Chiropractic GrandRounds

A CASE STUDY *by Marc Gottlieb, D.C.*

Cervical Radiculitis: Misdiagnosed as Bilateral Carpal Tunnel Syndrome

A 52 year old white female real estate manager, presented complaining of spells of weakness in the hands and arms lasting for approximately two minutes. Moderate dull aches were reported in the C6 dermatome bilaterally, as well as weakness in the wrist. In past years the patient had utilized chiropractic services from two separate chiropractic physicians for complaints of neck pain but she made it apparent she did not 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 left by the nurse of the neurosurgeon telling her she had bilateral carpal tunnel syndrome and needed to have surgery on both wrists. After that, the patient consulted my office for evaluation.

Upon physical examination the patient weighed 175 lbs., was 5'6" tall and bi-lateral blood pressures were recorded at 180/100 mm/Hg with normal pulse, respiration and temperature. Upon physical examination, gross cervical lateral flexion and rotation 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.

Chiropractic 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 syn-

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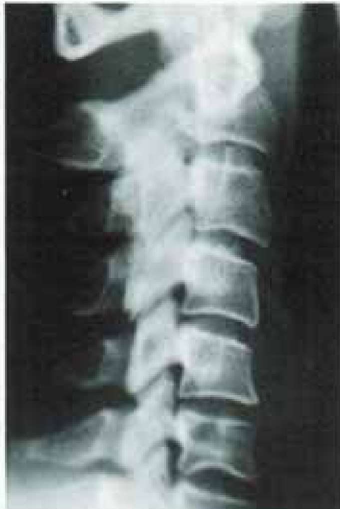
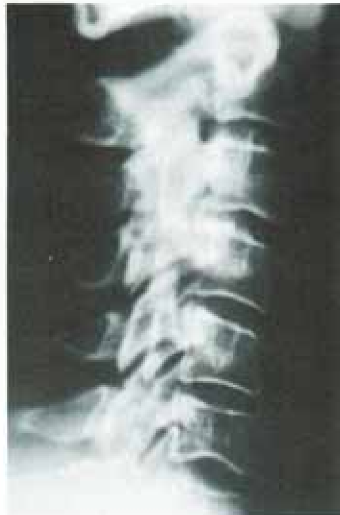
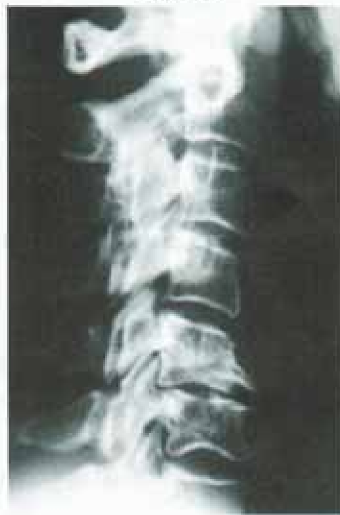
The first lateral radiograph was taken at age 46, the second at age 47 and the third at age 52. Note the degenerative progression. The patient was not motivated to follow through with care until the third stage had caused bilateral upper extremity nerve deficits. A slight spinal cord impression is visible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



age 46

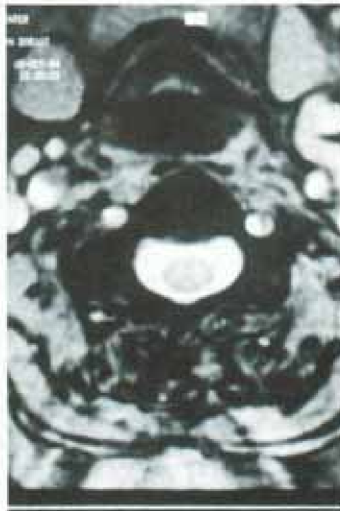


age 47



age 52

Digital MRI, age 52



Axial MRI, age 52

drome. 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 the doctor's office. Nevertheless, treatment was initiated after having a phone consultation with her medical doctor. "White coat anxiety" does not cause papilledema.

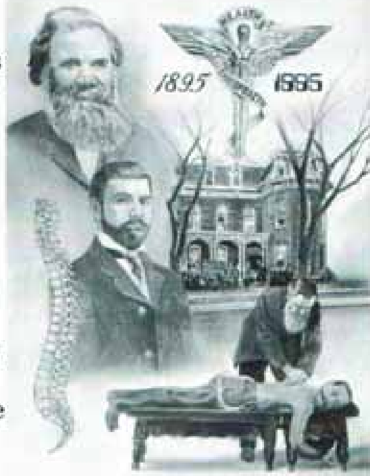
Her blood pressure was monitored regularly. Systolic and diastolic readings were consistently lowered 10 mm/Hg respectively after the spinal adjustments and the patient was shown how to perform the oculocardiac reflex to help reduce the hypertension at home.

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 per day to decrease chronic inflammation and help nourish the degenerative discs. The patient progressed quite well to resolution and four months later had a serious exacerbation of her 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 very 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,

Centennial Print Available



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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 is important to monitor sensory and motor components to insure the condition does not get progressively worse. The grip strength readings are reassuring to both the doctor and 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 did not 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. Six months later she continues to maintain 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.

Impression: 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 examination. Most importantly there were no upper motor neuron lesion signs so the cord impression as demonstrated by MRI was not causing myelopathy. The peripheral nerve signs were more consistent with nerve irritation rather than frank nerve impingement. This cervical radiculitis was stemming 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 does not alter structural anatomy as much as it does improve 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. ■

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