TECHNIQUES AND INDICATIONS FOR FIXATION OF THE TALUS

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I. INTRODUCTION

GOALS

Discuss approaches to talus fractures
Discuss tips and tricks for fixation
Discuss outcomes of surgical care

A. Talus is important because it connect the leg with the foot and the hindfoot with the midfoot.
B. Unique bone in that 60% of surface covered by articular cartilage and it has no muscular or tendinous attachments.
C. Second most common bone fractured of all tarsal bones, compromise about 0.3% of all fractures
D. Blood supply of the talus, use caution so that you don't strip blood supply
    a. Artery of the tarsal sinus
    b. Artery of the tarsal canal
    c. Arteries through the neck

II. FRACTURES OF THE TALUS

A. 30% of all talar fractures involve the neck
B. 1% of talar fractures involve the body
C. Mechanisms of injury of neck fractures
    a. Hyperdorsiflexion of the foot on the leg
    b. Axial load on plantar surface of fixed talus
    c. Direct blow on the dorsum of the foot.
D. Mechanisms of injury of body fractures
    a. Axial compression of the talus between the plafond and the calcaneus
E. Classifications of talar neck fractures: Hawkins
    a. Type I: Nondisplaced
    b. Type II: Subluxation or dislocation of the subtalar joint
    c. Type III: Dislocation of the subtalar and ankle joints
    d. Type IV: Types II or III with subluxation or dislocation of the talo-navicular joint
    e. Classification of talar body fractures: Best method is to describe the location of the fracture

III. TREATMENT

A. Talar Neck or Body

a. Nonoperative care: Useful only for Type I or nondisplaced body fracture but need to make certain there is no displacement.
b. Preferred method of treatment is open reduction internal fixation

B. Surgical Approaches
   a. Medial: Good for body fractures, often requires osteotomy of medial malleolus to treat body fracture
      i. Use lag screw technique to compress fragments
      ii. Need to countersink the screw heads
   b. Anterolateral: Good for neck and lateral body fractures
   c. Ollier: For lateral body, lateral process or fusions
   d. Posterior: Good for fusions and posterior process fractures

C. Surgical implants
   a. Need small and mini-fragment implants along with biofix pins
   b. Don't be afraid to use a plate especially when dealing with neck comminution.
   c. **Be sure that you have obtained the correct length and rotation before applying definitive fixation.**
   d. If adjacent joints are unstable, don't be afraid to apply a pin across the joint to provide additional stability. Pins can be pulled at 3-5 weeks.

D. Results of neck fractures
   a. Union rates about 94%
   b. 100% develop arthritis
   c. Neck fracture AVN rates: Highest risk is comminution, open injury
      i. Type II: 40%
      ii. Type III: 40-65%
   d. No correlation between time of injury and time to surgery for closed injuries as far as arthritis, AVN, nonunion or AOFAS scores.

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