

Carpal Tunnel Syndrome Update

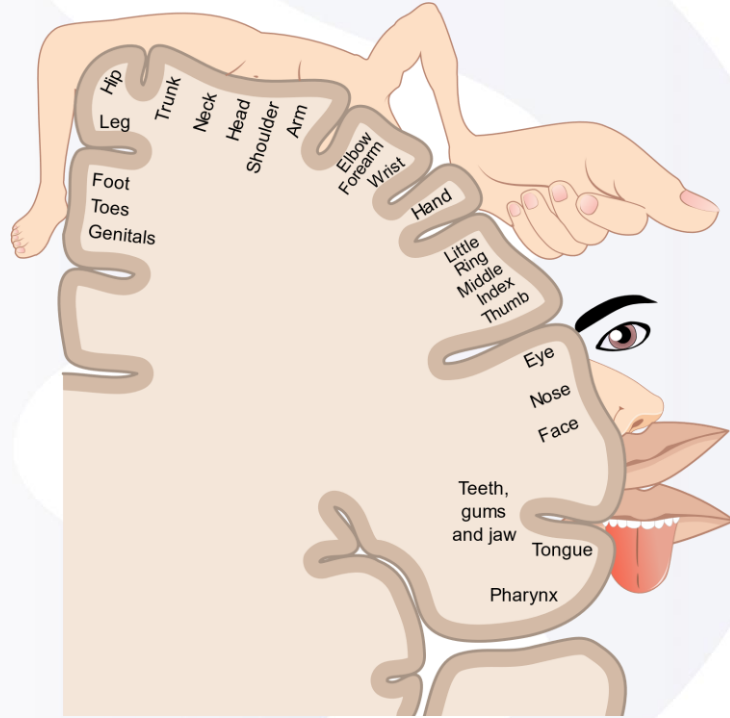
Michael L. Mara M.D.

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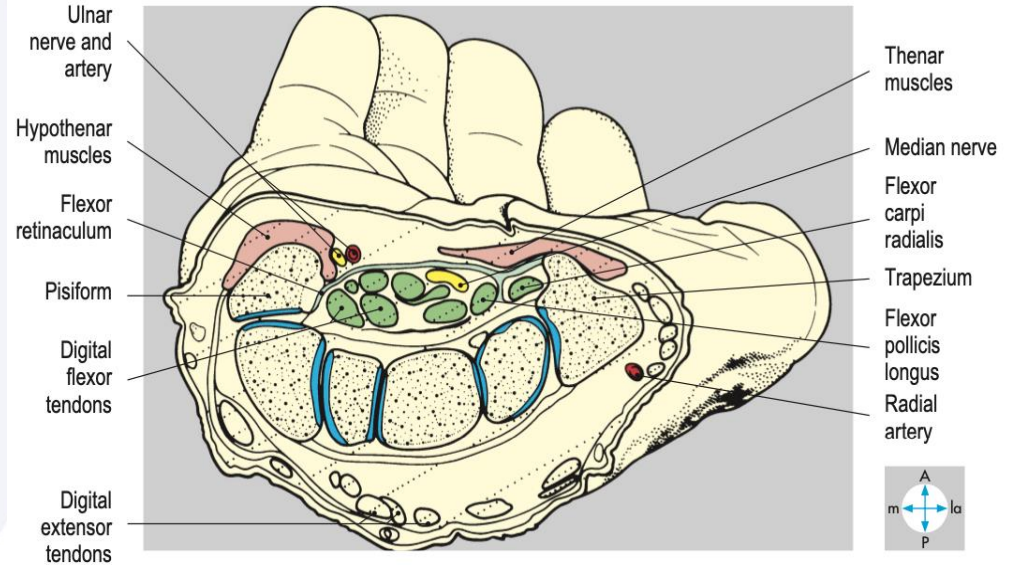
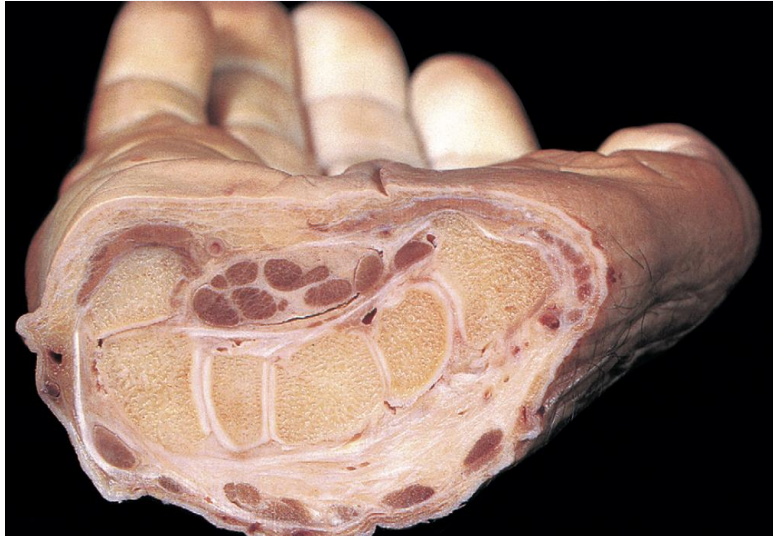
Carpal Tunnel Syndrome Update

- Anatomy
- Review of Symptoms/Demographics/Associations
- Diagnosis
- Treatment

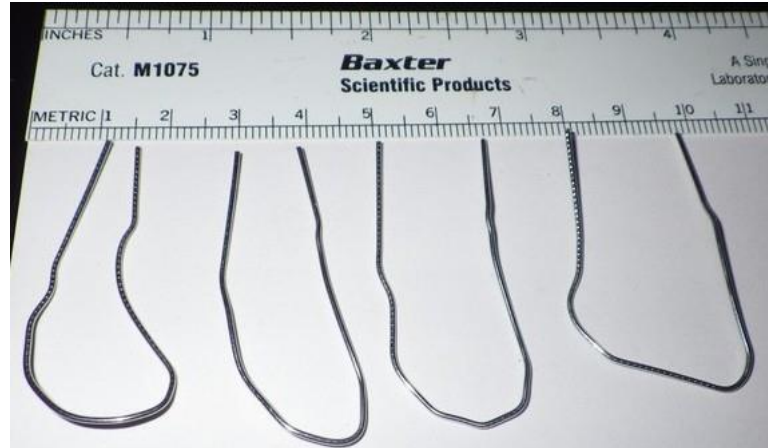
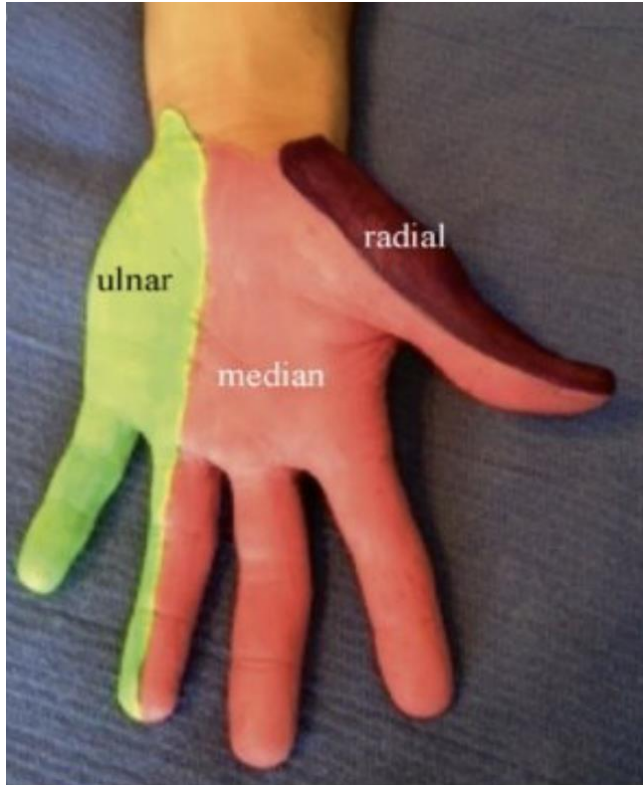
Carpal Tunnel Syndrome: Anatomy



Carpal Tunnel Syndrome: Anatomy



Carpal Tunnel Syndrome: Anatomy



Carpal Tunnel Syndrome: Symptoms and Demographics

- Compression of the Median Nerve at the wrist
 - Pain, numbness, tingling, clumsiness, weakness
 - Worse at night, driving, vibratory tools
- Female Gender, Increasing Age, Thyroid Disorder, DM, Obesity, Inflammatory Disease, Pregnancy, Renal Failure (amyloidosis)
- Computer Use???

Carpal Tunnel Syndrome: Diagnosis

Differential Diagnosis:

- Cubital Tunnel Syndrome (ring/small fingers)
- Cervical Radiculopathy (neck/arm pain)
- Peripheral Neuropathy (glove distribution)
- Arthritis (pain>>>paraesthesia)
- Overuse/Tendonitis (pain/activity related)
- Raynaud's (cold/vibration exposure)
- DeQuervain's Tendonitis (pain on thumb-side of wrist)

Carpal Tunnel Syndrome: Diagnosis

Patient Factors Can Be Use To Diagnosis CTS With A High Degree of Accuracy

CTS-6 Evaluation Tool

*The Value Added by Electrodiagnostic Testing in the Diagnosis of Carpal Tunnel Syndrome Brent Graham J Bone
Joint Surg Am. 2008;90:2587-2593*

Symptoms and History

1. Numbness predominantly or exclusively in the median nerve territory _____ (3.5)

Sensory symptoms are mostly in the thumb, index, middle and/or ring fingers

2. Nocturnal numbness _____ (4)

Symptoms are predominantly the patient sleep; numbness wakes patient from sleep

Physical examination

3. Thenar atrophy and/or weakness _____ (5)

The bulk the thenar area is reduced or where manual motor testing shows strength of grade 4 less

4. Positive Phalen's test _____ (5)

Flexion of the wrist reproduces her worsened symptoms of numbness in the median nerve territory

5. Loss of 2 point discrimination _____ (4.5)

Failure to discriminate 2 points held 5 mm or less apart from one another, in the median innervated digits

6. Positive Tinel sign _____ (4)

Light tapping over the median nerve at the level of the carpal tunnel causing radiating paraesthesias

Total _____ (26)

>12 = 0.80 probably of carpal tunnel syndrome

>5 = 0.25 probably of carpal tunnel syndrome

>17=99% chance of CTS

Carpal Tunnel Syndrome: Diagnosis

Nerve Conduction Studies:

- Traditionally used as confirmatory exam in patients with clinical CTS or unclear diagnosis
- Highly sensitive, not highly specific
- “Asymptomatic CTS”
- Patient Issues: cost, delay, discomfort

Carpal Tunnel Syndrome: Diagnosis

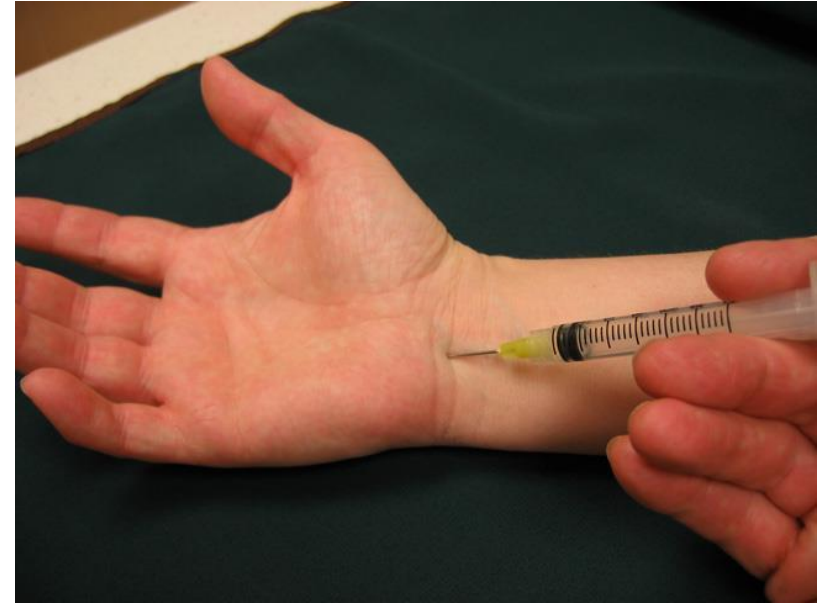
Diagnostic Ultrasound

- Promising Diagnostic Technology
- Ever more widely available
- No discomfort
- Detects increased cross-sectional area of median nerve
- Newer techniques looking at dynamic effects of finger motion
- Stiffness of connective tissues and nerve itself
- Further studies to look at age, gender, BMI, Operator Dependency

Carpal Tunnel Syndrome: Diagnosis/Treatment

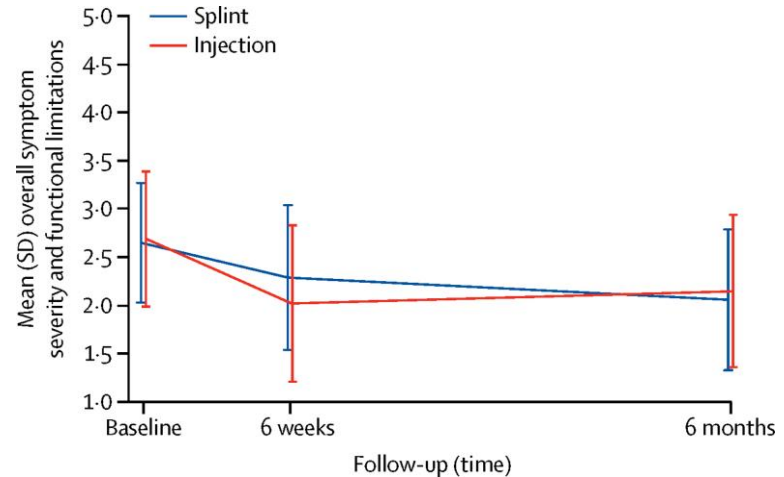
Cortisone Injection

- Highly Effective
- Low Risk
- Excellent diagnostic value
- Excellent predictive value



Carpal Tunnel Syndrome: Conservative Treatment

- Brace, Injection
- Physio, Vitamin B6, Therapeutic U/S, Acupuncture, Laser Not Effective
- Yoga?
- Injection>Brace
- Longer duration -> less effective
- Older/DM->less effective
- Obstetrical CTS: highly effective



Carpal Tunnel Syndrome: Surgical Treatment



Open vs Endoscopic Techniques:

- Same long-term Outcomes
- Endo better short term (palm pain, RTW)
- Bilateral
- Expense

Endoscopic Carpal Tunnel Release



Carpal Tunnel Syndrome: Surgical Treatment

Long Term Results:

- 75-90% “Normal” Hands
- ECTR=OCTR
- Recurrence rates <5%
- Poor Outcomes=Palm Pain, Weakness Persistent/Recurrent Symptoms
- Revision Surgery Rare

Carpal Tunnel Syndrome: Special Cases

- Obstetrical

- Symptoms Can Be Severe
- Night Splinting
- Early Injection Highly Effective



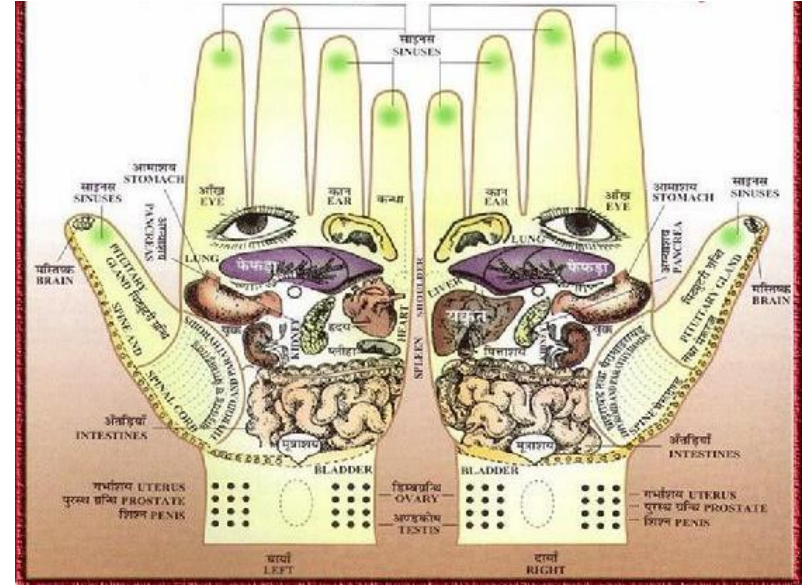
- Geriatric

- Advanced Disease
- Thenar Atrophy
- Injection/Surgery give good relief of dysesthesia/night pain



Carpal Tunnel Syndrome: Conclusions

- Diagnosis Made Clinically
 - CTS-6 Tool
- Emerging Role of NCS/US
- Brace and Cortisone Injection Effective Medium-Term
- Early Treatment Obstetrical CTS
- Geriatric Population/Dysesthesia
- OCTR and ECTR both effective





Thank You