Case Study

Reduction of Neck Pain and Immobility in a 78-Year-Old Patient with Severe Degenerative Disc Disease and Osteoporosis Using Gonstead Chiropractic Care for Vertebral Subluxation: A Case Study

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Abstract

Objective: To describe the care and outcomes of subluxation-based chiropractic care of a 78-year-old female suffering from severe neck pain and immobility.

Clinical Features: A 78-year-old female with neck pain and immobility due to severe degenerative disc disease and severe osteoporosis in the cervical spine

Interventions and Outcomes: Vertebral subluxation was found at the levels of C7 and C1 and specific, Gonstead cervical chair adjustments were delivered according to Gonstead protocol with the exception of the use of a sustained pressure in place of a thrust. After 6 weeks of care, she reported being pain free for 2-3 days at a time, with marked improvements in range of motion. At the conclusion of 12 weeks of care, the patient reported no pain, and demonstrated improvements in cervical range of motion and posture.

Conclusion: Chiropractic adjustments for the reduction of vertebral subluxation were beneficial for a female patient suffering from neck pain and immobility due to severe degenerative disc disease and severe osteoporosis. The patient had previously received several different technique approaches including toggle, activator, Applied Kinesiology, and diversified techniques with no resolution of neck pain or improvement in range of motion. Using a modified Gonstead Technique we observed reduction of subluxation in the cervical spine. This coincided with resolution of associated symptomology, as well as marked improvement in range of motion.

Keywords: *Chiropractic, vertebral subluxation, adjustment, intervertebral disc degeneration, osteoporosis, spine, range of motion*

Introduction

Musculoskeletal pain is a leading cause of disability in the United States.[1] As age and degeneration progresses without proper care, the probability increases that degeneration of the spine ensues to the point of complete disability. Degenerative disc disease is a very common cause for neck pain.[1] There are six stages of disc degeneration described by Herbst.[2]

This patient presents a case of stage six disc degeneration, described as the "most severe and most difficult to correct". When there is a breakdown of the intervertebral discs in the cervical spine, it can lead to pain, immobility, osteophyte formation and even radiating arm pain and associated weakness; all of which can be associated with vertebral subluxation.[3] This coincides with the subluxation degeneration model described by Kent (1996) as "Progressive degeneration of the cervical spine is thought to begin with the intervertebral discs, progressing to changes in the cervical vertebrae and contiguous soft tissues."

Nerve roots can become irritated by misaligned vertebrae, degeneration of discs and spine, inflammation, or herniated vertebral discs.[3] In chiropractic, when a vertebra disturbs

nearby nerve function, either at the nerve root level and/or spinal cord, the condition is known as vertebral subluxation.

Functional changes within these nerve roots often results in debilitating pain and consequently play a significant role in one's quality of life.

The principle aim of care in this case was to adjust vertebral subluxation, which in turn may address the physical decline that arises from pain and physical activity intolerance.

Desired outcomes of chiropractic care in adjusting the subluxation may include reduction of pain, increased function, and enhanced quality of life.

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 78-year-old female who reports dealing with neck pain for 25 plus years. She worked as an administrative assistant all her life and continues to do so on a part time basis, approximately 16 hours per week.

She reported that her neck pain was so severe, 7 out of 10, that she was unable to perform tasks at work and having to work decreased hours due to function and pain. She also reported that her neck pain was so severe that she was unable to turn her head to view traffic while driving and was scared that she may have to surrender her license for her safety and the safety of others.

The patient had been under the care of several interns at the health center before undergoing the described care plan.

Examination

Chiropractic examination at this facility revealed subluxations according to static, motion, and muscle palpation via the Sherman College Health Center protocol. Locating fixations (hypomobility) and laxity (hypermobility) is an essential method in motion palpation for determining subluxation.[4]

In addition to The Health Center protocol (see methods section), analysis was supplemented with Gonstead analysis which is described by Cooperstein as a "multivariate approach to subluxation identification, rather than rely on any one or very few examination findings."[5]

The use of a Nervoscope was to "obtain objective neurological evidence of a vertebral subluxation complex and to monitor the progression of patient care" as described by Plaugher.[4]

Other findings at the Sherman College Health Center at the time of starting this plan of care revealed the following pertinent information:

Cervical Physical exam:

Initial exam revealed: (03/13/2018)

- extremely tight musculature in the cervical spine with restricted movement through all ranges of motion.
- left cervical rotation which presented with zero range of motion measure.
- Cervical flexion: 25º
- cervical extension: 30º
- left/right lateral flexion: 25º
- right rotation: 40º
- Ortho: Positive Maximum Cervical Compression with pain on the right C2-C7 at a 3 out of 10, Positive Spurling's with pain at bilaterally C2-C7 at a 2 out of 10 and Positive Jackson's on the right C2-C7 at a 3 out of 10.

All of these measurements are below the average acceptable limitations according to Sherman College of Chiropractic Health Center protocols. Neck Disability Index was measured at 58% with daily pain rated at a 7 out of 10 on the pain scale with 10 out of 10 being the worst possible pain.

X-ray (09/17/2010) findings: Severe DDD C4-C6, anterolisthesis C3 – 1.7mm (Figure 1)

MRI (11/28/2017) findings: Severe cervical spondylosis with central and foraminal stenosis. Moderate/Severe osteoporosis noted throughout cervical spine. (Figure 2). Subluxation finding presented at C7 and C1.

Intervention

The patient received chiropractic care at a frequency of two visits per week for a 6-week period before first re-evaluation. See Table 1 for visit frequency and adjustments made. Using this analysis in addition to the Sherman Health Center protocol, subluxation was located at the levels of C7 and C1.

Correction of subluxations was performed according to Gonstead seated chair techniques[2] with the exception of a modification to the thrust. A sustained pressure contact was performed in place of a thrust due to patient's bone density and progression of DDD and osteoporosis. Changes in leg length were visually observed in prone position, along with other analysis findings, when comparing pre-adjustment findings to post adjustment findings.

Outcomes

The aim of this chiropractic care was to correct vertebral subluxation and subsequently decrease the patient's pain levels and increase function of the cervical spine. After four visits, patient reported no pain for the first time. After completion of initial care plan, patient reported no pain for several visits. This was first time the patient had been without neck pain for approximately 20 years, as noted by the patient.

Patient's initial care plan goals were to be able to perform her job for several hours so as not to be working decreased hours and be able drive without worry of safety on herself and others. Both of these goals were met by the first re-evaluation

After two months and she was able to work a whole day by the four month re-evaluation.

Two re-evaluations were done with the following results:

Two-Month Re-exam:

Increased muscular tone at C7 bilaterally. Cervical ROM 35º, right rotation 40º, left lateral flexion 25º, and right lateral flexion 25º. Maximum cervical compression and Jackson's orthopedic tests were negative. Spurling's test was still positive with pain on the right but only at the lower cervical spine with a pain level of a 1/10. Significant changes in Tytron thermography reading (Figure 3).

Four-Month Re-exam:

Balanced musculature tone in the cervical spine. Cervical ROM revealed; flexion 40º, extension 50º, left rotation 45º, right rotation 45º, left lateral flexion 35º, and right lateral flexion 30º. Spurling's test was still positive with pain on the right but only at the lower cervical spine with a pain level of a 1/10.

Methods:

1. Tyron thermography
2. Deerfield leg checks
3. Static, muscle, motion palpation
4. Active and passive Range of motion
5. Cervical Orthopedic examination
6. Neck Disability Index
7. Nervoscope break analysis
8. Cervical adjustments were performed per Gonstead seated chair protocol with the exception of a sustained pressure through the contact hand in place of a thrust
9. Thermography and Nervoscope analysis were repeated after adjustment for objective measure of VSC

Discussion

Patient presented with severe degenerative disc disease in the cervical spine with severe osteoporosis. Diagnosis was determined using X-ray and MRI analysis of the cervical spine. Due to disease progression, it was determined that typical manual adjusting techniques of the cervical spine may be too aggressive for the patient. Adjustments were modified accordingly and a sustained pressure was used to replace the thrust typically utilized per Gonstead techniques. Patient set-up, positioning, and contact points remained unchanged per established Gonstead protocols.[2]

The possible benefits of this study is to add to the current knowledge of adjusting techniques utilized by the Gonstead practitioner, and other manual adjusting techniques. Due to progression of DDD and osteoporosis in this patient, several different adjusting techniques were employed in the past with minimal results.

These included Toggle, Activator, and Diversified techniques (for lumbo-pelvic region). Patient reported no reduction in pain or improvements in any other associated symptoms during prior care. The principle aim of chiropractic care for this study is the correction of vertebral subluxations utilizing specific Gonstead adjusting techniques. The subluxations found on this patient were associated with severe disability which included daily bouts of neck pain and severe loss of cervical range of motion.

Correction of vertebral subluxation was successful in reducing the patient's current pain level and lead to significant improvements in cervical range of motion. Patient noted that her neck immobility was so severe prior to this specific Gonstead care that she was ready to give up her driver's license, sacrificing her independence, for her own safety.

Conclusion

This patient initially viewed themselves as disabled with in ability to perform her job and endangering the safety of others while driving. She can now resume activities of daily living such as working a full workday and driving with no complication following the delivery of chiropractic care. Since this is a case study, no claim of cause-and-effect can be made.

There are numerous case studies documenting positive health outcomes in people following care involving Gonstead technique including degenerative conditions, neuromusculoskeletal and visceral disorders.[6-33] It is recommended that additional research be conducted, such as a clinical trial would help answer the question of effectiveness of the modified Gonstead chiropractic care in this case.

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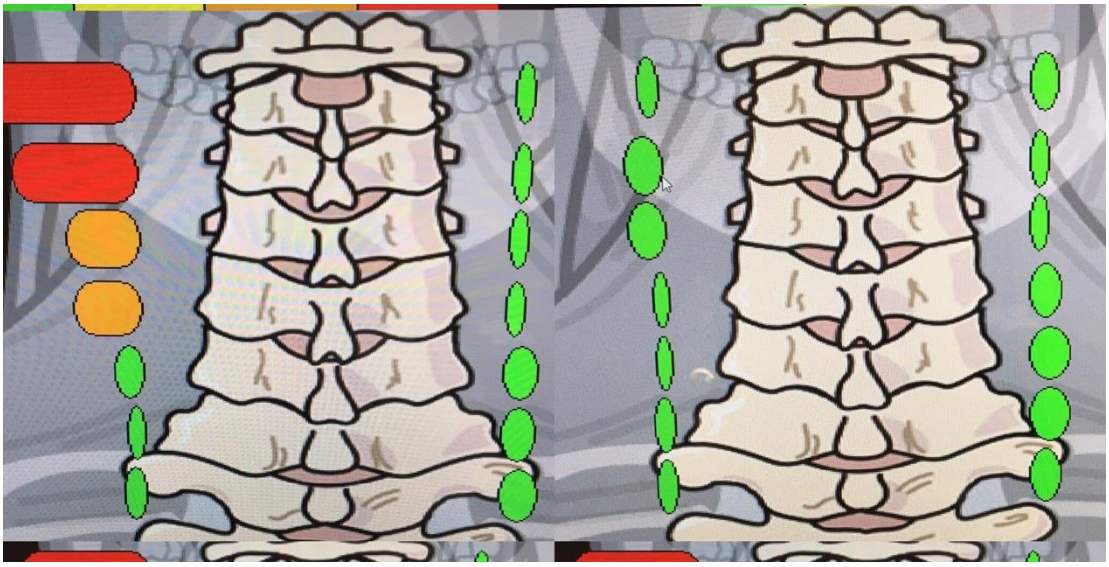
Table 1. Initial care plan adjustments

3/13/18	No adjustments
3/15/18	C7 (PR)
3/19/18	C7 (PR)
3/23/18	C7 (PR)
3/27/18	C7 (PR)
4/3/18	C7 (PR)
4/5/18	C7 (PR), C1(ASLP)
4/9/18	C7 (PR)
4/12/18	C7 (PR)
4/16/18	C7 (PR)
4/24/18	C7 (PR), C1(ASLP)
4/27/18	C7 (PR)
5/1/18	No adjustments necessary
5/8/18	No adjustments necessary

Figure 1. X-ray image of cervical spine revealing DDD at C4-C^ and anterolisthesis at C3

Figure 2. MRI image of cervical spine revealing DDD and evidence of stenosis

Figure 3. Tytron scans of cervical spine



3/13/18 pre-adjustments 5/10/18 re-evaluation