TALUS FRACTURES & AVN TREATMENT PEARLS

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AVOID THEM UNLESS YOU LOVE THEM

Talar Neck Fractures
- Relatively rare injury
- 60-80% articular cartilage
- No muscle / tendon
  - Ligaments only
Vascularity

- **Artery of tarsal canal**: majority of body blood supply
- **Need at least 1 of 3 anastomoses**

CT Scan

**Diagnosis**
- Non-displaced fractures

**Planning**
- Essential
- Demonstrates subtalar comminution

Timing

**How urgent are these?**

- No increase in AVN with delayed fixation
- Urgent to reduce dislocation
  - Talus needs to be under plafond

*Lindvall et al., JBJS 2004 86-A(10), 2229-2234*
*Vallier et al., JBJS 2004 86-A(8), 1636-1624*
When is it an Emergency?

- Need to put the talar body under the plafond

Surgical Treatment

Open vs Closed

Front or Back

Approach for Reduction

Talar Neck Fractures

Approaches
- Single
- 2 incision
- Posterior
Posterior to Anterior Fixation

- Stronger than A to P fixation with 2 screws
- Screws perpendicular to fracture site

Single Incision

- Limited role
- Inability to Assess Reduction

Utility

- Non/Minimally Displaced
- Soft Tissue Envelope
- Associated fractures

Double Approach

Medial
- Anteromedial
- Medial

Lateral
- Anterolateral
- Sinus tarsi
- Modified Ollier

2 incisions is gold standard
Lateral Approach

- Sinus tarsi - most common
- Modified Ollier - talar neck comminution

Incision
- Tip of fibula in line with 4th ray

Medial Approach

- Between Tibialis Anterior and Posterior Tibial Tendon

Incision
- Tip of the medial malleolus to midline of medial ray
41 yo fall off of a ladder
Plate Fixation of Talar Neck Fractures: Preliminary Review of a New Technique in Twenty-three Patients

- 26 high energy talus fractures
- 27 % AVN with collapse rate

Treatment of Comminuted Talar Neck Fractures With Use of Minifragment Plating
Michael A. Maciariello, MD*, Christopher Wong, MD; Bruce Sanders, MD, and John P. Rett, MD

- 26 high energy talus fractures
- 27 % AVN with collapse rate
Rate of AVN

- **Type I**
  - 0-13%
- **Type II**
  - 20-50%
- **Type III**
  - 70-100%

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**Talar Neck Fractures: Results and Outcomes**

By Heather A. Vallée, MD; Sean E. Nork, MD; David F. Baele, MD; Stephen E. Homem-Meade, MD; and Bruce I. Sangeorzan, MD

Investigation performed at Harborview Medical Center, Seattle, Washington
AVN (with collapse)

- Type I & IIA
  - 0%
- Type IIb & III/IV
  - 49% (IIb-25%, III/IV-64%)

WORSE OUTCOMES WITH NECK COMMINUTION AND OPEN INJURIES

23 yo M s/p MVC
Case - AVN

- 53 yo F s/p MVC

10 WEEKS

18 MONTHS
Case - AVN

- 23 yo F s/p MCC

4 MONTHS

54 yo M s/p fall
47 yo M s/p work injury
AVN WITH COLLAPSE

- Bulk Allograft
  - FEMORAL HEAD
  - ACETABULAR REAMERS
  - ORTHOBIOLOGICS
  - AUTOGRAFT SUPPLEMENTATION
Summary

- INJURIES ARE AN EMERGENCY IF DISLOCATED
- DUAL INCISIONS IS THE GOLD STANDARD
- LATERAL PLATE FOR NECK COMMINUTION
- AVN AND SECONDARY SURGERY RATE IS HIGH