Calcific Insertional Achilles Tendinopathy: Functional Outcome Following Achilles Repair with Flexor Hallucis Longus Tendon Transfer

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Statement of Purpose

The purpose of this study is to provide a retrospective outcome of patients who have undergone an Achilles repair with an FHL tendon transfer for the management of calcific insertional Achilles tendinopathy (CIAT). The focus includes functional patient-reported outcomes and satisfaction post-operatively, as well as the need for revisional surgery and re-rupture rates. Secondary objectives include assessing complications such as wound dehiscence, incidence of DVT, and prolonged post-operative pain following the procedure.

Procedures

Surgery was performed under general anesthesia with the patient in a prone position. A gastrocnemius recession was carried out to see the insertion. A sequence incision was made over the posterior aspect of the leg, allowing for access to the distal Achilles tendon for debridement and repair, once the primary tendon was identified and retracted. A full-thickness incision was then made into the distal Achilles tendon, extending distally to the calcaneus of the level of the malleolus. All soft tissue were debrided from the posterior calcaneus, including medially and laterally. A surgical incision was then used to reapproximate the tissue to adequately decompress the distal aspect of the Achilles tendon. A soft-tissue retraction placed proximally within the incised portion of the Achilles tendon to allow for harvesting of the FHL tendon. The foot and ankle were then molded into an equinus position, and the FHL tendon was reapproximated before the insensate was sutured.

Methodology & Hypothesis

A retrospective review was conducted on 31 consecutive patients (33 feet) who underwent an Achilles repair with an FHL tendon transfer procedure for the management of CIAT between the years 2011 and 2015. Identification of patients was performed via searchable computerized hospital database, including the appropriate ICD-9 and CPT codes. Before surgical treatment, each patient underwent conservative therapy and had diagnostic radiographs taken of their affected foot. Additionally, all patients underwent magnetic resonance imaging (MRI) of the affected foot. Exclusion criteria included patients with incomplete medical and/or surgical records and patients under the age of 18.

The hypothesis we pose is that patients who have undergone an Achilles repair with an FHL tendon transfer procedure for the management of CIAT will have favorable outcomes, along with improved Achilles functionality and overall satisfaction.

Literature Review

Calcific insertional Achilles tendinopathy (CIAT) is a relatively common musculoskeletal entity that results in significant pain and disability. Elias et al. studied 40 patients with a diagnosis of CIAT and found an average preoperative AOFAS-AIIS score of 56.5, with an average preoperative VAS score of 7.5. In a retrospective study of 29 patients, having found significantly lower functional scores prior to flexor hallucis longus transfer for CIAT, with an average preoperative AOFAS hindfoot score of 41.7. CIAT often includes retrocalcaneal bursitis, Haglund’s deformity, insertional calcification, insertional paratendinitis, insertional tendinosis, equinus deformity and, sometimes, systemic orthopaedists.

Inadequate imaging, especially MRI, can provide prognostic information to guide treatment. Unfortunately, the success rate with non-surgical treatment decreases significantly even in low-substance changes consistent with tendinosis are present on MRI. In 24-45.5% of patients with Achilles tendinopathy, conservative management is unsuccessful and surgery has to be considered. Surgery should be considered in those patients who experience refractory disease, disability, weakness and MRI changes consistent with tendinosis. Furthermore, it is important to keep in mind that long-standing disease is associated with poor surgical outcomes and a poorer rate of resorption. Therefore, implementing non-operative care for a specific period of time before proceeding with surgery might adversely affect the surgical outcome. The timing of surgical repair should be based on objective factors such as clinical findings and MRI results, as well as the patient’s response to non-operative treatment.

Results

Postoperatively, 17 patients included in the study completed a VISA-A (Vide impaigne International de Sport Assessment – Achilles) and patient satisfaction questionnaire at final follow-up. The average calculated VISA-A score was 92% (range 73 to 100) on a scale from 0 to 100. Furthermore, 16 of 17 patients (94%) were very satisfied with the outcome of the procedure and would have the operation again.

In terms of patient outcomes (Table 2), for all 31 patients included in the study, zero experienced re-rupture, DVT, or revascularisation surgery. Three patients (9%) experienced a superficial infection, while one patient (3%) developed an infection. Out of 31 feet, all of these patients were documented diabetics. The average overall time to return to walking was less than 5 weeks, while time to shoe gear was less than 6 weeks.

Table 1. Patient Demographics (n=31)

<table>
<thead>
<tr>
<th>Age (mean; range)</th>
<th>52.55; 30-67</th>
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</thead>
<tbody>
<tr>
<td>Sex (n)</td>
<td>21 M; 10 F</td>
</tr>
<tr>
<td>BMI (mean; range)</td>
<td>36.69; 25.1-55.7</td>
</tr>
<tr>
<td>Laterality (n; %)</td>
<td>19 R; 14 L</td>
</tr>
</tbody>
</table>
| Comorbidities (n; %) | L | 10, 36.6%
| HTN | 16; 52%
| DM | 10; 32%
| OLA | 7; 23%
| OA | 5; 16%
| GERD | 4; 13%
| Hypothyroid | 3; 10%
| Tobacco use (n; %) | 11; 35%

Table 2. Patient Outcomes (n=31)

| Time to Wt-bearing (weeks; median; range) | 4.48; 3-8 |
| Time to Shoe Gear (weeks; median; range) | 7.5; 4-12 |
| Complications (n; %) | Re-Rupture | 0; 0%
| Superficial Infection | 3; 9%
| Deep Infection | 1; 3%
| DVT | 0; 0%

Analysis & Discussion

Previous studies have found those suffering from CIAT experience significantly lower function scores post surgery. One of those considerations is that surgery has been shown to be an effective treatment in some instances. In this study, utilizing the VISA-A postoperative scoring system, this procedure has shown to be a successful treatment of CIAT. Knowing these outcomes might help guide procedure selection for physicians and will provide information to patients to help them understand what to expect.

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References

2. One-Stitch Achilles Tendon rupture repair with FHL tendon transfer. Foot Ankle Int. 2007;28:724-729

Figure 1. Surgical technique for the treatment of CIAT with FHL tendon transfer.

Figure 2. MRI sagittal T2-weighted image of the ankle shows a calcified exudate with increased signal intensity at the insertion of the Achilles tendon within the retrocalcaneal bursitis.