Current Controversies in Foot and Ankle Injuries

Dr Andrew Higgs
Orthopaedic Foot and Ankle Surgeon
Sydney Olympic Park
Scope

• Achilles Tendon
  • Surgical approach
  • Operative Vs Non operative

• Ankle Fracture (syndesmosis)
  • Diagnosis
  • Treatment

• Bottom Line
Achilles
Achilles

- Non surgical treatment is associated with a higher re-rupture rate though fewer complications.
- Open treatment reduces risk of re-rupture.
- Percutaneous techniques of repair *may* reduce surgical complications such as wound breakdown and infection.
  
  — Khan and Smith 2010. The Cochrane Collaboration
Method of Open Repair

- A 6-10cm cut
- Direct Vision
- Infection
- Adhesion
- Scar
Percutaneous
Percutaneous Methods

- Not all methods are alike
- Questionable repair
  - Indirect
    - Sural nerve
  - Suture position, and circumferential
    - Apposition
  - Strength
Percutaneous

- 3X 1.5cm approaches
- Pulley configuration
- 6 strand

*Webb and Bannister 1999*
Materials and Methods

- 12 Cadaver whole leg (3 pairs and 6 individual)
- Matched for age and sex into pairs.
- One ankle from each cadaver pair.
- The tensile properties as well as the location of failure was recorded.
Set Up
Load to Failure

Mean Loads to Failure

- Percutaneous
- Open Repair
Repair Stiffness

Mean Repair Stiffness

* p < 0.05
Failure Modes
Percutaneous
Bottom Line

• Load to failure similar in both early functional rehabilitation
• May offer reduced complication rate
• Can be done under local Anaesthesia
Non-Operative Management?

- Evidence to support increasing
  - Twaddle and Poon 2007
  - Wallace 2004
  - Khan 2005/2010
- Functional rehabilitation
- Early weight bearing
- Cost
  - Surgical 3.7 more expensive
  - McComis 1997
Non Operative
Non Operative
Syndesmosis

Interosseous membrane

Anteroinferior tibiofibular ligament

Posteroinferior tibiofibular ligament

Transverse tibiofibular ligament
Syndesmosis

- 18% of all ankle injuries.
- Controversial
  - Diagnosis
  - Management
- Occur with Fracture
- Isolation
  - ‘high spains’
Ankle Fracture

- Fracture
- Tibia
- Lateral Malleolus
- Talus
Ankle Fracture

Type A

Type B

Type C
Syndesmosis
Mechanism
Clinical Test
Radiological Parameters

- Tibiofibular clear space
  - 6mm
  - Most reliable
- Tibiofibular overlap
  - 1-6mm
- Increased medial clear space
  - <4mm

*Stephen D 2000*
Intraoperative Radiographs
Bottom Line

- Refer all Weber B
- Difficult to diagnose
- No ‘Gold Standard Test’
- Missed syndesmosis injury serious
  - Later OA
Treatment Options
Tightrope- Does it Work?
Literature

- No randomised trials
- Cadaveric biomechanical study
- Tight-rope vs screw comparisons
  - Outcomes
  - Reduction
- Cost benefit analysis screw vs tightrope
- Systematic review
  - Similar outcomes
Tightrope Vs Screw

- 16 in each group 3 and 12 month F/U
- prospective
- AOFAS score better for tightrope 93 Vs 83
- Return to work faster (2.8 vs 4.6 months)
- Non required removal
- 3/12 CT showed reduction maintained with Tightrope

_Thornes et al CORR 2005_
Cost?

- Tightrope syndesmosis kit $589
- Screw $50
- One day admission for screw removal $1190
- $650 saving using Tightrope
- $21 499.50/annum at Toowoomba

Masoumi 19(2) IJOS
Systematic Review

- Similar outcome
- Maybe quicker return to activity
- Removal
  - Tightrope – 10%
  - Screw -52%

*Schepers IO 2012*
Bottom Line

- Reduced cost
- Avoids second surgery
- No level I evidence
Thank-you