



Cox® Distraction Manipulation Successfully Treats Multiple Disc Extrusions with Inferior Tracking Disc Material

submitted by
Adam J. Keefe, DC
1920 Centerville Turnpike
Suite 95
Virginia Beach, VA 23464
ajkeefe@yahoo.com
October 25, 2011

Introduction

This case report represents an example of a thirty-three year old female with a history of chronic lower back pain with multiple disc extrusions, and inferiorly tracking disc material who responded favorably to treatment with the Cox instrument.

History

Liza, a thirty-three year old female presents to my office on 11/23/10, with a chief complaint of lower back and bilateral lower extremity pain. The patient states that she was previously a ballet dancer and had intermittent lower back pain throughout her youth. The patient's lower back pain has significantly increased since she coughed in August of 2010. She states that the pain has been present since with all activities aggravating her lower back pain. She states that sitting causes the most pain in her lower back. The patient continues to have pain with coughing and sneezing both in her lower back as well as into her lower extremities but the pain does not extend below her knees. She denies palliative factors for the lower back or lower extremity pain. She also states that she had been tripping more due to what she perceived as weakness in her left leg. She denies neither bowel or bladder dysfunction. The patient has recently seen her primary care physician who prescribed her anti-inflammatory medication as well as muscle relaxers. She also recently had plain film imaging (x-ray) as well as magnetic resonance imaging (MRI) studies performed to her lumbosacral spine. She states that, due to a problem with the handling of the x-rays, that they were no longer readable.

Physical Examination

Blood pressure while seated was 82/48 for the right arm.

Inspection revealed the patient to be in noticeable discomfort while standing although there was no antalgic posture present.



There was pain with palpation over the midline of the lumbosacral spine as well as over the right PSIS and piriformis that reproduced the patient's lower back pain. There was restricted range of motion over the right PSIS. Prone motion palpation revealed restricted joint movement into right rotation at L4 and L5. There was hypertonicity with tender points in the right quadratus lumborum. There were tender points present paraspinally at the lumbosacral junction bilaterally.

Active range of motion testing of the lumbar spine revealed tightness at 90° of flexion over the lumbosacral paraspinal musculature bilaterally. Left rotation at 20° causes left-sided lumbosacral pain. Right rotation at 5° caused midline lumbosacral pain. Left lateral flexion at 15° caused midline lumbosacral pain. All ranges of motion were by visual estimate.

Orthopedic testing of the lumbosacral spine revealed localized pain with Kemp's tests to the right. Bechterew's test and Straight leg raise tests were negative bilaterally for lower back or lower extremity pain. Yeoman's and Hibb's tests on the right caused right-sided sacroiliac pain.

Neurological testing revealed no deficits over the L4-S1 dermatomal distribution with light touch. Muscle strength testing of the foot dorsiflexors/inverters, great toe extensors, and foot plantar flexors/everters was 5/5 bilaterally. Patellar and Achilles reflexes were 3/4 bilaterally. The patient stated that these were normal reflexes for her. Vibration testing at the fifth distal interphalangeal joint of the lower extremities was detected bilaterally. Joint position sense was tested at the fifth distal interphalangeal joint and was normal bilaterally.

MRI findings of the lumbosacral spine dated 11/3/10 revealed the following:

There was mild disc bulging at L2-L3. There was also mild central disc bulging at L3-L4 with a central annular fissure. There was mild flattening of the ventral thecal sac also at L3-4.

At L4-5 there was a mild to moderate central to right paracentral disc extrusion noted with disc material seen tracking inferiorly along the upper aspect of L5 centrally and to the right of midline. The findings extend into the anterior epidural space and contributes to mild flattening of the ventral thecal sac centrally and to the right of midline and also contribute to mild bilateral foraminal narrowing without central stenosis.

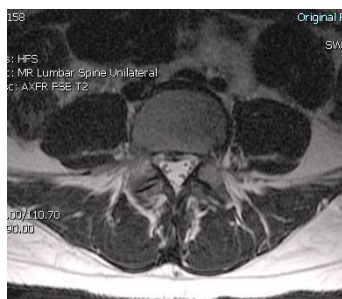
At L5-S1, there is a superimposed mild central to left paracentral disc extrusion with disc material seen tracking inferiorly along the upper aspect of S1 in the central to left paracentral region. An annular fissure is also seen posteroinferiorly and centrally.

Imaging



Sagittal view showing at L4-5 a mild to moderate central to right paracentral disc extrusion noted with disc material seen tracking inferiorly along the upper aspect of L5 centrally and to the right of midline. The findings extend into the anterior epidural space and contribute to mild flattening of the ventral thecal sac centrally and to the right of midline and also contribute to mild bilateral foraminal narrowing without central stenosis.

At L5-S1, there is a superimposed mild central to left paracentral disc extrusion with disc material seen tracking inferiorly along the upper aspect of S1 in the central to left paracentral region. An annular fissure is also seen posteroinferiorly and centrally.



Axial views showing L4-L5 Disc Extrusions



Axial view showing L5-S1 disc extrusion

Assessment

The findings were consistent with right-sided sacroiliitis and multiple disc protrusions/extrusions with inferiorly tracking disc material at L4 and L5. There were no signs of motor weakness or any other neurological deficits present and there was no radiating pain below the knees present. Monitor for patient for signs of progressive neurological deficits. Refer for neurosurgical consult if there is not a 50% resolution of pain after a one-month period of time.

The patient was also told to follow up with her primary care physician regarding her hypotension.



Treatment Plan

Treatment consisted of prone drop manipulation to the sacroiliac joints to restore joint function. Cox® distraction Protocol 1 with tolerance testing was performed and initially implemented at L2. The goal with the distraction was to increase the disc height by up to 17% and provides up to a 28% increase in intervertebral foraminal surface area, as well as decrease the intradiscal pressure to as low as -192 mm/Hg (1,2.). The patient was instructed to limit lumbar spine flexion to prevent further insult to the annular fibers of the intervertebral discs and to use cryotherapy over her lumbosacral spine for a minimum of two to three hours at twenty minute intervals with a forty minute rest. She was to use the ice for as long as she was able for decreasing inflammatory responses at the region of the disc extrusions. Additionally, as the pain subsided the patient will be given therapeutic exercises to improve range of motion as well as for pelvic stabilization.

The treatment was at a frequency of three times per week until we had a 50% decrease in lower back and leg pain as well as a decreasing feeling of weakness in the lower extremities for the patient. Once a 50% decrease in pain was achieved, the frequency of visits will be decreased.

Discussion

Within three visits over a six day period, the patient began experiencing less pain in her lower extremities. Also the pain at that time extended only into the posterior thigh. She also hadn't noticed as much weakness in her legs and had not been tripping.

I continued with Cox® distraction Protocol 2 as well as performed active release to the quadratus lumborum and piriformis. I gave the patient pain free range of motion exercises for the lumbar spine while in a supine position.

The patient was treated three times per week for two weeks. At that time, there was a 30% decrease in symptomatology for the patient and the pain was only present in the lumbosacral spine and slightly into the right buttock.

The patient was treated for three visits for another 1 week period of time. At that time, the patient was no longer experiencing any pain or weakness in her lower extremities and had an approximately 70% decrease of pain in her lower back. At that time I gave the patient additional stretches and strengthening exercises focused on pelvic stabilization.

Long-term Follow-up

The patient continued with her pelvic stabilization exercises and received treatment using Cox® distraction periodically. She had an exacerbation of her lower back pain in March of 2011 (for further information on the exacerbation, see case study entitled "*Improved Motor Weakness at the L5 Nerve Root after a Single Treatment with Cox® distraction*").



Most recently, the patient presented to my office, approximately one year after her initial visit. She stated that she was having minimal pain in her lower back. She was no longer having pain or weakness in her legs. She had mild pain on palpation over the mid-line of the lumbosacral spine. Bechterew's and straight leg testing were negative bilaterally.

The patient responded favorably to treatment with Cox® distraction for her multiple extrusions and inferior migrating disc material.

References:

1. Gudavalli MR: Estimation of dimensional changes in the lumbar intervertebral foramen of lumbar spine during flexion distraction procedure. Proceedings of the 1994 International Conference on Spinal Manipulation. June 10-11, 1994, Palm Springs, CA, p81
2. Gudavalli MR, Cox JM, Baker JA, Cramer GD, Patwardhan AG: Intervertebral disc pressure changes during a chiropractic procedure. Presentation and publication at the [ASME IMECE 97 Bioengineering Convention](#), November 16-21, 1997, Dallas, Texas. - Advances in Bioengineering 1999; BED, vol. 39, pgs 187-188