Case Study

Reduction of Upper Back Pain & Resolution of Sciatica Following Chiropractic Care to Reduce Vertebral Subluxation in a 30-Year-Old Female with Scoliosis: A Case Study

Allie Hamstead, DC[1]

1. *Sherman College of Straight Chiropractic, Spartanburg, SC*

Abstract

Objective: To describe the care and positive health outcomes of subluxation-based chiropractic care of a 30-year-old female struggling with upper back pain, sciatica. and scoliosis.

Clinical Features: A 30-year-old female with upper back pain and sciatica as well as thoracic and lumbar scoliosis and significant pelvic rotation. Medical interventions such as physical therapy failed to make significant improvements to her complaints.

Interventions and Outcomes: Vertebral subluxations were found at the levels of C2, T6 and Right Ilium and specific, Diversified adjustments were delivered at C2 and T6. Specific Thompson adjustments were delivered at the right ilium according to Thompson protocol. She was seen twice a week for six weeks and once a week for six weeks. At the conclusion of care, the patient reported a resolution of the sciatica, a significant decrease in upper back pain and marked improvements in cervical and lumbar ranges of motion.

Conclusion: Chiropractic adjustments, which focus on the reduction of vertebral subluxation, appeared to be beneficial for a female patient suffering from upper back pain and sciatica as well as thoracic and lumbar scoliosis along with pelvic rotation. The patient had not previously been under chiropractic care. She was previously treated with physical therapy. Using Diversified and Thompson techniques, we have seen reduction of subluxation in the cervical spine, thoracic spine and pelvis and significant decrease of associated symptomology.

Keywords: *Scoliosis, adjustment, vertebral subluxation, sciatica, upper back pain, spinal manipulation*

Introduction

Scoliosis is defined as a lateral curvature of the spine with torsion of the spine and chest as well as a disturbance of the sagittal profile.[1] It is prevalent in adolescents as well as adult patients. Idiopathic scoliosis is a common spine deformity.[2] It can be a source of pain in the spine. This pain can be affected by a variety of factors. "Pain catastrophizing, poorer self-reported state of mental health, decreased thoracic kyphosis, and greater pelvic asymmetry" all are risk factors for pain in patients with scoliosis.[3] Adult scoliosis is sometimes associated with back pain and severe curves can progress over time.[4] Adolescents with idiopathic scoliosis frequently experience low back pain.[5] Adult scoliosis is becoming a medical condition of significant impact, affecting the fastest growing section of our society to a previously unrecognized degree.[6] In cases where the spinal deformity of scoliosis is greater, there was an association of "higher pain intensity."[7]

The curvature and rotation of the vertebrae in cases of scoliosis can be due in part to vertebral subluxation and can contribute to the symptoms of subluxation. Subluxation is caused by the rotation of a vertebra compared to the segment below. It can cause functional and structural changes that affect neural integrity and may negatively impact overall health. Symptoms such as back pain and sciatica may be associated with the presence of subluxation in a patient.

There is currently insufficient evidence to establish whether spinal manipulative therapy may be beneficial for adolescent idiopathic scoliosis.[2] Previous research has "indicated that spinal manipulative therapy might be effective for preventing curve progression or reducing Cobb angle."[5] There is at present high quality evidence in support of the conservative treatment of adult idiopathic scoliosis.[8] Chiropractic manipulation can effectively relieve pain and improve lumbar function in patients with degenerative scoliosis.[9] It is important that conservative care, such as chiropractic be considered. Clinical factors - particularly function impairment – motivated adult thoracolumbar scoliosis patients to undergo surgery.[10] If it is possible for these patients to avoid surgery by trying a conservative option like chiropractic care, that would be beneficial.

In this study, a patient presented to the examiner's clinic with a history of upper back pain and sciatica. Each issue had been present for more than 10 years. The examiner suspected following analysis of the patient's x-rays that scoliosis could be contributing to their upper back pain and sciatica. In this study, subluxation was determined per Sherman Package protocol (see methods section) and subluxation was located at the levels of C2, T6 and R ilium.

Correction of subluxation was performed in the following ways: C2 was adjusted with a supine diversified contact, T6 was adjusted with a diversified cross pisiform contact, and R ilium was adjusted with a Thompson drop in the prone position. The techniques used had the objective of correcting spinal nerve interference caused by vertebral subluxation.[11] The aim of this chiropractic care was to correct vertebral subluxation and subsequently decrease the patient's pain levels and improve their activities of daily living.

Case Study

History

The patient signed a consent form for research purposes and the study was approved by the Institutional Review Board at Sherman College of Chiropractic. Patient is a 30-year-old female who reports dealing with upper back pain and sciatica for more than 10 years. On the first visit, the patient stated that her upper back pain was a constant 8 out of 10 and that her sciatica affected her daily at a 7 out of 10. The patient reported that the severe pain interfered with her ability to do activities of daily living including bending, driving, household chores, lifting and standing. Upon taking full spine x-rays of this patient and doing an evaluation of her spine, it was seen that she also had scoliosis present in the lower thoracic spine and the lumbar spine.

Furthermore, the pelvis showed significant rotation, with one ilium rotating internally and one ilium rotating externally. The patient stated that she tried physical therapy in the past to help with the pain, but that she had never received chiropractic care. She stated that the physical therapy in the form of stretches and exercises did not improve her pain levels in a significant way. The patient was not working at the time of the research and care, but she wanted to be able to perform front desk assistant duties at her husband's office.

She also reported that she wanted to be out of pain before she started a family with her husband so that she could have an easier pregnancy when the time came. She feared that the pain would increase during pregnancy if she did not try chiropractic care.

Examination

Chiropractic examination at this office showed subluxations according to static, motion and muscle palpation via the Sherman College package protocol. In addition to this protocol, posture and gait analysis was performed. The patient also underwent relevant orthopedic testing. A full set of opposing x-ray views were done at the initial visit as well. Prone leg checks were performed during the exam before palpation.

These exams resulted in the following pertinent information and findings:

Initial Exam revealed:

- Posture analysis showed a high right shoulder, high right hip, right head tilt and right head rotation. Gait analysis was normal.
- Prone leg check revealed a left short leg.
- Moderately tight trapezius mm. bilaterally, moderately tight upper thoracic and lower thoracic musculature bilaterally, and moderately tight erector spinae mm. bilaterally.
- Cervical Range of Motion: Pain with flexion, mildly decreased left lateral flexion to 30 degrees, and mildly decreased left rotation with pain to 50 degrees.
- Lumbar Range of Motion: Moderately decreased flexion with pain to 30 degrees, and moderately decreased extension with pain to 10 degrees.
- Ortho: Positive Straight Leg Raiser on the R and Positive Jackson's on the left.

X-ray findings: Severe hypolordosis of the cervical spine, Mild R rotatory scoliosis in the lower thoracic spine, Mild L rotatory scoliosis in the lumbar spine and significant pelvic rotation. Cobb's angle for both scoliosis curvatures was between 20 and 22 degrees. Pelvic rotation was IN on the right and EX on the left. See Figure 1-6.

Intervention

This patient received chiropractic care at a frequency of 2 times a week for 6 weeks and 1 time a week for 6 weeks. See Table 1 for visit frequency. Two progress exams were performed. Using the Sherman College Package protocol, subluxation was found at C2, T6 and R ilium. Correction of subluxation was performed with Thompson prone pelvic adjustments, prone diversified cross pisiform adjustments in the thoracic spine and supine diversified adjustments in the cervical spine. Changes in leg lengths were observed in the prone position as well as changes in the pre to post adjustment findings.

Materials and Methods:

1. Leg checks; Thompson
2. Static, muscle, motion palpation
3. Active and passive Range of motion
4. Cervical and Lumbar Orthopedic examination
5. Neck Disability Index
6. Cervical adjustments were performed per Diversified supine protocol
7. Thoracic adjustments were performed per Diversified cross pisiform protocol
8. Ilium adjustments were performed per Thompson drop protocol
9. Static, muscle, motion palpation were performed post adjustment to check for changes following the adjustment

Results

The aim of this chiropractic care was to decrease vertebral subluxation findings, decrease upper back pain and sciatica as well as to improve the patient's activities of daily living. The re-exam findings following her visit frequency of 2 times a week showed:

- Leg checks balanced following each adjustment.
- Posture analysis showed balanced shoulders, high right hip, decreased right head tilt and decreased right head rotation.
- Muscle palpation showed a mild decrease in trapezius mm. tightness bilaterally, and erector spinae mm. tightness bilaterally.
- A moderate increase in range of motion in the cervical and lumbar spine.
- A decrease in pain to a 2/10 for her sciatica.
- A decrease in pain to a 4/10 for her upper back pain.

The re-exam findings following her visit frequency of 1 time a week showed:

- Muscle palpation showed a mild decrease in upper thoracic and lower thoracic musculature bilaterally.
- The sciatica was fully resolved.
- The upper back pain was infrequent (occurring less than one time every three days) and a 2/10.
- The patient's cervical and lumbar ranges of motion were within normal limits.
- The orthopedic testing was within normal limits.

The patient had a decrease in pain to a 2/10 for her sciatica and a 4/10 for her upper back pain at the first re-exam following the visit frequency of 2 times a week. When her re-exam was performed following her visits of 1 time a week, her sciatica was fully resolved, and the upper back pain was infrequent and a 2/10.

The patient was pleased and even surprised at how much better she felt following starting care. She was excited that her sciatica and upper back pain had improved. She had an increase in range of motion in the cervical and lumbar spine and noticed when she did daily activities like driving and household chores that it was easier to move her neck and back. The patient also reported feeling more relaxed and rested, had easier bending, improved neck and back comfort. The patient was happy to no longer struggle through her activities of daily living and she felt mentally prepared to think about starting a family.

Discussion

Patient presented with significant scoliosis in two regions of her spine as well as pelvic rotation. She struggled with upper back pain and sciatica as a result. Diagnosis was determined using X-ray analysis of the full spine.

This patient had been struggling with pain for more than 10 years. Scoliosis can cause pain for many patients and lead to a decrease in their activities of daily living and quality of life. Vertebral subluxation was found to be present in the patient. This could be due in part to her scoliosis. The correction of that subluxation led to a decrease in her pain, an increase in her range of motion and an overall improvement in her quality of life.

The possible benefits of this study are to add to the current knowledge of adjustment techniques when a patient is presenting with significant scoliosis and subsequent pain. The principle aim of chiropractic care for this study is the correction of vertebral subluxations. The subluxations found with this patient were associated with upper back pain, sciatica and an overall decrease in her ability to perform daily tasks.

The correction of vertebral subluxation was successful in reducing her current pain level and improving her cervical and lumbar ranges of motion. The patient stated that prior to starting care, she was scared to consider trying to start a family for fear of the physical toll that it would take on her body. Following her care, she felt that she would be able to do so and to continue under care during her future pregnancy as well.

This study could have been improved by taking post x-rays to look for measurable changes to the scoliosis curvature and pelvic rotation. It is recommended that additional research be conducted, such as a clinical trial that would help answer the question of effectiveness of chiropractic care for cases of significant scoliosis and its associated discomfort and disability.

Conclusion

Initially, this patient was dealing with daily pain in her upper back as well as daily sciatica down her right leg. Both of these issues had been present for more than 10 years. After having unsuccessful physical therapy, she felt that chiropractic care could be an option for her. She was able to perform her activities of daily living in a pain-free way and felt more optimistic about her family's future following the delivery of chiropractic care. This case is beneficial to the chiropractic profession because it demonstrates that chiropractic care can be an effective option for a patient that fears manual adjustments due to their diagnosed scoliosis. More case studies are needed to further illustrate chiropractors' abilities to make a difference in complex cases.

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Appendix

Figure 1. Lateral Cervical x-ray

Figure 2. APOM Cervical X-ray

Figure 3. Lateral Thoracic X-ray

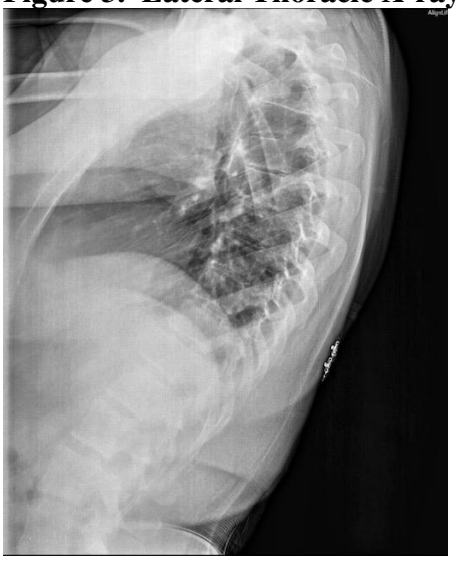

Figure 4. AP Thoracic X-ray

Figure 5. Lateral Lumbopelvic X-ray

Figure 6. AP Lumbopelvic X-ray

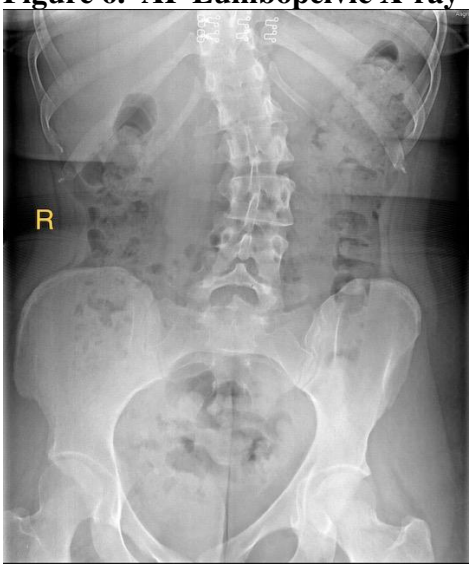

Table 1. Adjustments performed

Date of visit	Subluxations adjusted
March 2	No adjustments
March 9	C2, R Ilium
March 14	C2, T6, R Ilium
March 16	C2, T6, R Ilium
March 21	C2, T6, R Ilium
March 28	C2, T6, R Ilium
March 30	C2, T6, R Ilium
April 4	C2, T6, R Ilium
April 11	C2, T6, R Ilium
April 13	C2, T6, R Ilium
April 18	C2, T6, R Ilium
April 20	C2, T6, R Ilium
April 25	C2, T6, R Ilium
April 27	*Progress Exam*, C2, R Ilium
May 4	C2, R Ilium
May 11	C2, R Ilium
May 18	C2, R Ilium
May 25	C2, R Ilium
June 1	C2, R Ilium
June 8	*Progress Exam*, R Ilium