

After Whiplash: Cervical Spine Surgery and the Chiropractic Patient

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The patient is a 55-year-old white female who presented with chronic, sharp, bilateral neck and right radiating shoulder pain with occasional right hand numbness. Her neck pain radiated from the base of the neck to the upper thoracic spine. The patient also reported difficulty sleeping, posterior headaches and no bowel or bladder dysfunction. Dejerine's triad was negative.

Past Medical History

Pertinent history included osteoarthritis and osteoporosis. Her past surgical history was significant for an anterior cervical fusion, reportedly secondary to symptoms incurred as the result of a traumatic motor vehicle accident four years prior.

Physical Examination

On physical examination, she displayed tenderness to palpation in the lower cervical region. She demonstrated painful cervical extension at 25¼, flexion at 50¼, and bilateral rotation at 40¼. Neurologic examination showed slight sensory deficits at C5 and C6 distributions on the right, and 4/5 motor strength of the right deltoids. Shoulder range of motion was normal and the posterior aspect of the shoulder and the upper paraspinal were tender.

Radiographs

Moderate cervical degenerative changes were noted on radiographic evaluation above and below the area of the autologous fusion at C5-C6. Plain radiographs further revealed the presence of osteophytic changes or anterior lipping at C3-C6, with intervertebral disc space narrowing at C4-C5 and C6-C7. Neural foraminal encroachment was noted at C3-C4 and C4-C5.

MRI of the cervical spine indicated a loss of lordosis accompanied by multilevel degenerative changes from C2-T1, causing effacement of the ventral aspect of the thecal sac with slight cord compression. A posterior disc bulge was present at C4-C5, with resultant central spinal stenosis and absence of any significant foraminal stenosis. Hyperextension of the lower cervical spine was noted and assumed secondary to the allograft placement. However, the region of the anterior cervical fusion with lateral plate was observed in good alignment of cervical lordosis.

Case Management

The patient's complaints correlated with her failed spine surgery. In this sense, the failure was not felt to be the result of the autologous graft placement, but due to the hypertrophic degenerative changes incurred and segmental hyperextension effects imposed on the neuroforamina and adjacent soft tissues. This was most likely a progression of both the cervical acceleration-deceleration (CAD) event and degenerative processes.

Conservative chiropractic care with adjunctive physical medicine procedures and adjunctive

physiotherapy modalities were undertaken. Because of the lateral plate and screws (due to the spinal postsurgical status), relative and absolute contraindications were reviewed with the patient previous to rendering care, with respect to chiropractic technique and adjunctive physical medicine procedures. Once written informed consent was obtained, the patient underwent four months of care at our facility daily, decreasing in accordance to her response, objectified by patient completion of outcome assessment forms, and three chiropractic interim re-evaluations to determine the point of maximum improvement.

Flexion-distraction technique using a pneumatic device to gently distract or stretch the spine, and allow isolation of the area of disc and vertebral region involved, while slightly flexing the spine in a pumping rhythm, was utilized with great success. Myofascial release using a piezoelectric technique, followed by application of a topical ointment, was initially employed to alleviate the inflammation imposed upon the neural and muscular structures. The patient eventually tolerated gentle diversified technique, with the treating chiropractic clinician observing the relative contraindication to application of chiropractic adjustments to the area of surgical correction, and avoidance of application to any compensatory structures. Upper cervical and upper dorsal application were typically applied. Thus, a biomechanical approach to the cervical (and later to the lumbosacral) region, with adjustive technique for postural correction, also provided significant clinical improvement.

The patient was instructed on natural anti-inflammatory supplementation, and provided the choice of over-the-counter NSAIDs or medical referral for prescription pain therapy and home instruction. She was provided with the medical referral only for prescription control, and began a short-term initiation of a five-day trial of oral analgesic, which assisted her sleep disorder. She was also provided with imaging studies that consisted of a five-view cervical series: AP, lateral, obliques (right and left) and odontoid. She was also provided radiographic motion study of a lateral flexion and extension views after one week of initiating care. The later views demonstrated the segmental hyperextension most clearly, and allowed the treating chiropractic clinician to observe the stability of the cervical arthrodesis and stabilization with a lateral mass plate. It was determined that the arthrodesis was best observed with special imaging diagnostics.

The patient was counseled on special imaging studies and a cervical spine MRI (without contrast and with a 1.5 Tesla magnet) was obtained by the chiropractor. Early in the course of conservative chiropractic care, the patient was also provided with a referral to a neurosurgeon for consultation, due to this patient's previous failed surgical event at pain resolution. (The surgery was a success, but the patient experienced further degenerative changes and resultant pain.) Working with a medical general and neurosurgeon in this manner, this patient obtained a greater chance at success in receiving chiropractic care. A patient database was established early on with all providers, and the patient experienced a "team approach" that served to alleviate any fears she encountered, especially as to whether another spinal surgery was imminent or the "only choice."

Eventually, specific exercises for the cervical spine were introduced, and activities of daily living addressed and modified as necessary. The patient was evaluated and monitored throughout the chiropractic rehabilitative treatment program. Treatment, imaging and neurosurgical referral were the standards of care in the chiropractic management of this particular case.

At six months' follow-up, the patient had improved without further surgical intervention and had residual neck pain of 1-2 on a VAS scale - reported as "stiffness in the a.m. hours." Her residual symptoms seemed consistent with arthritic and muscular pain.

Discussion

The spinal canal can accommodate many structures, but compressive pathology may produce neuroischemic and mechanical nerve conduction alterations of the spinal cord and nerve roots. Other elements that threaten besides a posterior protruding disc are: vertebral osteophytes; facet joint spurs; hypertrophy of the joint of Luscka and the posterior arch; foraminal osteophytes; and hypertrophy of the posterior arch.

Thus, the medical purpose of surgical intervention is to decompress the spinal cord and nerve roots, establish stability, and maintain alignment. Anterior decompression by anterior cervical discectomy with fusion (ACDF) is performed when three or fewer levels are involved. ACDF increases the canal size at a particular stenotic area. A bone graft is obtained from the patient in order to maintain alignment. To facilitate fusion of the graft, a plate is held in place with screws.

Chiropractors need to be aware that the ACDF is commonly seen in private practice. Proper clinical workup is required, and these patients should be monitored vigilantly throughout their manual therapeutic care for stability and the presence of any radicular symptoms due to osteophytic activity above and below the level of fusion, kyphotic curvature, screw pull-out, fracture, and a host of other maladies that are best managed early on with neurosurgeon co-care. Outcome assessment forms that are standardized, and documentation of interim findings with appropriate referral during the course of the chiropractic treatment plan, are crucial to the successful managing of these types of chiropractic patients.

Resources

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