nerve injuries: ALTIJD te testen VOOR de verdoving!
Can be repaired after 2-3 weeks!

Flexor Tenosynovitis van de vinger:
1) held in flexion
2) pain with passive extension
3) fusiform swelling
4) tenderness along tendon sheath

Therapie bestaat uit chirurgie (openen) en antibiotica!

High Pressure Injection Injuries:
- Afhankelijk van de stof: Vet —> fibrose Verf —> (snelle) necrose
- Afhankelijk van de druk en van de injectieplaats: Vingers en peesscheden —> slechte prognose
  Handpalm —> betere prognose
- Altijd te evalueren door orthopedie: al of niet naar operatiezaal voor debridement!

Onderscheid tussen ruptuur van de Flexor Digitorum Profundus & Flexor Digitorum Superficialis pezen (FDP & FDS)

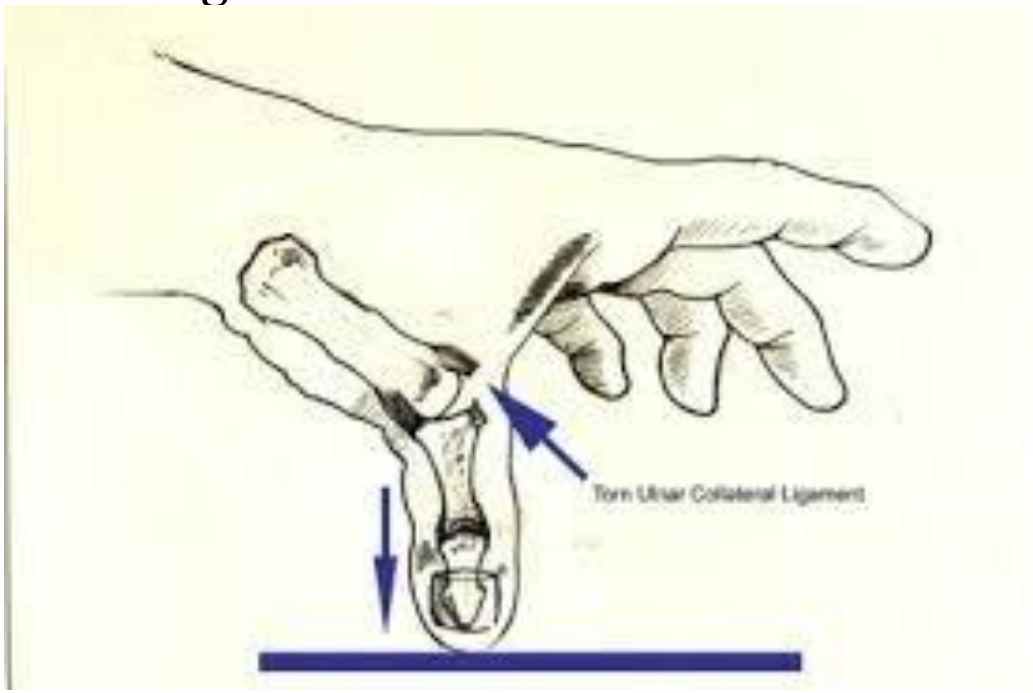
Ruptuur FDS?
Houd alle andere vingers in extensie
Probeer de aangedane vinger te buigen in het PIP-gewricht

Ruptuur FDP?
Houd het PIP-gewricht van de aangedane vinger in extensie
Probeer te buigen in het DIP-gewricht

Ruptuur van het lunair collateraal ligament van de duim: “ski-duim”

Gamekeeper’s thumb (skiers thumb) – originally described as an occupational hazard in gamekeepers from wringing the necks of rabbits.

It is a stretch or tear of the ulnar collateral ligament of the first MCPJ which **may** avulse a fragment of bone with it.

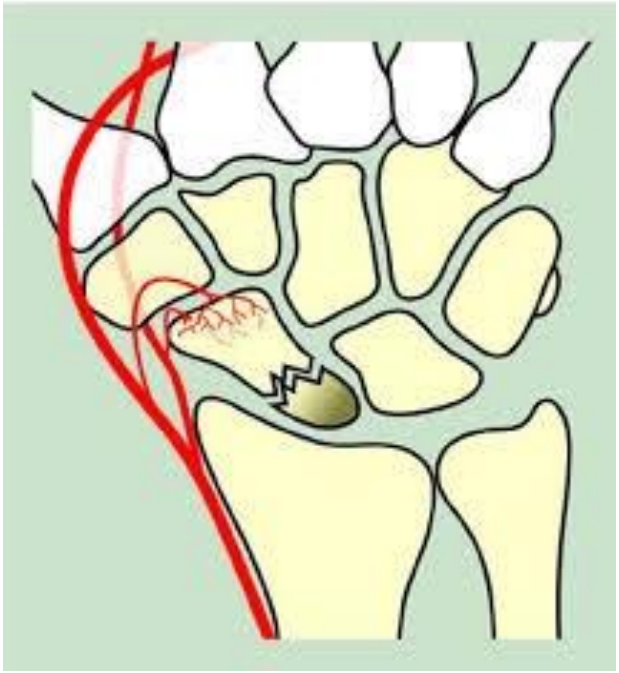


Scafoïedfractuur

Examine anatomical snuff box

60-70% of all diagnosed carpal fractures

If occult: thumb spica and follow-up 7-10 d —> 15% ultimately have scaphoid injury!

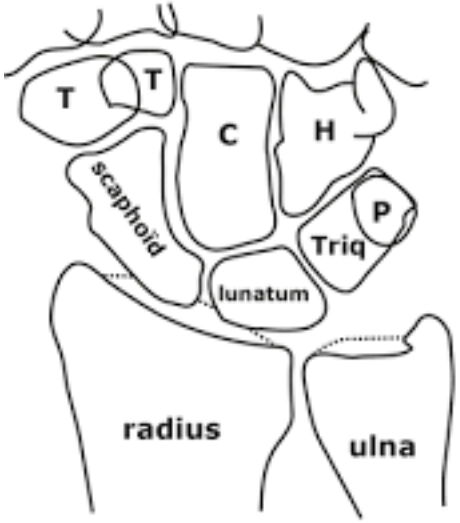


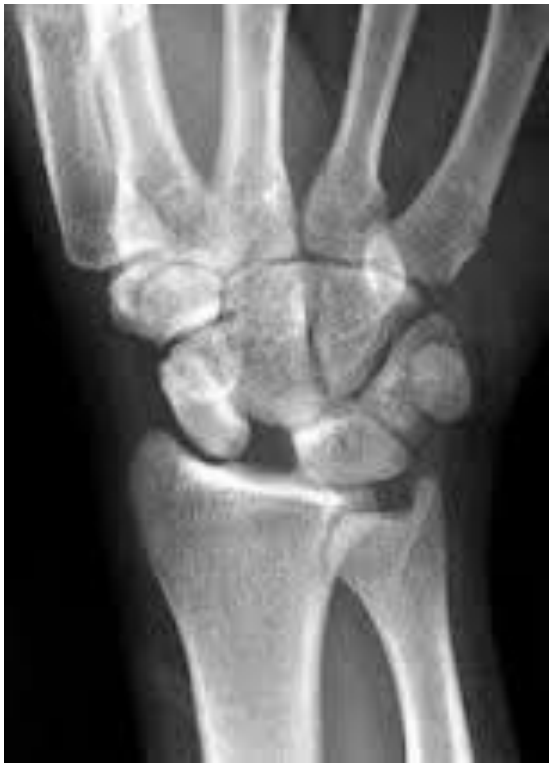
Scafo-lunaire dissociatie:

"Terry Thomas sign"

British comedian with gap between his teeth

Normal scapho-lunate distance is <3mm





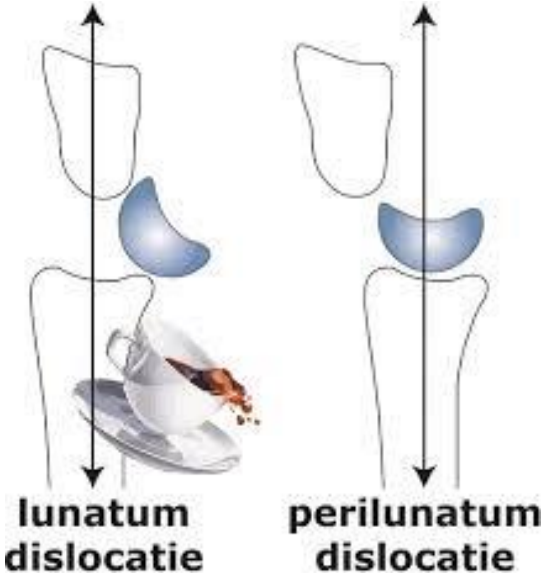
Os lunatum luxatie en peri-lunaire luxatie:

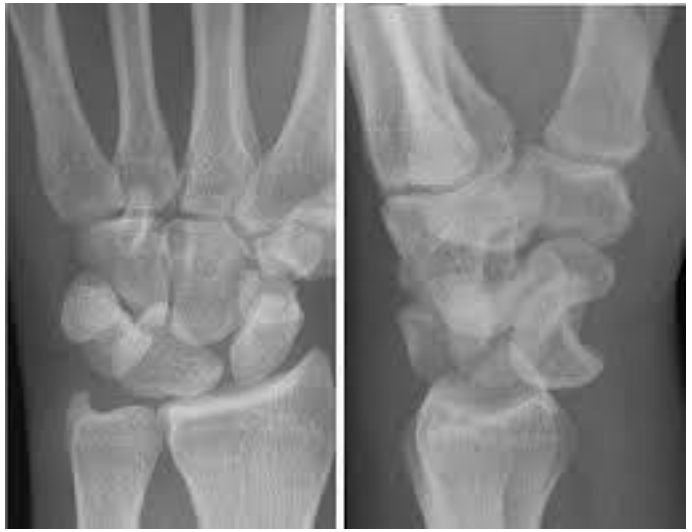
Therapy: early reduction and then surgery!

Check for acute carpal tunnel syndrome (Median nerve passes volar to lunate)

Lunate dislocation: capitate lines up with radius (lunate is out) “spilled teacup” sign

Perilunate dislocation: lunate lines up with radius (perilunate bones are out)





Monteggia en Galeazzi fractuur-luxaties:

Monteggia fracture:

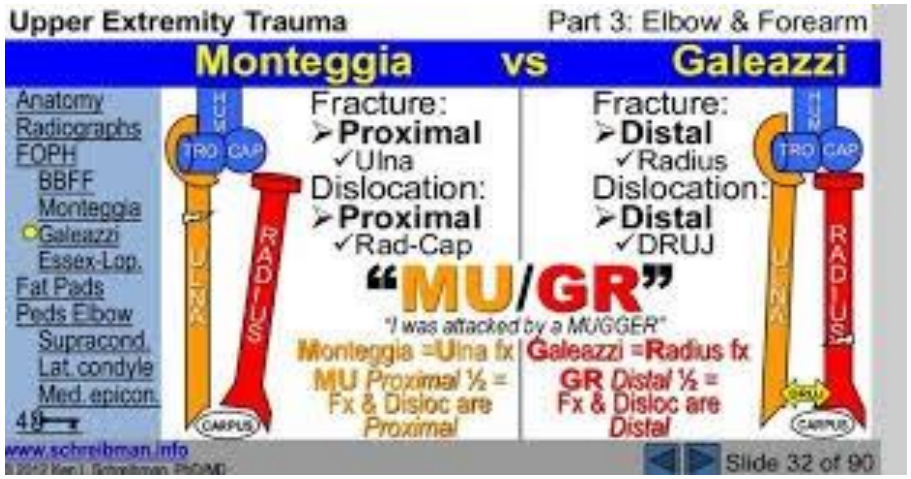
Proximal 1/3 ulna fracture and radial head dislocation

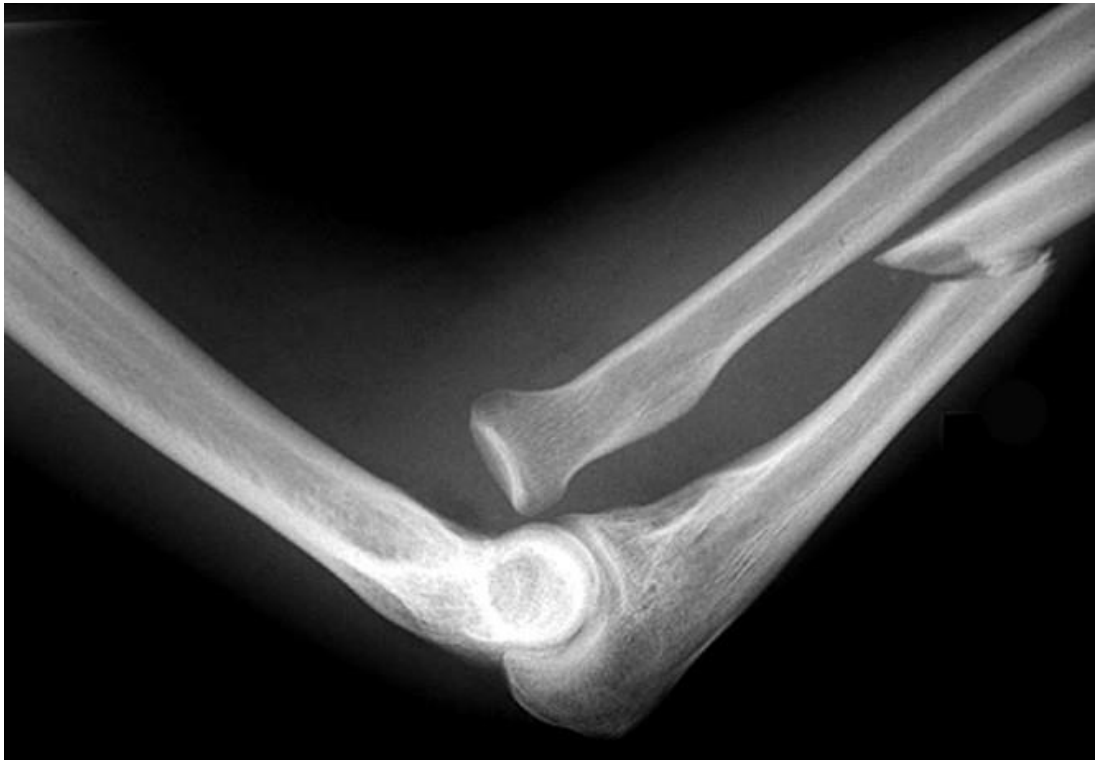
If miss radial head dislocation can become chronically unreducible!

Galeazzi fracture:

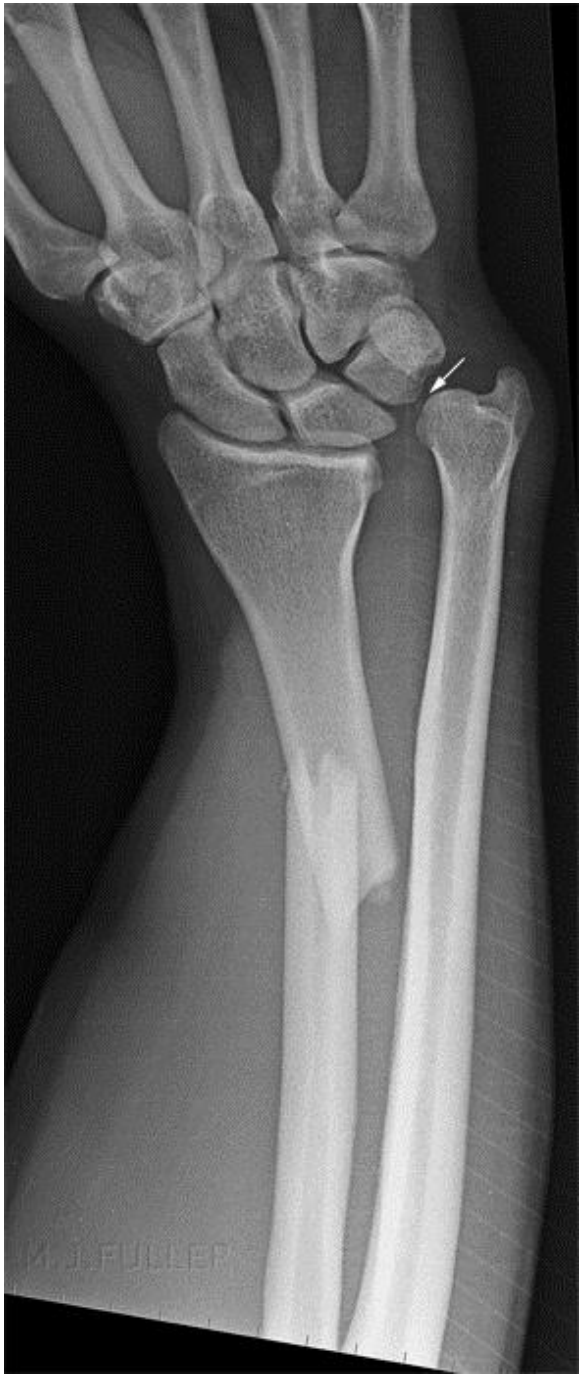
3 x more common than Monteggia

Can have progressive subluxation of the distal radio-ulnar joint!





Monteggia



Galeazzi

Elleboog bij kind:

If a child has a swelling at the elbow – something is wrong!

Think supracondylar fracture or lateral condyle fracture (even with negative X-ray)

Get a good lateral view on X-ray

Look at lines and fat pads:

- Enlarged anterior fat pad
- Posterior fat pad: Abnormal if seen (should be hidden in olecranon fossa unless enlarged)
- Anterior humeral line: Line along anterior humerus should intersect middle third of capitellum.
- Radiocapitellar line: Line through middle of radius should always intersect middle third of capitellum.

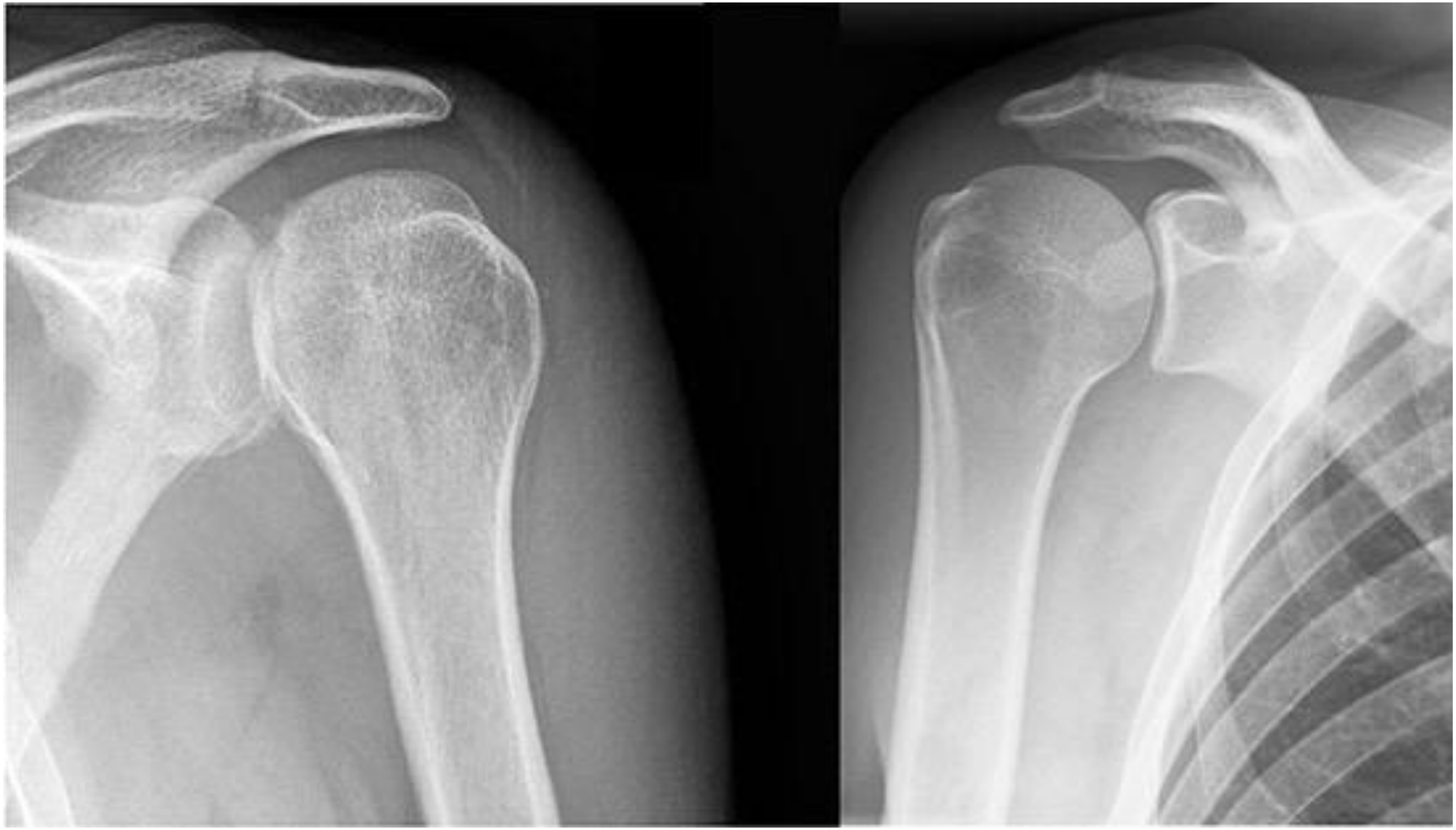
THIS SHOULD HOLD TRUE IN ANY X-RAY VIEW

Humerusletsels:
Very forgiving, if missed.
Just don't miss radial nerve injury:
Get wrist drop and sensory loss over radial nerve distribution.

Schouderluxaties:

Anterior Dislocation Anterior – 97%
- Shoulder in slight abduction and external rotation (Obvious on X-ray)
- Check for axillary N. injury (sensation over deltoid)
- Therapy: reduce + shoulder immobilizer for 10 days + ortho follow-up

Posterior Dislocation – 3%
- May be relatively asymptomatic - but patient can't supinate his hand
- May be missed on AP X-ray – make sure to look at lateral view.
- Therapy: idem as with anterior dislocation



Nog twee valkuilen van het onderste lidmaat

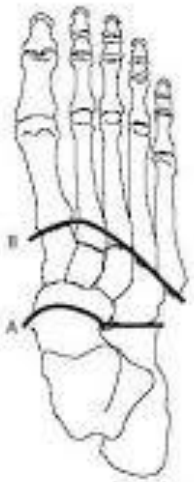
Lisfranc fractuur-luxatie:

Frequently missed. Needs surgery!

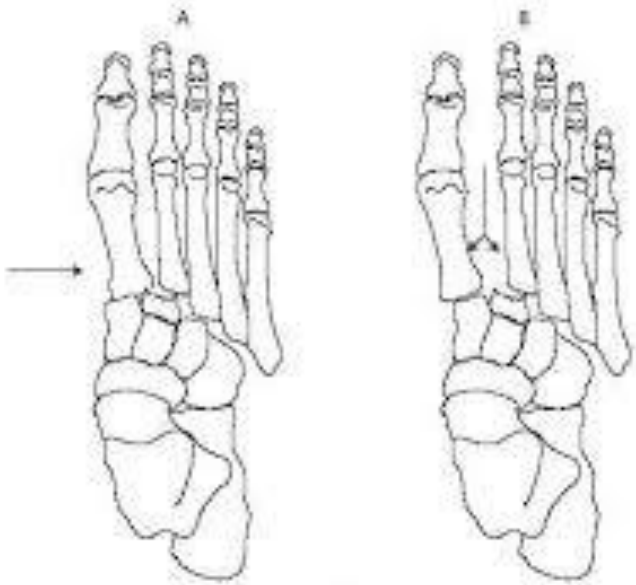
Plantar ecchymosis = bad sign, even if x-rays negative.

Get weight bearing views if subtle.

Look for alignment of 2nd metatarsal on AP and 4th metatarsal on oblique x-rays.



Voetskelet met daarin aangegeven het gewricht van Chopart (A) en Lisfranc (B)



Voorbeelden van luxatiefracturen van het tarsometatarsale (Lisfranc) gewricht A homolateraal B divergerend

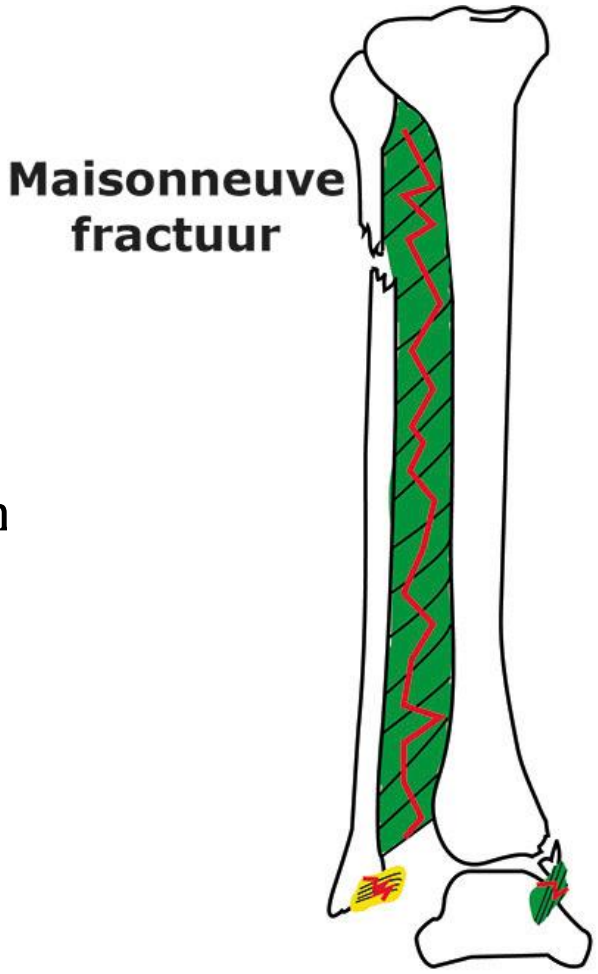
Maisonneuve fractuur:

Proximal fibula fracture
with distal tibiofibular syndesmosis disruption

May or may not have ankle fracture
(mostly medial malleolus)

If ankle unstable —>usually needs open fixation

Always examine fibular head in ankle injuries



For most ankle injuries, if in doubt……..

Pretty much all injuries can be splinted, made non-weight bearing and follow-up in a week.

THE EXCEPTION !

Ankle fracture-dislocation: EMERGENT reduction if skin tenting.

Don’t wait for an X-ray. The ankle will certainly be broken.

If you don’t reduce, skin necrosis occurs, converting this to an open fracture.

After reduction check pulse.

Then splint and follow-up by orthopedic surgeon.

Samenvattend

Orthopedic Emergencies
- Hip dislocation (ASAP)
- Ankle dislocation with tenting (1 hour)

Orthopedic Urgencies
- Open fractures (to OR in 6 hours)
- Compartment syndrome
- High pressure injection injuries

Other important things
- Look at fat pads and lines on all elbow films
- Look at medial and lateral joint space for tibial plateau injuries
- Beware posterior shoulder dislocation: Always get a lateral view!
- Beware arterial injury in knee dislocations
- Splint kids with joint tenderness

!!! <u>If in doubt</u>: Splint + Non-weight bearing + Follow-up with ortho

Don't be afraid – it's not rocket science!

Meer informatie in verband met orthopedische valkuilen:
(174 dia's)

http://www.slideshare.net/narenthorn/common-pitfalls-in-orthopedics

Dank u!