

CLINICAL DECISION MAKING AND DIFFERENTIAL DIAGNOSIS IN A CYCLIST WITH UPPER QUARTER PAIN, NUMBNESS, AND WEAKNESS: A CASE REPORT

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ABSTRACT

Background and Purpose: Differentiating between cervical nerve root and peripheral nerve injuries can be challenging. A phenomenon known as double crush syndrome may increase the susceptibility to injury and symptoms at other locations along the course of the nerve. The purpose of this case report is to describe the physical therapy differential diagnosis and management of a cyclist with upper extremity pain, weakness, and paresthesia.

Case Description: The subject was referred to physical therapy with a diagnosis of cervical disc disease. His chief complaints were chronic neck and right shoulder pain as well as a recent onset of right hand numbness and weakness following 100-mile bike ride one month prior. Diagnostic imaging revealed multi-level degenerative changes of the cervical spine. Initial electromyography and nerve conduction studies (EMG/NCS) indicated right ulnar neuropathy at the elbow. The ultimate incorporation of ulnar nerve mobilizations in various positions immediately decreased symptoms. In light of the subject's improvement after ulnar nerve mobilizations, imaging findings, and EMG/NCS findings, the subject's presentation was consistent with a double crush syndrome with C8 nerve root compression and distal ulnar nerve compression at the elbow.

Outcomes: The subject demonstrated full resolution of all symptoms, 0% disability on the Neck Disability Index, 8.3% disability of the Disabilities of the Arm, Shoulder, and Hand questionnaire, normal EMG/NCV findings, and unrestricted return to work and endurance cycling at three months and maintained at one year. He did not require hand surgery.

Discussion: This case report highlights the importance of continual clinical re-examination and re-assessment with ancillary diagnostic testing, especially if chosen interventions are not eliciting desired responses. The identification of key risk factors, such as occupation and recreational activities is imperative in achieving the most efficacious clinical treatment. In this case, the recognition of a double crush syndrome assisted in optimizing the physical therapy plan of care and the subject ultimately achieving full recovery.

Level of evidence: Level 4

Key words: Double crush syndrome, nerve root, radiculopathy, ulnar nerve upper limb tension

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