

A Case Report on the Diagnosis and Treatment of Parsonage-Turner Syndrome with Osteopathic Manipulative Treatment

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Lecture Objectives

1. Presentation of a brachial plexopathy case
2. Present the anatomical relationships of the brachial plexus
3. Present the effects of OMM on the treatment of brachial plexopathy

Case Presentation

The background features a dark, almost black, gradient on the left side that transitions into a lighter, greyish-blue gradient on the right. On the right side, there are several bright, white, diagonal light rays or beams that appear to emanate from a point on the right edge, creating a sense of depth and focus. The overall aesthetic is modern and professional.

Case Presentation

- History of Presenting Illness
 - 39 YO right-hand dominate male presented with 3 mo h/o constant numbness, tingling, and weakness in the left forearm and hand
 - Symptoms have progressively worsened
 - Patient was filing for disability at the time of presentation
 - Reported sporadic, sharp, shooting pain down the left arm that wakes him from sleep
 - Constant, severe pain between shoulder blades and neck with associated constant throbbing pain in neck and dull ache in mid-back
 - Overall discomfort: 7 out of 10 via pain diagram

Case Presentation Cont.

- Pertinent Review of Systems
 - Patient denied any recent history of illness, trauma, bowel or bladder incontinence/retention, unplanned weight loss, dizziness, light headedness, fainting, and hypermobility of neck.
- Past Medical History
 - Chronic neck and lower back pain
 - Migraines
 - Right Labral tear, 1985
 - Fibromyalgia
 - Hypoglycemia
 - Kidney Stones
 - Depression and Anxiety
 - Recent emotional trauma from being robbed in own home at shotgun-point

Case Presentation Cont.

- Past Surgical History
 - Deviated Septum, 1996
 - Ankle: bone removed from ankle, 1994
- Social History
 - Tobacco addiction: quit June 2013 but still smokes 2% nicotine with e-cig

Case Presentation Cont.

- Previous Radiologic Studies
 - Cervical spine MRI without IV contrast obtain 1 mo prior to presentation revealed:
 - Mild degenerative cervical spondylosis
 - Mild spinal stenosis at:
 - C3-C4
 - C4-C5
 - C5-C6
 - Moderate RIGHT-SIDED neuroforaminal narrowing at:
 - C3-C4
 - No significant left-sided neuroforaminal narrowing

Case Presentation Cont.

- Pertinent Neuromuscular Exam Findings:
 - Left hypothenar eminence atrophy
 - Sensory
 - Reduced left-sided light touch at dermatome levels:
 - C₄ – acromioclavicular joint
 - C₈ – medial epicondyle
 - Reduced left-sided pin prick in glove-like pattern that extended to mid-forearm as well as the medial epicondyle (C₈)
 - Reflexes
 - Triceps (C₇): 1/4
 - No spasticity or flaccidity

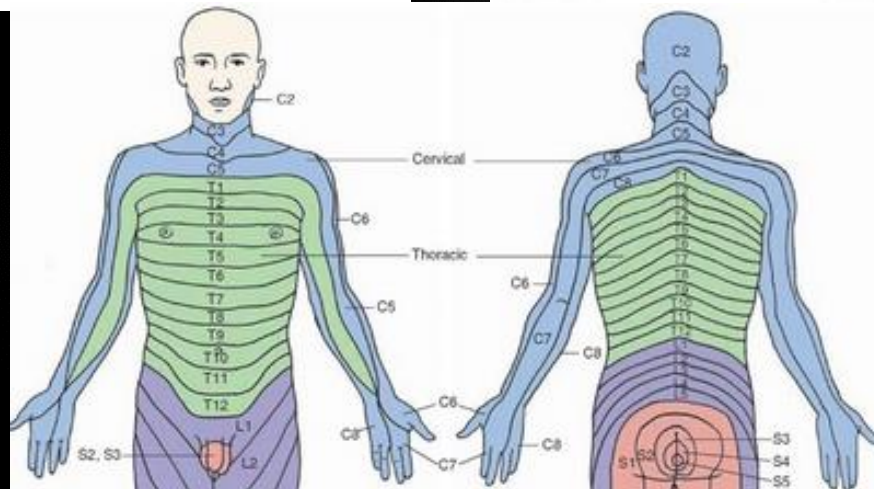
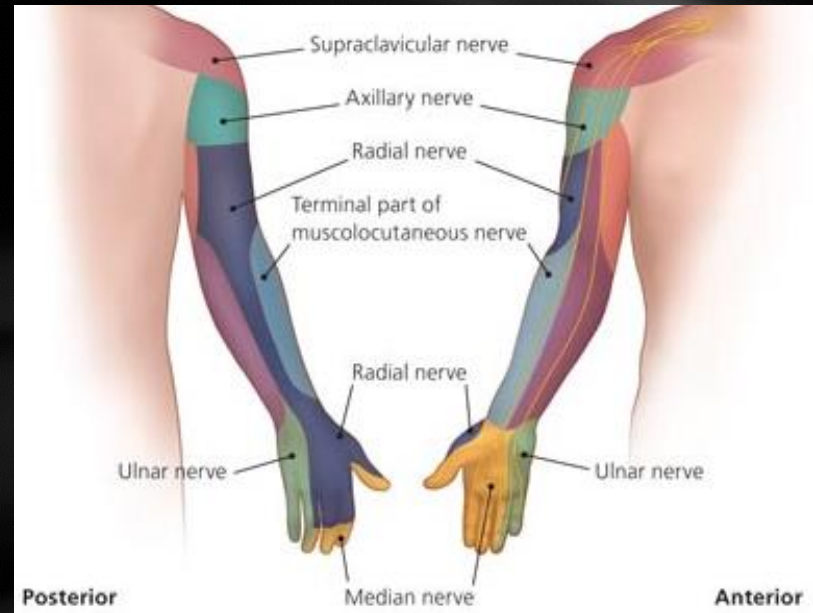
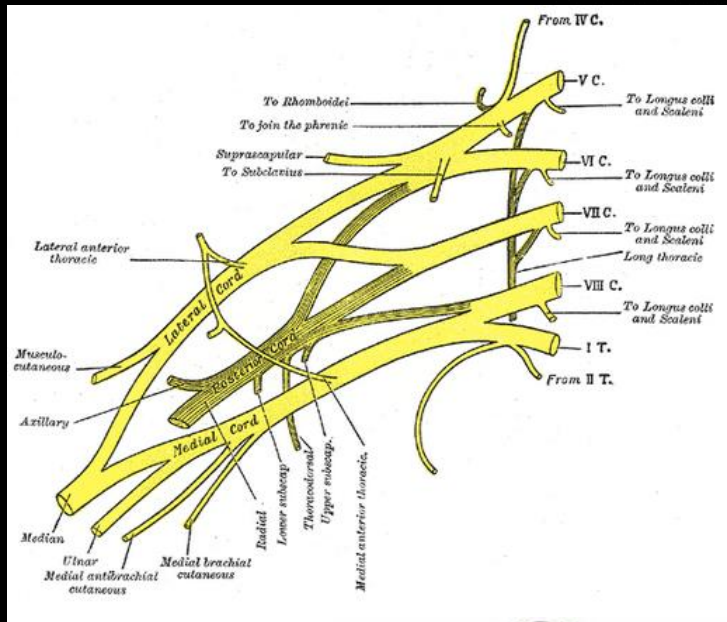
Case Presentation Cont.

- Pertinent Neuromuscular Exam Findings Cont.:
 - Muscle Strength
 - 4/5 shoulder abduction and elbow flexion due to pain
 - 5/5 elbow extension and wrist flexion
 - 2/5 wrist extension
 - 4/5 grip strength
 - < 2/5 abductor digiti minimi and first dorsal interossei
 - 3/5 abductor pollicis brevis
 - Range of Motion
 - Decreased left shoulder active flexion and extension due to pain

Differential Diagnoses

- Lower trunk brachial plexopathy affecting the lower trunk/medial cord and middle trunk/posterior cord
- C8 radiculopathy
- T1 radiculopathy
- Ulnar neuropathy
- Carpal Tunnel Syndrome
- Thoracic Outlet Syndrome

Differential Diagnoses Cont.



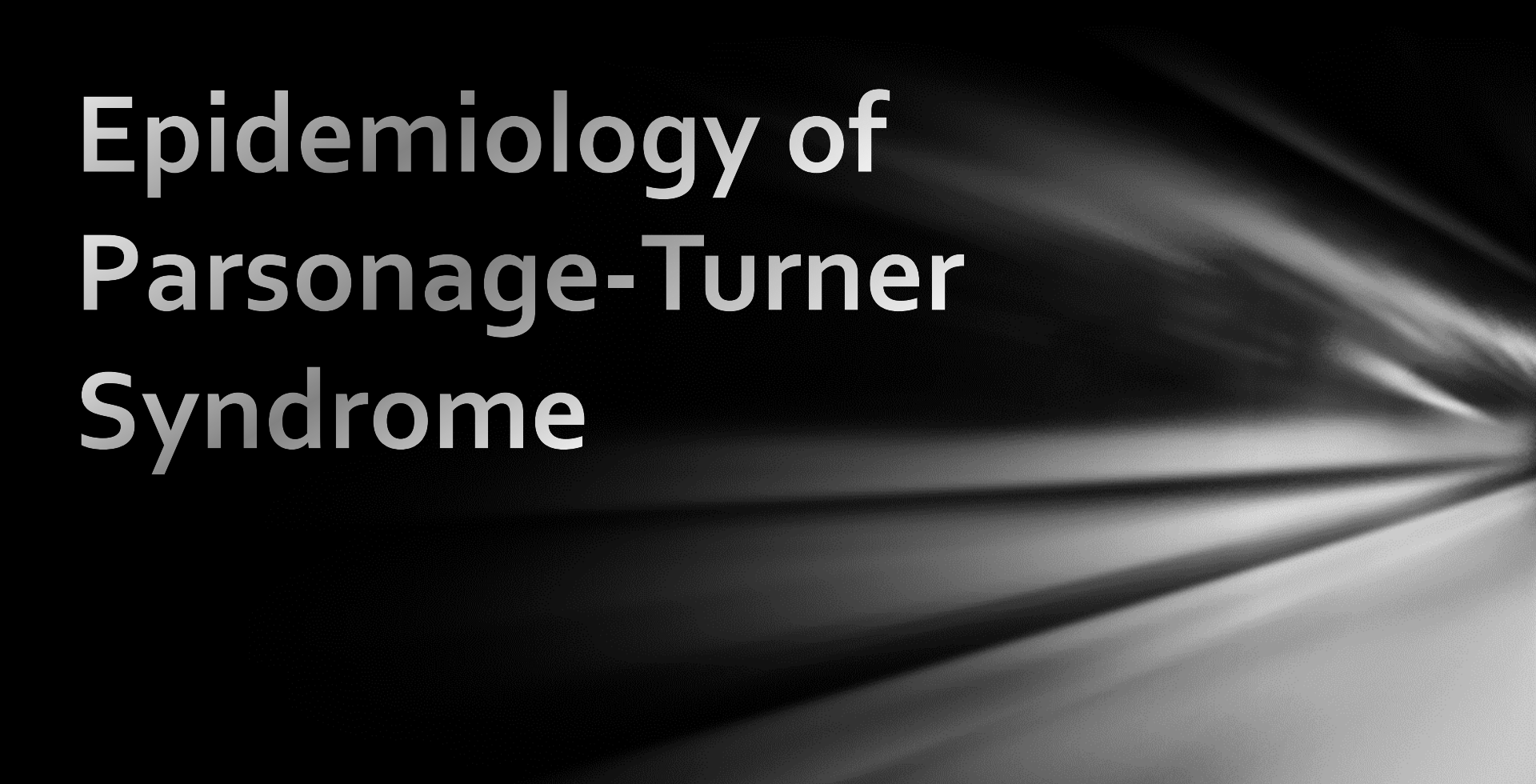
Case Study Cont.

- EMG and nerve conduction studies of left upper extremity
 - Limited fibrillation potentials of:
 - Triceps
 - Abductor pollicis brevis
 - First dorsal interosseus
 - Reduced recruitment of:
 - First dorsal interosseus
 - Mild Increase in motor unit complexity and polyphasia of:
 - Triceps
 - Abductor pollicis brevis
 - First dorsal interosseus
- Electrophysiologic findings were consistent with mild subacute to chronic left lower trunk brachial plexopathy

Case Study Cont.

- Brachial plexus MRI without IV contrast obtained was unremarkable
- Assessment
 - Patient was diagnosed with Parsonage-Turner Syndrome
- Plan
 - Consent was obtained and patient was treated with OMT 5 times over a 2 mo period
 - Techniques were used to address 9 key body regions
 - Head, Cervical spine, Thoracic spine, Lumbar spine, Pelvis, Sacrum, Lower extremity, Upper extremity, and Rib-cage

Epidemiology of Parsonage-Turner Syndrome

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Parsonage-Turner Syndrome

- Also Know As...
 - Idiopathic Brachial Plexopathy
 - Brachial Neuritis
 - Neuralgic Amyotrophy
- Rare condition
 - 1.64 cases per 100,000 people
 - True incidence may be higher as a result of underreporting due to missed diagnosis
- Men more commonly affected than women
- Affects individuals between 3rd-7th decades of life (4,8)
- Predominantly affects proximal motor nerves (5)

Parsonage-Turner Syndrome Cont.

- Symptomatic Presentation:
 - Sudden, severe unilateral pain within the shoulder girdle (5,7)
 - May extend to the trapezius, upper arm, forearm, and hand
 - Progressive neurologic deficits (4)
 - Motor weakness
 - Dyesthesias
 - Numbness
 - Atrophic changes of the upper extremity
 - Non-positional
 - Worse at night with associated awakenings from sleep
 - Self-limiting (10)
 - Lasting months to years

Case Study Cont.

- Subsequent Re-evaluation and Results
 - Patient reported improved range of motion and decreased symptoms in left upper extremity, neck, upper-, mid-, and lower back following each OMT
 - Patient regained left-sided 5/5 muscle strength of:
 - Shoulder Abduction
 - Elbow Flexion
 - Wrist Extension
 - Grip Strength
 - Flexor digiti minimi
 - First dorsal interossei
 - Abductor pollicis brevis
 - Patient recovered left-sided sensation to light touch throughout entire upper extremity

Discussion

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Discussion

- Parsonage-Turner Syndrome (PTS) Pathophysiology:
 - Theorized to be an axonal process
 - Complete denervation is common
 - May not follow classic nerve or plexus distribution
 - Predominantly affects proximal motor nerves
 - Upper trunk of brachial plexus, suprascapular, long thoracic, and axillary
 - Nerves least commonly affected
 - Ulnar, Radial, Medial, and Middle and Lower trunks of the brachial plexus

Discussion Cont.

- Phases of Pain associated with PTS
 - Acute neuropathic pain – severe and continuous in nature (8)
 - Typically dissipates in 1-2 wks
 - Subacute neuropathic pain – radiating pain exacerbated by movement (10)
 - Due to plexus damage
 - Typically dissipates in wks – yr
 - Musculoskeletal sprains, strains, and imbalances (5)
 - Due to residual paresis, compensating muscles, and joint dysfunctions
 - Typically dissipates in yrs

Discussion Cont.

- Diagnosis
 - Dependent on EMG, including muscles not commonly checked due to widespread denervation pattern of PTS
- Standard of Care Treatments
 - Pain management
 - Opiates, NSAIDs, neuroleptics, and transcutaneous electrical nerve stimulation are commonly used
 - Poor evidence to support oral steroids
 - Physical therapy with emphasis of strengthening exercises
- Prognosis
 - Functional recovery rates are good
 - 36% by 1 yr, 75% by 2 yrs, and 89% by 3 yrs (5,9)

Conclusion

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Conclusion

- In utilizing OMT as an adjunctive treatment modality, our patient made a full recovery after 2 mo (5 total treatment sessions)
 - Significantly less than the average recovery of 2-3 yrs
- We hypothesize that by treating key somatic dysfunctions we were able to relieve the strains, sprains, and imbalances caused by PTS and directly address the patient's musculoskeletal pain (3)
 - Which in turn may have helped decrease the pressure on the brachial plexus
- Therefore, OMT is theorized to be beneficial in resolving the longest lasting phase of pain in PTS, with a resultant reversal of weakness and improved function.

References

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