Rotated Insertion Metatarsal Osteotomy with Distal Soft Tissue Procedure for Severe Hallux Valgus Deformity—Novel Procedure of the 1st metatarsal osteotomy—

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Disclosure of Conflict of Interest

We have no COI with regard to our presentation.
Hypothesis

Rotated Insertion Metatarsal Osteotomy with Distal Soft Tissue Procedure
(January 2008-)

- Over 300 cases
- Over 40 months follow-up after postope.
- Better correction compare to other methods
- Additional arthroplasty of sesamoid complex
- Less complication & excellent satisfaction

Our new trial (Rotated Insertion Metatarsal Osteotomy)

Preliminary presentation 2010 AOFAS Summer Meeting in Washington DC
Indication

Hallux valgus angle (HVA) $\geq 40^\circ$
Intermetatarsal angle (IMA) $\geq 15^\circ$

*no severe instability of the 1st TM j.
*no DJD of the 1st MTP & the 1st TM j.

Contraindication

neuromuscular or vascular disorder, arthropathy connective tissue disorder, Reumatoid arthritis

Materials & Methods

Hallux valgus angle (HVA)
Intermetatarsal angle (IMA)
1st Metatarsal Gradient (1st MG)
AOFAS Hallux Scale
232 feet of 173 cases
66 female 9 male

Average age : 64.5 y.o. (35-84)
Avg. follow-up period : 44.5 months
Rotated Insertion Metatarsal Osteotomy with distal soft tissue procedure

- Single dorsal skin incision
- Lateral release adductor hallucis tendon, lateral capsule, sup. & deep intermetatarsal ligament
- Arthroplasty of sesamoid complex
- Medial exostectomy
- Tendon transfer (add. hallucis to capsule)
- Rotated Insertion metatarsal osteotomy

Arthroplasty of sesamoid complex

- Resection of bony spur
- Metatarsal head 1/3-1/4 fibular sesamoid
- Debridement of joint
- Synovectomy of complex
  If necessary, drilling
Materials & Methods

Rotated Insertion Metatarsal Osteotomy

Left 1st metatarsal

20mm

Lateral

10mm

Medial

10-15 mm

Lateral shift (Abduction)

Rotation (Supination)

Remove one-third of triangular bone fragment at the proximal aspect

Lateral shift (Abduction)

Rotation (Supination)

FIXATION

Two lag screws
Locking Plate & Screws
Rotated Insertion Metatarsal Osteotomy

- Insertion
- Lateral shift
- Rotation (Supination)
## Results

<table>
<thead>
<tr>
<th></th>
<th>PREOP.</th>
<th>POSTOP.</th>
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</thead>
<tbody>
<tr>
<td>HVA</td>
<td>$43.8 \pm 8.0^\circ$</td>
<td>$9.0 \pm 7.4^\circ$</td>
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<tr>
<td>IMA</td>
<td>$20.1 \pm 3.4^\circ$</td>
<td>$6.1 \pm 2.8^\circ$</td>
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<tr>
<td>AOFAS</td>
<td>$49.3 \pm 11.6$</td>
<td>$89.7 \pm 7.6$</td>
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Avg. follow-up period: 44.5 months
Results

Case 1  75 y.o. female

Case 2  67 y.o. female

5 yrs.

3 yrs.
Results

Complication

- 1\textsuperscript{st} Metatarsal Ext.  
  5 feet (2.0%)  
  inadequate postoperative care  
  (all cases fixed by only two screws)  
  all followed under-correction & recurrence

- Superficial skin problem  
  21 feet (9.1%)

- Hallux varus  
  10 feet (4.7%)

- Recurrence  
  12 feet (5.2%)

- No severe complication & unsatisfactory
Rotated insertion metatarsal osteotomy with distal soft tissue procedure works so much for severe hallux valgus.

The fixation at the site of the metatarsal osteotomy was much stronger because of the bony insertion as a puzzle and the locking plate. Locking plate and screws help earlier postoperative weight bearing.

However this series are even the long-term results, the further more outcomes in detail are essential.
1) Michael J. Coughlin MD, Charles L. Saltzman MD, Roger A. Mann MD: Surgery of the Foot and Ankle. Mosby, St. Louis, 8th Ed. 2006; 183-362
2) Hardy RH, Clapham JC. Hallux valgus; predisposing anatomical causes. 1952; 14: 1180-1183.
3) Katsui R, Norihiro Samoto, MD, PhD, Akira Taniguchi, MD, PhD, Manabu Akahane, MD, PhD, Shinji Isomoto, MD, PhD, Kazuya Sugimoto, MD, PhD, and Yasuhito Tanaka, MD, PhD: Relationship Between Displacement and Degenerative Changes of the Sesamoids in Hallux Valgus FAI, 37, 12: 1303-1309. 2016.