Effect of Posterior Malleolar Fracture in Ankle Fracture-Dislocation

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My disclosure is in the Final AOFAS Program Book.
I have no potential conflicts with this presentation.
Purpose of the Study

To analysis a basic statistical overview of ankle Fx-D/L and articular involvement of post. malleolus in post dislocation by simple x-ray and CT

M/54 Fall down Anterolat. D/L
Materials and Methods

- From Jan. 2007 to Oct. 2010

Inclusion criteria
- The center of talar dome was displaced more than distal tibia cortex (ant or post. med or lat) at least one simple x-ray plane

Exclusion criteria
- Talus Fx- D/L
- Severe comminuted fracture of ankle plafond

Case: all 25
- Open fracture: 4 cases

Age: Average 42 (13 to 78) years old
M : F = 11 : 14
Mean f/u: 28.6 months
Post. malleolar Fx. In Post. D/L group
- Op indication: >25% articular involvement
Results

Injury mechanism
- Slip down: 11
- Sports injury: 6
- Traffic accident: 3
- Fall down: 6

Direction of dislocation

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>Open fx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posterior</td>
<td>18 (72%)</td>
<td>1</td>
</tr>
<tr>
<td>Anterior</td>
<td>3 (12%)</td>
<td>3</td>
</tr>
<tr>
<td>Medial</td>
<td>2 (8%)</td>
<td></td>
</tr>
<tr>
<td>Lateral</td>
<td>2 (8%)</td>
<td></td>
</tr>
</tbody>
</table>
## Type of fracture in post. D/L

<table>
<thead>
<tr>
<th>Fracture type</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimalleolar Fx.</td>
<td>15 (83%)</td>
</tr>
<tr>
<td>Lat &amp; Post. Malleolar Fx.</td>
<td>3 (17%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Danis – Weber type</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type B</td>
<td>9 (50%)</td>
</tr>
<tr>
<td>Type C</td>
<td>9 (50%)</td>
</tr>
</tbody>
</table>
Post malleolar involvement

X-ray
Average : 27.9%

CT
Average : 31.7%

Wilcoxon test (p =0.02)

<table>
<thead>
<tr>
<th>Danis-Weber</th>
<th>X-ray</th>
<th>CT</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type B</td>
<td>27.0 ±17.3 % (5 - 49%)</td>
<td>30.8±17.6% (12.6 - 55.5%)</td>
<td>0.02</td>
</tr>
<tr>
<td>Type C</td>
<td>24.1±10.9% (11.5-41.6%)</td>
<td>32.1±9.9% (19.3 - 46.7%)</td>
<td>0.01</td>
</tr>
<tr>
<td>P-value</td>
<td>0.67</td>
<td>0.61</td>
<td></td>
</tr>
</tbody>
</table>
Post malleolar fixation group

- 10 cases (56% of all post. Malleolar fractured patients)
- 9 cases; Posterior approach and screw fixation
- Clinical result: AOFAS 93.29 (80-98)
- Radiological result: Bony gap < 1 mm in all pts
The fibula and the anterior tibifibular ligament function as a primary restraint to posterior translation of the ankle, with the posterior malleolus functioning as a dependent secondary restraint...restoration of fibular without fixation of the posterior malleolar fragment will prevent posterior subluxation.

Assessment of the posterior malleolus as a restraint to posterior subluxation of the ankle.

Raasch WG, Larkin JJ, Draganich LF.

Summary

1. Direction of dislocation: **Posterior**(most common)

2. Open fracture: **Anterolat.dislocation**

3. articular involvement in Post. malleolar Fx.
   : larger in **CT** than X-ray (average 31.7% vs 27.9%)

4. Danis – Weber type B vs C
   : Incidence, Post. malleolar articular involvement
     – no difference