Medium to Long-term functionality and Survival of HemiCap for Hallux Rigidus

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Disclosures

• The senior author has received travel expenses for a meeting from Arthrosurface.
• Besides that no conflict of interest.
Background

• Hallux rigidus can be treated with arthroplasty to reduce pain and enhance motion in the 1st MTPJ.

• Few studies have investigated functionality and survival of HemiCap arthroplasty on longer terms.
Objectives

• **Primary aim:**
  Examine the medium to long-term functionality and degree of pain.

• **Secondary aim:**
  Failure and revision rate of HemiCap implants.
Study Design & Methods

- Retrospective review of patient charts to collect any revision data (2006-2014).
- Preoperative Coughlin/Shurnas arthrosis degree, hallux valgus angle (HV), intermetatarsal angle (IM) and distal metaphyseal articular angle (DMMA).
- Pre- and postoperative follow-up on pain (VAS), American Orthopaedic Foot and Ankle Score and range of motion (n=51).
Statistics

• Kaplan-Meier survival analysis with adjustments for sex, radiological angles, degree of arthrosis and dorsal flange.

• Prospective Patient Related Outcome Measures and Range Of Motion comparison by paired t-test.
33 women, 4 bilateral HemiCap, mean age 63 (47-78), mean time of surgery 2011 (2007-2014).
Results

IMPLANTS WITH PROM, VAS AND ROM DATA

<table>
<thead>
<tr>
<th></th>
<th>PREEX</th>
<th>2-3 W</th>
<th>6 M</th>
<th>1 Y</th>
<th>2 Y</th>
<th>GAITLAB</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD</td>
<td>42</td>
<td>39</td>
<td>36</td>
<td>14</td>
<td>3</td>
<td>33</td>
</tr>
<tr>
<td>DF</td>
<td>9</td>
<td>8</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>14</td>
</tr>
<tr>
<td>Description</td>
<td>Value</td>
<td></td>
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<td>----------------------------------------------------------------------------</td>
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<td></td>
<td></td>
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<td></td>
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<tr>
<td>Mean HV n=76</td>
<td>13</td>
<td></td>
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<td></td>
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<tr>
<td>Mean IM n=76</td>
<td>9</td>
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<tr>
<td>Mean DMMA n=76</td>
<td>7</td>
<td></td>
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<tr>
<td>Mean Coughlin/Shurnas arthrosis degree n=76</td>
<td>2.6</td>
<td></td>
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</tr>
</tbody>
</table>
Results

<table>
<thead>
<tr>
<th></th>
<th>PREEX</th>
<th>GAITLAB</th>
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</thead>
<tbody>
<tr>
<td>n=23</td>
<td>61 (11)</td>
<td>87 (11)</td>
</tr>
</tbody>
</table>

* p<0.001
Medium to Long-term functionality and Survival of HemiCap for Hallux Rigidus

PREEX | GAITLAB
------|--------
n=23 | 7 (2)  2 (2)

* p<0.001
Medium to Long-term functionality and Survival of HemiCap for Hallux Rigidus

PREEX  | 2-3 W | 6 M | 1 Y | 2 Y | GAITLAB

PREEX  | 21 (6) | 42 (18)
SURVIVAL OF HEMICAP

<table>
<thead>
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<th></th>
<th>3 year survival</th>
<th>5 year survival</th>
<th>7 year survival</th>
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<tbody>
<tr>
<td>All</td>
<td>0.85</td>
<td>0.83</td>
<td>0.78</td>
</tr>
<tr>
<td>DF</td>
<td>0.88</td>
<td>0.83</td>
<td>-</td>
</tr>
<tr>
<td>Standard</td>
<td>0.83</td>
<td>0.82</td>
<td>0.78</td>
</tr>
</tbody>
</table>
• Almost all revisions were due to pain.
• Dorsal Flange had no significant improvement of ROM or PROMs, but DF displayed 51 degrees of extension vs. 44 without (p=0.1).
• Periprosthetic lucency (<2 mm) was found in 27/47.
Discussion

• Data biased by missing numbers and revisions.

• Large retrospective study on function and survival

• Lack of Dorsal Flange follow-up
Conclusions

- Patients that were not revised experienced significantly less pain, greater ROM and better overall foot and ankle conditions than preoperatively.

- Acceptable implant survival rate.

- No predictors found that influenced implant failure.
Thank you for your attention
Plantar Forces Mid-Term After Hemiarthroplasty With HemiCap For Hallux Rigidus

Pernille Henszelman Jørsboe, Michael Stage Pedersen, Mostafa Benyahia, Mads Holm Møller, Thomas Kallemose, Merete Brink Speedtsberg, Hanne Bloch Lauridsen, Jeannette Østergaard Penny
Conclusion

• HemiCap does not restore the joint motion to normal*, but does preserve some motion of the 1MTPJ.

• The loading patterns show a significantly decreased max force and force/time integral compared to the control group.

• Results suggest a shift of load laterally.

• The larger dorsal ROM the smaller the max force on the hallux.

• The unrevised included patients have no or very little pain.