Dual Mini TightRope Suspensionplasty for Thumb Basilar Joint Arthritis: A Case Series

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Introduction

• Mini TightRope suspensionplasty (Arthrex, Naples FL) is an alternative to K-wire fixation of the first metacarpal after trapeziectomy
• Overtightening between the 1st and 2nd metacarpal can occur
• We report on a new technique of a dual Mini TightRope with FCR to APL suspensionplasty for the treatment of basilar thumb arthritis (Fig 1)
• Benefits may include earlier motion, reduced 2nd metacarpal fracture risk over traditional tightrope, and reduced risk of overtightening with subsequent impingement between 1st and 2nd metacarpal bases

Methods

• Retrospective review of 12 cases
• Minimum one year follow-up
• Reviewed:
  • Trapezial space height
  • Grip & pinch strength
  • Thumb range of motion
  • DASH, PRWE, and MHQ
• Complications

Results

• 12 thumbs (10 women, 1 man)
• Follow-up: 18 ± 4 months
• Age at surgery: 60 ± 8 years (range, 43-73 yr).
• Trapezial space: 67% of original height at follow-up
• Grip/Pinch strength increased significantly (Table 1)
• Outcome scores
  • DASH: 19 ± 19
  • MHQ: 75 ± 22
  • PRWE: 21 ± 26
• Complications
  • 1 case of CRPS
  • No metacarpal fractures or cases of impingement

Conclusions

• Improved pain and strength
• Dual tightropes distribute force, potentially decreasing risk of failure
• No increased cost; two tightropes in every set
• Short-term outcomes of the dual Mini TightRope suspensionplasty technique offers pain relief, improved function, and subsidence rates comparable to other suspension techniques in this small group of patients (Fig 2)

Table 1: Title

<table>
<thead>
<tr>
<th></th>
<th>Preoperative</th>
<th>Postoperative</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grip Strength (kg)</td>
<td>12.2 ± 1.1</td>
<td>21.4 ± 8</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>Oppositional Pinch</td>
<td>4 ± 2</td>
<td>6.4 ± 2</td>
<td>&lt;0.002*</td>
</tr>
<tr>
<td>Oppositional Pinch (kg)</td>
<td>3.3 ± 2</td>
<td>5 ± 3</td>
<td>&lt;0.007*</td>
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<tr>
<td>MCP Hyperextension (degrees)</td>
<td>14 ± 18</td>
<td>9 ± 18</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>MCP Hyperextension (degrees)</td>
<td>20 ± 11</td>
<td>11 ± 11</td>
<td>&lt;0.6</td>
</tr>
<tr>
<td>IP Hyperextension (degrees)</td>
<td>10 ± 13</td>
<td>114 ± 2</td>
<td>&lt;0.9</td>
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<tr>
<td>IP Flexion (degrees)</td>
<td>98 ± 12</td>
<td>6 ± 12</td>
<td>&lt;0.1</td>
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