DISTRACTION SUBTALAR ARTHRODESIS

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- Complications of calcaneal fractures
- Assessment of calcaneal bone loss
- Non – unions
- Surgical treatment of malunions

Treatment of calcaneal fractures

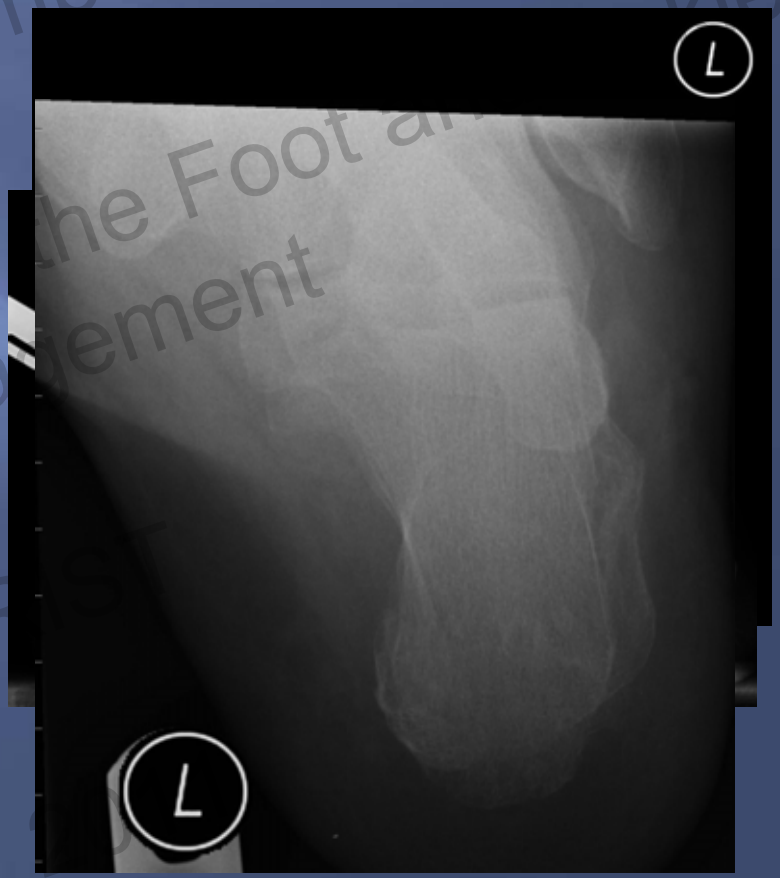
- Still controversy in literature
- Should recreate normal bony architecture at very least
- Extended lateral for formal ORIF
- Popularisation of subtalar approach / percutaneous fixation

Complications of calcaneal fracture

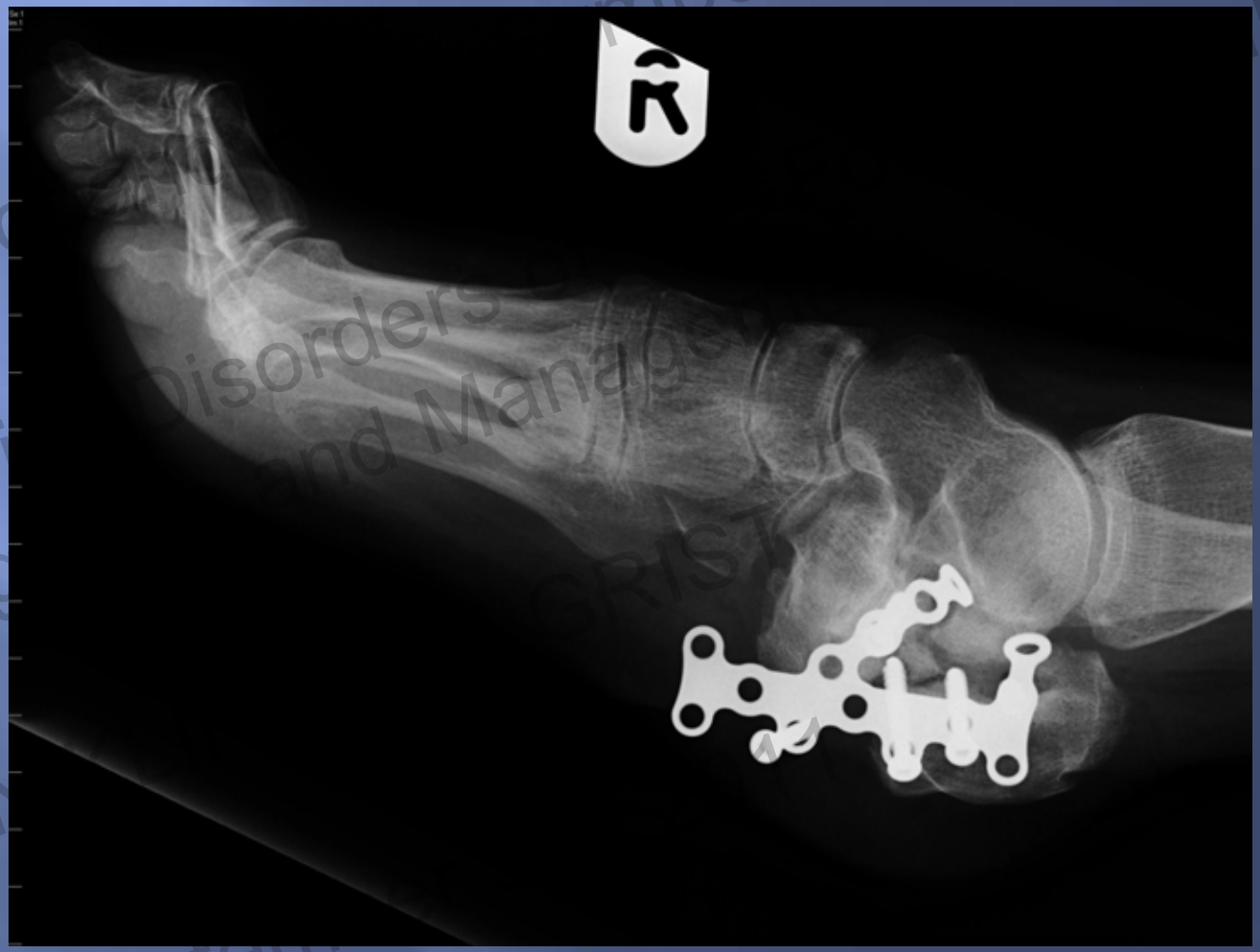
- Malunion
- Nonunion
- Infection

Malunion

- Stephens and Sanders FAI 1996
- Type 1 – lateral wall exostosis
- Type 2 – exostosis, arhrosis but <10 degree malalignment
- Type 3 - > 10 degree malaignment



However does not include classification of non-unions!

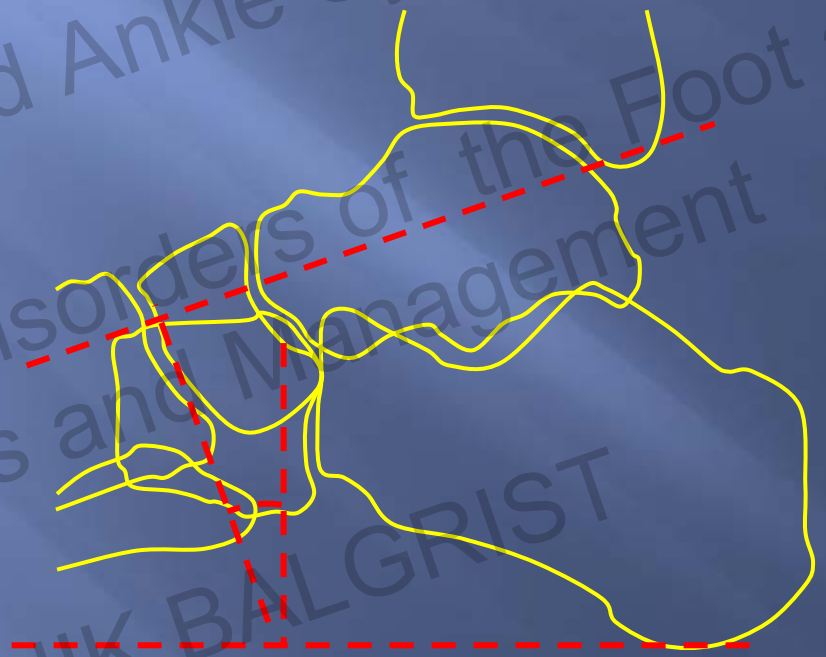


Assessment of bone loss

Bohlers angle

Critical angle of Gissane

Talar declination angle



Talocalcaneal height

Talocalcaneal angle

CT scans

- Essential for delineationg if non union present
- Radiographs can be deceptive
- Scans allow delineation of defects
- Allow correct surgical strategy to be undertaken

Non Unions

- Zwipp et al reported that occurred in 1.3% of 157 fractures
- Largest series of 15 showed that 93% had been treated operatively with 86% having incorrect initial techniques
- 20% wound dehiscence of index operation
- 20% had osteomyelitis

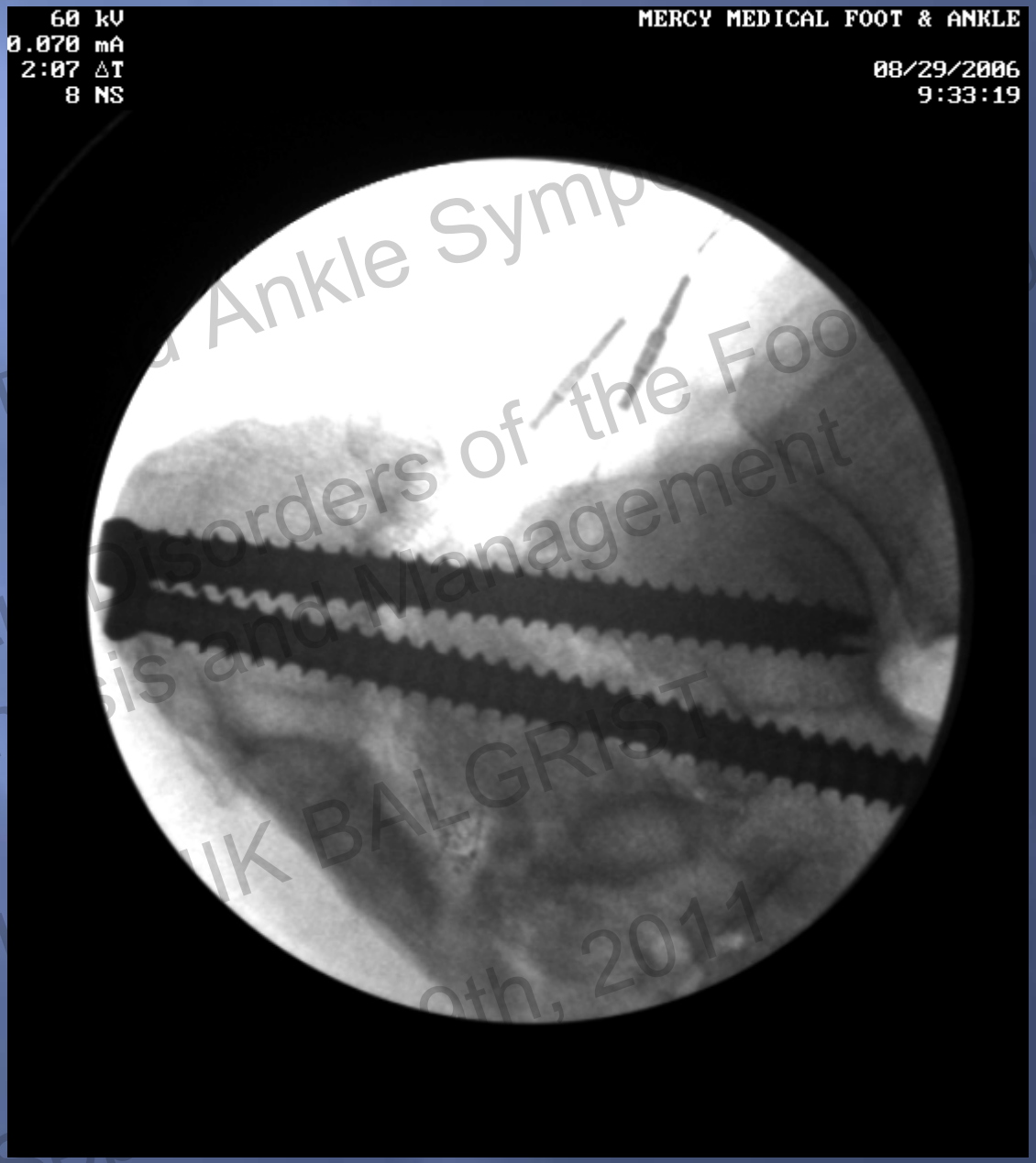
Distraction bone block arthrodesis

A retrofibular incision is used so that closure will not be affected by the increase in talocalcaneal height

- Size of defect only determined after insertion of laminar spreader
- Distract until there is no ankle impingement

Surface preparation

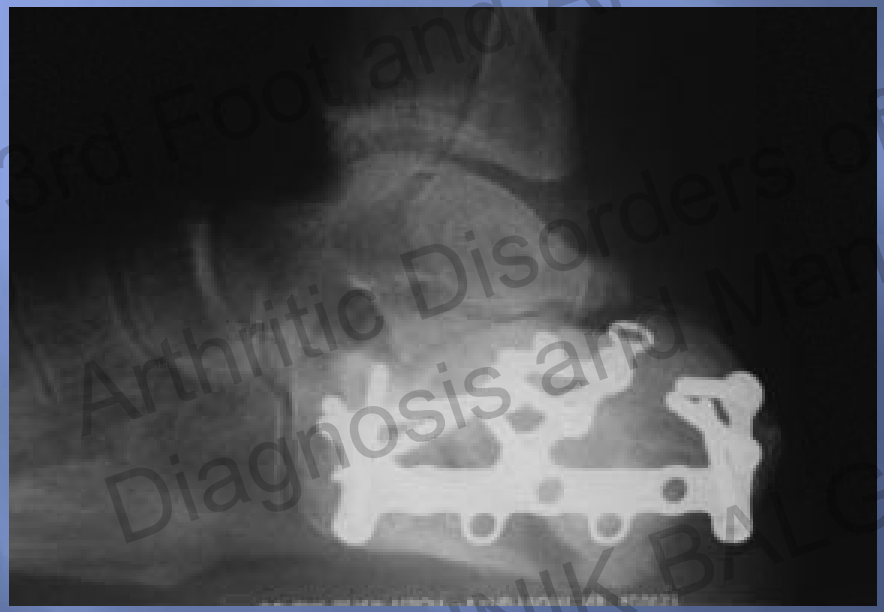
- Try to get down to bleeding bone with flexible chisels then drill preparation
- Defect can be very large
- Sometimes there is only sclerotic bone present = drill and augment



Talar declination angle can be normalised

Not necessary providing good ankle ROM

Different fixation methods should be available



Results

- 10/15 required bone block
- 14 unions
- 3 wound dehiscences (1 required a local flap)
- 53% sural nerve dysfunction
- 53% > 75% ROM ankle
- 47% 50-75% ROM
- Mean AOFAS 69
- No recurrence of infection

Non-unions

- If talar declination angle reversed / significant ankle impingement
- severe loss of talo calcaneal height
- perform distraction bone block arthrodesis

Malunions

- If not perform excellent results with an in – situ arthrodesis with augmentation (Clare et al JBJS 2005, Savva et al JBJS 2007)
- If there is a varus malunion then a simultaneous calcaneal osteotomy should be performed

Malunions

- Lateral incision can be used even in presence of previous extensile approach (Myerson et al JBJS 1993)
- If a calcaneal osteotomy is to be performed a seperate oblique incision can be used

- Distraction bone block arthrodesis is an excellent salvage procedure
- Relatively high complication rate
- Use if large defect with anterior ankle impingement or severe loss of talocalcaneal height
- If not present perform an in situ arthrodesis

Thank you