



Management of Lumbar Radiculopathy Associated with an Extruded L4-L5 disc and concurrent L5-S1 Spondylolytic Spondylolisthesis in a 40 Year Old Male Using Cox Flexion-Distraktion Manipulation: A Case Report

submitted by
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Abstract

Purpose: This case report describes the effect of Cox flexion-distraktion manipulation on a patient with a symptomatic L4-L5 extruded disc above an L5-S1 Spondylolytic Spondylolisthesis.

Case Study: A 40 year old male presented to a chiropractor with complaints of acute low back pain and stiffness with pain and tingling radiating into the left leg and foot. The L5 pars defects were assessed with plain film radiography and the L4-L5 disc extrusion was discovered with magnetic resonance imaging (MRI). Treatment consisted solely of Cox flexion-distraktion for a total of nine visits over a period of four weeks. Pain was assessed initially and at the end of care using a numeric scale of 0-10.

Results: At treatment conclusion the original low back and radicular-type symptoms were no longer present and the patient rated the pain as a "0" after an initial pain assessment of "9" on the 0-10 scale. After nine years a follow-up examination showed no orthopedic or neurologic deficits and no recurrence of the original symptoms.

Conclusion: Cox flexion-distraktion manipulation may be a viable, non-surgical modality for treatment of a symptomatic patient with disc extrusions and concurrent spondylolytic spondylolisthesis.

Key words: low back pain; sciatica; disc extrusion; manipulation, chiropractic, spondylolisthesis

Introduction

Lumbar disc extrusions, a type of disc herniation, have often been considered a surgical condition by allopathic clinicians. Spondylolytic spondylolisthesis is a condition which may result in pain and disability for which surgical intervention, more specifically to fuse and stabilize the affected level, is a treatment option. Symptomatic patients with both a



disc herniation and concurrent spondylolytic spondylolisthesis may prove to be clinically challenging for many Medical Doctors and Chiropractic Physicians alike.

This case documents the successful treatment of a non-contained extrusion type disc herniation at L4-L5 immediately above an L5-S1 spondylolytic spondylolisthesis in a 40 year old male. Treatment consisted solely of Cox flexion-distraction manipulation a total of nine times over a period of one month. A nine year follow-up of the patient revealed no recurrences and normal orthopedic and neurologic status.

Case Report

A 40 year old Caucasian male presented to a private chiropractic clinic with complaints of severe, acute low back pain radiating into the left buttock and thigh with an ache in the calf and tingling in the toes. The patient stated that the pain began when he bent forward while sitting in a chair attempting to pick up a small item on the floor. The pain and associated stiffness immediately limited all lumbosacral ranges of motion (ROMs) and restricted activities of daily living (ADLs).

The patient presented for evaluation two days after the incident to a chiropractor who was certified in the Cox flexion-distraction method of conservative spinal care. The pain was initially rated a "9" on a numerical pain scale from 0-10 with 10 being the worst pain imaginable. The patient's motion was significantly guarded, being limited by pain and lower back stiffness. The patient denied any loss of bowel or bladder control. No lower extremity weakness, footdrop, or abdominal complaints were noted. It should be noted that during the first 2-3 days after the injury the patient reported that he had taken over-the-counter NSAID's (Ibuprofen).

Physical examination showed a patient 69" inches tall weighing 175 pounds. All lumbosacral motions were reduced and guarded, and the patient was in a slightly flexed, antalgic position. No specific ROM measurements were taken because of the pain, although attempted extension of the lumbosacral spine was noted as the most painful motion. Bechterew's test (sitting SLR) on the left produced an increase in low back pain, pain radiation into the left thigh, and an increase of the tingling/numbness sensation on the dorsum of the left foot. The straight leg raise test (SLR) at approximately 50° on the left caused increased low back and thigh pain and also numbness/tingling on dorsal aspect of the left foot. Patellar and Achilles reflexes were equally responsive (2+) bilaterally. Sharp-dull testing produced altered sensation (paresthesia) at the L5 dermatome on the left. Lower extremity muscle strength was strong (5/5) and equal bilaterally. The patient was able to heel and toe walk but heel walk on the left increased the patient's symptoms. Tenderness was noted at the L4/L5 and L5/S1 levels bilaterally. Hypertonicity was found in the lumbar paraspinal musculature and also in the gluteal muscles bilaterally.

A five view plain film x-ray series was taken of the lumbar spine which noted:

- Mild degenerative disc disease (DDD) at T11-T12, T12-L1, L4-L5, and L5-S1 (Figure 1)
- Bilateral L5 Par defects with grade I anterolisthesis of L5 on S1 (Figure 2)
- Mild facet arthrosis at L5-S1
- S1 Spina Bifida Occulta



Figure 1



Figure 2

An MRI study consisting of T1-T2 sagittal and axial images of the lumbosacral spine showed the following:

- A posterior disc prominence at L4-L5 measuring 4.0 mm in the AP dimension and 6.0 mm of inferior extension of the discal material through the annulus fibers that were not intact. (Figures 3, 4)
- Minor compression of the thecal sac with encroachment of the left L4-L5 intervertebral foramen (Figure 5)
- Grade I spondylolytic spondylolisthesis at L5-S1 with bilateral intervertebral foramen (IVF) stenosis and mild facet arthropathy. (Figures 3, 4, 5)



Figure 3



Figure 4



Figure 5

Treatment was initiated on the first visit and consisted of Cox flexion distraction manipulation which is a form of decompression using hands-on manipulation. This technique utilizes a specialized adjusting table where flexion and traction may be applied to a specific spinal level for treatment of low back pain and radiculopathy. The treatment in this case, Cox protocol I, consisted of the doctor's hand contacting the spinous process above the affected disc with the patient prone on the adjusting table. Three sets of five repetitions of flexion of the caudal part of the table with a return to the treatment starting position occurred. No other physical treatment modalities were



used during the course of treatment. Treatment frequency was three times per week for two weeks, two visits during the third week and once during the fourth week.

During the course of treatment the patient reported progressive relief of his pain and stiffness, and improvement of the initially limited ADL's. On the ninth and final visit, approximately four weeks after beginning treatment he reported a pain level of "0" on the 0-10 pain scale. The final examination on the last visit revealed full and pain free lumbar ranges of motion and no abnormalities with lumbar orthopedic or lower extremity neurologic testing.

On a follow-up visit nine years after conclusion of care the patient reported no recurrence of the low back or lower extremity symptoms previously related his L4-L5 disc herniation. Orthopedic and neurologic testing on reexamination produced no abnormal findings or complaints.

Discussion

Spinal disc extrusions such as the non-contained disc herniation in this case, occur when the annular fibers no longer contain the nucleus pulposus. Spondylolytic or true spondylolisthesis occurs when one vertebrae slips forward on the segment below due to pars interarticularis fractures.

Plain film x-ray imaging that includes AP, lateral and oblique views have proven to be useful in identifying pars defects. MRI is an effective imaging method to study degenerative disc disease and disc herniations. In this case, plain film radiographs and MRI were utilized to correlate with the clinical findings.

Different protocols have been used to treat lumbar disc herniations including noninvasive and invasive surgical methods. Non-surgical treatment regimens may include non-steroidal anti-inflammatory drugs, Epidural Steroid Injections, physical therapy and Chiropractic. Lumbosacral manipulation and therapeutic exercise has been shown to be effective in treating lumbar disc herniations associated with low back pain and radicular symptoms.

This case study reports on the use of the Cox flexion-distraction manipulation for treating a symptomatic L4-L5 disc extrusion above an L5-S1 spondylolytic spondylolisthesis. Since it reflects only one case being successfully treated by the Cox flexion-distraction method it may be of limited value. Another possibility for the positive outcome is that the symptoms resolved on their own.



Conclusion

The occurrence of lumbar disc herniations is often present in the population of patients with sciatica and/or low back pain. Treatment for this condition includes both surgical and non-surgical procedures. The intent of this report was not to perform a literature review or show dramatic imaging. It was meant to discuss the results of a single case of a symptomatic L4-L5 disc extrusion causing radicular symptoms above a concurrent L5-S1 spondylolytic spondylolisthesis. Based on the encouraging results of this case study, management of similar cases using the Cox flexion-distraction method of chiropractic manipulation may be viable treatment option. Further studies need to be performed.

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Patient Permission

The patient in this study has given permission to have his personal health published in this study.