Clinicoanatomical Problems – Chapter: Forearm and Hand

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> **1. A typist complains of pain, tingling, and numbness in thumb, index, and middle fingers, worsening at night.**

Diagnosis: Carpal Tunnel Syndrome
Anatomical Basis: Compression of **median nerve** beneath the **flexor retinaculum**.
Key Features:

- Numbness in lateral 3½ fingers.
- Wasting of thenar muscles.
- Loss of thumb opposition.
  Tests: *Phalen's* and *Tinel's signs.*
  Treatment: Surgical decompression of flexor retinaculum.

> **2. A carpenter has weakness in gripping and adduction of fingers with sensory loss in medial 1½ digits.**

Diagnosis: Ulnar Nerve Palsy (at wrist or Guyon's canal).
Anatomical Basis: Compression of **ulnar nerve** superficial to flexor retinaculum.
Findings:

- Clawing of ring and little fingers.

- Flattened hypothenar eminence.
- Froment's sign positive (flexion of thumb IP joint due to adductor pollicis paralysis).

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3. A tennis player develops severe pain over lateral epicondyle on gripping a racket.

Diagnosis: *Tennis Elbow* (Lateral Epicondylitis).
Anatomical Basis: Inflammation of **common extensor origin** (especially *ECRB*).
Findings: Pain on resisted wrist extension and supination.
Treatment: Rest, physiotherapy, corticosteroid injection if severe.

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4. A golfer presents with pain and tenderness over medial epicondyle aggravated by wrist flexion.

Diagnosis: *Golfer's Elbow* (Medial Epicondylitis).
Anatomical Basis: Inflammation of **common flexor origin** (mainly *pronator teres* and *FCR*).
Findings: Pain on resisted flexion and pronation.

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5. A patient after radial head fracture cannot extend fingers but can extend wrist slightly.

Diagnosis: *Posterior Interosseous Nerve Palsy.*
Anatomical Basis: Compression in the **supinator (arcade of Frohse)**.
Findings:

- Loss of finger extension.
- Wrist extension preserved (ECRL intact).

- No sensory loss (purely motor nerve).

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6. A factory worker develops pain on lateral wrist and thumb base; Finkelstein's test positive.

Diagnosis: *De Quervain's Tenosynovitis.*
Anatomical Basis: Inflammation of synovial sheath of **abductor pollicis longus** and **extensor pollicis brevis** (1st dorsal compartment).
Test: Pain on thumb flexion and ulnar deviation of wrist.

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7. A tailor has a swollen, painful thumb; infection spreads to forearm causing "hourglass swelling."

Diagnosis: *Acute Tenosynovitis with Spread to Parona's Space.*
Anatomical Basis: Infection of **radial bursa** (FPL sheath) communicating with **space of Parona** in forearm.
Significance: Requires prompt drainage to prevent necrosis.

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8. A patient develops infection in little finger followed by swelling of palm and lower forearm.

Diagnosis: *Mid-Palmar Space Abscess with Extension to Parona's Space.*
Anatomical Basis: Infection spreads via **ulnar bursa** from tendons of *FDS & FDP* ? **mid-palmar space** ? forearm.
Symptoms: Pain on finger flexion, swelling of palm, and restricted hand movement.

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9. A cricketer presents with wrist pain and limited thumb movement after a fall on outstretched hand.

Diagnosis: *Scaphoid Fracture.*
Anatomical Basis: Fall leads to fracture across **waist of scaphoid** ? **radial artery injury** ? *avascular necrosis* of proximal fragment.
Clinical Sign: Tenderness in **anatomical snuffbox.**

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10. A typist's finger tip is swollen, red, and extremely painful; throbbing increases on flexion.

Diagnosis: *Whitlow (Felon).*
Anatomical Basis: Pus collection in **pulp space** of finger, bounded by fibrous septa ? increased tension and severe pain.
Complication: Osteomyelitis of distal phalanx if untreated.

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11. A patient presents with palmar skin thickening and flexion deformity of ring and little fingers.

Diagnosis: *Dupuytren's Contracture.*
Anatomical Basis: Progressive fibrosis and shortening of **palmar aponeurosis**.
Risk Groups: Manual laborers, diabetics, chronic alcoholics.

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12. A typist cannot extend the distal phalanx of middle finger after minor trauma.

Diagnosis: *Mallet Finger (Baseball Finger).*
Anatomical Basis: Avulsion or rupture of **extensor tendon** at DIP joint ? finger tip droops.

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13. A patient with supracondylar fracture of humerus cannot flex thumb and index finger DIP joints.

Diagnosis: *Anterior Interosseous Nerve Lesion.*
Anatomical Basis: Damage to branch of median nerve ? paralysis of *FPL* and lateral half of *FDP*.
Sign: “OK” sign defect (Pinch sign).

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14. A housewife complains of tingling in ring and little fingers, aggravated by elbow flexion.

Diagnosis: *Cubital Tunnel Syndrome.*
Anatomical Basis: Compression of **ulnar nerve** between heads of *flexor carpi ulnaris*.
Findings: Numbness in medial 1½ fingers; weakness of intrinsic hand muscles.

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15. A trauma patient has complete wrist drop with inability to extend elbow.

Diagnosis: *High Radial Nerve Injury (Spiral Groove or Axilla).*
Anatomical Basis: Lesion proximal to origin of triceps branches ? paralysis of triceps, wrist and finger extensors.
Clinical Sign: Wrist flexed, MCP joints flexed, sensory loss on dorsum of hand.

? **Summary Insight**

> The **forearm and hand** are among the most common regions for **nerve compression syndromes**, **tendon injuries**, and **infective spread** due to close fascial compartments and extensive synovial continuity.
> Early anatomical localization ensures complete functional recovery.

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