Outcomes of Surgical Treatment for Insertional Achilles Tendinopathy Using a Central Tendon Splitting Approach

Elizabeth Martin, MD; Ruth Chimenti, DPT; Josh Tome, MS; Andrew Hollenbeck, BS; John Ketz, MD; Jeff Houck, PhD; A. Samuel Flemister, MD
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My disclosure is in the Final AOFAS Program Book. I have no potential conflicts with this presentation.
**Introduction / Purpose**

Insertional Achilles tendinopathy is a common cause of posterior heel pain and is commonly refractory to conservative measures.

No clear consensus exists as to the preferred surgical treatment of insertional Achilles tendinopathy.

- Surgical approach
- Concomitant gastrocnemius recession
- Need for FHL transfer

The purpose of this study is to comprehensively examine surgical and functional outcomes following operative treatment for chronic insertional Achilles tendinopathy using a central tendon-splitting approach.
Methods

Extracted all patients who underwent operative treatment by two surgeons (ASF, JPK) for insertional Achilles tendinopathy beginning in 2004.

Technique consisted of Achilles debridement and suture anchor repair, calcaneal exostectomy and bursectomy +/- gastrocnemius recession.

Exclusion criteria included FHL transfer and inability to walk 50 feet without stopping.

Clinical evaluation included neurovascular and surgical site examination, measurement of calf circumference and completion of heel rise based on age and gender.

Using Biodex dynamometry, ankle range of motion (ROM) was measured, as was isometric plantarflexion (PF) strength.

Function and satisfaction were assessed using the validated FAAM, SF-36 and VAS instruments and a patient satisfaction questionnaire.

Patients with unilateral procedures and no contralateral pathology underwent functional comparison to the contralateral side.
Results

Thirty-one patients (38 ankles) who underwent debridement for chronic insertional Achilles tendinopathy using a central tendon-splitting approach were evaluated clinically at average follow-up of 39 months (range 6 to 108 months)

- Seven bilateral procedures

Thirty-four ankles had a concurrent gastrocnemius recession

The population included 11 males and 20 females with an average age of 55 and mean BMI of 31.0. None of the subjects were athletes

The most common complications were mild local wound reaction in 4 patients and DVT/PE in 3 patients

Twenty-one patients had unilateral procedures with no contralateral pathology and underwent functional comparison using the contralateral side as a control
Comparison of Operative Extremity versus Control

<table>
<thead>
<tr>
<th></th>
<th>Operative</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calf Circumference</td>
<td>40.7*</td>
<td>41.9*</td>
</tr>
<tr>
<td>Dorsiflexion motion</td>
<td>18.8 degrees</td>
<td>17.8 degrees</td>
</tr>
<tr>
<td>Total ROM</td>
<td>54.9 degrees</td>
<td>56.9 degrees</td>
</tr>
<tr>
<td>Peak PF at 0 degrees</td>
<td>69.2 Nm**</td>
<td>83.0 Nm**</td>
</tr>
<tr>
<td>Peak PF at 20 degrees</td>
<td>33.4 Nm***</td>
<td>48.7 Nm***</td>
</tr>
<tr>
<td>Heel rise exercise completed</td>
<td>52%</td>
<td>86%</td>
</tr>
</tbody>
</table>

* p=0.004  **p=0.005  ***p<0.001
Results

Patients less than one year out from surgery had a mean isometric PF strength of 46.8 Nm, which was a 33% decrease compared to their control limb. Strength in subjects more than one year out from surgery (74.5 Nm) was only 7% less than their control limb (p= 0.05).

Calf circumference in the operative extremity did not improve with time.

Including all 38 operative extremities, mean isokinetic plantarflexion strength in limbs that could complete the heel rise protocol was 79.1 Nm, versus 52.0 Nm in those that were unsuccessful (p=0.003).

The two patients with control limbs who did not have a gastrocnemius recession had comparable or increased strength in their operative limb.
Results

Mean VAS scores were 1.0 pre-testing and 0.9 post-testing.

The population scored an average of 89.1 and 76.0 on the FAAM ADL and sports subscales respectively.

Scores of 47.9 and 53.5 were recorded on the SF-36 PCS and MCS subscales.

Patients who underwent bilateral procedures had higher average outcomes scores:

- 0.4 and 0.5 on the VAS pre-and post-testing
- 95.8 and 85.8 on the FAAM ADL and sports subscales
- 53.6 and 55.8 on the SF-36 PCS and MCS subscales

All patients expressed satisfaction with the treatment, would have the surgery performed on the contralateral side if necessary and would recommend it to a friend.
Conclusion

Debridement of chronic insertional Achilles tendinopathy can be performed through a central tendon splitting approach with excellent functional outcomes, good pain relief and high patient satisfaction.

Despite significantly less plantarflexion strength in their operative extremity, patients were satisfied with their outcomes, demonstrated good pain relief and scored well on outcomes instruments.

We noted a more profound decrease in plantarflexion strength in subjects less than one year out from surgery compared to their unaffected extremity.

Most of our subjects had a concomitant gastrocnemius recession, which may explain our findings of decreased PF strength and warrants further study.

The high frequency of thromboembolic disease was unexpected and merits further consideration.
References


Watson AD, Anderson RB, Davis WH. Comparison of results of retrocalcaneal decompression for retrocalcaneal bursitis and insertional achilles tendinosis with calcific spur. Foot Ankle Int. 2000 Aug;21(8):638-42.