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) $> 30 \text{ kg/m}^2$
  - 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
### 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
Comparative Results

Non-Obese       Obese

Mean postop FAAM  90.2/100  83.3/100  P=0.10

Mean VAS (of 10)  1.6/10    1.9/10    P=0.35

Tendon healing by 16 wks  100%  100%

Rate of wound problems  14.0%  3.3%

Re-rupture        0%        0%

P<0.05

Rothman Institute of Orthopaedics at Thomas Jefferson University
Discussion

- 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?
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.