What kind of procedure should be indicated for the comminuted talar fracture as initial treatment?

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Disclosure of Conflict of Interest

We have no COI with regard to our presentation.

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Background

- Open reduction of comminuted talar fractures is very difficult to perform, because it necessitates osteotomy of the lateral or medial malleolus.

- Furthermore, the incidence of aseptic talar necrosis is extremely high after a comminuted fracture.
Background

- Fifty-seven tali of 55 patients with aseptic necrosis of the talus underwent replacement with a ceramic total talus prosthesis from 2005 to 2015, and we obtained excellent/good results.

Taniguchi A. J Bone Joint Surg Am. 2015
Based on these results, we performed replacement with a ceramic total talus prosthesis, as the initial treatment, for 6 patients with comminuted talar fractures with bony destruction or defects.
## Materials

- From 2009 to 2016, 6 feet of 6 patients with comminuted talar fractures underwent replacement with a ceramic total talus prosthesis as the initial treatment.

<table>
<thead>
<tr>
<th>Age (y)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<td>59</td>
<td>34</td>
<td>36</td>
<td>49</td>
<td>45</td>
<td>19</td>
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<table>
<thead>
<tr>
<th>Sex</th>
<th>male</th>
<th>male</th>
<th>male</th>
<th>female</th>
<th>male</th>
<th>male</th>
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<table>
<thead>
<tr>
<th>Cause</th>
<th>fall from a high place</th>
<th>fall from a high place</th>
<th>traffic accident</th>
<th>traffic accident</th>
<th>traffic accident</th>
<th>traffic accident</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Marti-Weber</th>
<th>IV</th>
<th>IV</th>
<th>IV Open +</th>
<th>IV Open</th>
<th>IV</th>
<th>IV Open +</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Bony defect</th>
<th>Follow-up</th>
<th>84 months</th>
<th>61 months</th>
<th>61 months</th>
<th>51 months</th>
<th>12 months</th>
<th>12 months</th>
</tr>
</thead>
</table>


Ceramic total talus prostheses

- Plaster cast immobilization was maintained for 2 weeks of non-weight-bearing and 2 weeks of weight-bearing.
### Evaluations

- Postoperative

#### Results

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<tbody>
<tr>
<td><strong>External fixation</strong></td>
<td></td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
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<tr>
<td><strong>Postoperative AOFAS score</strong></td>
<td>100</td>
<td>80</td>
<td>68</td>
<td>68</td>
<td>93</td>
<td>64</td>
</tr>
<tr>
<td><strong>Postoperative DF/PF</strong></td>
<td>20/50</td>
<td>5/25</td>
<td>5/15</td>
<td>5/15</td>
<td>15/50</td>
<td>5/25</td>
</tr>
<tr>
<td><strong>Sports</strong></td>
<td>golf</td>
<td>jogging</td>
<td>-</td>
<td>aerobics</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Discussion

- Fractures of the talus often interrupt the blood supply, inducing osteonecrosis.

- The predicted prevalence of traumatic osteonecrosis associated with talar body fractures has been reported to range from 90% to 100% for Marti-Weber type-IV fractures.

- All of these cases were Marti-Weber type-IV. Open fracture was associated with complicated fractures and tissue failure. Therefore, the AOFAS scores indicate a higher risk from open fractures than closed fractures.
Discussion

- Treatment of osteonecrosis of the talus includes arthrodesis, talectomy, etc. However, these procedures eliminate ankle motion and cause a leg length discrepancy.

- Total talar prosthesis maintains joint function and leg length.

- Replacement with a ceramic total talus prosthesis should be considered for comminuted fractures with bony destruction or defects.
References


