

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 pollicis, 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