What Comprises TOS Specific Physical Therapy And How Often Is It Effective In Neurogenic TOS

Basic Facts

tTOS

- 3-80/1000 population in US
- Patient visits
  - Will see 4.7 physicians prior to diagnosis
  - Will see 8.7 physicians prior to surgery
- Lack of standardized diagnostic or treatment criteria

Disclosures

- Nothing to Disclose

Thoracic outlet syndrome: Pattern of clinical success after operative decompression

- 8 yr experience, 185 tTOS patients
  - 46% primary success rate
  - 80 sides required second procedure

Vascular Surgery

79 IMEs of tTOS patients, (15 operations)

- Mean follow-up 4.2 years

- No difference in long term outcomes

From the Western Vascular Surgery

Early results of a highly selective algorithm for surgery on patients with neurogenic thoracic outlet syndrome

- 79 IMEs of tTOS patients, (15 operations)
- Mean follow-up 4.2 years
- No difference in long term outcomes
Quality of life instrument:

- Quick Disability of the Arm, Shoulder and Hand (QuickDASH, QD) questionnaire*

  Scores range from 0 points (asymptomatic) to 100 (totally incapacitated).


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**nTOS Algorithm 2007-2010**

**Initial Consultation**

- Duplex
- Baseline
- QuickDASH

**Duplex**

- Baseline
- QuickDASH

**Signs/symptoms of nTOS**

- Referral to nTOS specific physical therapy *

**No signs/symptoms of nTOS**

- Further diagnostic evaluation to identify problem

- Repeat QuickDASH

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**Subjective improvement in symptoms**

- Offer surgical therapy

**Good commitment to physical therapy**

- Improvement in QD score
- Subjective improvement in symptoms

**Poor commitment to physical therapy**

- No improvement or worsening of QD score

- No surgical intervention offered

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**Physical Therapy & Rehabilitation in nTOS**

A Patient Directed Treatment Approach

By Peter I Edgelow, PT, DPT

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**The VIEW from INSIDE**

- Movement of the Brachial Plexus w
  - Inhalation = Brachial plexus lengthens
  - Movement with inhalation-exhalation-neck rotation and side bend with or without arm movement!
ANALYSIS I
Period 2

After Physical Therapy

Good commitment to physical therapy
Improvement in QD score
Statistically significant
improvement to operations

Poor commitment to physical therapy
No improvement or worsening of QD score

Offer surgical therapy
n=21

Nonsurgical therapy
n=2

No surgical intervention offered

SURG

NONSURG

Analysis I

<table>
<thead>
<tr>
<th>PERIOD 2</th>
<th>SURG</th>
<th>NONSURG</th>
<th>P</th>
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</thead>
<tbody>
<tr>
<td>WORKUP</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Duplex obliteration of thoracic outlet</td>
<td>81.8%</td>
<td>61.8%</td>
<td>.27</td>
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<tr>
<td>QuickDASH Score (pre-physical therapy)</td>
<td>58.1</td>
<td>52.8</td>
<td>.33</td>
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<tr>
<td>Months of Physical Therapy</td>
<td>4.6</td>
<td>4.0</td>
<td>1.0</td>
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<tr>
<td>QuickDASH Score (post-physical therapy)</td>
<td>45.3</td>
<td>50.6</td>
<td>.58</td>
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<tr>
<td>Improvement after PT (% of patients) *</td>
<td>83.3%</td>
<td>25.7%</td>
<td>&lt;.0001</td>
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<tr>
<td>Mean improvement in QuickDASH disability score (Δ)†</td>
<td>12.8</td>
<td>2.8</td>
<td>.032</td>
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</tbody>
</table>

Individual QD improvement

Surgical Outcomes- Period 2
Summary

• Highly selective algorithm led to operative decompression in 40% of patients evaluated
• Highly selective algorithm met with improved success
  - 90% vs. 56%
• Possible predictors of improved outcomes:
   Younger age
   Competitive athletics
   Improvement after TOS-specific physical therapy
   Breathing, posture, patient-directed therapy