Quantitative Measurement of Grip Strength Improvement for Chiropractic Treatment of Cervical Radiculopathy Misdiagnosed as Bilateral Carpal Tunnel Syndrome

A Case Study with 14-Year History and 8-Year Follow-up

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This case report reviews a common disorder, cervical radiculopathy frequently seen by chiropractic physicians and medical doctors alike, with a potentially challenging differential diagnosis of carpal tunnel syndrome. Mistakes in diagnosis can lead to poor treatment outcomes as well as unnecessary surgery.

METHODS

This case report describes and discusses the chiropractic management of a patient with cervical radiculopathy affecting bilateral upper extremities and complicated by degenerative spondylosis of the cervical spine. The diagnostic and assessment process is covered, including time series radiographs, which were available before the symptomatic episode unfolded. Imaging is also included during the time of symptom climax, including magnetic resonance imaging and 8-year postresolution follow-up radiographs. In addition to documentation of the degenerative changes that occurred over time, quantitative measurement with grip strength dynamometer was used to document myotomal strength improvement with chiropractic treatment.

RESULTS

A successful outcome was achieved for this patient with cervical radiculopathy as determined by a resolution of symptoms in bilateral upper extremities, including pain, numbness, tingling, and a profound improvement of grip strength. Additionally, unnecessary bilateral carpal tunnel surgeries were avoided.

DISCUSSION

In this case, chiropractic treatment included segmental spinal manipulation of cervical and thoracic vertebrae, as well as home care and dietary/nutritional recommendations. This patient's condition was complicated by prominent osteoarthritic changes, and stiffness in the cervical spine. The patient had a chronic history of neck pain for which she sought the care of two different chiropractors in years prior to consulting with the author of this case study. She conceded poor patient compliance, as she did not follow the recommendations or treatment plan of the two previous chiropractic physicians. This did yield historical x-rays, which were available for review. Clinical features of this middle-aged white female patient included profound weakness of the hands, wrists, and arms, and dull aches reported in the C6 dermatomes. Cervical spine radiographs demonstrated a reversed cervical lordosis with disc space narrowing from C3 to C7. Concomitant osteophytic spurs and intervertebral foramina encroachment were apparent bilaterally. Magnetic resonance imaging demonstrated a slight C5–C6 impression on the dural sac. Nerve conduction tests demonstrated some prolonged latency of values.

Progressive degeneration documented by radiography initially motivated the patient to be more compliant with treatment recommendations. The use of a grip strength dynamometer to quantitatively assess the patient's status and record progress with treatment proved to be clinically useful for the doctor in this case as well as provided positive feedback for the patient.

DISCUSSION

Although no firm conclusions can be reached from the results of a single case study, the author suggests chiropractic care appears to provide benefits for patients with cervical radiculopathy complicated by degenerative changes and cervical spondylosis. The author has an 8-year practice history with hundreds of similar cases documenting similar improvements in grip strength with quantitative measurements. Aside from the good treatment outcome, the author wishes to emphasize the value of quantitative, reproducible outcome measures in clinical practice. Validating outcome measures is equally important to documenting successful outcomes in the pursuit of reliable treatments.

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