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## Whiplash Associated Disorders

The pathway from acute pain to chronic pain syndrome, a biopsychosocial dilemma.

**Breast Cancer and Chiropractic**

**Nerve Entrapment: Lumbo-Pelvic Pain**

**Case Report: Stenosis, Myelomalacia, C5-6 and C6-7 Disc Protrusions**

## CASE REPORT: Chiropractic Care for Cervical Spine

# Stenosis, Myelomalacia, C5-6 and C6-7 Disc Protrusions

### Disc Pressure Drop and Patient Congruency

By Craig Dillman, DC

### Introduction

Manual cervical distraction, the research term for cervical spine flexion distraction protocols of Cox Technic, is documented to drop intradiscal pressures. Mean decreases were as high as 168.7 kPa, while the mean traction forces were as high as 119.2 N. And more important for patient care is that the intraclinician reliability for intradiscal pressure decrease was high for all the participating chiropractic physicians in the study.[1] Researchers are currently focusing on how to develop the most efficient training methods so that clinicians deliver the proper forces to produce the optimal clinical outcomes and pressure drops to relieve a patient's neck pain as the following case illustrates.[2, 3, 4] Further, this case harks back to last month's case report (see Sept. 2015, *ACA News*, Page 32) as to the effect patient congruence (or rather non-congruence at times) has on the case outcome as well.[5]


### Abstract

A 60-year-old male patient with a grave cervical injury responded well to Cox® flexion-distraction, with both subjective and objective measures of success. Not only did his subjective complaints of mild to moderate pain and paraesthesia in both upper and lower extremities markedly decrease during a five-month course of therapy; the objective findings from pre- and post-treatment MRI scans revealed a significant reduction in his cervical disc lesions. Since he did not receive any other type of therapy for his injury, it is reasonable to conclude that Cox® Technic played a major role in his recovery process. After discontinuing treatment, his condition was stable for four months before he began to decline, with a gradual return of his symptoms. After a year without care, he has begun treatment again with the hope of repeating his initial success.


### History

Prior to his cervical injury in 2012, there was no history of acute neck trauma, and his only complaints were a slight restriction in L-rotation and a mild tension in the left lower neck that were noticed during stretching. He had been attending weekly "Iyengar" style yoga classes since August 2010, with its typical emphasis on holding a prolonged (5- to 10-minute) shoulder stand at the end of every class, forcing the cervical spine into a sustained period of weight-bearing hyperflexion after the tissues were warmed up and fully relaxed. During the fall of 2012, he began to experience intermittent episodes of mild genital paraesthesia, but he did not seek medical care for this condition or recognize it as a serious warning sign of developing disc pathology. In the week prior to his injury, he also began to experience mild pain and paraesthesia in his L-ring finger but dismissed this discomfort as being similar to other sensations he had experienced over the past four decades, following a severe laceration in the palm of that hand in his 20s. Then, in December 2012, he lost his balance and tumbled out of a headstand while practicing yoga at home. Within the hour, he began to experience intense shooting sensations in his lower back and thighs with any amount of cervical extension or retraction (pulling the chin backward), similar to the feeling elicited in the arm and hand with a blow to the ulnar nerve at the elbow but many times greater. Later that day, he began to experience moderate numbness on the ulnar side of his left hand, with moderate paraesthesia in the axilla, triceps and the inside length of that arm. Over the next few months, his symptoms progressed to include mild to moderate pain and paraesthesia in all four extremities.

### Symptoms

There was never any musculoskeletal (cervical) pain with this injury, but the neurological symptoms became quite pronounced: mild to moderate numbness of the left hand with occasional mild burning in the heel of that hand, along with mild to moderate paraesthesia in the left axilla, triceps and along the inside length of that arm; mild numbness in the ulnar side of the right hand, primarily the little finger; mild to moderate numbness in both feet and lower legs and a "ringing" sensation in these areas with every step; and mild to moderate sciatic pain in the left posterior hip and thigh. All

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leg symptoms continued to be aggravated by cervical retraction, but the intense shooting pains into the low back and thighs initially triggered by this motion began to diminish and then disappeared after the first few months.

## Initial MRI Exam

An initial cervical MRI in March 2013 (*See First MRI Report done 3/13/13 and Figures 1 to 3, Page 33.*) revealed moderately severe spinal cord compression at C5-6 and severe cord compression at C6-7 due to large, posterior, broad-based midline disc protrusions at those levels (5 mm lesion at C5-6 and 6 mm lesion at C6-7), compounded by the folding of a lax ligamentum flavum and mild congenital spondylosis. (*See Figures 1 and 2.*) Due to the disc encroachment into the central canal, the cord was squeezed into a "thin crescent moon" when viewed in cross section, with a seriously reduced AP cord diameter of only .28 cm (see yellow arrow on film) at the level of maximum compression (C6-7). (*See Figure 3.*) This encroachment also caused severe bilateral foraminal stenosis at C5-6, with compression of both exiting C6 nerve roots and moderate foraminal stenosis at C6-7, without clear nerve root impingement, and there was evidence of some mild myelomalacia (intramedullary edema) resulting from the cord compression.

## Diagnoses

1. Moderately severe spinal cord compression at C5-6, secondary to a 5 mm posterior disc protrusion.
2. Severe spinal cord compression at C6-7, secondary to a 6 mm posterior disc protrusion.
3. Severe foraminal stenosis at C5-6 with bilateral nerve root compression, secondary to disc protrusion.
4. Moderate foraminal stenosis at C6-7, secondary to disc protrusion.
5. Mild myelomalacia, secondary to the cord compression described above.

## Medical Recommendations

Following the initial MRI, the patient consulted with eight different medical practitioners (orthopedic surgeons and neurosurgeons), but due to the fact that the severity of the patient's disc lesions were balanced with a surprising lack of motor impairment (no significant loss of grip strength, no foot drop and no loss of bladder or bowel control), their recommendations ranged from "immediate surgery" to "let's wait and monitor." Surgical intervention would require dual discectomies at C5-6 and C6-7, with a likely corpectomy at C6 (and subsequent bone replacement) due to the large mass of disc material that lay behind the body of that vertebra, followed by a double fusion and resulting loss of mobility. *[Note: One surgeon even recommended a radical "360°" procedure to remove the offending disc lesions in front, as well as the lax ligamentum flavum in the rear.]* Given these options, the patient chose to monitor his condition with one of these physicians while pursuing the conservative care of Cox® decompression therapy. That doctor was not very encouraging about the potential benefits of this therapy, but he could see no harm in this approach.

## Cox® Treatment Plan

Cox® Technic (Protocol I) was applied for five months (4/17/13 to 9/23/13), with the patient returning for tri-weekly treatments during most of this time (54 visits). The patient was given gentle traction/decompression with straps placed around the occiput. The patient was then gently decompressed for five pulls X four, and the head/neck was placed in physiological range of motion. During this treatment period, there were no adverse effects from therapy, and he began to experience significant improvements after a few months. By the time treatment ended, most of his symptoms had resolved, other than occasional mild paraesthesia in the L-ring finger and L-toes. *[Note: Treatment was discontinued due to the sudden onset of posterior vitreous detachment, which made him concerned about pressure on his eyes from lying face down on the table. However, according to his ophthalmologist and retinal specialist, this detachment had nothing to do with our treatment protocol and was solely due to the natural aging process.]* During treatment, the only medication used was 400mg of Ibuprofen, BID, but the patient also used an herbal formula, 1 capsule of Zyflamend Whole Body, BID, in order to reduce any inflammation that might aggravate his condition by putting further pressure on his spinal cord. (These agents were already in use when Cox® treatment began.)

## Follow-Up MRI Exam

A follow-up MRI in October 2013 (*see Figures 4-6, Page 33*), after five months of Cox® therapy, revealed a significant improvement in the disc protrusions at C5-6 (now 3 mm) and C6-7 (now 4 mm), with each lesion reduced by one-third, allowing the AP cord diameter to rebound to .70 cm (*see yellow arrow on film in Figures 3 and* 6) at the level of maximum compression (C6-7) – an astounding gain of 150 percent from the initial MRI in March. As a result, the degree of cord compression is now described as only moderate in the report for this MRI. There was also a reduction in the left foraminal stenosis at C5-6, with subsequent relief of compression on the left-sided C6 nerve root and no remaining signs of myelomalacia. Unfortunately, the disc at C4-5 showed greater pathology, with a new 2 mm protrusion, but this new lesion has not produced any new symptoms. The overall improvement in these objective findings corresponds to and corroborates the subjective improvements noted by the patient during the Cox® flexion-distraction protocol.

## Follow-Up Medical Recommendations

Based on the improvements seen in the second MRI, the orthopedic surgeon who was monitoring this case told the patient in October 2014 that he now qualifies for laminoplasty, a far less invasive procedure than the original recommendation for a dual discectomy, corpectomy and dual fusion. However, the patient would still prefer to avoid any surgery and pursue non-invasive care.

## Discussion

Given the degree of reduction in both symptoms and clinical findings after five months of Cox® decompression therapy and the fact that this patient did not receive any other type of therapy for his cervical injury, it is reasonable

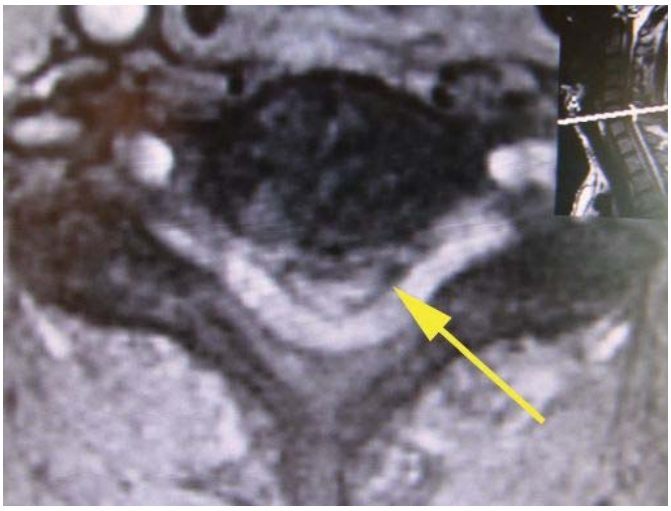
## Imaging

First MRI Report (imaging done on 3/13/13):

**FIGURE 1.**

**FIGURE 2.**

**FIGURE 3.**

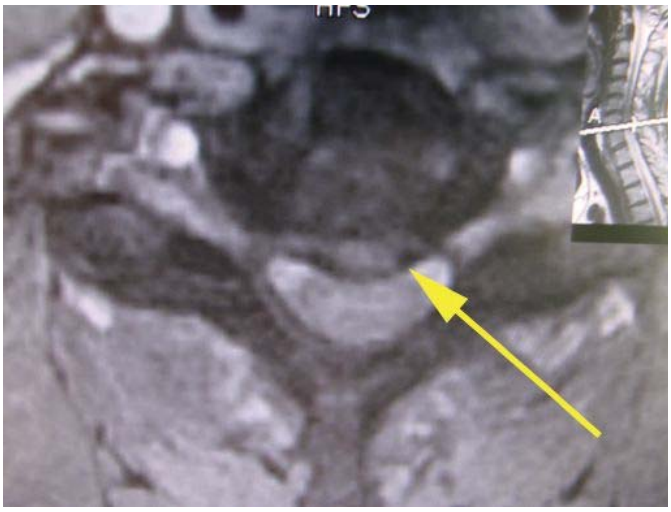


Second MRI Report (imaging done on 10/4/13):

**FIGURE 4.**

**FIGURE 5.**

**FIGURE 6.**



to conclude that Cox® Technic played a role in his improvement. *It also seems fair to assume that the return of symptoms after discontinuing treatment for a year may have been associated, and we hope to return this patient to his prior state of improved health with further care.*

## Closing Comment

A complex case of this type and severity certainly calls on a physician to apply the proper protocols and forces to draw the optimal pain relief for a patient who is congruent and follows the suggested treatment plan. Having the research to show a patient and even his or her surgeon may influence the cooperation and bolster the confidence of both in the chiropractic nonsurgical approach to care. ■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