Anatomic Description of the Naviculocuneiform Articulation

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Disclosure
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Our disclosures are in the Final AOFAS Program Book.
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Background

- Naviculocuneiform (NC) joint arthrodesis first described by Hoke in 1931
- Utility procedure for medial column insufficiency or realignment of forefoot varus
- No detailed anatomic description exists to date
Clinical Correlation

• The NC Joint may be difficult to visualize and dissect in certain arthritic cases
• Fixation is typically undertaken with screws and/or plates
• This study may assist surgeons in understanding which facets to fuse
Anatomic Dissection

- Ten fresh frozen below-knee cadaveric specimens (6 female; 4 male)
- Ligamentous attachments were freed from each specimen, followed by detailed measurements using a caliper for each navicular and articular surfaces
- Measurements: Means, Standard Deviations, and Ranges
NC Measurements

<table>
<thead>
<tr>
<th></th>
<th>Width (mm)</th>
<th>Height (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire Navicular</td>
<td>48.6</td>
<td>19.9</td>
</tr>
<tr>
<td>Medial Facet</td>
<td>15.8</td>
<td>19.9</td>
</tr>
<tr>
<td>Intermediate Facet</td>
<td>16.9</td>
<td>20.4</td>
</tr>
<tr>
<td>Lateral Facet</td>
<td>14.7</td>
<td>17.5</td>
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Columbus, Ohio
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Facet Relevance

• Medial and intermediate facets thought to be critical for successful fusion
• Medial and intermediate facets
  – 67.2% of Joint Surface
• Question remains: Which joints to fuse?
Literature Review

• Medial column procedures for Pes Plano Valgus (PPV)
  – Medial NC Arthrodesis
  – First TMT Arthrodesis
  – Modified Hoke-Miller
  – Durham Plasty

• Nonunion Rate: 8.51%
  – 4 of 47 feet
  – NC +/- Med. Displacement Calc. Osteotomy
Conclusions

• First anatomic measurements of NC articulation
• Medial and intermediate facets occupy over 2/3rds of NC joint
• Lateral facet during arthrodeses most likely not clinically significant
• Allows surgeons to focus on appropriate screw placement during NC arthrodeses
References