Residual Pain after Total Ankle Replacement

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Disclosure

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• My disclosure is in the Final AOFAS Program Book.
• I have no potential conflicts with this presentation.
Total ankle replacement (TAR) provides an alternative to arthrodesis for management of ankle arthritis.\textsuperscript{1-4}

However, even in uncomplicated and seemingly flawless TAR, residual pain is frequent.

Although residual pain is frequent after TAR, clinical data is scarce & its management is unknown.

**Purpose of this study**

- To analyze the prevalence, character and intensity of the residual pain after uncomplicated TAR.
- To report the outcome of arthroscopic debridement in selected cases to treat soft tissue impingement after TAR.
Materials & Methods

September, 2004 ~ July, 2010

120 uncomplicated primary TAR using Hintegra System

Inclusion criteria: All primary TAR

Exclusion criteria: Any revisions due to following causes

- Infection, aseptic loosening, polyethylene bearing dislocations,
- progressive large osteolysis with stable implants, malalignment

Follow-up: 40 (range, 14 ~ 84) months

Mean Age: 63.9 ± 9.0 years

Clinical Evaluations

- Visual analogue scale (VAS)
- AOFAS ankle-hindfoot score
- Range of motion (ROM)
- Pain location, character, provocation factor
Results

Change in pain VAS after TAR

- Pain decrease: 115 ankles (95.8%)
- No change: 4 ankles (3.3%)
- Slight pain increase: 1 ankle (0.8%)

Residual pain intensity at last follow-up

- Completely pain-free: 29 ankles (24.2%)
- Minimal (VAS 1~2): 27 ankles (22.5%)
- Mild (VAS 3~4): 39 ankles (32.5%)
- Moderate (VAS 5~6): 22 ankles (18.3%)
- Moderate to severe (VAS 7~8): 3 (2.5%)
- Severe (VAS 9~10): 0
### Results

#### Pain Location
- **Medial**: 43 (47.3%)
- **Whole joint**: 23 (25.3%)
- **Lateral**: 1 (12.1%)
- **Anterior**: 7 (12.1%)
- **Posterior**: 4 (4.4%)
- **Sinus tarsi**: 4 (4.4%)

#### Pain Character
- **Dull**: 50 (54.9%)
- **Sharp**: 27 (29.7%)
- **Pulsating**: 4 (4.4%)
- **Neurologic**: 10 (11%)

#### Aggravating Factor
- **Exercise or Distant ambulation**: 62 (68.1%)
- **Starting**: 20 (22%)
- **Unknown**: 7 (7.7%)
- **Night**: 2 (2.2%)
Arthroscopic Debridement

**Indication**
- Swelling around the joint
- Tenderness on anterior aspect or medial/lateral gutter area
- Resting pain (+)
- Pain (VAS ≥ 7) on ambulation
- Refractory to conservative Tx
- > 6 months after TAR

N=7 cases

**Arthroscopic finding**
- Soft tissue impingement due to synovial hyperplasia/ hypertrophic scar tissue

**Pathology**
- Synovial hyperplasia
- Chronic inflammatory cell infiltration
- Prominent capillary ingrowth

**Outcome after debridement**
- Very satisfied or satisfied: 6
- Not satisfied: 1 (associated neurologic Sx)

**Contraindication**
- Malaligned components
- Infection
- Complex regional pain syndrome
## Details of patients who received arthroscopic debridement due to painful impingement syndrome after TAR

<table>
<thead>
<tr>
<th>Case</th>
<th>Age/Sex</th>
<th>Time to revision (months)</th>
<th>Further follow-up after revision (months)</th>
<th>VAS Before revision</th>
<th>VAS Last follow-up</th>
<th>AOFAS score Before revision</th>
<th>AOFAS score Last follow-up</th>
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<tbody>
<tr>
<td>1</td>
<td>76/M</td>
<td>7</td>
<td>60</td>
<td>8</td>
<td>1</td>
<td>22</td>
<td>83</td>
</tr>
<tr>
<td>2</td>
<td>47/M</td>
<td>7</td>
<td>34</td>
<td>8</td>
<td>3</td>
<td>45</td>
<td>73</td>
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<tr>
<td>3</td>
<td>73/F</td>
<td>10</td>
<td>27</td>
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<tr>
<td>7</td>
<td>55/F</td>
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<td>12</td>
<td>7</td>
<td>1</td>
<td>41</td>
<td>97</td>
</tr>
</tbody>
</table>

### Clinical assessment (median, range) of the arthroscopic debridement & uncomplicated TAR groups

<table>
<thead>
<tr>
<th></th>
<th>Arthroscopic debridement group (n= 7 ankles)</th>
<th>Uncomplicated TAR group (n= 113 ankles)</th>
<th>p-value*</th>
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<tbody>
<tr>
<td><strong>Visual analogue scale</strong></td>
<td></td>
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<tr>
<td>Initial</td>
<td>8 (6 - 8)</td>
<td>7 (5 - 10)</td>
<td>0.494</td>
</tr>
<tr>
<td>Last follow-up</td>
<td>3 (1 - 6)</td>
<td>3 (0 - 8)</td>
<td>0.496</td>
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<tr>
<td><strong>AOFAS score</strong></td>
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<tr>
<td>Initial</td>
<td>62 (40 - 70)</td>
<td>58 (21 - 72)</td>
<td>0.945</td>
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<tr>
<td>Last follow-up</td>
<td>78 (59 - 97)</td>
<td>85 (49 - 100)</td>
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<td><strong>Range of motion (°)</strong></td>
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<td></td>
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<tr>
<td>Initial</td>
<td>25 (20 - 30)</td>
<td>30 (0 - 70)</td>
<td>0.700</td>
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<tr>
<td>Last follow-up</td>
<td>40 (35 - 50)</td>
<td>50 (15 - 70)</td>
<td>0.148</td>
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</tbody>
</table>

*After arthroscopic treatment, the clinical outcomes are compatible with the uncomplicated TAR group!*
Conclusion & Discussion

Residual pain is frequent even in uncomplicated, flawless TAR.

- Completely pain-free: 29 ankles (24.2%)
- Minimal (VAS 1~2): 27 ankles (22.5%)
- Mild to moderate (VAS 3~6): 61 ankles (50.8%)
- Moderate to severe (VAS 7~8): 3 (2.5%)

Soft tissue impingement is an important cause of residual pain.

In selected cases, Arthroscopic debridement can be a useful treatment modality for residual pain after TAR.

- Swelling around the joint
- Tenderness on anterior aspect or medial/lateral gutter area
- Resting pain (+)
- Pain (VAS≥7) on ambulation
- Refractory to conservative Tx > 6 months after TAR

Limitations of this study

Small number of cases in the arthroscopic debridement group
References


