## **TALUS FRACTURE**

MORTEN SCHULTZ LARSEN, ODENSE UNIVERSITY HOSPITAL



## Classification – talar neck fracture

Hawkins\*--Prognostic Based on Blood Flow

#### Type I

- non displaced fractures
- Type II
  - 1 joint dislocation
    - Subtalar

#### Type III

- 2 joint dislocation
  - Subtalar
  - Ankle

#### Type IV

- 3 joint dislocation
  - Subtalar
  - o Ankle
  - Talo-navicular





#### \*Hawkins LG: JBJS 1970; 52-A

#### Classification – Talar Body Fracture

- Type C1Partial
- Type C2Complete, simple

 Type C3
 Complete, comminuted



## Avascular necrosis

Overall reported rate of avascular necrosis after talar neck fracture			
Variable	Total Patients (n)	AVN (	
Total of studies reporting AVN	848	282	33 30%
Total in studies using Hawkins classification	735	174	00.0070
Hawkins type I	159	9	5.70%
Hawkins type II	314	58	18.40%
Hawkins type III	228	102	44.70%
Hawkins type IV	33	4	12.10%
Other	1	1	100%

J.J. Halvorson et al. / The Journal of Foot & Ankle Surgery 52 (2013) 56-61

## Undisplaced?





Always CT scan





# Indirect Reduction Internal Fixation

- Simple fractures that can be reduced anatomically closed
- Prone position
- Incision just lateral to Achilles tendon
- Palpate and reduce subtalar joint
- Fix with two screws









#### All other fractures needs ORIF



Anterolateral Approach

Anteromedial Approach

## Mainly screws in differrent size and shape







### Reduction is urgent – fixation is not

Dxt

- Reduce joints not fracture
- Analyse x-ray
  - Dislocated joint(s)
  - Direction
  - Position
- GA + Relax

#### Reduction is urgent – fixation is not

- Ankle and subtalar joint
  - Mainly dorsal dislocation
  - Prone position
  - Traction + dorsal fleksion foot
  - Direct push postero-lateral



### Reduction is urgent – fixation is not

- Ankle and subtalar joint
  - Prone position
  - Dorsal fleksion foot
  - Direct push postero-lateral
  - Closed reduction
  - External fixation



# Talo-navicular joint + ?





One big + one small fragment (+bits) All joints dislocated

#### Mainly anterior and lateral





#### Supine

- Ankle and subtalar reduced
- Hintermann distractor in talus and cuneiforme med.
- Transfixing K-wires





## Take Home Message

#### Talus fracture

- Reduction is urgent not fixation
  Plan your reduction
- Talus neck talus body three joints
- All except truly undisplaced need operation
- Highly specialised transfer

## Calcaneal fractures



## Extra Articular





## Treatment





## Intra-articular Sanders classification - CT scan



## Bøhler angle









#### **RESEARCH ARTICLE**

**Open Access** 

Bohler's angle's role in assessing the injury severity and functional outcome of internal fixation for displaced intra-articular calcaneal fractures: a retrospective study

Yanling Su<sup>†</sup>, Wei Chen<sup>†</sup>, Tao Zhang, Xingwang Wu, Zhanpo Wu and Yingze Zhang<sup>\*</sup>

Postoperative Böhler's angle parameters were found to have a significant correlation with the functional recovery



## Broad/short/varus



## **Complications to surgery**

#### • Hardware

- OIF (experience)
- Malposition of screws 5%
- Loss of fixation (böhler)

Infection

- Superficial 15% / Deep 2%
- Sural nerve 10%
- Compartment syndrome 1-5% or more ?









#### rge 1 of 13 эd,

# 

Vears of complications was higher after surgery.

years,

statistics, Yuri Kulikov clinical research mg, Margaret Thorogood professor of utation, for the UK Heel Fracture Trial (UK HeFT)

university of Warwick, and University Hospital of Coventry and Warwickshire NHS Trust,



#### 2006 patients

#### 151 patients



Page 1 of 13

#### RESEARCH

Operative versus non-operative treatment for closed, displaced, intra-articular fractures of the calcaneus: randomised controlled trial

27 surgeons across the 22 centres.

Median number of operations per surgeon was two with a maximum of six

All fractures in one pot

## Who needs operation?

positive negative Sanders II + dislocation Undisplaced Smoker Alcohol abuse Sanders III + 1 fragment undisplaced Age > 70 years Böhler angle neg. Sanders III + dislocation Short/broad hindfoot Sanders IV Varus hindfoot Comorbidity eg. IDDM

## Take Home Message

#### Calcaneus

- Sanders classification
- Few need surgery
- Displacement
  - Böhler angle
  - Broad, short, varus
- Comorbidity