RECONSTRUCTING THE ARTHODESIS MALUNION

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Introduction

- Ankle fusions have relatively good outcomes
  - Depends on mobility and condition of adjacent joints
- Careful patient selection
- Multiple different techniques
  - Plates vs. Screws
  - A'scopic vs. Open

Introduction

- Ankle fusion malunions are uncommon

What’s the best way to treat ankle fusion malunions?

AVOID THE MALUNION
Introduction

What is the optimal position?
- Neutral Dorsiflexion
- 0-5 degrees valgus
- 10 degrees of ER
- Neutral AP (and ML) translation

Buck et al. JBJS 1987

Introduction

Equinus and Varus
- Most frequent
- Least well tolerated

Introduction

Respect the fibula!
- Nonunion after fibular removal will lead to valgus malalignment
- Can compromise subtalar joint

Respect the fibula!
Introduction
Problems with malunion
- Stress fractures
- Adjacent segment degeneration (PF)
- Lateral foot overload (varus)
- Instability (varus)
- Wounds

Evaluation
- Examine weight bearing alignment in all planes
  - Compare to contralateral limb
- Evaluate adjacent joints
- Note previous wounds/incisions
- Compare to patient complaints

Evaluation
- Weight bearing films
  - Tib-fib
  - Ankle
  - Foot
  - CT?
Decision Making

- Correct the deformity at the deformity
  - Where and what plane(s)?
- What incisions?
- Bone Graft?
- Implants?
- Multiple joints? – Sequence?
- What are the goals of surgery?

Coronal Plane Deformity

- 43 yo male with rigid ankle and arthrosis following pilon fracture
- Main complaint is lateral foot pain, mild ankle pain

Coronal Plane Deformity

- Varus
Coronal Plane Deformity

- Varus

Coronal Plane Deformity

- Valgus

Coronal Plane Deformity

- Valgus
- Lateral Approach
Coronal Plane Deformity

Sagittal Plane Deformity
- Plantarflexion
- 57 yo female after a'scopic fusion

Sagittal Plane Deformity
- Intraop simulated weightbearing
Sagittal Plane Deformity

- Plantarflexion

Combined Deformity

- More difficult to correct
- Correction in 2 planes
- Often subtalar joint is not salvageable

- Principles remain the same

Combined Deformity

- 53 yo female s/p fusion 5 years ago
- Pain on lateral border of the foot
- Difficulty walking and climbing steps
51 yo male s/p remote ORIF talar neck fracture
Subsequent ankle fusion secondary to pain
Progressive pain localized to hindfoot
Has had issues following his fusion
Combined Deformity

- 1 yr – normal shoes, plantigrade no pain
Postop Protocol

- 10 weeks NWB (cast/boot)
- Progressive weight bearing
- PT only if difficulty with gait/balance
- Long recovery period

Literature

- None to go on

Summary

- Rare cases
- Best treatment is avoidance
- Correct the deformity at the deformity
- Technically difficult – planning is key