Single-Surgeon Experience with Supramalleolar Osteotomy: Can Tibiotalar Tilt Be Corrected?

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Disclosure

- No conflicts to disclose
Posttraumatic Ankle OA

- Patients with asymmetric ankle OA:
  - asymmetric joint load\(^1,2\)
  - concomitant deformity → supra- and/or inframalleolar\(^3\)
  - asymmetric cartilage damage\(^4,5\)
Objectives

- There is a lack of literature addressing postoperative outcomes in patients who underwent SMOT
- The objectives of our study were to determine:
  - intraoperative and postoperative complications including surgical revision for any reason
  - postoperative pain relief
  - postoperative functional outcome
    - including ROM and quality of life
  - progression of degenerative arthritic changes of the tibiotalar joint
Prospective observational study (IRB approval University of Basel)

16 consecutive patients between June 2011 and September 2014:
- 11 male and 5 female patients
- mean age of 42 years (range, 18 – 60)
- 15 patients with posttraumatic ankle OA
- 1 patient with secondary ankle OA: status post resection of tibial osteochondroma

Mean follow-up 3.6 ± 1.1 years (range, 2-5 years)
Surgical Technique

- Varus deformity: medial opening wedge osteotomy
Surgical Technique

- Valgus deformity: medial closing wedge osteotomy
Complications

- **Intraoperative complications:**
  - injury of lateral cortex in 2 patients

- **Postoperative complications:**
  - 2 patients with delayed union
  - 1 patient with progressive ankle OA requiring ankle AD
  - hardware removal in 10 of 16 patients
Clinical Outcomes

- Visual analog scale:
  - $5.8 \pm 0.8 \rightarrow 2.4 \pm 0.8 \ (P < 0.001)$
  - 4 patients were pain free
  - 15 of 16 patients had VAS $\leq 2$

- AOFAS hindfoot score:
  - $36 \pm 12 \rightarrow 83 \pm 9 \ (P < 0.001)$

- SF-36 quality of life:
  - physical items: $40 \pm 7 \rightarrow 78 \pm 5 \ (P < 0.001)$
  - mental items: $51 \pm 5.5 \rightarrow 78 \pm 5 \ (P < 0.001)$
# Opening vs. Closing Wedge SMOT

<table>
<thead>
<tr>
<th></th>
<th>Opening Wedge SMOT</th>
<th>Closing Wedge SMOT</th>
<th>P Value</th>
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</thead>
<tbody>
<tr>
<td>Intraoperative complications</td>
<td>yes: no</td>
<td>1:8</td>
<td>0:7</td>
</tr>
<tr>
<td>Time to osseous union [months]</td>
<td>5.4 ± 5.5</td>
<td>2.3 ± 0.4</td>
<td>0.008</td>
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<tr>
<td>Delayed union yes: no</td>
<td>2:7</td>
<td>0:7</td>
<td>0.475</td>
</tr>
<tr>
<td>Postoperative VAS</td>
<td>2.4 ± 0.5</td>
<td>2.3 ± 1.1</td>
<td>0.905</td>
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<tr>
<td>Postoperative medial distal</td>
<td>88.9 ± 1.7</td>
<td>87.6 ± 0.5</td>
<td>0.037</td>
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<tr>
<td>tibial angle [°]</td>
<td></td>
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<tr>
<td>Postoperative tibiotalar tilt</td>
<td>2.3 ± 1.6</td>
<td>0.2 ± 0.5</td>
<td>0.005</td>
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<td>[°]</td>
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# Introduction Materials and Methods

# Results

# Discussion
Conclusions

- **Supramalleolar osteotomy:**
  - powerful tool as realignment surgery
  - supramalleolar level & coronal plane

- **Opening vs. closing wedge SMOT:**
  - comparable outcomes
  - time until complete osseous union was significantly longer in opening wedge SMOT

- **Promising clinical results:**
  - substantial pain relief
  - functional improvement

- **Secondary surgery:**
  - neutral hindfoot alignment
References