Upper Extremity
Compression Neuropathy
Self-Assessment Questions

September 24, 2010

Compression Neuropathies
Question #1. 22 y o volleyball player reports insidious onset of posterosuperior shoulder pain. Shoulder radiographs are normal. Shoulder MRI shows supraglenoid cyst. What is the most specific finding on physical exam?

A. Positive impingement sign  
B. Positive apprehension sign  
C. Negative relocation test  
D. Weakness of external rotation  
E. Weakness of abduction
Question #2. 27 y o f has acute onset burning pain in her right shoulder followed by significant weakness including inability to abduct her shoulder. One week ago, she had flu-like syndrome. Exam reveals full passive shoulder ROM but inability to raise the arm overhead. Upper extremity sensory exam is normal. Cervical spine exam is normal. Radiographs of the shoulder and cervical spine are normal. What is the most likely diagnosis?

A. calcific tendinosis
B. poliomyelitis
C. discogenic cervical spine disease
D. subacromial impingement
E. brachial neuritis

Compression Neuropathies
Question #3. Isolated injury to the long thoracic nerve may result in scapular winging. This nerve is derived from which cervical root(s)?

A. C2  
B. C3-C4  
C. C5-C7  
D. C8  
E. T1  

Compression Neuropathies
Question #4. Following a posterior cervical lymph node biopsy, a patient develops shoulder pain, scapular winging and weakness of shoulder flexion and abduction. Which nerve and muscle are compromised?

A. Suprascapular - Supraspinatus  
B. Suprascapular - Infraspinatus  
C. Long thoracic - Serratus anterior  
D. Spinal accessory - Trapezius  
E. Spinal accessory - Levator scapula
Question #5. 24 y o RHD semi-pro pitcher presents for second opinion evaluation of right shoulder pain and weakness aggravated by throwing. Recent arthroscopy of his shoulder was negative for SLAP lesion and other intra-articular pathology. Exam reveals point tenderness posteroinferiorly at the joint line. Symptoms are reproduced with shoulder abducted and externally rotated. Shoulder MRI shows teres minor atrophy. Most likely diagnosis is:

A. interstitial supraspinatus tear  
B. Parsonage-Turner syndrome  
C. suprascapular nerve entrapment  
D. quadrilateral space syndrome  
E. long thoracic nerve injury

Compression Neuropathies
Question #6. Radial tunnel syndrome is differentiated from posterior interosseous nerve syndrome by:

A. lack of motor findings in radial tunnel syndrome
B. radial tunnel syndrome involves triceps while PIN syndrome does not
C. radial tunnel syndrome is traction injury while PIN syndrome is compression syndrome
D. radial tunnel syndrome includes EIP weakness which is not present in PIN syndrome
E. numbness of the 1st dorsal web in PIN syndrome
Question #7. Potential points of radial nerve compression in the forearm include all but which of the following structures?

A. Tendinous edge of the ERCB tendon
B. Distal edge of the supinator
C. Proximal fibrous arch of the FDS
D. Fibrous bands about the radiocapitellar joint
E. Proximal edge of the supinator
Question #8. The sensory distribution of which nerve overlaps the cutaneous distribution of the superficial radial nerve?

A. Medial cutaneous nerve
B. Medial antebrachial cutaneous nerve
C. Lateral cutaneous nerve
D. Lateral antebrachial cutaneous nerve
E. Palmar cutaneous branch of median nerve
Question #9. A 38 year-old factory worker sustained a laceration from a piece of sheet metal resulting in numbness on the dorsoradial aspect of the thumb. This most likely represents a laceration of which nerve?

A. Ulnar
B. Lateral Antebrachial Cutaneous
C. Medial Antebrachial Cutaneous
D. Superficial Radial
E. Posterior Interosseous

Compression Neuropathies
Question #10. Compression of the superficial radial nerve in the forearm (Wartenberg’s syndrome) most commonly occurs between which structures?

A. Extensor carpi radialis longus & brevis
B. Extensor carpi radialis longus & brachioradialis
C. Brachioradialis & flexor carpi radialis
D. Abductor pollicis longus & extensor pollicis brevis
E. Abductor pollicis longus & extensor pollicis longus
Question #11. Symptoms of Wartenberg’s Syndrome may be relieved by release of:

A. Osborne’s ligament and the flexor carpi ulnaris origin
B. Pronator teres
C. Supinator at the arcade of Froshe
D. Brachioradialis in the forearm
E. Ligament of Struthers
Question #12. Which of the following symptoms of carpal tunnel syndrome best correlates with finding electrodiagnostic abnormalities for CTS?

A. Nocturnal awakening  
B. Clumsiness  
C. Weakness of grip  
D. Pain in the palm and digits  
E. Stiffness of the fingers
Question #13. 50 y o f has numbness in thumb, index, middle and radial side of ring finger that wakes her at night. Symptoms have been present for one year and now she wakes several times a night. You suggest she wear a splint to immobilize her wrist while she sleeps and explain this is most likely to help:

A. limit her symptoms and improve her sleep
B. her thenar atrophy recover
C. her strength return
D. her sensibility recover
E. prevent progression of the disease

Compression Neuropathies
Question #14. The reversible paresthesia that occur at night in carpal tunnel syndrome are due to

A. swelling of the flexor tenosynovium
B. mechanical deformation
C. focal nerve ischemia
D. the flexed elbow position
E. subperineurial demyelination
Question #15. A 45 year-old part-time cashier is scheduled to undergo a right carpal tunnel release. Her pre-operative nerve conduction studies reveal sensory latencies just above normal values with normal motor studies and a normal EMG. She has had difficulties with co-workers and has been on anti-depressant medication for over one year. She rates her pain as a 10 on a 10 point pain scale. Based on current literature, what is her expected outcome?

A. It is unclear if her pain complaints and depression will affect outcomes  
B. Placing her on short term disability will resolve her work issues  
C. Her near normal nerve conduction study predicts consistently good outcomes  
D. Factors are present which may negatively affect surgical outcome  
E. While return to work may be delayed, her surgery outcomes should be equal to other patients with similar nerve conduction study findings
Question #16. A 62 year-old patient presents with ring and small finger Dupuytren’s contractures. He also has numbness in the thumb, index, long, and half the ring finger. Carpal tunnel compression test reproduces the symptoms. Which is the most appropriate course of treatment?

A. Observation
B. Carpal tunnel release
C. Partial palmar fasciectomy
D. Staged carpal tunnel release and palmar fasciectomies
E. Carpal tunnel release and palmar fasciectomies in the same operation
Question #17. Which finding is an indication for median nerve epineurotomy in addition to carpal tunnel release?

A. two-point discrimination greater than 8 mm
B. thenar muscle atrophy
C. absent sensory action potential
D. conduction velocity less than 40 m/sec
E. there is none
Question #18. A 27 year-old male suffers a transverse laceration to the volar wrist. He has no sensation in the finger pads and no active finger flexion. At surgery, a transected 3 mm diameter artery is encountered within the carpal tunnel. This finding is associated with what anomaly?

A. Duplication of the ulnar nerve
B. Failure of formation of the flexor pollicis longus
C. Heart defects, most commonly atrial septal defects
D. High bifurcation of the median nerve
E. A single nerve incorporating the function of both the median and radial nerves
Question #19. Which factor is associated with a poor level of patient satisfaction after carpal tunnel release?

A. Diabetes mellitus
B. Thyroid disorders
C. Symptom duration
D. Symptom severity
E. Age > 70 years
Question #20. A 42 year-old manual laborer presents with numbness and tingling in the median distribution of both hands. He is confused about his options regarding endoscopic versus open carpal tunnel release. Which of the following short term advantages of endoscopic release is supported by Level 1 evidence?

A. Decreased neuropraxia  
B. Faster return to work  
C. Greater relief of numbness  
D. Less scar tenderness  
E. Higher pinch and grip strength
Question #21. The most common cause of persistent symptoms following carpal tunnel surgery is:

A. peripheral neuropathy  
B. double crush phenomenon  
C. incomplete release of the median nerve at the wrist  
D. secondary compression as a result of post-operative scarring  
E. iatrogenic injury to the nerve
Question #22. Patient with cervical radiculopathy from spondylosis and median nerve compression at the carpal tunnel is scheduled for carpal tunnel release. Results for this patient compared to a patient with isolated carpal tunnel syndrome are

A. Similar
B. Greater chance of pain relief
C. Greater chance of return to regular job
D. Equivalent relief of paresthesias
E. Greater chance surgery considered a failure
Question #23. Martin-Gruber anastomosis takes place between:

A. Ulnar nerve and medial antebrachial cutaneous nerve
B. Anterior and posterior interosseous nerves
C. Anterior interosseous nerve and ulnar nerve
D. Ulnar nerve and palmar cutaneous branch of the median nerve
E. Radial nerve and lateral antebrachial cutaneous nerve
Question #24. During therapeutic carpal tunnel injection 5 months ago, there was immediate pain and paresthesia in 3rd web interval. Patient now has persistent dysesthesia and loss of 2-PD. NCS show absent sensory response from the median nerve branch to 3rd web. Which procedure will best address the symptoms?

A. Endoscopic carpal tunnel release  
B. Open carpal tunnel release  
C. Median nerve external neurolysis  
D. Median nerve internal neurolysis  
E. Treatment of median nerve neuroma
Question #25. Patient presents with persistent numbness after release of advanced carpal tunnel syndrome one year ago. He is not satisfied with the result and is seeking your opinion regarding a second operation to release the nerve. The best indication for repeat carpal tunnel

A. Hypothyroidism
B. Enlargement of the median nerve on MRI
C. Worsening on neurophysiological testing
D. Severe atrophy of the thenar musculature
E. Two-point discrimination > 1 centimeter

Compression Neuropathies
Question #26. 16 y o f cheerleader c/o forearm & hand numbness & pain with elbow hyperextension during handsprings & tumbling. She has no symptoms during normal daily activities. Numbness involves thumb, index & middle fingers. Neurologic exam is normal except for positive Tinel’s sign over distal medial brachium. Which radiographic abnormality of the elbow would explain her symptoms?

A. Fibrous dysplasia  
B. Myositis ossificans  
C. Supracondylar process  
D. Arthrosis from prior fracture  
E. Cubitus varus from prior fracture

Compression Neuropathies
Question #27. 45 y o m presents with spontaneous, insidious onset weakness flexor pollicis longus & flexor digitorum profundus to index finger. He denies numbness. Exam confirms that tendons are not ruptured. What is likely prognosis if no treatment is given?

A. Recovery of muscle function
B. Permanent weakness
C. Progression to complete paralysis of the involved muscles
D. Development of the same condition in the opposite arm
E. Development of a more generalized neurological condition
Question #28. Which is TRUE regarding the ulnar nerve within the fibro-osseous tunnel proximal & distal to the medial epicondyle?

A. Ulnar nerve follows tortuous course during elbow flexion but not extension  
B. During elbow flexion, extraneural pressure is greater than intraneural pressure  
C. Releasing the arcuate ligament (Osborne) does not decrease the intraneural pressure distally  
D. Elbow position influences the intraneural pressure but not the cross-sectional area  
E. Common flexor aponeurosis is located proximal to the medial epicondyle

Compression Neuropathies
Question #29. During operative treatment of cubital tunnel syndrome, the medial intermuscular septum

A. should be divided distal to the Arcade of Struthers
B. is usually noted to have a rich plexus of vessels proximally
C. should be excised prior to nerve transposition
D. is commonly found to be the cause of ulnar nerve compression
E. forms one wall of the cubital tunnel

Compression Neuropathies
Question #30. When comparing in-situ ulnar nerve decompression versus anterior transposition in the surgical treatment of cubital tunnel syndrome, anterior transposition affords:

A. Improved sensory recovery
B. Decreased sensory recovery
C. Improved motor recovery
D. Decreased motor recovery
E. No difference in motor or sensory recovery
Question #31. 50 y o m presents six months after medial epicondylectomy. He no longer has tingling in ring & small fingers. When he throws a football, he has pain on the inner aspect of the elbow, weakness and the elbow feels “loose.” He has no symptoms at rest. Therapy has not helped. XR show a complete medial epicondylectomy with no other findings. What is the most likely cause of his symptoms?

A. Medial antebrachial cutaneous nerve injury
B. Ulnar nerve subluxation
C. Medial collateral ligament insufficiency
D. Avulsion of flexor-pronator origin
E. Olecranon impingement

Compression Neuropathies
Question #32. 44 y o engineer presents with residual pain & paresthesias in the ulnar digits, weakness & wasting of the ulnar innervated intrinsic muscles and severe scar sensitivity after anterior subcutaneous transposition of the ulnar nerve. His original neurologic symptoms were not relieved by the primary operation. Nonoperative treatment measures have not helped. What is the most likely expected outcome after revision cubital tunnel surgery?

A. Full neurological recovery
B. Complete pain relief
C. Incomplete neurological recovery & partial pain relief
D. Partial neurological recovery & complete pain relief
E. Partial pain relief & complete neurological recovery
Question #33. Which of the following findings distinguishes compression neuropathy of the ulnar nerve at the elbow from that at the wrist?

A. Weakness of first dorsal interosseous  
B. Decreased sensation in the ring & small fingers  
C. Decreased sensation of the dorsoulnar hand  
D. Weakness of the index finger profundus  
E. Hypothenar muscle atrophy
Question #34. What is the most common cause of compression of the ulnar nerve at the level of the wrist or through Guyon’s canal?

A. Aneurysm
B. Muscle anomaly
C. Ganglion
D. Fracture
E. Thickened fascia
Question #35. A 20 year-old college baseball player presents with a two-month history of non-dominant hand pain, especially noticeable when batting. He was not aware of any discrete trauma to his hand. He primarily complains of 2 months of non-dominant ulnar-sided hand pain with paresthesias in the ring and small fingers. The radiological study most likely to identify the problem is:

A. Chest radiograph  
B. Elbow MRI  
C. Scaphoid view of the wrist  
D. Upper limb angiography  
E. Wrist CT

Compression Neuropathies
Question #36. A 23 year-old man presents with interosseous muscle weakness and numbness on the ulnar border of the right hand following trivial injury. His exam is negative for muscle wasting. He has been treated on two previous occasions for foot drop and scapular winging, both of which resolved spontaneously. Family history reveals that his mother has had carpal tunnel release and anterior transposition of the ulnar nerve. Biochemical testing reveals decreased levels of peripheral myelin protein 22. The most likely diagnosis is:

A. Neurologic hypothenar hammer syndrome
B. Multiple sclerosis
C. Conversion reaction
D. Amyotrophic lateral sclerosis
E. Hereditary neuropathy with liability to pressure palsies

Compression Neuropathies
Question #37. Which of the following compressive neuropathies is most likely to be confirmed with electrophysiologic testing?

A. Carpal tunnel syndrome
B. Pronator syndrome
C. Radial tunnel syndrome
D. Thoracic outlet syndrome
E. Double crush syndrome

Compression Neuropathies
Question #38. The rate at which an action potential is conducted along an axon is increased with the presence of:

A. Nodes of Ranvier
B. Local anesthetic
C. Decreased axon diameter
D. Nerve compression
E. Increased age of the patient
Question #39. Pathophysiologic changes resulting from peripheral nerve compression include:

A. Wallerian degeneration
B. Increased endoneurial fluid pressure
C. Increased retrograde axonal transport
D. Schwann cell proliferation
E. Thickening of the myelin sheath
Question #40. Which of the following statements is true regarding Wallerian degeneration after nerve injury?

A. Perineurium disappears  
B. Schwann cells disappear  
C. Myelin disappears  
D. Endoneurium disappears  
E. Epineurium disappears
Test Taking Hints

• Pace yourself
• Skip difficult questions
• Record answers as you go
• Answer on basis of first impression unless you have misread the question
• Correct responses have “may” or “can”
Test Taking Hints

• Incorrect responses have double negatives, sweeping generalizations ("always" or "never")
• Eliminate the wrong answers
• Guess most conservative treatment or the longest answer
• Choose the completely correct answer
• Rest before the test!

Compression Neuropathies
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