Low Tibial Osteotomy Using Tricorticate Iliac Wing Allograft Fixed with Two Low-profile Tubular Plates

- A Comparison with One Dynamic Compression Plate Fixation

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• My disclosure is in the Final AOFAS Mobile App.

• I have no potential conflict with this presentation
Introduction

• Purpose
  – To report an our surgical technique and its surgical outcome utilizing tricorticate iliac wing allograft for bone graft and fixation of the osteotomy with either single LC-DCP or dual one-third tubular plates.
Material and Method

- All medial opening wedge low tibial osteotomy (LTO) carried out by senior author (KSS) between 2010 and 2014
- among 22 ankles out of 21 patients
  - 4 autograft cases and one followed less than 5mo excluded
- 8 (single plating group) vs. 8 (dual plating group)
- Median average follow up: 13 months (IQR, 10.8 to 18.5 months)
Material and Method

- **Imaging Outcomes** *(figure → next page)*
  - **TAS (Tibial-ankle surface angle)** - between the tibial mechanical axis and the tibial plafond on the AP radiograph
  - **TLS (tibial-lateral surface angle)** - between the tibial axis and the line drawn through the posterior margin of plafond from anterior margin of plafond

- **Clinical Outcomes**
  - AOFAS Ankle-Hindfoot scale
  - Complications
Material and Method
Material and Method

*Dual plating technique*

*using low profile plate (1/3 tubular plate)*
Results

<table>
<thead>
<tr>
<th></th>
<th>Immediate postoperative</th>
<th>Final follow-up</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAS</td>
<td>92.0 (IQR, 90.2 to 94.4)</td>
<td>93.0 (IQR, 89.6 to 97.7)</td>
<td>0.339</td>
</tr>
<tr>
<td>TLS</td>
<td>80.0 (IQR, 77.0 to 84.0)</td>
<td>79.0 (IQR, 75.1 to 84.0)</td>
<td>0.642</td>
</tr>
</tbody>
</table>

There were no significant differences in TAS and TLS between the immediate postoperative and final follow-up radiographs.
## Results

<table>
<thead>
<tr>
<th></th>
<th>Single plating group</th>
<th>Dual plating group</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TAS</strong></td>
<td>-1.3 (IQR, -2.8 to 0.2)</td>
<td>0.1 (IQR, -2.3 to 1.5)</td>
<td>0.645</td>
</tr>
<tr>
<td><strong>TLS</strong></td>
<td>3.1 (IQR, -0.5 to 5.0)</td>
<td>-1.2 (IQR, -1.5 to -1.0)</td>
<td>0.027</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Single plating group</th>
<th>Dual plating group</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AOFAS score</strong></td>
<td>78.0 (IQR, 67.3 to 88.3)</td>
<td>82.0 (IQR, 76.0 to 84.3)</td>
<td>0.721</td>
</tr>
<tr>
<td>Complication</td>
<td>1</td>
<td>0</td>
<td>1.00</td>
</tr>
</tbody>
</table>
Conclusion

• Using *tricorticate iliac wing allograft* is a safe and reliable operative strategy for grafting of the medial opening wedge LTO.

• Additionally, we suggest the medial opening wedge LTO with *dual plating method using low-profile plate is more supportive and durable correction method* compared with the single plating method.
References


• Stamatis ED, Cooper PS, Myerson MS. Supramalleolar osteotomy for the treatment of distal tibial angular deformities and arthritis of the ankle joint. *Foot Ankle Int.* 2003;24(10):754–764.

