

1. Calcaneous Fractures: Tips from the trenches
  - a. Patient
    - i. Modifiable factors
      1. Nicotine
      2. Diabetes
    - ii. Non Modifiable Factors
      1. Behavioral
      2. Work Status
  - b. Timing
    - i. What needs to be addresses acutely
      1. Skin at risk
        - a. Tongue type
        - b. Displaced Tuberosity: Joint Depression
      2. Open Injuries: Irrigate debride acutely. Wait for soft tissue envelope to mature before treating definitively
        - a. Medial
        - b. Plantar
  - c. Pattern
    - i. Tongue Type
    - ii. Joint Depression
      1. Medial column
      2. Lateral column
      3. Calcaneocuboid joint
  - d. How to address
    1. I&D
    2. Perc Pinning
      - a. Positioning
        - i. Lateral
        - ii. Prone
      - b. Approach
        - i. Perc
        - ii. Sinus Tarsi Incision
        - iii. Extensile Lateral (No- except with certain open injuries
        - iv. Clean out the sinus tarsi. You should be able to visualize the middle facet articulation with the talar neck.
      - c. Reduction
        - i. Schanz Pin
        - ii. Ex Fix
        - iii. Neuromuscular relaxation
        - iv. Threaded Steinman pin and curette. The tuberosity jack.
      - d. Implant
        - i. K-wire
        - ii. Cannulated Screws

- e. Stuff No One Ever Told Me
  - i. Wound management
    - 1. Closure
      - a. Make sure that the fascia is released from the tuberosity in confluence with the fascia overlying the short abductors. Close this with interrupted sutures which are placed snapped then tied. Close progressively toward the corner
      - b. Suture material
        - i. Braided absorbable pop-offs deep layer
        - ii. Monofilament absorbable (like Monocryl) superficial.
          - 1. Horizontal Mattress or Donatti
          - 2. Why? Because easy to leave in. No need to make the difficult decision when to remove.
  - ii. Acute Management
    - 1. Check the heel skin
      - a. Reduce the tuberosities urgently if skin at risk. Managing eschars is not what you want to do.
      - b. Elevate
      - c. Protect
      - d. Wait
    - iii. Get the anterior process right
      - a. Don't forget about the calcaneo-cuboid joint
      - b. It is fine to span the calcaneo-cuboid joint
    - iv. Consider bone substitutes
      - a. Biological Cement
      - b. Methylmethacrylate
      - c. PLGA c/allograft bone

**Six tips learned the hard way.**

1. Address compromised skin urgently
2. Reduce the calcaneocuboid joint. Span the joint if need be.
3. Visualize the middle facet articulation with the inferior talar neck. Confirms the overall quality of the reduction
4. Use biological cements or moldable graft to fill voids to reinforce your fixation.
5. Check the subtalar motion before you close. Again confirms quality of reduction and appropriate placement of hardware—nothing violating the subtalar joint.

6. Absorbable monofilament for final skin closure. Avoids wondering when to take the stitches out.

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