Honeymoon Palsy and other upper extremity Entrapment Neuropathies

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Less commonly recognized upper extremity neuropathies

• Radial motor neuropathy - Saturday night palsy; honeymoon palsy
• Suprascapular neuropathy - gymnast; volleyball servers
• Dorsal scapular neuropathy – weight lifters
• Pronator syndrome – oyster shuckers
• Anterior interosseous syndrome - post op; premarital palsy; new mom
• Deep palmer ulnar motor neuropathy - bikers; jewelers
• Radial sensory neuropathy – hand cuff; zip ties; CTS splint
HONEYMOON PALSY

DIFFERENTIATE FROM HONEYMOON SYNDROME –

CYSTITIS FROM FIRST TIME OR FREQUENT SEX ON HONEYMOON
SATURDAY NIGHT PALSY
Radial motor Neuropathy

• DRUNK AND FALLING ASLEEP IN UNUSUAL POSITION WITH PRESSURE ON UPPER ARM.

• ONE ARM HANGING OVER THE BACK OF CHAIR AT THE BAR
Radial motor neuropathy

• Clinical weakness in extensor muscles of forearm
• Weakness of finger extensors and wrist extensors
• Presents as wrist drop
• Important to examine finger flexors with wrist supported
HONEYMOON PALSY

- PRESSURE ON UPPER ARM FROM HEAD LYING ON ARM
Radial Nerve
Suprascapular Neuropathy

- ENTRAPMENT @SUPRASCAPULAR NOTCH
- SHOULDER DEEP THROBBING PAIN-OCCASIONALLY DOWN ARM
- SUPRASPINATUS-WEAKNESS SHOULDER ABDUCTION INITIAL 30 DEGREE
- INFRASPINATUS –WEAKNESS SHOULDER EXTERNAL ROTATION
- CAUSE –REPETITIVE FORCED ADDUCTION
- GYMNASTS, WEIGHT LIFTERS, VOLLEYBALL SERVERS, SWIMMERS
Suprascapular Nerve & Artery
Suprascapular Notch & Ligament
Spinoglenoid Notch
Axillary Nerve
Supraspinatus
Scapula Spine
Infraspinatus
Teres Minor
Suprascapular Neuropathy

DIAGNOSIS & TREATMENT

• EMG SHOWS DENERVATION IN SUPRASINATUS AND INFRASPINATUS

TX

• IDENTIFY PROBLEM
• AVOID CAUSATIVE ACTIVITY
• NSAID
• POSSIBLE SURGICAL DECOMPRESSION
DORSAL SCAPULAR NEUROPATHY

• Pain over the medial border of the scapula.
• Patients may also experience interscapular pain, weakness of arm abduction, and/or winged scapula.
• Sharp, stabbing, burning, or knife-like medial scapular pain, lateral arm and forearm pain, neck and back dull ache,
• Rhomboid or levator atrophy. The onset of pain can be sudden or develop slowly over time.
• Overhead work or overhead sports.
• Greatly underrecognized; increasing number of patients working out with weights or machines – particularly in the elderly
CAUSES OF DORSAL SCAPULAR NERVE ENTRAPMENT

- bodybuilders and people who require heavy overhead lifting,
- may become entrapped within the scalenus medius muscle.
- reported as a complication of the use of a spine brace for idiopathic scoliosis.
- brachial plexus block performed by the anesthetists for regional block.

Pearl: EMG is necessary to make diagnosis

Denervation in rhomboid muscles
Cheiralgia paraesthetica
Handcuff neuropathy
(Radial Sensory Neuropathy)

• Compression or trauma to the superficial branch of the Radial sensory nerve @ wrist
  • back or side of the hand at the base of the thumb, near the anatomical snuffbox.
  • Symptoms include numbness, tingling, burning or pain.
    • no motor impairment.
• Bracelet or watchband (hence reference to "wristwatch neuropathy"). It is especially associated with handcuffs commonly referred to as handcuff neuropathy.
• Carpal tunnel brace – too tight
• Direct trauma to wrist (karate chop)
• Distinguished from de Quervain syndrome (tendonitis) - not dependent on motion of the hand or fingers.

Treatment

• Symptoms commonly resolve on their own within several months when the constriction is removed; NSAIDs are commonly prescribed.\cite{3} In some cases surgical decompression is required.

Pearl: sensory distribution – similar to C6 radiculopathy
Radial sensory Anatomy
Pronator teres syndrome
(Oyster shuckers neuropathy)

• Pain on pronation of the forearm and flexion or bending of the wrist.
It is important to distinguish between pronator teres syndrome and carpal tunnel syndrome.
• Differentiate carpal tunnel syndrome, there will be no weakness or pain with pronation
• Pronator teres muscle is tender to touch.
• Carpal tunnel syndrome also do not cause neural symptoms such as numbness or tingling in the palm of the hand. In CTS this is isolated to the actual thumb and fingers.

• Pronator syndrome usually occurs after prolonged or repetitive forearm pronation (turning the palm of the hand to face downwards), accompanied by forced flexion of the fingers. In simple terms, forceful grasping with the hand and twisting at the wrist.
• Carpentry and mechanics. In sports, racket sports, rowing, and weightlifting; Oyster shuckers
• Increase in muscle bulk of the pronator teres muscle.
• Trauma to the forearm, bony abnormalities, tumors or restrictive bands of fibrous tissue and scar tissue. Interestingly,
• Four times more common in females than males!

• PEARL: NCV normal for carpal tunnel syndrome in spite of painful hand
The ligament of struthers is different from the arcade of struthers, which deals with compression of the ulnar nerve around the elbow.
Palmar ulnar neuropathy

Several subtypes occur, depending on the exact location of the lesion:

- **Distal deep palmar motor lesion**: Affects all muscles supplied by the deep palmar motor branch except the hypothenar muscles;
- **Proximal deep palmar motor lesion**: Affects all ulnar-innervated hand muscles, including the hypothenar muscles, with the exception of the palmaris brevis; the superficial branch containing the sensory fibers and motor innervation to the palmaris brevis is not affected.
- **Proximal canal lesion**: Affects all branches of the ulnar nerve, including the proximal and distal deep palmar motor and the superficial branches which contain the sensory fibers and motor innervation to the palmaris brevis.
- **Superficial branch lesion**: Affects only the superficial branch, which is primarily sensory. Note that while the palmaris brevis muscle is affected, this is not clinically apparent.
Ulnar nerve Palmar anatomy
Ulnar palmer neuropathy

• Bikers; Jewelers
• Carpenters, machinists, electricians, waiters
• Pressure on the palm from tools or force from pounding palm
Anterior interosseous syndrome

- Kiloh-Nevin syndrome - anterior interosseous nerve (AIN),
- Motor only branch of the median nerve
- Pain in the forearm
- Weakness of the pincer movement of the thumb and index finger.
- Poorly localised pain in the forearm
- No cutaneous sensory branch.
- Injuries of the forearm with compression of the nerve is the most common cause
- Fibrous bands or arcuate (curved) ligaments may entrap the median as well as the anterior interosseous nerves, in which case a patient may experience numbness as well as pain.
- Differentiate - can be caused by more proximal lesions, such as brachial plexus neuritis.
Anterior Interosseous Nerve Syndrome
ANTERIOR INTEROSSOUS SYNDROME

• Long flexor muscles of the thumb (FPL), index and middle finger (FDP) as well as pronator quadratus (PQ).

Pearl:

EMG – denervation in Flexor pollicis longus and flexor digitorum profundus and pronator quadratus muscle

Since pure motor, commonly mistaken as finger ligament problem
ANTERIOR INTEROSSEOUS SYNDROME

• Pressure on forearm – head leaning on forearm; post surgery – lying on side with pressure on forearm
• Supracondylar fractures and other injuries inclusive of dislocations.
• Thrombosis of the radial and/or ulnar arteries can also cause nerve compression.
• Direct injury or trauma can also cause nerve compression.
• Fibrous bands or arcuate ligaments can also compress the anterior interosseous nerves causing pain.
• Patients with rheumatoid disease and gouty arthritis are more prone to developing anterior interosseous syndrome.

Pearl: EMG – denervation in Flexor pollicis longus and flexor digitorum muscle
Classification of nerve injuries

Axonotmesis
Neurotmesis
Neuropraxia
Axonotmesis

• Severe compression or stretch
• Wallerian degeneration begins in 48 hours
• Distal portion of nerve excitable in 4-10 days
  • Regeneration 8-9 mm /day in arm
  • Regeneration 1-2 mm /day in hand
Neuropraxia

• Focal demyelination without axonal damage
  • Electrophysiologic block
    • Slow NCV
  • Remyelination in weeks to months
Neurotmesis

• Severe stretch or laceration
• Tearing of nerve and connective tissue
• Surgical exploration only way to distinguish
  • Surgical repair frequently necessary
Final Pearl

Value of Electromyography (EMG)
Nerve Conduction Study (NCV)

• Pearl: EMG studies will be abnormal only if there is actual nerve damage; if nerve is irritated only – studies frequently normal
  (I.E. banging funny bone – NCV will be normal until repeated trauma damages ulnar nerve)
THE END
thank you all!