A Retrospective Comparison of Hindfoot and Ankle Tendon Repairs with and without Acellular Amniotic Scaffolds

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STATEMENT OF PURPOSE

The purpose of the present report was to compare outcomes following primary tendon repair between patients who were treated with application of a decellularized, dehydrated, human amniotic membrane (DHAM) and those who were treated without the membrane.

METHODOLOGY & RESULTS

Level of Evidence / IV

Study Design: Chart Review

- A chart review was performed to identify consecutive patients that underwent primary tendon repair with (treatment group) without (control group) application of a decellularized, dehydrated, human amniotic membrane.

Inclusion Criteria:

- still less than age of 60 at the time of repair
- Undertaken tendon repair
- Procedure performed by one surgeon (S.A.B.

Exclusion Criteria:

- Previous repair of the involved tendon
- Acute traumatic injury involving laceration or severance of the repaired tendon
- Fusion of the substance post-performed concomitantly with posterior tibial tendon repair

Outcome:

- Return to activity
- Range of motion (%) (°)
- Wound dehiscence

Statistical Analysis:

- Outcomes were compared between the two groups using an independent samples t-test
- Nominal variables were compared using Fisher's Exact test
- Statistical significance was set at the 5% level (p ≤ 0.05)
- Data presented as mean ± standard deviation or count (%).

Table 1: Patient Demographics

<table>
<thead>
<tr>
<th>Demographics</th>
<th>All Patients</th>
<th>Treatment Group</th>
<th>Control Group</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>23 (100%)</td>
<td>14 (60.9)</td>
<td>9 (39.1)</td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>51.8 ± 13.2</td>
<td>52.4 ± 16.4</td>
<td>50.0 ± 8.4</td>
<td>0.767</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>31.7 ± 6.3</td>
<td>30.3 ± 5.1</td>
<td>30.0 ± 7.1</td>
<td>0.434</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>3 (13.0)</td>
<td>1 (7.1)</td>
<td>2 (22.2)</td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>20 (87.0)</td>
<td>13 (92.9)</td>
<td>7 (77.8)</td>
<td></td>
</tr>
</tbody>
</table>

Using a decellularized, dehydrated amniotic membrane.

Figure 1: Procedures

During the healing process following a traumatically injured tendon, the body may deploy a sequence amount of cellular collagen at the site of injury. Current measures for treating excess scarring and adhesion on traumatized tendons include bovine collagen, hyaluronic acid and hyaluronic acid polymers (for example: polyethylene glycol) based barriers. In published clinical studies, none of these approaches have shown to consistently reduce the incidence of adhesions or scar formation following repair of tendon injury.

The present investigation sought to determine whether the application of a DHAM would improve clinical outcomes. Given the potential for the allograft to decrease inflammation and reduce tissue adhesions, we hypothesized that patients treated with the allograft would have a better return to activity. Our study demonstrated a similar return to activity and a similar range of motion. Neither group demonstrated wound healing complications.

There are a number of limitations, which could potentially threaten the validity of our conclusions. Given the retrospective nature of the study, return to activity was defined as the initiation of physical therapy. While this provides a relative indication of return to activity, a prospectively designed study could better define and monitor return to activity. Additionally, our sample size was limited to 23 patients with 14 patients in the treatment group and 9 patients in the control group. Given these limitations, a prospective study with a larger patient population is warranted to fully evaluate the effect of DHAM on return to activity, range of motion, and wound healing.

REFERENCES

3. 11:711
4. 21:2377
5. Communn
6. 717, 2013
8. Petrizzi M, Philip J, Russo V, Hatt K, Hyman G, et al. Use of dehydrated human amniotic membrane allografts to promote healing in patients treated with the allograft would have a better return. Our study demonstrated a similar return to activity and a similar range of motion. Neither group demonstrated wound healing complications.

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