Arthroscopically assisted mini-invasive Fracture Treatment of Hawkins Type I Talar Fractures

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Disclaim and Notification

‘Arthroscopically assisted mini-invasive Fracture Treatment of Hawkins Type I Talar Fractures ’

by Patrick Loetscher

My disclosure is in the Final AOFAS Program Book.

I have no potential conflicts with this presentation.
Introduction

- Talar fractures are uncommon: <1% of all reported fractures
  3% to 6% of all foot fractures
  Approx. 50% of all talar fractures include talar neck (relatively weak cortex)

- Mostly high-energy trauma

- Injury mechanism: forced hyper-dorsiflexion of the foot
Introduction

Displacement and rotational misalignment is frequently underestimated!

The malunion rate of talar fractures varies from 9% to 47%.

- Varus alignment of the talar neck
- Shortening of the medial column
- Painful overload of the lateral foot

Malalignment of 2 mm at the talar neck can result in considerable development of posttraumatic subtalar arthritis.
## Introduction

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>AVN risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hawkins I</td>
<td>Nondisplaced</td>
<td>0 - 13 %</td>
</tr>
<tr>
<td>Hawkins II</td>
<td>Subtalar dislocation</td>
<td>20 - 50 %</td>
</tr>
<tr>
<td>Hawkins III</td>
<td>Subtalar &amp; tibiotalar dislocation</td>
<td>20 - 100%</td>
</tr>
<tr>
<td>Hawkins IV</td>
<td>Subtalar &amp; tibiotalar &amp; talonavicular dislocation</td>
<td>70 - 100%</td>
</tr>
</tbody>
</table>

Goal of treatment:  
- Consequent anatomical reduction and fixation  
- Preserved blood supply

Prevent:  
- Malunion with:  
  - varus rotation  
  - shortening of the talus  
  - deformity of the medial column.

Fig. 1: Hawkins classification of talar neck fractures
Introduction


- When surgical treatment is indicated, usually an extensive open dual-approach (anteromedial and anterolateral) is needed to judge and to prevent rotational misalignment.

- These extensive open approaches can compromise the talar blood supply and increase the risk of AVN.

Hypothesis:

Arthroscopically assisted, mini-invasive reduction and fixation of Hawkins Type I fractures:
→ reduced risk of malunion and rotational misalignment.
→ reduced risk of soft tissue damage and avascular necrosis (AVN)
Methods

- 4 patients included (females, 2; males, 2; mean age 41.5 [24 - 61] years)

- The fracture was opened under arthroscopic visualization using a Hintermann distractor.

- Insertion of two 1.5mm K-wires under fluoroscopic control from the supero-lateral/supero-medial edge of the talar head into the talar body

- Insertion of two cannulated 5.5mm screws (compression screw or fully threaded screw).

- Postoperative protection by a walker during 8 weeks (4 weeks partial-, 4 weeks full weight-bearing) (8 weeks “continuous passive motion“)

- CT scan was performed as postoperative control
Results

- **Anatomic reduction** and **stable fixation** was obtained in all cases.

- **All fractures healed** within 8 weeks and there were **no signs of AVN** in any case.

- All of the patients were **highly satisfied**.

- No wound healing or soft tissue problems
Conclusions

Arthroscopically assisted, mini-invasive reduction and fixation of Hawkins Type I fractures yielded in **excellent early results**.

- Reliable technique for anatomical reduction and fixation
- Minimizing additional damage to the soft tissue
- Minimizing the risk of AVN
References


3) Suter T. et al. Surgical technique: talar neck osteotomy to lengthen the medial column after a malunited talar neck fracture. Foot and Ankle, Clinical Orthopaedics and Related Research, 2013; 471(4):1356-1364


