OSTEOCHONDRAL LESIONS OF THE TALUS TREATED WITH AUTOLOGOUS OSTEOCHONDRAL GRAFT. DOES IT AFFECT THE LOCATION OF THE LESION IN THE CLINICAL OUTCOME?

Antonio Dalmau, MD
Rodrigo Ramazzini, MD
Raúl Franco, MD
David Codina, MD

Hospital ASEPEYO Sant Cugat
Barcelona - Spain
OSTEOCHONDRAL LESIONS OF THE TALUS TREATED WITH AUTOLOGOUS OSTEOCHONDRAL GRAFT. DOES IT AFFECT THE LOCATION OF THE LESION IN THE CLINICAL OUTCOME?

Antonio Dalmau, MD
Rodrigo Ramazzini, MD
Raul Franco, MD
David Codina, MD

My disclosure is in the Final AOFAS Mobile App.
I have no potential conflicts with this presentation.
Purpose

• To evaluate the influence of location of the lesion following the Raikin’s scheme of 9 areas with functional outcome after surgery

• Identify factors intrinsic and extrinsic lesions related with poor functional results
Materials and methods

Retrospective study of OTL patients treated with OATS
Study period January 2001 and March 2010

Inclusion criteria

- Chronic ankle pain associated with OTL
- OTL Stage 2B, 3, 4 and 5 of Hepple

Exclusion criteria

- Patients who did not attend the AOFAS functional assessment (6 patients)
- Previous surgery on ankle through no fault of OTL (4 patients)

<table>
<thead>
<tr>
<th>Patients demographics</th>
<th>Patient demographics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No. patients</strong></td>
<td>37</td>
</tr>
<tr>
<td><strong>Median age</strong></td>
<td>33 y (15-55)</td>
</tr>
<tr>
<td><strong>BMI medium</strong></td>
<td>25.7 (IC95%: 24.4 to 27)</td>
</tr>
<tr>
<td><strong>Sex M / F</strong></td>
<td>31 / 6</td>
</tr>
<tr>
<td><strong>Laterality R / L</strong></td>
<td>24 / 13</td>
</tr>
<tr>
<td><strong>Median duration of symptoms</strong></td>
<td>8 months (4-56)</td>
</tr>
</tbody>
</table>
Characteristics of lesion

- Size / square (mm$^2$)
- Depth (mm)
- Location: Raikin’s scheme
- Classification

Functional assessment postop

First:
- AOFAS 1
- Follow up: 11 months (4-16)

Second:
- AOFAS 2
- Follow up: 67 months (28-137)

Scale Kitaoka-AOFAS

Location, size, depth, BMI, duration of symptoms, stage, age and sex

Open Surgery: OATS

- Average 2 plugs (1-3)


2-Kitaoka HB. Foot Ankle Int 1994.
MRI Classification

Functional results by location of lesion

- Average lesion square: 228.5 mm² (95% CI 195.4 to 261.5)
- Average depth: 10 mm (95% CI 9.38 to 10.62).

### Characteristics of lesion by location

<table>
<thead>
<tr>
<th>Location (zone)</th>
<th>Average Anteroposterior Length (mm)</th>
<th>Average Transversal Length (mm)</th>
<th>Average square (mm²)</th>
<th>Average depth (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16.6</td>
<td>14.2</td>
<td>235.7</td>
<td>11.2</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
<td>12</td>
<td>180</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>17.1</td>
<td>14.5</td>
<td>247.2</td>
<td>10.3</td>
</tr>
<tr>
<td>6</td>
<td>15</td>
<td>12.5</td>
<td>187.5</td>
<td>9.5</td>
</tr>
<tr>
<td>7</td>
<td>15.1</td>
<td>14.3</td>
<td>215.9</td>
<td>9.8</td>
</tr>
<tr>
<td>8</td>
<td>12</td>
<td>11</td>
<td>132</td>
<td>10</td>
</tr>
<tr>
<td>9</td>
<td>17.5</td>
<td>12</td>
<td>210</td>
<td>7</td>
</tr>
</tbody>
</table>

AOFAS 1
11 months (4-16)
87.5 (95% CI: 83.9 to 91.1)

AOFAS 2
67 months (28-137)
84.1 (95% CI: 79.9 to 88.3)

Results by size of lesion (square mm$^2$)

- $P=0.01$
- $P=n/s$

Results by depth of lesion (mm)

- $P=0.02$
- $P=n/s$

Results by number of plugs

- $P=0.03$
- $P=0.03$

AOFAS 1

- 3 cylinders
- 2 cylinders
- 1 cylinder
Stage of lesion, age and sex

Osseointegration: assessment by CT
35 patients (95%)

Median: 7 weeks (average, 5-13 w)
### Complications

<table>
<thead>
<tr>
<th>Complication</th>
<th>No. Cases (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Femoro-patellar pain</td>
<td>6 (16,2)</td>
</tr>
<tr>
<td>✓ Anterior ankle impingement</td>
<td>6 (16,2)</td>
</tr>
<tr>
<td>✓ Wound infection</td>
<td>1 (2,7)</td>
</tr>
<tr>
<td>✓ Posterior tibial tendon injury</td>
<td>1 (2,7)</td>
</tr>
<tr>
<td>✓ Lack of graft osseointegration</td>
<td>2 (5,4)</td>
</tr>
</tbody>
</table>

8 patients (w/1 or more)
We found a significant worsening in functional lesions in zone 4 (centre-medial)

Because in zone 4 bigger and deeper lesions were located

In these lesions (larger and deeper) and in which several cylinders graft used, is still a "gap" between the graft and the bony wall niche

Conclusions

• The clinical and functional results of the treatment of osteochondral lesions of the talus with autologous osteochondral graft are satisfactory, but
• There are factors that influence the long-term functional outcome:
  ✓ Lesion localization
  ✓ BMI ≥ 25
  ✓ Size ≥ 150mm²
  ✓ Depth ≥ 10mm
  ✓ Using multiple cylinders graft