Ankle Malleolar Fractures

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Malleolar Fractures

- Common
- Articular
- Subcutaneous

- You will have to deal with them
- You must get it right
- The soft tissues may not forgive you
Ankle Anatomy - Ligaments

- Lateral Collateral Complex
Anterior Talo-Fibular Ligament (ATFL) Injury
Ankle Anatomy - Ligaments

- Medial Collateral Complex
Ankle Anatomy - Ligaments

- Inferior Tib-Fib Comp (“syndesmosis”)
Ankle Anatomy - Joints

- Talus is in close contact with mortise
- Close contact important for load distribution
- Talus slides, rotates & translates within mortice
- Fibula translates/rotates with ankle movement
Pathology – Mechanism of Injury

- Foot position
- Direction of deforming force
- Magnitude of deforming force
- Coupling/torque conversion from foot to ankle
Classification of Injury

• Lauge-Hansen 1948, 1949
  – Cadaveric studies, foot position and direction of injuring force
  – Useful for closed manipulation

• Danis 1949, Weber 1972 and AO
  – Injury level relative to syndesmosis
  – Useful for fibular fracture fixation
Infra-syndesmotic Injury – Type A

- Supinated foot
- Adduction
- Injury below level of syndesmosis
- Further adduction
- Injury below level of syndesmosis
- Vertical “push off” medial malleolus
Trans-syndesmotic Injury – Type B

• Supinated foot
• Axial load
• External rotation of talus (foot inverts)
• Injury at level of syndesmosis
• Posterior fibular displacement

• Further external rotation of talus
• Posterior fibular displacement
• Volkmann posterior lip fracture
Supra-syndesmotic Injury – Type C

- Pronated foot
- External rotation of talus
- Fibula twists
- Syndesmosis ruptures anteriorly
- Further external rotation of talus
- Tibia displaces medially
- Fibula fractures proximally
Surgical Steps

• Incongruity is poorly tolerated
• Early movement is good for the joint
• Timing of surgery depends on soft tissue envelope
• Position
  – Tourniquet
  – Imaging
• Approach
  – Respect nerves
Postoperative Care

- Early Active Mobilisation
- Protected weight bearing for 6 weeks
- Consider syndesmotic screw removal
Mechanical Instability due to poor ligamentous healing - arthroscopic findings
Rehab’ Problems

- Missed intra-articular injury
Summary

- Assess the bony pattern of injury
- Consider the potential benefits of anatomical reduction and early mobilisation
- Don’t neglect the soft tissues