A Histopathological Study for Talus Necrosis

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

Many points remain unclear regarding the causes and pathology of talar necrosis. Previously, a study that examined range of talar necrosis using magnetic resonance imaging (MRI) reported that necrosis often occurred in the posterolateral area. However, no reports have investigated the histopathology of this condition in detail. Here we investigated and will report upon necrosis range evaluation in addition to histopathological evaluation of talus bone specimens extracted while talus replacement surgery for talar necrosis.
Subject

✓ 8 legs in 8 patients
✓ Age : 39 to 77 years old (mean age: 57 years),
✓ SEX : All female
✓ 2 cases had undergone treatment with steroids
  no other cases had any medical history indicative of the cause of talar necrosis.
Method

Specimens were acquired by slicing coronal sections from the neck of talus to the body with a micro bone saw.

Hematoxylin and eosin stain including the lateral process of talus.
Talus bones were divided into 9 different areas from the upper inside to the lower outside. These sections were evaluated using Image J, an image analysis software package conforming to National Institute of Health standards.
Result

Histopathology of talus necrosis

Necrotic debris

Fatty necrosis

Fibrous necrosis

creeping
Result

Area of bone necrosis

<table>
<thead>
<tr>
<th>Lateral side</th>
<th>Medial side</th>
</tr>
</thead>
<tbody>
<tr>
<td>82%</td>
<td>96%</td>
</tr>
<tr>
<td>77%</td>
<td>76%</td>
</tr>
<tr>
<td>48%</td>
<td>50%</td>
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<td>17%</td>
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</tbody>
</table>
Discussion

Histopathology of talus necrosis

- Necrotic debris
- Fatty necrosis
- Fibrous necrosis
- Creeping

Histopathologically, talar necrosis tissue is almost same as femur head necrosis tissue,

Talar necrosis involves ischemic necrosis like femur head necrosis
Discussion

range of talar necrosis


MRI Assessment

Talar necrosis was occurred posterior lateral in almost cases

Our institution Histopathological Assessment

Large proportion of the range of necrosis was located from the talus body center to the outside

Small proportion of the range of necrosis was located from the talus body Medial side and talar lateral process
Discussion

Blood circulation to the talus body

Tarsal sinus branches

Artery of tarsal canal

Deltoid branch

Gelberman et al: Foot Ankle 1983 2)
conclusion

- Histopathologically, talar necrosis tissue is almost same as femur head necrosis tissue.

- We quantitatively evaluated range of necrosis in the talus bone.

- Large proportion of the range of necrosis was located from the talus body center to the outside suggested that ischemia can easily develop in the tarsal canal artery region.

References
