MID AND LONG TERM CLINICAL RESULTS OF DORSIFLEXION OSTEOTOMY OF THE FIRST METATARSAL BONE FOR HALLUX RIGIDUS

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TOKYO, JAPAN
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Our disclosure is in the Final AOFAS Mobile App. We have no potential conflicts with this presentation.
Background

Severe Hallux Rigidus surgical treatment

62 y.o. male

(Womach et al 2009)

Comparison with our procedure and above procedure at long-term
Purpose

- To investigate **dorsiflexion metatarsal osteotomy** of the first metatarsal bone at the mid and long-term clinical results.

Our procedure

2004 AOFAS summer meeting; Usami
2004 EFAS; Usami
2005 IFFAS; Usami
2016 AOFAS summer meeting; Ikezawa
Materials and methods

65 cases 67 feet (2000–2013)

post ope. > 3 years 34 feet in 33 cases

Male 21 feet
Female 13 feet

Age at surgery 53 ~ 77 age  Avg. 61.6 age

Follow-up 3 ~ 14 years Avg. 4y2m

Hattrup’s radiographic classification

Stage I 0 Stage II 14 feet
Stage III 20
Evaluation

✓ Clinical result
✓ ROM
✓ Complication
✓ Radiographic result

Result (final follow up)

Clinical result

- Excellent: 24
- Good: 10
- Fair/Poor: None

Gait

- normal: 24
- mild stiffness: 10
<table>
<thead>
<tr>
<th>ROM</th>
<th>2/3～full range</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2～2/3</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>0～1/2</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Complication</td>
<td>delayed union</td>
<td>1</td>
</tr>
<tr>
<td>Revision surgery (arthrodesis)</td>
<td>none</td>
<td></td>
</tr>
</tbody>
</table>

**X-ray findings**

- Bone union: all
- Progression of OA change: 17 feet
Change on X-ray

Post-op 14y

Post-op 9y
## Discussion

Trouble potential at Long Term F-U after our procedure

<table>
<thead>
<tr>
<th>Problems</th>
<th>Number(%)</th>
<th>Almost no symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progression of OA change</td>
<td>17/34(50)</td>
<td>Few cases stiffness ⇒ insole</td>
</tr>
<tr>
<td>Necrosis</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Deterioration of ROM</td>
<td>7/34(21)</td>
<td>No pain No gait disturbance ⇒ observation</td>
</tr>
</tbody>
</table>
## Long-term Results of severe Hallux rigidus

<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Feet</td>
<td>34</td>
<td>36</td>
<td>34</td>
</tr>
<tr>
<td>Follow up (aver.month)</td>
<td>80</td>
<td>47</td>
<td>50</td>
</tr>
<tr>
<td>Good &amp; excellent</td>
<td>100%</td>
<td>78%</td>
<td>100%</td>
</tr>
<tr>
<td>Revision rate</td>
<td>0%</td>
<td>6%</td>
<td>0%</td>
</tr>
<tr>
<td>Complications</td>
<td>17%</td>
<td>8%</td>
<td>3%</td>
</tr>
</tbody>
</table>
Dorsiflexion metatarsal osteotomy: moderate–severe Hallux rigidus

**Short-term**
- Preservation of joint motion
- Depression of intraarticular pressure
- Good adaptation of joint congruity
- Delicate operative technique
- Shortening of great toe

**Long-term**
- Good pain relief
- Not deterioration of ADL
- Re-operation: no cases
Reference

- Pulavarti R et al. First metatarsophalangeal joint replacement using the bio-action great toe implant: intermediate results. Foot Ankle Int 2005 26(12)1033-1037
- Brewster M et al. Does total joint replacement or arthrodesis of the first metatarsophalangeal joint yield better functional results? A systematic areview of the Literature. The J of foot and ankle surg. 2010 49 546-552