Comparison of Weil Osteotomy and Cheilectomy for Second Metatarsophalangeal Joint osteoarthritis.

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Disclosure

• NO CONFLICT TO DISCLOSURE

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• Our disclosures are in the Final AOFAS Mobile APP.
• We have no potential conflicts with this presentation.
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- Second metatarsophalangeal (MTP) joint osteoarthritis (OA) was newly introduced at 2013.
- Treatment of second MTP joint OA was not reported.

2nd MTP joint OA showed joint stiffness and cartilage defect. 2013, Internal orthop, Cho, Jaeho
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• The purpose of this study:
  – To investigate the difference between an Weil osteotomy and a cheilectomy for treatment of 2\textsuperscript{nd} MTP joint OA.
    • Clinical outcome.
    • Radiological outcome.
Methods.

– Retrospective study.

• Review the clinical and radiological data of patients
• Inclusion criteria
  – From August 2007 to January 2015
  – Underwent Weil osteotomy or cheilectomy for 2\textsuperscript{nd} MTP joint OA by a single surgeon (WC, Lee) in our clinic.

• Exclusion criteria
  – Complications (2 cases of reduction loss after Weil osteotomy)
  – Follow up period lower than 6 months
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- **Methods; Surgical Procedure**
  - **Weil Osteotomy**
    - Shortening of 2\textsuperscript{nd} MT bone.
    - Removal of the bone spur.
  - **Cheilectomy**
    - Removal of bone spur
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- **Methods; Variables**
  - Radiological variables (Pre-op and Last f/u)
    - $2^{nd}$-$4^{th}$ MT length ratio
    - $2^{nd}$ MTP joint OA grade
  - Clinical Variables.
    - VAS for pain (Pre-op and Last f/u)
    - Subjective disturbance on $2^{nd}$ MTP joint at last f/u
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• Results.
  – 61 feet of 51 patients (mean age: 60 yrs)
    • Weil osteotomy group: 25 feet
    • Cheilectomy group: 36 feet
  – Follow up period: average 15 months (min 6 months)
  – Pre-op BMI, Age at the surgery, Gender, Preoperative value of radiological variables
    • No significant difference between Weil osteotomy group and cheilectomy group.
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• Results: Radiological outcome

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-op (95% CI)</th>
<th>Last follow-up (95% CI)</th>
<th>P-value (paired t-test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weil osteotomy group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-4MT length ratio</td>
<td>109% (108%-110%)</td>
<td>105% (103% - 106%)</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td>2nd MTP Joint OA grade</td>
<td>1.1 (0.8 – 1.4)</td>
<td>0.8 (0.6 – 0.9)</td>
<td>P=0.001</td>
</tr>
<tr>
<td>Cheilectomy Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-4MT length ratio</td>
<td>109% (108% - 110%)</td>
<td>108% (107%-109%)</td>
<td>P=0.460</td>
</tr>
<tr>
<td>2nd MTP Joint OA grade</td>
<td>1.4 (1.1 – 1.6)</td>
<td>1.4 (1.1-1.6)</td>
<td>P=0.768</td>
</tr>
</tbody>
</table>

• In the Weil-osteotomy group, there was a significant decreasing of the 2-4 MT length ratio and a significant improvement of the second MTP joint OA grade between the preoperative values and the last follow-up values.

• In the cheilectomy group, the last follow-up 2-4 MT length ratio and second MTP joint OA grade were not statistically different from the preoperative values.
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• Results: Clinical outcome

<table>
<thead>
<tr>
<th></th>
<th>Weil Osteotomy Group</th>
<th>Cheilectomy Group</th>
<th>P-value (Student’s t-test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS for pain</td>
<td>Pre-op (95% CI)</td>
<td>Last follow-up (95% CI)</td>
<td>P-value (paired t-test)</td>
</tr>
<tr>
<td></td>
<td>6.9 (6.3 – 7.6)</td>
<td>2.2 (1.4 – 3.0)</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevalence of 2nd MTP joint disturbance</td>
<td>Cheilectomy Group</td>
<td>Weil-Osteotomy Group</td>
<td></td>
</tr>
<tr>
<td></td>
<td>53%</td>
<td>20%</td>
<td>P=0.025</td>
</tr>
</tbody>
</table>

• For both the cheilectomy group and Weil-osteotomy group, there was a statistically significant improvement of the VAS of pain between the preoperative values and the last follow up values.

• The cheilectomy group showed the statistically higher prevalence of second MTP joint pain or stiffness at the time of last follow-up than the Weil-osteotomy group.
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- Conclusion.
  - The Weil-osteotomy group showed superior result than the cheilectomy group clinically and radiologically in this study.
  - Weil osteotomy could achieve joint space widening and joint disturbance improvement more than cheilectomy group.

- We therefore recommend the Weil osteotomy as a treatment of second MTP joint OA.
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- Reference