An Osteopathic Approach to Carpal Tunnel Syndrome

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Osteopathic Approach

"Acquaint yourselves with all structures by a deep and continued study of anatomy, because on this foundation you must stand or fall."
Dr. A. T. Still
Osteopathic Approach
- Problem solve with a neuromusculoskeletal model in mind
  - Neurological
  - Fluid
  - Mechanical

Neurologic Component -Sympathetic and Somatic
- Reduce sympathetic tone to the upper extremity
  - Correct upper thoracic and upper rib dysfunctions
  - Correct cervical somatic dysfunction to improve nerve root and brachial plexus function
  - Address any "double crush" component at neck, thoracic outlet or shoulder/brachial plexus
  - Address any restriction in the interosseous membrane of the forearm
  - Reduce any compressive forces on median nerve

Fluid Component
- Remove myofascial restrictions thereby removing potential sites of additional compression.
  - Cervical
  - Thoracic outlet
  - Upper extremity
Mechanical

• Increase space within the carpal tunnel
  • Direct fascial release techniques to wrist
  • Utilizing wider proximal wrist flexor tendons to dilate carpal tunnel
  • Correct any ligamentous strain

Carpal Tunnel Syndrome

• Entrapment neuropathy of the median nerve caused by compression and irritation the nerve as it passes through the carpal tunnel
  • Pain and tingling in distribution of median nerve
  • Can progress to atrophic changes

Symptoms

• Pain and paresthesias in the thumb, index and long fingers
  • Aching can spread to forearm, arm, shoulder, and rarely to the neck
  • Early pain is transient, later continuous
Symptoms

- Aggravated by provocative activities
- Often occurs while sleeping
- Vague weakness or mild subjective loss of coordination
- Obvious weakness/atrophy is a late presentation

Differentiating CTS from Cervical Radiculitis

- Study in the journal *Hand Surgery* compared patients who had surgery for cervical spondylosis with those for CTS (after excluding cases of co-morbidity)
- CTS vs. cervical spondylosis
  - Nocturnal paresthesia 84% vs. 10%
  - Hand paresthesia aggravated by hand activity 82% vs. 7%
  - Hand pain 64% vs. 10%
  - Neck Pain 46% vs. 76%

Physical Exam

- Median nerve sensory deficit
  - Often splitting along the long or ring finger
  - Fascial restrictions at the wrist
  - Loss of the normal 15-30 degrees of resting ulnar deviation at wrist
Carpal Tunnel Syndrome

- Provocative testing (3 of my favorites)
  - Tinel test at the carpal tunnel
  - Phalen’s test
  - Carpal compression test (Durkin’s)
- Muscle wasting
  - Thenar atrophy

Median Nerve Supply – Somatic and Sympathetic
Importance of Interosseous Membrane in Wrist Dysfunction

- The interosseous membrane plays an important role in wrist mechanics and function/dysfunction
- Treatable with OMT, including LAS and BLT

Wrist/Forearm Techniques for Today

- While there are many possible OMM techniques for treating CTS, today we will focus on primarily two:
  - Direct myofascial release (Dr. Sucher)
  - LAS technique for the wrist
- Other options to consider are:
  - Counterstrain to the forearm flexors
  - Still Technique to anterior wrist
  - Muscle energy technique for radial head dysfunctions (pronation/supination)
  - HVLA for wrists articular dysfunctions
  - LAS for forearm/interosseous membrane

Direct Myofascial Release of Carpal Tunnel – Sucher Technique
A (“Still-ish”) Ligamentous Articular Strain for CTS

- LAS
  - Disengage
  - Exaggerate
  - Balance
- Still
  - Indirect, then direct
  - With force vector

From Ligamentous Articular Strain, by Speece and Crow

Step one

Step two

Summary Slide
One Possible CTS OMT Sequence

- Patient seated/supine
  - Thoracic – T1-5
  - Ribs – T6-L5
- Patient supine
  - Cervical
  - Scalenus
  - Thoracic outlet
  - Forearm and wrist

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CTS Techniques for Today

- [Image of CTS techniques]

- [Image of CTS techniques]

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