

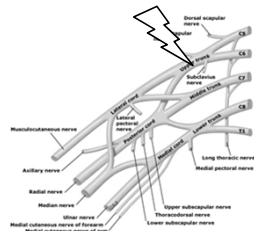
Brachioplexus and Nerve Problems in Athletes

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Brachioplexus Injuries

- **Stinger Injuries**

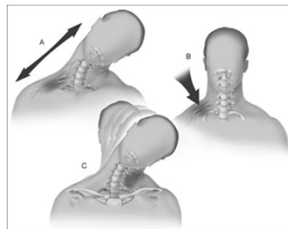
- Sudden onset of paresthesia/dysesthesia
- Usually due to a stretch injury of the C5/C6 root or superior trunk
- Most are self limited



Stinger Injury

- **Mechanism**

- A. Traction injury
- B. Direct blow
- C. Nerve compression



Stinger Injury

- **Epidemiology**

- Underreported
- Primarily Football (65%) and Rugby (72%)
- Wrestling, hockey, gymnastics, basketball, boxing



Stinger Injury

- **History**

- Trauma to neck and shoulder
- Burning pain in supraclavicular area radiating down the arm
- Frequently resolves in 1-2 min
- Prior history?

Stinger Injury

- **Physical Exam**

- Acute- will hold arm against side
- Chronic- muscle atrophy / shoulder depression
- Access for cervical tenderness!
- Sensation
- Muscle weakness C5-6
- Spurling test
- Tinel's sign



Stinger Injuries

- **Evaluation**

- Electrodiagnostic studies
- Imaging studies
 - C-spine
 - MRI
 - CT

Stinger Injuries

- **Differential Diagnosis**

- **KEY POINT:** Bilateral symptoms, cervical spine tenderness, lower extremity findings
 - C-spine fracture
 - Cervical dislocation
 - Spinal cord contusion



Stinger Injuries

- **Differential Diagnosis**

- Clavicle Fracture
- Shoulder Dislocation
- AC separation/ sprain



Stinger Injuries

- **Management**

- Improve flexibility, strength and posture
- Chest-out posturing
- Restore pain free mobility
- Concentric and eccentric strengthening program
- Sports specific therapy

Stinger Injuries

- **Protective Equipment**

- Modification of Shoulder Pads
- Neck Roll
- Cowboy Collar
- Custom Orthosis



Stinger Injuries

- **Return to Sport**

- Exam and Re-exam
- Resolution of symptoms
- Full, painless motion of neck and shoulder
- Normal strength
- Must remain asymptomatic in practice

Peripheral Nerve

- Median
- Ulnar
- Radial

Peripheral Nerve.....

- Acute injuries
- Compression neuropathy
- Chronic repetitive injury
- “Double crush” syndrome

Peripheral Nerve

- Neuropraxia
- Axonotmesis
- Neurotmesis

Peripheral Nerve.....

- **Pain**
- **Numbness and tingling**
- **Weakness**

Peripheral Nerve.....

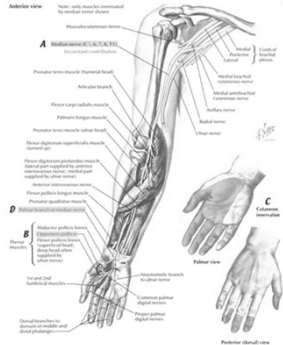
- **Weakness**
- **Sensory loss**
- **Atrophy**

Peripheral Nerve.....

- **History**
- **Physical**
- **Radiograph, EMG, and MRI**

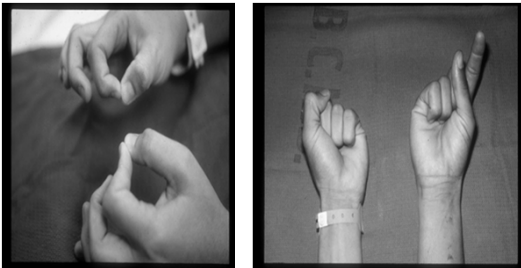
Median Nerve

- **Pronator muscle.**
- **Flexor digitorum profundus.**
- **Carpal tunnel.**



- **An eighteen year old lad develops weakness and mild pain following a direct blow to his forearm. He has no sensory deficit.**

Diagnosis: Anterior Interosseous Nerve Palsy



- **A forty year old golfer has numbness and tingling in the hand following a distal radius fracture six years ago.**

Diagnosis: Carpal Tunnel Syndrome

- **Phalen's**
- **Tinnels**
- **Dirkens compression test**



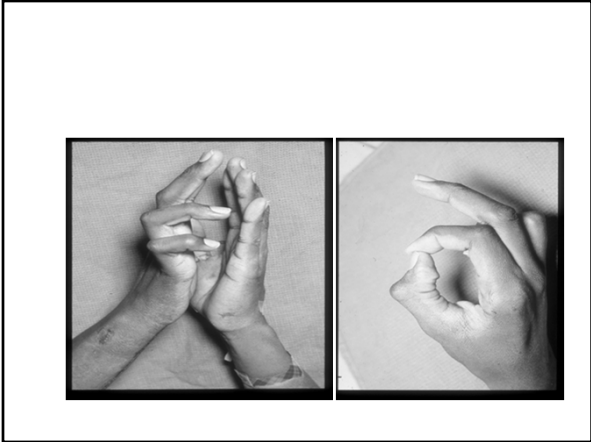
Ulnar Nerve

- **Cervical rib.**
- **Thoracic outlet.**
- **Cubital tunnel.**
- **Guyons canal.**

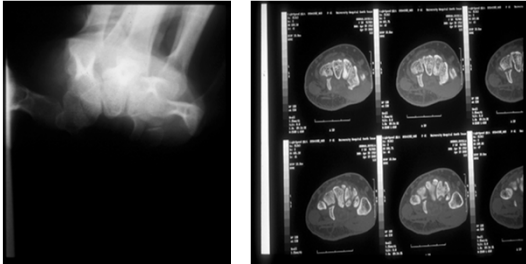


- **A forty year old recreational cyclist has a fall and develops numbness in the ring and little finger. He also has generalized weakness in the hand.**

- **Numbness and tingling in the little and ring finger, weakness in grip strength and pinch.**

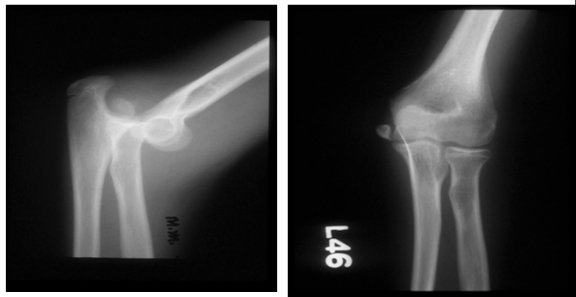


Diagnosis:
**Hook of Hamate fracture with
secondary ulnar nerve compression in
Guyon's Canal**



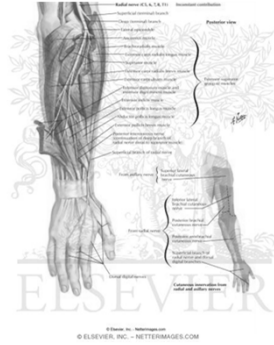
- A fourteen year old baseball pitcher falls and injures his elbow, he has pain along the inner border of his arm and weakness in his grip.

Diagnosis:
**Fracture dislocation of the elbow with
entrapment of the ulnar nerve**



Radial Nerve

- **Posterior interosseous nerve at the supinator muscle.**
- **Superficially at the wrist.**



- **An eighteen year old boxer develops pain and weakness in his arm and an inability to extend his metacarpophalangeal joints.**



Diagnosis:
**Posterior Interosseous Nerve Palsy Secondary to
Compression by soft tissue tumor**



Peripheral Nerve

- **Pitfalls in the diagnosis of peripheral nerve injuries include cervical disk disease, brachial plexus lesions, central cord or brainstem lesions.**

Thank you