Supine Achilles Tendon Repair Decreases Total Operating Room Time without Sacrificing Outcome

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Introduction

• Achilles tendon ruptures are a common orthopaedic injury

• Incidence is increasing based on recent literature
  • Increase from 26-31 per 100,000 per year between 1994 and 2013
  • Increase of 17% among men and 22% among women from 2001-2012

• Lots of debate regarding Treatment
  • Operative versus Non-operative Treatment
  • Open versus Percutaneous
  • *Early Rehabilitation Protocol
Advantages

• Both surgical technique papers cite same advantages

• Patient Safety
  • Easier access to airway for anesthesia
  • Cut out risks of positioning an intubated patient
  • Decreased time of anesthesia

• Time!
  • Cut out all positioning time
  • LMA vs ETT

• Ability to adequately perform an Achilles repair with supine position

• Neither provided quantifiable data on the amount of time saved in the operating room/intubated patient
Current Study

• **Purpose:** To compare nonsurgical operating room times supine versus prone Achilles tendon repairs

• **Methods**
  - Retrospective primary Achilles tendon repairs at our institution between March 2010 and June 2015
  - Excluded any patients who had concomitant surgery or surgery not performed by a fellowship-trained foot and ankle surgeon
  - Documented Prone/Supine and Percutaneous/Open
  - Nursing and anesthesia records reviewed to identify “in room,” “cut,” “close,” “out of room” times
  - Reviewed post operative complications

• **Data**
  - Total Surgical Time (TST)
  - Total Operating Room Time (TORT)
  - TORT-TST = Nonsurgical Operating Room Time
    - Proxy for Positioning and Additional Anesthesia Time
Surgical Technique: Setup
Surgical Technique: Repair
## Results

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Total # Patients</th>
<th>Males</th>
<th>Females</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supine Open</td>
<td>82</td>
<td>70</td>
<td>12</td>
<td>45</td>
</tr>
<tr>
<td>Prone Open</td>
<td>31</td>
<td>28</td>
<td>3</td>
<td>40</td>
</tr>
<tr>
<td>Prone Percutaneous</td>
<td>32</td>
<td>25</td>
<td>7</td>
<td>39</td>
</tr>
<tr>
<td>Totals</td>
<td>145</td>
<td>123</td>
<td>22</td>
<td>41</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Surgical Time</th>
<th>Total OR Time</th>
<th>Nonsurgical Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supine Open</td>
<td>32.8</td>
<td>59.1</td>
<td>26.3</td>
</tr>
<tr>
<td>Prone Open</td>
<td>49</td>
<td>88.9</td>
<td>39.9</td>
</tr>
<tr>
<td>Prone Percutaneous</td>
<td>32.3</td>
<td>76.7</td>
<td>44.4</td>
</tr>
</tbody>
</table>

Difference between Supine Open and Prone Open: 13.6 minutes
Difference between Supine Open and Prone Perc: 18.1 minutes
Average Difference between Supine and Open Procedures: 15.85 minutes
**Results**

Student’s T-Test Analysis

<table>
<thead>
<tr>
<th>Supine vs:</th>
<th>Surgical Time</th>
<th>Nonsurgical Time</th>
<th>Total Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>All (Prone/Perc)</td>
<td>P&lt;0.01</td>
<td>P&lt;0.01</td>
<td>P&lt;0.01</td>
</tr>
<tr>
<td>Prone Open</td>
<td>P&lt;0.01</td>
<td>P&lt;0.01</td>
<td>P&lt;0.01</td>
</tr>
<tr>
<td>Prone Perc</td>
<td>.61</td>
<td>P&lt;0.01</td>
<td>P&lt;0.01</td>
</tr>
</tbody>
</table>
Complications

• Supine Open (82): 3 total complications (3.7%), no reoperations
  • Sural Nerve Irritation x2
  • Suture abscess requiring office debridement

• Prone Open (31): 3 total complications (9.7%), no reoperations
  • DVT>PE one week postop
  • Superficial Cellulitis> resolved with 10 days Keflex
  • Wound Drainage> Resolved with 10 days Bactrim and Wound Care

• Prone Percutaneous (32): 4 total complications (12.5%), 3 reoperations
  • Re-rupture requiring revision x3
  • Wound Drainage> Resolved with course PO antibiotics

• Comparison by chi-square analysis
  • $X^2 = 3.277$
  • $P = 0.194$, non-significant difference
Conclusions

• A supine position can be utilized to perform an effective and efficient primary repair of an Achilles tendon rupture

• Average decrease in operating room time compared to all prone procedures is 15.85 minutes
  • Decrease time of Intubated patient, Helps patient safety
  • Decreased cost of running OR

• No increased complication rate and no complications requiring return to operating room


