Primary Subtalar Arthrodesis for Acute Intra-articular Displaced Calcaneal Fractures

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Disclosures

• No conflict to disclose
• Our disclosures are in the Final AOFAS Mobile App
Primary Subtalar Arthrodesis for Acute Intra-articular Displaced Calcaneal Fractures

• Introduction
  – persistent pain and posttraumatic arthritis are common sequelae of intra-articular calcaneal fractures
  – Primary subtalar arthrodesis for Sanders IV calcaneal fractures is an accepted treatment
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• Introduction
  – Fusion rate and clinical outcomes after primary subtalar arthrodesis for comminuted intra-articular calcaneal fractures are poorly described in the literature
  – The purpose of this study was to evaluate primary subtalar arthrodesis for management of acute, displaced, intra-articular calcaneal fractures
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- **Methods**
  - Retrospective chart review for all primary subtalar arthrodeses over 6 year period
  - Preop CT scan reviewed for Sanders Classification
  - Postop CT scans obtained to evaluate for fusion at a minimum of 3m after surgery
    - Average of percent of bridging bone at widest point of posterior facet on coronal/sagittal cuts
      - <25%
      - 25-50%
      - 50-75%
      - >75%
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• Methods
  – Radiographic outcomes
    • Subtalar union defined as >50% bony bridging at widest point of posterior facet on CT scan sagittal and coronal views
  – Clinical outcomes
    • Postoperative Foot and Ankle Ability Measurement (FAAM)
    • Postoperative VR-12 mental and physical components
    • Postoperative Coughlin Satisfaction Score
    • Postoperative Numeric Rating Scale (NRS)
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- Methods (study sample characteristics)
  - 35 patients
  - 11/35 Extensile, 24/35 Sinus Tarsi approach
  - Patient age: median 47.8 years (range 21.5-79.5)
  - Follow-up: median 34.4 months (range 4.6-104.1)
  - 22% (7/35) Workers’ Comp
  - Sanders Classification
    - Type II-3% (1/35)
    - Type III-40% (14/35)
    - Type IV-57% (20/35)
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Results (Outcomes)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Median</th>
<th>Range</th>
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</thead>
<tbody>
<tr>
<td>VR12 Mental Composite Score</td>
<td>66.6</td>
<td>25.0-75.3</td>
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<tr>
<td>VR12 Physical Composite Score</td>
<td>41.0</td>
<td>10.1-55.5</td>
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<tr>
<td>FAAM ADL Score</td>
<td>70.2</td>
<td>33.3-100</td>
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<tr>
<td>FAAM Sports Score</td>
<td>57.1</td>
<td>3.6-100</td>
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<tr>
<td>Numeric Pain Rating Score</td>
<td>4</td>
<td>0-10</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Frequency</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Coughlin Satisfaction Score</td>
<td>25/35</td>
<td>71.4%</td>
</tr>
<tr>
<td>Good to Excellent</td>
<td></td>
<td></td>
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<tr>
<td>Nonunion of Subtalar Joint</td>
<td>2/35</td>
<td>5.7%</td>
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</tbody>
</table>
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• Results (Comparisons)
  – No significant difference in VR-12, FAAM, NRS, Coughlin Satisfaction score, and nonunion rate between Sanders III and Sanders IV fractures
  – No significant difference in VR-12, FAAM, NRS, Coughlin Satisfaction score, and nonunion rate between workmans’ comp and non-workman comp patients
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- Results (Complications)
  - Two patients required hardware removal for irritation after fusion
  - One patient underwent irrigation and debridement with removal of hardware for infection
  - One patient underwent revision for malunion
  - Of the two nonunions, one underwent revision subtalar arthrodesis
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• Discussion
  – Primary subtalar fusion for acute, displaced, intra-articular calcaneus fractures has a high rate of union and good pain, function, and satisfaction outcomes
  – Should be considered for Sanders III-IV fractures or calcaneal fractures with significant cartilage injury or comminution of the posterior facet


