Müller-Weiss Syndrome - Is It Necessary to Remove the Navicular Bone?

Marco Túlio Costa
Daniel Jones
Ana Cecília Genovese
Ricardo Cardenuto Ferreira

Foot and Ankle Group
Santa Casa de Misericórdia de São Paulo
São Paulo - Brazil
The authors did not receive any outside funding or grants in support of their research for or preparation of this work. Neither they nor a member of their immediate family received payments or other benefits or a commitment or agreement to provide such benefits from a commercial entity. No commercial entity paid or directed, or agreed to pay or direct, any benefits to any research fund, foundation, division, center, clinical practice, or other charitable or nonprofit organization with which the authors, or a member of their immediate family, are affiliated or associated.
Müller-Weiss Syndrome

- avascular necrosis of the navicular bone
- rare disease
- women are more affected
- initial treatment - conservative
Surgery
- when conservative treatment fails
- arthrodesis is an option

BUT

Is it necessary to remove the navicular (avascular) bone to achieve fusion?
Methods

- retrospective study
- arthrodesis from 1994 to 2013
- included Maciera classification types 3 and 4
- 12 patients (12 feet) were included
- mean age at surgery: 44 years
# Müller-Weiss Syndrome

## Methods

### 12 feet

<table>
<thead>
<tr>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>navicular removed</td>
<td>navicular NOT removed</td>
</tr>
<tr>
<td>tricortical iliac crest</td>
<td></td>
</tr>
<tr>
<td>bone graft</td>
<td></td>
</tr>
</tbody>
</table>

### 6 feet

<table>
<thead>
<tr>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>surgery: arthrodesis</td>
<td>surgery: arthrodesis</td>
</tr>
<tr>
<td>3 TN + NC</td>
<td>1 TN + NC</td>
</tr>
<tr>
<td>1 triple + NC</td>
<td>1 triple + NC</td>
</tr>
<tr>
<td>2 TN + NC + CMTT1</td>
<td>2 triple</td>
</tr>
<tr>
<td></td>
<td>2 TN</td>
</tr>
</tbody>
</table>

**TN** = talonavicular  
**NC** = naviculocuneiform  
**triple** = talonavicular + subtalar + calcaneocuboid  
**CMTT1** = cuneiform - first metatarsal
Results

12 feet

Group A
- navicular removed
- tricortical iliac crest
- bone graft

6 feet
- follow-up: 98 months
- X-ray fusion: 18 weeks
- nonunion: 33% (2 feet)
- nonunion: 1 TN / 1 NC

Group B
- navicular NOT removed

6 feet
- follow-up: 140 months
- X-ray fusion: 16 weeks
- nonunion: 33% (2 feet)
- nonunion: 2 TN

pseudoarthrosis $\rightarrow$ revision = fusion
Results

12 feet

Group A

- navicular removed
- tricortical iliac crest
- bone graft

6 feet

- pre-op AOFAS: 45 points
- pos-op AOFAS: 80 points
- pos-op VAS: 2.5

Group B

- navicular NOT removed

6 feet

- pre-op AOFAS: 48 points
- pos-op AOFAS: 79 points
- pos-op VAS: 2.4

VAS= visual analog scale for pain
Conclusion

Based on the results obtained in this study, there are no significant differences between preserving or substituting the navicular bone with tricortical bone graft, when a medial column arthrodesis was performed, in patients with Müller-Weiss Syndrome.
Müller-Weiss Syndrome

References