How Do I Distinguish Between Carpal Tunnel Syndrome and De Quervain’s Disease?

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May indirectly benefit from increased referrals to our clinic, although no specific referrals will be solicited.
Objectives

- Review anatomy, patient history, exam, diagnostic imaging findings
- Review evidence-based conservative and surgical management
- Review when / where to refer (Winnipeg)
Carpal Tunnel Syndrome (CTS)
CTS - Anatomy

Typical Volar Pattern

Typical Dorsal Pattern

(Source: http://ars.elscdn.com/content/image/1-s2.0-S0025712508001326-gr1.jpg)

(Source: http://upload.wikimedia.org/wikipedia/commons/7/77/Musculusabductorpollicisbrevis.png)
CTS - History

✧ Most common focal neuropathy
✧ Women > Men (especially ages 40-60)
✧ Diabetes, RA, Obesity, Smoking
✧ Pregnancy, menopause, estrogen use
✧ Vibrating tools, repeated forceful gripping

(Calandruccio & Thompson, 2018; D’Arcy & McGee, 2000; Leblanc & Cestia, 2011)
CTS - Examination

✦ Variety of clinical tests with varying sensitivity and specificity

✦ Multiple positives = more compelling
CTS - Examination (Motor)

“The Abductor Pollicus Brevis (APB) Test”

(D’Arcy & McGee, 2000)

Abductor Pollicus Brevis Wasting

(Source: http://www.onmedica.comgetresourceid=658c7oce-b169-42a4-8087-665497f9affd)
CTS Examination - Durkan’s

✦ Apply pressure over carpal tunnel for 30 seconds

✦ Positive: Numbness/tingling in median distribution

✦ Sensitivity 87%

✦ Specificity 90%

(Source: Author) (Calandruccio & Thompson, 2018)
CTS Examination - Tinel’s

✧ Percuss median nerve just distal to wrist crease

✧ Positive: Numbness/tingling in median distribution

✧ Sensitivity 62%

✧ Specificity 93%


(Skirven, 1996)
CTS Examination - Phalen’s

✧ Passive wrist flexion 30-60 seconds

✧ Positive:
  Numbness/tingling in median distribution

✧ Sensitivity 68-70%

✧ Specificity 73-83%

(Source: Skirven, T. Clinical Examination of the Wrist. J Hand Ther. 1996 Apr-Jun;9(2);96-107)

Calandruccio & Thompson, 2018; D'Arcy & McGee, 2000)

(Source: Author)
CTS - Electrodiagnostic Testing

✧ Often required by third party payers

✧ **Nerve Conduction***: impaired conduction of median nerve across carpal tunnel

✧ **Electromyography (EMG)**: usually assesses pathologic changes in Abductor Pollicus Brevis, more used if other neuropathy/radiculopathy suspected

✧ Sensitivity 49-84%, specificity 95-99%

(Calandruccio & Thompson, 2018)
**CTS - Management**

- **Mild to Moderate**: consider 3-6 months of conservative management (splinting, injection)
- **Severe**: consider surgical evaluation

(Leblanc & Cestia, 2011; Wiperman & Goerl, 2016)
CTS Management - Splinting

- Mild to moderate CTS
- 8-12 weeks of nightly splint use
- Unclear if custom more effective than off-the-shelf
  - Sweating
  - Comfort
  - Insurance coverage

(Source: Author)

(Hall et al., 2013; So, Chung, Cheung & Yip, 2018)
CTS - Injection

- Only one RCT comparing splinting vs methylprednisolone acetate premixed with lidnocaine (mild to moderate CTS)
- Equally effective on Boston Carpal Tunnel Questionnaire
- But injection yielded better hand function scores

(So, Chung, Cheung & Yip, 2018)
CTS - Injection

✧ As effective as splinting
✧ Repeat injection after 6 months
✧ Delay surgery up to 1 year

(Source: specialistphysio.com)

Wiperman & Goerl, 2016)
CTS - Surgical Intervention

✦ Results favorable up to 9 years post-op even in severe cases

✦ Two portal endoscopic vs open release:
  ✦ Endoscopic: less post op pain
  ✦ Both equivalent for scar pain, patient satisfaction and recurrence rate at 5-yrs post op

(Atroshi et al, 2009; So, Chung, Cheung & Yip, 2018; Tang, Lai & Tay, 2017)
De Quervain’s Disease

“New Mom Thumb”
“Baby Wrist”
“Washerwoman’s Syndrome”?  
First Dorsal Compartment Tendinopathy
De Quervain’s Disease

(Source: Author)

(Source: http://3.bp.blogspot.com/-Y76uWzfJ2uQ/T2iAkZmZgPI/AAAAAAAAA4A/o0dmhmZdDhA/s1600/asb2.jpg)
De Quervain’s History

Three Groups of Patients:

✧ Anatomical
✧ Pregnancy/lactation
✧ Mechanical
De Quervain’s History

- Anatomical variations:
  - Septum between APL and EPB (30%-60%)
  - Multiple tendon slips of APL
  - More prone to De Quervain’s


(Mirzanli et. al., 2012; Orlandi et. al., 2014 Scheller, 2009; Vuillemin et. al., 2012)
De Quervain’s History

- Pregnancy / Lactation
- ? d/t fluid retention, hormones
- Mechanical stress of infant care
- Self limiting with cessation of lactation

(Avci et. al., 2002; Orlandi et. al., 2014; Peters-Veluthamaningal et al., 2009; Scheller, 2009)
Degenerative:
- Intrinsic, degenerative mechanism rather than extrinsic inflammatory
- Thickened sheath
- Increased ground substance (Scheller, 2009)
De Quervain’s - Examination

✧ Finkelstein’s Test
✧ Eichoff’s Test
✧ WHAT Test

(Avcı et. al., 2002; Peters-Veluthamaningal et al., 2009; Scheller, 2009)
Finkelstein’s Test

✧ Often described incorrectly!

✧ Ulnar deviation with longitudinal traction

✧ Sensitivity: ?

✧ Specificity: ?

(Source: Goubau et al., 2014)
Eichoff’s Test

- Often mislabeled as Finkelstein’s Test
- Passive Thumb Opposition with Ulnar Deviation
- Sensitivity: 89%
- Specificity: 14%

(Source: Goubau et al., 2014)
WHAT Test

- Wrist in flexion
- Resist thumb palmar abduction

- Sensitivity: 99%
- Specificity: 29%

(Source: Goubau et al., 2014)
De Quervain’s is primarily a clinical diagnosis

- Fluid in tendon sheath
- +/- tendon sheath thickening
- Low-signal intensity within tendon sheath = fibrosis = poorer prognosis

(Source: Jbara, Patnana, Kazmi & Beltran; 2014)
De Quervain’s - Splinting

✧ Best for more mild cases
✧ Short to midterm benefit demonstrated (moderate evidence)
✧ Contradictory evidence re: combining with steroid injection
✧ No studies comparing custom vs off-the-shelf splints

(Huisstede, Gladdines, Randsdorp & Koes, 2017; Richie & Briner, 2003; Weiss et. al.; 1994)
De Quervain’s Management - Splinting

(Source: Author)

~$60

(Source: dme-direct.com)

~$95

(Source: Author)

~$95
De Quervain’s Management - Injection

✧ Short to midterm benefit demonstrated (moderate evidence)

✧ Superior to splinting alone

✧ Contradictory evidence re: combining with splinting injection

✧ Not as beneficial in females, obesity

✧ Suggestion that US guided is superior, particularly if septum is present

(Huisstede, Gladdines, Randsdorp & Koes, 2017; Oh, Messing, Hyrien & Hammert, 2017; Orlandi et. al., 2014; Richie & Briner, 2003; Weiss et. al.; 1994)
Before considering Sx:

- 4-6 months of conservative tx
- 1-3 cortisone injections (in both APL, EPB*)
- Last resort treatment *(Scheller et al., 2009)*
De Quervain’s Surgical Release

🔹 If septum present, both APL EPB released
🔹 Favorable outcomes in the long-term (16 years)
🔹 High patient satisfaction
🔹 Dorsal radial sensory nerve lesion more common in open procedure vs. endoscopic

(Kang, Hahn, Kim & Choi, 2011; Scheller, 2009)
Hand Therapy

✧ **Public (**Splinting = OT**): HSC

✧ **Private:** EastCity Physiotherapy, Green Hand to Shoulder Physiotherapy, Foundation Rehabilitation Services, Centric Health

✧ “Splinting as required” on referral, please
Injections/Surgery

✧ Sports Medicine:
  ✧ Pan Am (* US guided - Dr. H. Peters)
  ✧ Legacy

✧ Plastic Sx (Hands)
✧ Ortho Sx (Hands)
Electrodiagnostic Testing

- Riverview Health Centre
- Health Sciences Centre
- St. Boniface Hospital
- Deer Lodge
- Private Neurologist
- Private Physiatrist
References


References


