Comparison of clinical outcome according to the congruency of lateral talar gutter in oblique supramalleolar osteotomy without fibular osteotomy

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My disclosure is in the Final AOFAS Mobile App. I have no potential conflicts with this presentation.
Introduction

Low tibial valgus osteotomy for varus type OA have presented outstanding clinical results. However, after the procedure, some patients with congruent lateral talar gutter have complained of lateral gutter pain.

Purpose

To identify influence of lateral talar gutter congruency on the clinical and radiological outcomes after oblique supramalleolar osteotomy without fibular osteotomy.
### Materials and Methods

- **Aug 2008 ~ Aug 2011**
- **34 Oblique supramalleolar osteotomy**
  - 34 consecutive patients
  - Takakura stage 2 or 3A
  - Without fibular osteotomy
- **Mean F/U : 37.2 months (24 to 70)**

<table>
<thead>
<tr>
<th>Clinical Evaluations</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 6 weeks, 3 and 6 months, annually</td>
</tr>
<tr>
<td>- Visual analogue scale (VAS)</td>
</tr>
<tr>
<td>- AOFAS score</td>
</tr>
</tbody>
</table>

#### Incongruent type vs Congruent type

- **Congruent type**
  - **16 Cases**
- **Incongruent type**
  - **18 Cases**
Materials and Methods

Radiological Evaluations

- Weight-bearing true AP and lateral view radiographs
  - preoperatively and postoperatively
- Measurement of radiological parameters
  - An independent observer
  - TAS, TLS, TT angles

![Radiographs showing tibioplafond angle (normal ave. 93°) and lateral tibial articular angle (normal ave. 80°).]
Demographic data of the two groups

<table>
<thead>
<tr>
<th>Patients data</th>
<th>Congruent type (n = 16)</th>
<th>Incongruent type (n = 18)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical factors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex (M:F)</td>
<td>5 : 11</td>
<td>5 : 13</td>
<td>0.82</td>
</tr>
<tr>
<td>Mean age (years)(range)</td>
<td>56 (31 to 63)</td>
<td>52 (33 to 66)</td>
<td>0.47</td>
</tr>
<tr>
<td>Takakura classification</td>
<td></td>
<td></td>
<td>0.57</td>
</tr>
<tr>
<td>Stage II</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Stage IIIa</td>
<td>13</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Preop Dx</td>
<td></td>
<td></td>
<td>0.59</td>
</tr>
<tr>
<td>Degerative OA</td>
<td>14</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Post-traumatic OA</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

The demographic parameters of group A and B showed no statistical difference

Mann-Whitney test, Chi-Square test
### Congruent vs Incongruent

**VAS score Group A vs B (P<0.05)**

**AOFAS score Group A vs B (P=0.79)**

- **Group A (congruent type)**
- **Group B (incongruent type)**

*Mann-Whitney test*
## Clinical outcome

### Progress after osteotomy

<table>
<thead>
<tr>
<th>Transition of pain site</th>
<th>Congruent type (n = 16)</th>
<th>Incongruent type (n = 18)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No pain</td>
<td>6</td>
<td>8</td>
<td>0.48</td>
</tr>
<tr>
<td>Persistent medial pain</td>
<td>6</td>
<td>10</td>
<td>0.46</td>
</tr>
<tr>
<td>New onset lateral pain</td>
<td>4</td>
<td>0</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>2ndary operation</td>
<td>2</td>
<td>0</td>
<td>0.2</td>
</tr>
</tbody>
</table>

- TAR 1 case (stage IIIA), Bone graft 1 case (stage II)

Chi-Square test
## Radiologic outcome

<table>
<thead>
<tr>
<th></th>
<th>Congruent type (n = 16)</th>
<th>Incongruent type (n = 18)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δ TAS</td>
<td>Δ 13.5 ± 6.7</td>
<td>Δ 9.1 ± 4.4</td>
<td>0.07</td>
</tr>
<tr>
<td>Δ TLS</td>
<td>Δ 3.2 ± 5.1</td>
<td>Δ 1.2 ± 3.9</td>
<td>0.222</td>
</tr>
<tr>
<td>Δ Talar tilt</td>
<td>Δ 1.9 ± 1.3</td>
<td>Δ 3.4 ± 1.9</td>
<td>&lt;0.05</td>
</tr>
</tbody>
</table>
Discussion

Congruent varus ankle

Oblique SMO without fibular Osteotomy

Lateral gutter space

Lateral gutter pressure

Cause of lateral gutter pain

Lateral gutter pain

Congruent varus ankle
Conclusion

(takakura state II, IIIA)

Lateral gutter congruency?

Incongruent type

Congruent type

Only Oblique SMO without fibular osteotomy

SMO with fibular osteotomy


4. Stamatis ED, Cooper PS and Myerson MS. *Supramalleolar osteotomy for the treatment of distal tibial angular deformities and arthritis of the ankle joint.* Foot & ankle international. / American Orthopaedic Foot and Ankle Society [and] Swiss Foot and Ankle Society. 2003;24:754-64.
