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Hydroneurolysis: A Non Invasive Carpal Tunnel Release and Therapeutic Recovery
Krysta M. Rives BS,COTA/L,CKTP

Course objectives
At the completion of this course participants will be able to:
- Distinguish between invasive and non-invasive carpal tunnel release
- Identify common therapeutic interventions post carpal tunnel release procedure
- Recognize assessments used to track recovery of carpal tunnel release.
Agenda

- This is an introductory course which requires review of the basics.
- Overview of CTS
- Anatomy of the wrist
- Assessments
- Overview of traditional surgical interventions
- Overview of Hydroneurolysis
- Hydroneurolysis therapeutic recovery
- Evidence

Carpal Tunnel Syndrome

What is Carpal Tunnel Syndrome?
Signs and symptoms

- Numbness and pain
- Burning sensation
- Muscle weakness
- Muscle wasting
- Hand cramping
- Disrupted sleep
- Impaired sensation

Anatomy of the wrist

- Median nerve
- Flexor tendons
- Transverse carpal ligament
- Carpal tunnel

Median nerve

![Diagram of the median nerve with labels for various nerves and structures.](https://i44iwz2fz8wz9z9q.wzsqw8e.com/wp-content/uploads/2013/11/brachial-plexus-arms.jpg)

Tests

- Phalen’s
Tests

- Tinel’s

Tests

- Dynamometer
Quick DASH

- Disabilities of the arm, shoulder and hand

Semmes Weinstein
Surgery

- 1. Open release
- 2. Endoscopic release
- 3. Hydroneurolysis

Pre-op Therapy

- Therapy is typically recommended prior to any of the procedures.
Open release

- In open carpal tunnel release surgery an incision is made. The transverse carpal ligament is cut, releasing the median nerve.

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Endoscopic release

- Endoscopic surgery uses a thin tube with a camera attached called an endoscope.

- The endoscope is guided through a small incision in the wrist or at the wrist and palm.

- The endoscope allows the surgeon to see structures in the wrist without making a large incision.
Success rates

Carpal Tunnel Surgery Facts
50 – 60% Success Rate for 1st Surgery
35 – 40% Success Rate for 2nd Surgical Procedures
Carpal Tunnel comes back for over 85% of people even after a Successful Surgery
www.MyCarpalTunnel.com

Carpal Tunnel Median Nerve Neurolysis Under Ultrasound Guidance (Hydroneurolysis)

- This is a procedure, much like open surgery, but with no incision meaning decreased risk and cost.
- The median nerve is freed from its surrounding adhesions and scarring.
- The area is decompressed by utilizing fluid pressure to do what would normally be done with surgical dissection.
Hydroneurolysis

https://s3img.com/vl/5/5UWvHvHRtO/makeiddefault.jpg

Video: courtesy of Dr. Joel Kailia
Recovery

- In office procedure
- Recommend outpatient therapy
- Splinting
- Follow up visit

Splints
Splints

- Most OTC splints are wrist cock-up.

Day splints

- Wrist neutral
Night splints

- Wrist neutral that includes digits

Exercises

- Wrist ROM
- Nerve glides
- Tendon glides
- Strengthening
Modalities

- Iontophoresis with dexamethasone
- Therapeutic ultrasound
- Tens unit with conduction glove

Iontophoresis with dexamethasone can be used to decrease inflammation.
Ultrasound

Ultrasound can be used to decrease pain and facilitate healing at a cellular level.

Tens

The use of a conduction glove allows for a greater coverage area.
Ergonomics

Decrease the risk factors for developing carpal tunnel symptoms again.

Evidence

- “Most of the available research consists of case reports and retrospective studies. This low-level evidence does demonstrate that this technique could be effective.” Cass, 2016
- “There was a significant reduction in Tingling & numbness during day” Mortada et al., 2013
- “Hydrodissection of median nerve is a safe and effective procedure in management of idiopathic CTS.” Mortada et al., 2013
Evidence

“Ultrasound-guided injection with external hydronucleolysis of the median nerve is a safer, more limited procedure compared with repeat open surgery, usually performed in an office setting. This procedure limits risk, anesthesia, and operating/recovery room expenses, offering relief in 70% to 80% of cases.” Freid & Nazarian, 2017

Quick review

- Hydronucleolysis uses the pressure of an isotonic fluid from a needle to separate the nerve from the structure within which it’s being trapped.
- Benefits of this procedure include a short recovery time, decreased risk of infection, scarring and cost.
- Therapeutic interventions include modalities such as ultrasound, tens and iontophoresis; tendon and nerve glides.
Conclusion

Hydroneurolysis is an effective alternative to traditional carpal tunnel release methods.

Resources


Thank you!

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