Fractures of the Sustentaculum tali

Stefan Rammelt, Constanze Dürr, Hans Zwipp
Dresden, Germany
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My disclosure is in the Final AOFAS Mobile App.
I have no potential conflicts with this presentation.
Sustentacular fractures

- Rare calcaneal fractures
- First description in 1878 by Abel (Stettin, Germany)
- Associated with subtalar or mid-tarsal dislocations
- High prevalence of associated foot injuries
- Frequently overlooked at first presentation
- Few data from the literature
Generous use of CT scanning

- Detecting the amount of joint displacement
- Detecting additional injuries
- Determining surgical approach(es)
### Additional fractures

in 31 patients treated at the Dresden University Hospital

<table>
<thead>
<tr>
<th>Location</th>
<th>Fracture Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcaneus (14)</td>
<td>Anterior process fractures (11)</td>
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<tr>
<td></td>
<td>Calcaneal neck fractures (2)</td>
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<tr>
<td></td>
<td>Tuberosity fractures (1)</td>
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<tr>
<td>Talus (12)</td>
<td>Lateral process fractures (7)</td>
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<tr>
<td></td>
<td>Talar head fractures (4)</td>
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<tr>
<td></td>
<td>Talar body fractures (1)</td>
</tr>
<tr>
<td>Other regional</td>
<td>Distal fibula (4)</td>
</tr>
<tr>
<td>fractures (10)</td>
<td>Distal tibia (3)</td>
</tr>
<tr>
<td></td>
<td>Navicular (2)</td>
</tr>
<tr>
<td></td>
<td>Cuboid (1)</td>
</tr>
<tr>
<td>Other distant</td>
<td></td>
</tr>
<tr>
<td>fractures (8)</td>
<td></td>
</tr>
</tbody>
</table>

- 87% (27/31) additional fractures to the same foot and ankle
- 45% (14/31) fractures at the mid-tarsal (Chopart) joint
- 23% (7/31) fractures of the lateral process of the talus
Treatment

- ORIF for displaced fractures with intra-articular step-off (2mm) or gapping of the medial subtalar facet to prevent hindfoot varus
- Direct medial approach (Sustentacular approach according to Zwipp)

Patients

- 31 patients over a course of 15 years
- Mean age 41 years
- ORIF (medial approach) with screws
- No wound healing problems, no infections
Technique

- Overriding reduction clamp
- Direct joint visualization
- Compression screws with simple fractures, set screws with comminuted fractures
Results: 18 patients followed for 6.7 years

- **AOFAS Ankle-Hindfoot Score:** 83.6
- **Foot Function Index:** 21.6
- **SF-36 physical** component summary score: 45.2 (norm population: 48.4)
- **SF-36 mental** component summary score: 50.0 (norm population: 50.8)
- Significantly better scores with isolated fractures of the sustentaculum tali than with additional injuries (p < 0.001).
- One late subtalar fusion (with additional lateral talar process fracture)
Summary

- Rare injuries requiring a high index of suspicion
- Generous use of CT scanning
- Frequently associated with subtalar and mid-tarsal (fracture-) dislocations
- Excellent results for ORIF of isolated sustentacular fractures
- Negative prognostic factors: late diagnosis, associated fractures
References

Abel (1878) Der Bruch des Sustentaculum tali. Langebeck’s Arch Chir 22(2): 396-428: first description [in German]


