Short Term Clinical and Radiographic Results of the Salto Mobile Version Ankle Prosthesis

Dong Dong Wan, MD; Dong woo Shim, MD; Yoo Jung Park, MD; Yeokgu Hwang, MD; Jin Woo Lee, MD, PhD

Department of Orthopaedic Surgery,
Yonsei University College of Medicine, Seoul, Korea
Disclosure

NO CONFLICT TO DISCLOSE

Short Term Clinical and Radiographic Results of the Salto Mobile Version Ankle Prosthesis

Dong Dong Wan, MD
Dong woo Shim, MD
Yoo Jung Park, MD
Yeokgu Hwang, MD
Jin Woo Lee, MD, PhD

Our disclosures are in the final AOFAS Mobile App.
We have no potential conflicts with this presentation.
Main treatment for advanced ankle arthritis is limited to TAA and arthrodesis.

The advantages of TAA vs arthrodesis:
- Maintains joint ROM
- Restores more normal kinematics
- Better functional recovery
- Avoids adjacent joints degeneration

The Salto (mobile-bearing) implant is still regarded as first-line prosthesis for arthritic patients at present time.
Purpose of the research

• The clinical outcomes of Salto mobile bearing prosthesis were promising

• All of these reports are limited to Europe

• Research on TAA are more meaningful in Asian patients (ie. sitting with lotus position, walking on mountain road)
Patients & Methods

- From January 2012 ~ October 2014
- 62 severe arthritic patients underwent unilateral Salto TAA by two senior surgeons (JWL & WJC)
- Postoperative follow-up at 1 month, 3 months, 6 months, 1 year & annually
- Follow-up included medical records review, VAS pain scores, AOFAS & AOS (pain & disability) scores, ROM, radiograph
- Endpoints of the follow-up included implant removal and conversion to arthrodesis
Patients & Methods

- Radiographic measurements (pre & post operation)
  - tibial angle (TA): a varus/valgus tolerance range of 4°
  - talar angle (TAL)
  - tibial slope (TS): 5 ± 5 degrees (optimal anatomic design angle 7°)
  - Talocalcaneal angle (TCA): component migration was defined as a change greater than 5°

Distributive area of osteolysis
## Results

### Clinical outcomes

<table>
<thead>
<tr>
<th></th>
<th>Preop</th>
<th>Postop</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS</td>
<td>7.0 ± 1.7</td>
<td>2.5 ± 2.2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>AOFAS</td>
<td>48.8 ± 16.9</td>
<td>80.1 ± 15.0</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>AOS pain</td>
<td>53.5 ± 17.5</td>
<td>17.0 ± 15.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>AOS disability</td>
<td>60.8 ± 15.4</td>
<td>28.7 ± 25.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>ROM</td>
<td>33.5 ± 16.7</td>
<td>40.5 ± 15.7</td>
<td>0.003</td>
</tr>
<tr>
<td>ROM (DF)</td>
<td>9.8 ± 7.8</td>
<td>14.7 ± 7.6</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>ROM (PF)</td>
<td>23.7 ± 10.8</td>
<td>25.8 ± 9.7</td>
<td>0.211</td>
</tr>
</tbody>
</table>
Results

Clinical outcomes

The survival rate with any reoperation as the endpoint was 88.7% (95% CI, 80.4%–97.1%).
## Results

### Radiologic outcomes

<table>
<thead>
<tr>
<th></th>
<th>Preop</th>
<th>Postop (6ws)</th>
<th>Last f/u</th>
<th>P-value (6w vs last)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tibial angle (TA, °)</td>
<td>87.3 ± 3.8</td>
<td>88.4 ± 1.1</td>
<td>88.3 ± 0.2</td>
<td>0.608</td>
</tr>
<tr>
<td>Talar angle (TAL, °)</td>
<td>83.7 ± 8.3</td>
<td>88.1 ± 1.2</td>
<td>88.0 ± 1.4</td>
<td>0.150</td>
</tr>
<tr>
<td>Tibial slope (TS, °)</td>
<td>14.0 ± 4.5</td>
<td>8.4 ± 2.2</td>
<td>8.2 ± 2.1</td>
<td>0.223</td>
</tr>
<tr>
<td>Talocalcaneal angle (TCA, °)</td>
<td>N/A</td>
<td>7.4 ± 4.0</td>
<td>7.9 ± 4.0</td>
<td>0.170</td>
</tr>
</tbody>
</table>
Results

Radiologic outcomes

<table>
<thead>
<tr>
<th>Distributive zones of radiolucent area</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP view (n = 75)</td>
<td></td>
</tr>
<tr>
<td>Lateral view (n = 18)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distributive zones of osteolysis</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP view (n = 63)</td>
<td></td>
</tr>
<tr>
<td>Lateral view (n = 81)</td>
<td></td>
</tr>
</tbody>
</table>

In 28 patients, a radiolucent area appeared mainly around the tibial keel and tray due to stress shielding.

Osteolysis was found in 28 patients postoperatively. The distributive zones were around the tibial keel and tray. In addition, two osteolytic lesions were located at the fibula.
Discussion

- Our short term clinical and radiographic results of Salto prostheses are promising with the survival rate of **95.2%**
- 3 osteolytic cysts resulted in prosthetic failure in our cases
- A CT scan is useful to make sure the precise location and size of the osteolytic cyst
- Large size and progressive cyst maybe need surgical intervention
- Longer follow-up is necessary for this implant
References


