Minimally Invasive Palmaris Longus Abductorplasty for Severe Carpal Tunnel Syndrome

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INTRODUCTION
Camitz abductorplasty is a common tendon transfer procedure for severe carpal tunnel syndrome (CTS) patients. Various modifications have described ways of using pulleys to improve line of pull of transferred palmaris longus (PL) tendon to further improve thumb opposition. These techniques involved extended carpal tunnel incision with high risk of iatrogenic injuries to neurovascular structures.

A minimally invasive PL abductorplasty (MIPLA) is described. It can be used concurrently with either endoscopic carpal tunnel release (CTR) or mini open CTR.

INDICATIONS
- Severe CTS with loss of thumb function / ADLs
- Positive pick-up test

CONTRAINDICATIONS
- Congenital absence of PL
- Advanced 1st CMCJ OA
- 1st metacarpal adduction contracture

TECHNIQUE

(A) 1.5 cm skin crease incision over wrist crease from ulnar border of FCR to ulnar border of PL. (B) Identification of FCR and PL. (C-D) Endoscopic CTR through the same incision.

(A) Distal transection of PL tendon. (B) A slip of FCR tendon harvested with 32-G wire loop through the split tendon site. Wire brought out 9 to 11 cm proximally in forearm at musculocutaneous junction. (C) Free split FCR tendon graft sutured to palmaris longus with 3 cm overlap.

(A-C) PL-FCR tendon is tensioned with wrist in neutral and thumb in full palmar abduction.

RESULTS

<p>| TABLE 1. Outcome Measured at an Average of 4.2 Years Postoperatively |
|---------------------|-----------------|-----------------|-----------------|-----------------|-----------------|</p>
<table>
<thead>
<tr>
<th>Patient</th>
<th>Kapandji Score</th>
<th>Operated</th>
<th>NonOperated</th>
<th>Pick-up Test</th>
<th>DASH Score</th>
<th>Recurrence</th>
</tr>
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<tbody>
<tr>
<td>A</td>
<td>10</td>
<td>8</td>
<td>7</td>
<td>Able</td>
<td>3.3</td>
<td>No</td>
</tr>
<tr>
<td>B</td>
<td>10</td>
<td>6</td>
<td>6</td>
<td>Able</td>
<td>1.6</td>
<td>No</td>
</tr>
<tr>
<td>C</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>Unable</td>
<td>1R.3</td>
<td>Yes</td>
</tr>
</tbody>
</table>

100% cosmetic satisfaction in all 3 patients (mean age 68.7 years)
Good to Excellent DASH and Kapandji scores in all patients

CONCLUSION
MIPLA with FCR graft is a relatively safe and simple technique involving minimal soft tissue dissection with fast recovery of function. In our experience, one of the caveats in patients with 1st adduction contracture is to release adductor pollicis and 1st dorsal intersosseus with 1st web widening prior to abductorplasty for better outcome.