

## HAND AND WRIST EXAMINATION

### INSPECTION

- Swelling
- Erythema
  - *Palmar erythema associated with portal hypertension, chronic liver disease, pregnancy, rheumatoid arthritis, thyrotoxicosis, etc.*
- Atrophy
  - *Thenar and hypothenar*
  - Interossei muscles
  - Dupuytren's contracture
    - *Caused by thickening and puckering of the palmar fascia*
    - *Non-specific, but associated with diabetes, epilepsy, alcoholism, liver disease or cirrhosis*
- Deformities
  - **Osteoarthritis**
    - Squaring of the wrist
    - Bouchard's nodes (PIP)
    - Heberden's nodes (DIP)
  - **Rheumatoid arthritis**
    - Joint swelling (DIPs are spared)
    - Prominent ulnar head
    - Radial deviation of wrist
    - Ulnar deviation and subluxation of the MCPs
    - Swan neck deformity (PIP hyperextension with DIP flexion)
    - Boutonniere's deformity (PIP flexion with DIP extension)
  - **Psoriatic arthritis**
    - Any joint involved including DIPs
    - Dactylitis (sausage digits)
- Scars and skin changes
  - Psoriasis
  - Psoriatic nail changes: pitting, onycholysis
  - Gouty tophi
  - *Vasculitis: splinter hemorrhages (nail beds), peri-ungal infarcts*
  - Scars (such as from a median nerve release procedure)

### PALPATION

- Check for warmth and systematically palpate bones and soft-tissues for tenderness
- Ulnar head, ulnar styloid
- Triangular fibrocartilaginous complex (TFCC) (between ulnar head and carpal bone)
- Abductor pollicis longus and extensor pollicis brevis (DeQuervain's tenosynovitis)
- Anatomical snuffbox
  - Floor of snuff box formed by scaphoid
  - Tenderness may suggest fracture
- Pisiform, Hook of hamate
- Metacarpals (swelling and point tenderness can be found with a fracture)
- **Wrist effusion**
  - Using one's thumbs, palpate radio-carpal joint space
  - Check for tense or boggy sensation (effusion) and slide thumbs over radial joint line (if indistinct, this suggest synovitis or effusion)

- Try to ballot fluid between one's thumbs
- **MCP Effusion**
  - Joint line is 1 cm distal to tip of knuckle with MCP flexed
  - Use 4-finger technique: middle fingers to support the underside, tip of thumbs to palpate joint line
  - Check for tenderness, fullness; try to ballot fluid between thumbs
- **PIP and DIP Effusion**
  - 4-finger technique: thumb and index of one hand on the dorsal and volar aspect, while using the thumb/index of the other hand to feel the sides of the joint
  - Check for tenderness, fullness; try to ballot fluid between fingers
- **Flexor tendonitis**
  - Palpate flexor tendons in palm for tenderness, check for nodules or crepitus while passively flexing and extending each finger

### RANGE OF MOVEMENT

- Quick screen: make a fist with thumb out, then extend all fingers
- PIPs: finger tuck (DIPs flex 0-80°, PIPs flex 100-120°)
- MCPs: extension (10-20°), flexion (90-100°), abduction and adduction
- Thumb
  - Flexion, extension, adduction, abduction, circumduction
  - Opposition (touch thumb to tip of each finger)
- Wrists
  - Flexion (70-90°)
  - Extension 70-90°
  - Radial and ulnar deviation
  - Supination, pronation, circumduction
  - **Tuck sign**
    - During active wrist/finger extension, look for a bulge forming on the dorsal aspect of the wrist
    - This is found with extensor tenosynovitis

### SPECIAL TESTS

- **Stability Testing**
  - **Wrist**
    - Stabilize forearm, grasp hand and gently try to subluc wrist up and down
  - **Piano key sign**
    - Hold patient's hand while gently pressing down the ulnar head
    - If it depresses and comes back up like a piano key, this indicates disruption of the (distal) radioulnar ligament (found in rheumatoid arthritis)
  - **MCPs**
    - With MCPs flexed, try to subluc proximal phalanx anteriorly and posteriorly (similar to anterior-posterior drawer test of the knee; small amount of movement normal)
    - **Collateral ligaments at the MCPs**
      - With the MCPs flexed try move the finger to each side (varus and valgus stress)
      - There should be little or no movement
  - **IPs**
    - Apply varus and valgus stress to assess collaterals

- **Carpal Tunnel Syndrome**
  - **Phalen's sign**
    - *Patient holds wrist in complete flexion by holding dorsal surfaces of hands together for approximately one minute*
    - If burning or paresthesias over the first, second, third or fourth fingers occurs, this suggests **carpal tunnel syndrome**
  - **Tinel's sign**
    - *Tap at the median nerve at the inside of the wrist*
    - If burning or paresthesias occur over the thumb, index, and middle finger, this may indicate **carpal tunnel syndrome**
- **DeQuervain's tenosynovitis**
  - **Finkelstein's test**
    - *This is caused by inflammation of the sheaths of the abductor pollicis longus and extensor pollicis brevis tendons*
    - *Patient makes a fist with the thumb in, then examiner passively moves the wrist into ulnar deviation*
    - Sharp pain along the radial aspect of the wrist indicates **DeQuervain's tenosynovitis**

## NEUROLOGICAL SCREEN

- **Power assessment**
  - Grip strength: power across MCPs, PIPs, DIPs
  - Finger extension, flexion
  - Dorsal interossei (abduct fingers against resistance): Ulnar nerve
  - Palmar interossei (adduct fingers against resistance): Ulnar nerve
  - Thumb abduction, flexion, opposition: Median nerve
  - Thumb extension: Radial nerve
  - Wrist flexion: Median nerve
  - Wrist extension: Radial nerve
- **Reflexes**
  - Biceps (C6)
  - Triceps (C7)
  - Brachioradialis
- **Sensory and Motor Assessment**

<b>Nerve</b>	<b>Motor</b>	<b>Sensory</b>
Median nerve	"Okay" sign	Palmar aspect of the index finger
Radial Nerve	"Thumbs up"	Dorsal side of the radial half of hand or 1st web space
Ulnar Nerve	Finger abduction	Fifth finger