

May 2016

# ACAnews

The Official Publication of the American Chiropractic Association

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**Case Report: Tying Research to Clinical Application****Large C6-7 Extruded Disc with Extremity Pain and Weakness Avoids Surgical Intervention**

By James M. Cox, DC

**Introduction**

Recent research reveals that physicians can be trained to apply manual cervical distraction, a low velocity variable amplitude (LVVA) spinal manipulation (research descriptive term for flexion distraction applied to the cervical spine) with low (20N), medium (21N-50N) and high (51N-100N) forces. The neck disability index for the patients was nearly the same for medium and high forces, which was more than for low-force application. High-force patients report more satisfaction with the treatment they received than the other two groups, while all groups of patients still reported satisfaction with the clinician who provided the care.<sup>1</sup>

Further, biomechanical research into the effects of this LVVA shows that intradiscal pressures (IDP) drop at “all lower cervical levels C4-C5, C5-C6, and C6-C7. The mean IDP decreases were as high as 168.7 KPa. Mean traction forces were as high as 119.2 N. Posterior-to-anterior forces applied during manual traction were as high as 82.6 N. Intraclinician reliability for IDP decrease was high for all four DCs.”<sup>2</sup>

Now, this combination of **best research evidence, patient preferences and values (satisfaction) with care, and clinical expertise** (that is now being demonstrably and efficiently taught in the research realm with translation to the training realm) is evidence-based care per Lawrence’s description<sup>3</sup> and allows chiropractic physicians to help patients with neck pain conditions who seek nonsurgical management as the patient in this case report did.

**History**

A 41-year-old white single female is seen on Sept. 1, 2015, with the chief complaint of cervical spine pain radiating into the right arm and headache. The pain started in July 2015 for no known etiology. She was prescribed medication that did not help, and her medical doctor ordered an MRI of her cervical spine and referred her to a neurosurgeon. She has had physical therapy, which has given her some relief from her pain. The neurosurgeon recommends spinal fusion of the cervical spine.

**Examination**

Her vital signs are blood pressure 124/80 and pulse rate 81 beats per minute of sinus rhythm. She is oriented times three. She is in apparent distress and very concerned about her future care for the right arm pain.

The ranges of motion for the cervical spine are 70 degrees flexion, 35 degrees extension, 30 degrees right and left lateral bending and 80 degrees bilateral rotation. Cervical compression creates right arm pain, and the SOTO Hall sign is positive. The deep tendon reflexes on the left are grade 2/5 and on the right 2/5 at the biceps, brachioradialis and 1/5 at the triceps tendons. Hypoesthesia of the right C6 and C7 dermatomes is noted. The right triceps muscle is grade 3+/5 compared with the left while the dynamometer strength of the right hand is 76 lbs. and 82 lbs. in the left hand. The right triceps strength is tested to be 50 percent of the left side. No thoracic outlet tests were found to be positive.

The patient rates the severity of the pain in the right arm and cervical spine at a VAS of 8 out of 10.

**Diagnosis**

5-7 mm right subarticular-foraminal disc extrusion at C6-C7 with mass effect upon the rightward ventral aspect of the spinal cord and probably impingement upon the right C7 exiting nerve.

C5-C6 3-5 mm left posterior paracentral disc osteophyte complex, exerting mild mass effect upon the spinal cord and likely ventral rootlet of C6 on the left. Moderate to severe left neuroforaminal narrowing is seen. Note: This patient had no left arm pain.

**Treatment Plan**

The patient shows approximately 50 percent weakness of the right triceps muscle strength compared with the left side. The treatment plan is to utilize Cox® Technic Flexion Distraction Protocol 1 (five sets of four-second distractive pumps repeated three times with trigger point therapy between each set to the local area) at the C5 cervical spine level as shown in *Figure 7*. The spinal

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## Imaging

FIGURE 1.



FIGURE 2.



FIGURE 3.



FIGURE 4.



FIGURE 5.

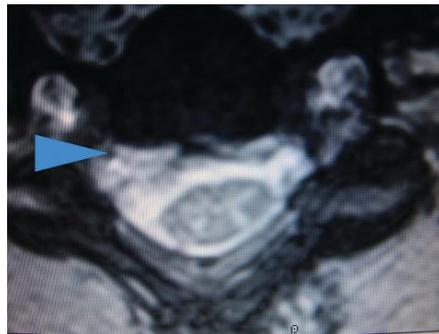


FIGURE 6.

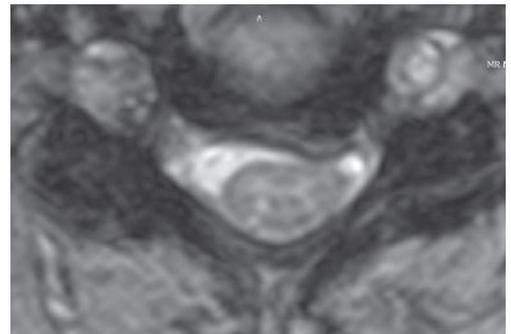


Figure 1. The sagittal cervical spine X-ray shows C5-C6 and C6-C7 disc herniations. Also note the anterior T1-T2 osteophytic bridging.

Figure 2. The sagittal view shows the slice level at the C6-C7 intervertebral disc level showing the axial image seen in Figure 3.

Figure 3. Note the large right-sided disc extrusion free fragment shown at the vertical line within the lateral recess and intervertebral foramen at the C6-C7 level. (See arrow.)

Figures 4 and 5 are images superior to the C6-C7 disc space, demonstrating the migration of the disc fragment cephalward within the vertebral canal.

Figure 4. Axial level superior to the C6-C7 disc space is shown in Figure 5.

Figure 5. Note the large free fragment of C6-C7 disc lying superior and posterior to the C6 vertebral body. (See arrow.)

Figure 6. A left-sided C5-C6 posterolateral and recess disc herniation is also seen.

manipulation was followed by galvanic current and tetanizing current to reduce inflammation and sedate the inflamed C6 and C7 nerve roots. Trigger point therapy was applied to the right cervicothoracic spine and right C6 and C7 dermatome distribution. These treatments were administered three times per week. At home, she was to apply ice 30 minutes twice a day to the neck and right shoulder.

At 50 percent relief of pain, visits were reduced by 50 percent, and Protocol 2 (all ranges of

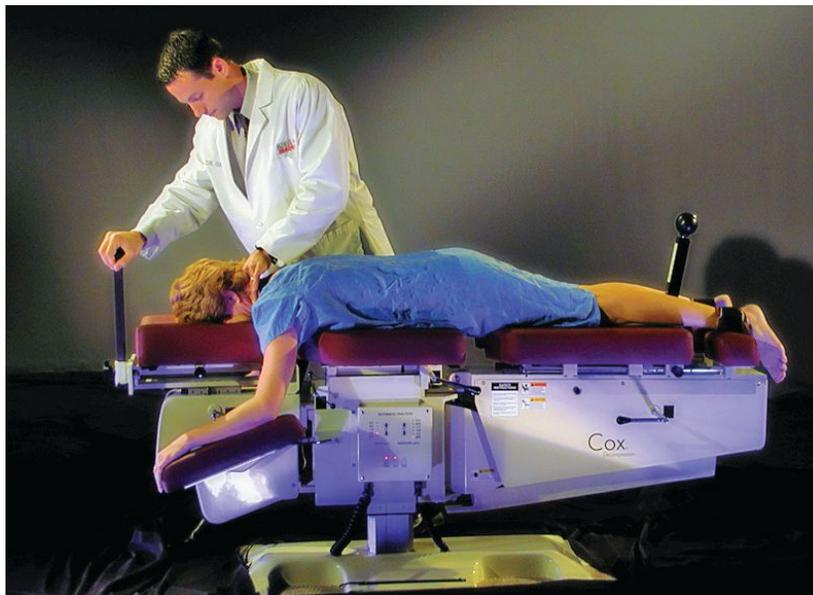
motion – flexion, extensions, rotation, lateral bending, circumduction – were applied to the full cervical spine after careful tolerance testing) was administered.

### Clinical Outcome

The first treatment as described resulted in decreased neck and arm pain.

The fifth visit found centralization of the right arm pain with only numbness of the right

FIGURE 7.



**Protocol 1 Cox Technic Flexion Distraction long Y-axis decompression spinal manipulation is applied at the C5 level.**

forearm. The patient stated she felt 50 percent relief of her pain. On the eighth treatment, with greater than 50 percent pain relief, Protocol 2 was used in the office as well as cervical spine exercises at home to gain strength and flexibility. Right triceps strengthening was instituted starting with a 1 lb. weight at 50 repetitions daily.

After 12 visits, the patient reported that the neck and right arm radiculopathies were reduced by 80 percent.

On the 15th visit, the patient stated 85 percent pain relief with right arm VAS level at 1 and cervical spine at 2. Visit 17 found the patient to state 90 percent relief of neck and arm pain. She felt happy and satisfied with the outcome.

Following two months of treatment with a total of 22 visits, the patient maintained the neck and arm pain relief and headaches with a consistent 90 percent relief of pain. The right triceps muscle strength returned to 90 percent of the left-side strength.

## Conclusion

Here is a case of a large C6-C7 extruded cervical disc causing right upper extremity pain and weakness that had been recommended to go to surgery with fusion. It responded well to the Cox® Technic System of spinal pain management with the protocols described here and met the patient's preferences to avoid an unwanted surgery with satisfactory relief of pain. ■

## References

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