Ulnar Nerve Entrapment Syndrome at the Wrist

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CAUSES

- Usually caused by direct compression of nerve in Guyons canal
- aka ulnar tunnel syndrome, handlebar palsy, Guyons syndrome
- Causes:
  - ganglion cyst of triquetro-hamate joint (80% of non-traumatic causes)
  - hook of hamate fracture non-union
  - ulnar artery thrombosis or aneurysm
  - anomalous muscle
  - palmaris brevis hypertrophy
Guyons Canal

• Structures
  • **Floor** - tranverse carpal ligament, pisohamate ligament, pisometacarpal ligament, opponens digiti minimi
  • **Roof** - volar carpal ligament
  • **Ulnar wall** - pisiform and abductor digiti mini
  • **Radial wall** - hook of hamate

• Zones
  • **Zone 1**: Proximal to bifurcation of nerve - mixed motor/sensory symptoms
  • **Zone 2**: Surround deep motor branch. Ganglia and hook-of-hamate pathology are common causes - motor symptoms only
  • **Zone 3**: Surrounds superficial sensory branch. Ulnar artery thrombosis is common cause - sensory symptoms only
Symptoms

• Dependent on which zone of Guyons canal is affected therefore may be pure sensory, pure motor or mixed

• Sensory
  • pain and paresthesias in ulnar 1-1/2 digits

• Motor
  • paralysis of the intrinsic muscles (adductor policis, deep head FPB, interossei, and lumbricals 4 and 5)
    – weak grip strength (loss of MP joint flexion power)
    – weak pinch strength (loss of thumb adduction)
Examination

- Examine neck, arm and hand
- Tinel’s sign when percussing over Guyons canal
- Phalen’s sign positive in ring and little fingers
- Froments sign
- Jeane’s sign
- Increased 2 point discrimination
- Clawing of hand
Investigations

• Nerve conduction and electromyography
• Radiographs and CT scan – evaluation of hook of hamate fractures
• MRI - evaluation of ganglion cysts and ulnar artery aneurysms
• Doppler US - evaluation of ulnar artery thrombosis/aneurysm
Conservative management

• Wrist splintage
• Activity modification
• NASIDs
Operative Management

- Management dependent on cause of compression
- Local decompression
  - decompress ganglion cysts
  - resect hook of hamate fx
  - vascular treatment of ulnar artery thrombosis

- Carpal tunnel decompression indicated when concomitant diagnosis of ulnar tunnel syndrome and carpal tunnel decompression