Indications and Non-Union Rate in Isolated Subtalar Arthrodesis

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• No conflicts to disclose
• My disclosure is in the final AOFAS mobile app
• I have no potential conflicts with this presentation
Introduction

• Isolated subtalar arthrodesis has excellent results reported on recent literature.
  – Low incidence of complications
  – High satisfaction rates
  – Union rates 86%-100%

• Most common indications are:
  – Posttraumatic subtalar osteoarthritis
  – Primary subtalar arthritis
  – Talocalcaneal coalition
  – Rheumatoid arthritis
  – Subtalar inestability
  – Hindfoot deformities (pes planus/cavus)
Introduction

• Non union is one of the most common complications of this procedure.
  – Reported incidence 7-10%

• Currently, results had been optimized by the development of:
  – New Fixation methods
  – Bone grafts
  – Arthroscopic Techniques
Patients and Methods

• This study included all isolated subtalar arthrodesis, open and arthroscopic, carried out at our institution between January 2011 and December 2013.

• We reviewed clinical data including common comorbidities identified as risk factors of non union like diabetes, rheumatoid arthritis, cigarette smoking, obesity, psychiatric illness and chronic use of steroids.

• In addition we evaluated arthrodesis indication (Primary subtalar OA/Posttraumatic OA) and time to fusión with x rays and CT.
Results

• We studied 53 isolated subtalar arthrodesis (51 patients)
  • Arthroscopic: 33 (62.3%)
  • Open techniques: 20 (37.7%)

• Average age: 45.9 years (Range 19-76)

• We had 69.51% of our patients with workmen’s compensation involvement.
Results

• The main cause of arthrodesis was posttraumatic subtalar osteoarthritis in 38 patients (71.70%), mostly patients with history of intraarticular calcaneus fractures.

• Other indications included:
  • Primary subtalar osteoarthritis (8 patients)
  • Pes planus (2 patients)
  • Cavus foot (2 patients)
  • Talocalcaneal coalition (2 patients)
  • Subtalar inestability (1 patient).
• Full weight bearing was allowed at 10.14 weeks.

• We evaluated fusion progression with X Rays and CT scan. Complete fusion was achieved in 49 patients at an average of 13.6 weeks (range: 7-32).

• Non union rate was 7.5% (4 patients).
<table>
<thead>
<tr>
<th>Factor</th>
<th>Fusion</th>
<th>Non Union</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>49</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>45</td>
<td>49</td>
<td>0.63</td>
</tr>
<tr>
<td>Male</td>
<td>17</td>
<td>2</td>
<td>0.33</td>
</tr>
<tr>
<td>Female</td>
<td>32</td>
<td>2</td>
<td>0.33</td>
</tr>
<tr>
<td>No working compensation</td>
<td>13</td>
<td>3</td>
<td>0.25</td>
</tr>
<tr>
<td>Diabetes</td>
<td>4</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Obesity</td>
<td>10</td>
<td>0</td>
<td>0.99</td>
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<tr>
<td>Tabaquism</td>
<td>8</td>
<td>2</td>
<td>0.18</td>
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<tr>
<td>Bone graft</td>
<td>28</td>
<td>0</td>
<td>0.18</td>
</tr>
<tr>
<td>Arthroscopic Arthrodesis</td>
<td>30</td>
<td>2</td>
<td>0.54</td>
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<tr>
<td>Steroids</td>
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<td>0</td>
<td>0.99</td>
</tr>
<tr>
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<td>1</td>
<td>0.23</td>
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<tr>
<td>Psychiatric Disease</td>
<td>6</td>
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</table>
Conclusions

- We compared patients with successful fusion and those who developed nonunion. There were no statistical significant difference between different groups:
  - Open vs arthroscopic arthrodesis
  - Cigarette smoking
  - Obesity
  - Diabetes
  - Chronic use of steroids
  - Psychiatric disease

- By the other hand, we found a trend towards non union in arthrodesis performed for primary subtalar OA and worker’s compensation involvement, but with no statistically significance.
Conclusions

- In our study the main indications for isolated subtalar arthrodesis was posttraumatic subtalar osteoarthrosis and primary subtalar osteoarthrosis.

- Fusion times and nonunion rate (9.25%) were comparable with previous reports on the literature.

- There were no statistical significant association for common risk factors affecting union rates.
• Chahal J, Stephen DJ, Bulmer B, Daniels T, Kreder HJ. Factors associated with outcome after subtalar arthrodesis. J Orthop Trauma 2006;20:555–6


• Diezi C, Favre p, Vienne C. Primary Isolated Subtalar Arthrodesis: Outcome after 2 to 5 Years Followup. Foot Ankle Int 2008 29: 1195