Clinical comparison of the two-stranded single Krackow and four-stranded double Krackow techniques for acute Achilles tendon ruptures

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Disclosure

No conflict to disclose

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Our disclosures are in the Final AOFAS Mobile App. We have no potential conflicts with this presentation.
Krachow suture

- Several different configurations of the Krackow stitch have been used for acute Achilles tendon rupture repair
Purpose

- We could not find a study that compared the clinical outcome of different Krackow stitch configurations.

- To compare the clinical outcomes of the two-stranded single Krackow and four-stranded double Krackow techniques.
Material & Method

- Retrospective comparative study

- 48 patients, September 2011 ~ August 2014
  - A group: four-stranded double Krackow techniques (31 patients)
    (Op. date: September 2011 ~ November 2013)
  - B group: two-stranded single Krackow techniques (17 patients)
    (Op. date: December 2013 ~ August 2014)
Material & Method

• **Inclusion criteria**: acute Achilles tendon ruptures

• **Exclusion criteria**:
  1. systemic corticosteroid treatment
  3. local corticosteroid injection around Achilles tendon for 6 months before the rupture
  4. a previous Achilles tendon rupture on the opposite side,
  5. less than 12 month follow-up

• **Tendon repair procedure**
  1. Krackow suture done with Ethibond No. 2
  2. The number of locking loops: 3 loops locked at both groups
  3. After core suture, running locking suture done with Vicryl 1-0
Material & Method

• Measurement

- Demographics
  1. Affected side: Right / Left
  2. Mean BMI (Kg/m$^2$)
  3. Mean time from injury to surgery (day)

- Clinical outcomes
  1. AOFAS score & Boyden scale (at 12 months postoperatively)
  2. Complication
  3. Return to work (week)

- Cybex results
  Isokinetic strength on a Cybex dynamometer (at 6 months after surgery):
    - Mean peak torque deficit / Mean work deficit of plantar-flexion (PF) & dorsiflexion (DF)
Clinical outcomes

Boyden scale

- Group A (n=31)
- Group B (n=17)

P value: 0.806

AOFAS score

- Group A (n=31)
- Group B (n=17)

P value: 0.295

Return to work

- Group A (n=31)
- Group B (n=17)

P value: 0.368
### Complications

<table>
<thead>
<tr>
<th>Complication</th>
<th>Group A (n=31)</th>
<th>Group B (n=17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rerupture</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Wound dehiscence</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

- **Rerupture case:**
  Rerupture at 11 weeks after 1<sup>st</sup> primary Achilles tendon repair
  → FHL tendon transfer using the Bio-tenodesis screw

- **Wound problem case:**
  Wound pustule at 4 weeks after primary Achilles tendon repair
  → Self healed by dressing for 3 weeks
### Cybex Isokinetic Test Results

<table>
<thead>
<tr>
<th>Test Speed</th>
<th>Group A (n=31)</th>
<th>Group B (n=17)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plantarflexion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 degrees/sec</td>
<td>19.4%</td>
<td>18.5%</td>
<td>0.65</td>
</tr>
<tr>
<td>120 degrees/sec</td>
<td>10.2%</td>
<td>11.7%</td>
<td>0.71</td>
</tr>
<tr>
<td><strong>Dorsiflexion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 degrees/sec</td>
<td>11.3%</td>
<td>12.8%</td>
<td>0.64</td>
</tr>
<tr>
<td>120 degrees/sec</td>
<td>8.1%</td>
<td>7.3%</td>
<td>0.62</td>
</tr>
</tbody>
</table>

### Mean Peak Torque Deficit

<table>
<thead>
<tr>
<th>Test Speed</th>
<th>Group A (n=31)</th>
<th>Group B (n=17)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plantarflexion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 degrees/sec</td>
<td>21.2%</td>
<td>19.7%</td>
<td>0.54</td>
</tr>
<tr>
<td>120 degrees/sec</td>
<td>19.6%</td>
<td>19.3%</td>
<td>0.84</td>
</tr>
<tr>
<td><strong>Dorsiflexion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 degrees/sec</td>
<td>12.6%</td>
<td>11.2%</td>
<td>0.71</td>
</tr>
<tr>
<td>120 degrees/sec</td>
<td>9.3%</td>
<td>8.3%</td>
<td>0.76</td>
</tr>
</tbody>
</table>
Conclusion

• The two-stranded single Krackow and four-stranded double Krackow techniques for acute Achilles tendon ruptures resulted in similar clinical outcomes and isokinetic strengths

• The overall complication rates were low in both suture techniques
References


