

# Carpal Tunnel Syndrome

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# Carpal Tunnel Syndrome

- What is this Syndrome?
- Most common compressive neuropathy
- Cause unknown in most cases
- Associated commonly with repetitive strain (e.g. Tennis players, throwers)
- Associated with obesity, pregnancy, hypothyroidism, arthritis and trauma

# Contents of the Carpal Tunnel

- Flexor Digitorum Profundus (x4)
- Flexor Digitorum Superficialis (x4)
- Flexor Pollicis Longus (x1) – most radial structure
- Flexor Carpi Longus (x1)
- Median Nerve

# Branches of the Median Nerve

- Palmar cutaneous branch
- Recurrent motor branch
  - 50 % Extraligamentous
  - 30% Subligamentous
  - 20% Transligamentous

# Symptoms

- Pain and/or paraesthesia in radial digits
- Clumsiness – USUALLY sensory problem
- Severe when symptoms wake patient at night often resorting to shaking of hand or splinting or shaking of hand /wrist.

# Examination

- Examine hand, arm and neck
  - Thenar atrophy
  - Vascular exam
  - Joint ROM
- Provocative tests
  - Tinels test
  - Phalens test
  - Durkins test
- Neurological tests
  - Semmes-Weinstein vibration tests
  - Two point discrimination

# Investigations

- Nerve conduction studies
- Electromyography
- De-myelination leads to:
  - Increased latencies
  - Decreased conduction velocities
  - Decreased amplitude of motor and sensory nerve action potential
- ❖ Ultrasound Scan – Non invasive

# Non operative treatment

- Wrist splintage
- Activity modification
- NSAIDs
- Steroid Injections
  - 80% have transient improvement
  - 22% symptom free at 1 year



# Operative treatment

- Indicated if failure of conservative treatment or acute CTS following distal radial fracture
- General vs Local anaesthetic
- Tourniquet vs adrenalin
- Incision:
  - longitudinal in line with radial border of ring finger
  - Proximal limit wrist crease
  - Distal limit Kaplans line

# Operative Treatment

- Sharp dissection
  - Skin, Fat
  - Superficial palmar ligament
  - Flexor retinaculum
- Pass McDonalds under retinaculum and pass upturned scalpel blade along its length
- Use McDonalds to check complete release
- Look for peri-neural adhesions, state of the nerve.

# Operative treatment

- Complications
  - Infection, bleeding, anaesthesia, non resolution of symptoms, damage to recurrent motor branch of median nerve (progressive thenar atrophy), damage to blood vessels (palmar arch), tender scar, stiffness of hand
- Follow up
  - Dressing down after 3 days
  - Review in 6 weeks
    - Pinch strength returns after 6 weeks
    - Grip strength returns after 12 weeks