The Effect of Obesity on Surgical Treatment of Achilles Tendon Ruptures

Jamal Ahmad, M.D.
Kennis Jones, B.A.
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Our disclosures are in the Final AOFAS Mobile Application. We have no potential conflicts with this presentation.
Obesity & Achilles Tendon Ruptures

- **Obesity**
  - Defined by a body mass index (BMI) > 30 kg/m²
  - Over 78 million U.S. adults are obese
  - Obesity-related orthopaedic conditions include higher rates of wound infection & thromboembolic events

- **Acute Achilles tendon ruptures**
  - Most commonly ruptured tendon in the lower extremity

- **No studies regarding the effect of obesity upon surgically treating acute Achilles ruptures**
  - Higher risk of peri-operative complications?
  - Higher risk of post-traumatic arthritis?
Purpose

- To compare outcomes after surgically treating acute mid-substance Achilles tendon ruptures in non-obese & obese patients

Hypothesis

- Obese patients are at higher risk for –
  - Lower post-operative functional scores
  - Higher post-operative pain scores
  - Higher incidence of post-operative complications
    - I.e., wound complications, re-rupture
Methods

- 73 patients with acute mid-substance Achilles tendon ruptures
  - October 2006 – February 2014
  - Open surgical repair by 1 treating surgeon (J.A.)

- Clinical assessment
  - Foot & Ankle Ability Measures (FAAM)
  - Visual analog scale (VAS) for pain
  - Independent observer (K.J.)
Methods cont.

- **Operative technique**
  - Open incision
  - Tendon repair with core & epitendinous sutures

- **Post-operative protocol**
  - Non-weightbearing (NWB) x 4 weeks
    - 1st 2 weeks in a splint
    - Next 2 weeks in a 2-wedge Achilles boot
  - Progressive to full WB in Achilles boot x 4-6 weeks
  - Gradual return to activity at 10-20 weeks

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Pre-operative Data

<table>
<thead>
<tr>
<th></th>
<th>Non-Obese</th>
<th>Obese</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female:Male</td>
<td>8:35</td>
<td>6:24</td>
</tr>
<tr>
<td>Mean age</td>
<td>39.2 yrs</td>
<td>41.1 yrs</td>
</tr>
<tr>
<td>Mean BMI</td>
<td>25.9</td>
<td>33.4</td>
</tr>
<tr>
<td>Right:Left</td>
<td>22:21</td>
<td>16:14</td>
</tr>
<tr>
<td>Mean preop FAAM</td>
<td>38.1/100</td>
<td>34.2/100</td>
</tr>
<tr>
<td>Mean preop VAS</td>
<td>7.1/10</td>
<td>6.2/10</td>
</tr>
</tbody>
</table>

With the exception of BMI...

No statistical difference between groups

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<table>
<thead>
<tr>
<th></th>
<th>Non-Obese</th>
<th>Obese</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean postop FAAM</td>
<td>90.2/100</td>
<td>83.3/100</td>
</tr>
<tr>
<td>Mean VAS (of 10)</td>
<td>1.6/10</td>
<td>1.9/10</td>
</tr>
<tr>
<td>Tendon healing by 16 wks</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Rate of wound problems</td>
<td>14.0%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Re-rupture</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>
Compared to non-obese patients, obese patients displayed –

- Lower functional scores & higher pain scores
  - Due to increased demands & stress on the Achilles with increased weight?

- SIGNIFICANTLY lower rates of wound problems
  - Due to larger soft-tissue envelope?
Conclusion

- After Achilles tendon repair, obese patients achieved
  - High rates of improved function & pain, & tendon healing
  - Significantly lower rate of wound complications compared to non-obese patients!
- Further research with larger populations may be needed to confirm these findings
References

- Guss D, Bhattacharyya T. JAAOS 2006; 14: 425-432.