The Result of the treatment in osteoporotic ankle fractures with small fragment using claw plate in elderly

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Disclosure

NO CONFLICT TO DISCLOSE

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Our disclosures are in the Final AOFAS Mobile App.
We have no potential conflicts with this presentation
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* Introduction

Increasing ankle fractures in the elderly

Koval KJ et al, Ankle fracture in the elderly J orthop trauma. 2005
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*Current treatments*

- Variable methods to fix and maintain, unstable fracture c small fragment
  - Screw (cannulated or malleolar) fixation
  - Modified Tension band wiring
  - Fixation with Kirschner wire

*Limitations in Elderly*

- Pull out (implant)
- Loss of reduction (not firm fixation)
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* **Our Claw Plate (Modified spring plate)**

1/3 tubular locking plate

Cut the hole at distal portion and sharpen by bone file

Bend the distal sharpen end “C shape”
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* Purpose

To evaluate the clinical results of Claw plate for unstable ankle fracture with small fragment to get stable fixation and avoid iatrogenic injury by fixation methods

* Materials

- From Jan. 2012 to July 2014
- 19 cases of 19 patients
- Older than 65 years (mean 72yrs, 67-76 yrs)
- Mean Follow up period : 15 months (12 to 18 months)
- SER stage 4, PER stage >3 (by Lauge-Hansen Classification)
- Infrasyndesmotic fracture
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* Operative Procedure

- Hooking distal spike portion at joint
- Insert spike into distal fragment striking by mallet
- Compression (cortical) screw (tension force → compression force)
- Additional locking screw
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* **Methods**

- **Evaluation of Clinical results (at 2, 3, 6, 9, 12 months)**
- Visual Analog Scale
- AOFAS ankle-hindfoot score
- Olerud Molander Ankle score

- **Evaluation of Radiological results**

- Median Bone Union period

- Statistics analysis (SPSS 19.0, p <0.05)
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*Results*

<table>
<thead>
<tr>
<th></th>
<th>2 month</th>
<th>3 month</th>
<th>6 month</th>
<th>9 month</th>
<th>12 month</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS (visual analog scale)</td>
<td>6.2 ± 0.9</td>
<td>4.8 ± 0.7</td>
<td>2.1 ± 0.8</td>
<td>1.8 ± 0.6</td>
<td>1.2 ± 0.8</td>
<td>P = 0.001</td>
</tr>
<tr>
<td>AOFAS ankle-hindfoot score</td>
<td>56.4 ± 3.1</td>
<td>78.5 ± 2.8</td>
<td>85.8 ± 3.5</td>
<td>89.5 ± 2.5</td>
<td>93 ± 1.5</td>
<td>P = 0.012</td>
</tr>
<tr>
<td>Olerud Molander Ankle score</td>
<td>15.5 ± 0.2</td>
<td>45.0 ± 0.5</td>
<td>68.4 ± 0.4</td>
<td>70.5 ± 0.5</td>
<td>75 ± 2.5</td>
<td>P = 0.001</td>
</tr>
</tbody>
</table>

# Median Bone union time (month) : 4.7 ± 0.7

No Complications (such as skin problem, metal failure, etc)
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* Limitations

- Mismatch between plate shape and malleolar shape
- Small size
- Short term follow up
- No consideration of factors affecting healing
  ( e.g. smoking, obesity, diabetes )
- No comparison study

* Conclusion

- All cases were healed without complications and took satisfied clinical results, statistically
- In elderly, Claw plate is the alternative and useful method to fix and maintain in osteoporotic ankle fractures with small fragment
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*References*

Thank you for your attention!!