

Chiropractic Grand Rounds — A Case Study

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Cervical Radiculitis: Misdiagnosed as Bilateral Carpal Tunnel Syndrome

A 52-year-old white female real estate manager complained of spells of weakness in her hands and arms lasting approximately two minutes. Moderate dull aches were reported in the C6 dermatome bilaterally, as well as weakness in the wrist.

In the past the patient had utilized chiropractic services from two separate chiropractors for complaints of neck pain, but she made it apparent she didn't follow through with their treatment plans.

For this most recent complaint the patient had been evaluated by a neurosurgeon who took cervical radiographs, obtained an MRI of the cervical spine and performed a nerve conduction study on both upper extremities.

The patient returned home to find a message on her answering machine from the neurosurgeon's nurse telling her she had bilateral carpal tunnel syndrome and needed surgery on both wrists. Soon thereafter, the patient consulted my office for evaluation.

A physical examination showed the patient weighed 175 lbs., was 5'6" tall and bilateral

blood pressures were recorded at 180/100 mm/Hg with normal pulse, respiration and temperature. She suffered from gross cervical lateral flexion, and rotations were reduced and painful to perform. Foraminal compression tests were positive and carpal tunnel tests were negative.

Spinal joint fixations were palpated at the levels of C1, 3, 5 and 6 with marked tenderness at the levels of C5, 6 and 7, as well as concomitant paravertebral muscle spasm. The first and second thoracic spinal joints were also fixated.

Upper extremity reflexes were 2/5, sluggish and bilaterally symmetrical, the patellar reflex was absent and the achilles reflex 2/5, sluggish.

The C5 myotome was 4/5, weak bilaterally, upper and lower extremity dermatomes were essentially normal as were cranial nerves I-XII.

The patient is left hand dominant and dynamometer grip strength readings for the left hand were 28, 28 and 27 lbs. respectively, and the right hand grip strength readings were 25, 26 and 25 lbs. on consecutive trials.

The patient had a left sided intermittent facial tic that she was unaware of and subjectively reported a loss of hearing over the past year. An ophthalmoscopic exam was also performed which showed the classic "speed bump" sign indicating papilledema. Cervical spine films taken one month prior to examination were obtained and read.

X-ray Impressions

The cervical spine is negative for recent fracture. The cervical lordosis is reversed and C5, 6, 7 and T1 intervertebral foramina are encroached due to facet arthrosis bilaterally. Disc spaces are narrow at the levels of C3, 4, 5, 6 and 7 with concomitant osteophytic spurring present at the levels of C5-C6.

MRI study of the cervical spine demonstrates a slight C5-6 impression on the dural sac. A copy of the nerve conduction study was obtained and reviewed. The median motor studies were normal, but the median sensory studies showed some prolonged latency values and the right second digit was subnormal.

The impression the neurologist gave the neurosurgeon was, "Overall, findings raise the question of bilateral carpal tunnel syndrome. Clinical correlation is recommended before concluding that, however."

The patient was diagnosed with cervical radiculitis, discogenic spondylosis of the levels C5-6, subluxation and hypertension. In this case a somatosensory evoked potential would have been more accurate in determining the site or sites (in the event of a "double crush" syndrome) of the nerve irritation.

The patient was referred back to her family physician for comanagement of the hypertension. For the past five years the patient had been told she has "white coat anxiety" that caused her blood pressure to be high

when taken in a doctor's office. Nevertheless, treatment was initiated after having a phone consultation with her medical doctor because "white coat anxiety" doesn't cause papilledema.

Her blood pressure was monitored regularly. Systolic and diastolic readings were consistently lowered 10 mm/Hg respectively after spinal adjustments and the patient was shown how to perform the oculocardiac reflex to reduce hypertension at home.

Even with the dramatic improvement the patient was less motivated to continue her treatment plan

Dietary and nutritional counseling was also rendered as the patient consumed up to two liters of caffeinated sodas per day.

After the ninth adjustment, dynamometer grip strength testing was repeated. The left hand readings were 80, 70, 70 lbs. and the right hand readings were 70, 65, 65 lbs. respectively on consecutive trials. Glucosamine Sulfate was prescribed in the amount of 500 mg given three times a day to decrease chronic inflammation and help nourish

The first lateral radiograph was taken at age 46, the second at age 47 and the third at age 52. Note the degenerative progression. The patient was not motivated to follow through with care until the third stage had caused bilateral upper extremity nerve deficits. A slight spinal cord impression is visible at the level of C5, 6 as documented by MRI.



age 46



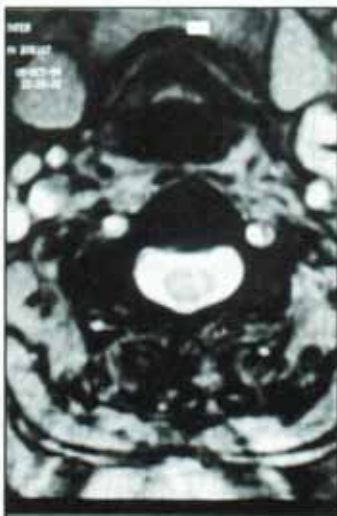
age 47



age 52



digital MRI, age 52



axial MRI, age 52

the degenerative discs. The patient progressed well to resolution, and four months later had a serious exacerbation of symptoms.

The patient reported painting and hanging wallpaper for an extended period of time and noticed the numbness and weakness returned. The patient was re-examined and the findings were similar to the initial exam. Grip strength in the left hand had decreased again to 20, 22, 20 lbs. and in the right hand to 40, 40, 42 lbs. Immediately after the next adjustment, grip strengths were re-measured to monitor motor activity and the left hand readings were 25, 25, 25 lbs. and the right hand readings were 50, 45, 48 lbs.

When treating serious neurologic deficits it's important to monitor sensory and motor components to insure the condition doesn't get progressively worse. The grip strength readings are reassuring to both the doctor and the patient and can reaffirm clinical judgement to continue a therapeutic trial.

The next treatment was rendered three days later and the patient reported a significant gain in motor strength and control, as well as a reduction in the numbness and tingling. The patient felt so much better she didn't return for 17 days, but continued to report an increase in strength. Even with the dramatic improvement the patient was less motivated to continue her treatment plan, although she returns sporadically for care. Months later she maintains her relief and function.

The patient gave up caffeine and her blood pressure has been consistently lower, with a best reading of 130/70 mm/Hg.

Although the patient had radiographic signs of foraminal stenosis and MRI signs of

spinal cord impression, I felt very comfortable working with this patient after a thorough physical exam. Most importantly there were no upper motor neuron lesion signs so the cord impression, as demonstrated by MRI, wasn't causing myelopathy.

The peripheral nerve signs were more consistent with nerve irritation rather than frank nerve impingement. This cervical radiculitis came from the pathomechanics of the degenerative disc and joints causing nerve irritation and nervous system dysfunction.

If the problem was solely caused by foraminal encroachment or cord impression, it is less likely spinal manipulation would have helped. Spinal manipulation doesn't alter structural anatomy as much as it improves spinal function to normalize the nervous system. The scientific literature strongly supports using spinal manipulation in these cases with an absence of upper motor neuron signs. **FCA**