CASE STUDY

Improvement in Multiple Sclerosis and GERD in a Female with Vertebral Subluxations Undergoing Chiropractic Care: A Case Study

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Abstract

Objective: To report on the improvement of multiple sclerosis and GERD related symptoms in an adult female undergoing chiropractic care to correct vertebral subluxations.

Clinical Features: Fifty-one year old female with history of multiple sclerosis and several other conditions including GERD. Objective indicators of vertebral subluxation identified via surface electromyography and radiographs.

Intervention & Outcome: Pettibon chiropractic technique along with manual Diversified chiropractic adjusting directed at reducing vertebral subluxations in the cervical, thoracic and pelvic regions were performed. Dietary modifications and a lead detoxification program were also implemented.

Conclusion: The case of an adult female with past history of multiple sclerosis and other conditions is presented. Dramatic improvement in symptoms related to multiple sclerosis is noted following the introduction of chiropractic care concomitant with a reduction in vertebral subluxation. Additional research on the benefits of chiropractic in those with multiple sclerosis is warranted.

Key Words: *Multiple Sclerosis, chiropractic, vertebral subluxation, gastroesophageal reflux disease (GERD), Pettibon, Diversified, thermography, surface electromyography*

Introduction

Multiple sclerosis (MS) is a debilitating disease characterized by recurrent or chronically progressive neurological dysfunction.[1] This disease is caused by periventricular inflammatory foci in the white matter of the central nervous system. The recurrent inflammatory episodes result in characteristic widespread, demyelinated sclerotic lesions called plaques.[1] The plaques settle randomly throughout the brain, optic nerves, and spinal cords of its victims.[1,2] After the plaques settle, destruction of the myelin takes place, which leads to slowed or blocked nerve transmission, which ends in diminished or lost function.[2]

The prevalence of this disease has been estimated at 100 cases per 100,000 people.[1] The average age of onset is 30, with a male to female ratio of 1:2.[1,2] There is a geographic disparity in terms of prevalence as well, with more cases being found and reported in northern latitudes, more temperate

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climates than tropical climates. This may suggest environmental factors play a major role in the disease.

The fact that there is a genetic factor associated with this disease must not be ignored. The chance of developing MS is minimal when there is no family history of it. When there is a family history of the disease, there is a 10-20 chance out of 1,000 that a person will get it.[1] Research has shown that people with MS inherit certain regions on genes more frequently than those people without MS. The particular regions of interest are the human leukocyte antigens (HLA) or major histocompatibility complex regions on chromosome 6.[1,2]

There are four major classifications for MS, remitting relapsing disease, secondary progressive disease, primary progressive disease, and progressive relapsing disease; with remitting relapsing and secondary progressive being the most common.[1,3] Of the MS population, 20% will have a benign form, which means their symptoms will show little to no progression after initial onset of the disease.[2] One should be aware of the initial neurological presentations of the disease as sometimes it can be atypical.[3] Most symptoms are as follows: fatigue, irregular appetite, mood changes, or memory disturbances. Depending on the classification of the disease, one will experience additional symptoms ranging from weakness, vision loss, paresthesias, diplopia, vertigo, and altered micturition. Certain activities, like taking a hot bath or exercising, can also trigger symptoms; because as body temperature rises, nerve conduction becomes more and more impaired due to demyelinated nerve fibers.[1]

Diagnosis of MS usually involves a series of tests. Using visual evoked potentials (VEP) can help confirm a diagnosis of MS. This test is done to determine the speed of impulse transmission between the brain and visual stimuli.[1,2] Slowing of this is a hallmark for demyelination.[1] Magnetic resonance imaging (MRI) is also used in making the diagnosis as it is one of the best investigative tools to use with suspicion of this disease. MRI will help the doctor distinguish old lesions from new lesions, as well as areas of recent disease activity.[2] Also, examining cerebrospinal fluid for abnormalities can help make an accurate diagnosis. Finding abnormal levels of myelin, proteins, and white blood cells in the cerebrospinal fluid has been associated with MS.[1,2]

Since there is no known cure for MS, traditionally, steroidal type anti-inflammatory medications have been used to manage the disease. These medications include but are not limited to adrenocorticotropic hormone, prednisone, prednisolone, methylprednisolone, betamethasone, and dexamethasone. These medications are administered only to reduce the duration and severity of the attacks; they have no effect on the course of MS over time. Many patients do well with no therapy at all, especially since many of the medications have serious side effects and carry significant risks.

The purpose of this paper is to report on a case showing successful chiropractic care of an adult female with multiple sclerosis, gastroesophageal reflux disease (GERD), asthma, osteoarthritis, and scoliosis.

Case Report

History

Patient is a fifty-one year old female who presented with a history of being diagnosed with multiple sclerosis, gastroesophageal reflux disease (GERD), asthma, osteoarthritis, and scoliosis. She also had complaints of neck pain, back pain and jaw pain.

She had been under the care of several healthcare professionals prior to presenting to the chiropractic office. These practitioners included the family medical doctor, a neurologist, allergist, rheumatologist, gastrointestinal specialist, cardiologist, and dermatologist. She was currently taking Advair for asthma, twice a day, and Zegrid for GERD, nightly.

The patient previously had laboratory work and other tests performed. These tests involved blood work, urinalysis, heavy metal testing, allergen testing, MRI's, CAT scans, EMG's, and EKG's. It was determined that she had elevated levels of lead in her system. It was also determined that she was allergic to over 30 different substances, chemicals, and prescription medications.

Examination

Chiropractic examination included postural analysis revealing a severe amount of forward head translation along with an elevated left shoulder and left hip. Bilateral weight scales indicated 10 more pounds of weight being displaced on the left side of the body. Spirometry indicated a diminished lung capacity of 2610c.c. compared to the normal 2800c.c.

Surface electromyographic and thermal scanning was performed utilizing the Insight Millenium Subluxation Station® which revealing dysautonomia as well as hypertonicity and muscular imbalance in the mid and upper cervical spine. (Figs 1 & 3)

Lateral cervical, AP cervicothoracic, AP lumbopelvic radiographs were taken and revealed the following: The lateral cervical x-ray revealed disc space narrowing throughout the cervical spine. There was a 20° cervical lordosis indicating a 56% loss of the normal cervical curvature. Also noted was 27 mm of forward head translation. The Anterior to posterior cervicothoracic x-ray revealed a mild right cervicothoracic list. The anterior to posterior lumbopelvic x-ray revealed a mild right lumbar scoliosis as well as mild degeneration at L5/S1. (Figs 7, 9, 11)

Several vertebral subluxations were detected from the chiropractic examination in the cervical, thoracic, and lumbar regions. Diagnosis also included multiple sclerosis, GERD, asthma, osteoarthritis, and scoliosis.

Intervention

The patient was seen for a total of 105 visits to date and was still under care as of this writing. Care started with 3 times per week for 4 months and 2 times per week for 4 months,

then 1 time per week thereafter. In addition to the initial surface EMG, three follow up scans were done to monitor the patient's progress. Pettibon and Diversified chiropractic adjustments were utilized in this case.

A healing diet was implemented to help reduce inflammation in the body. The diet removed all sugars and grains except for rolled steal oats. After nine months of this diet the patient was permitted to add fruits and a few select grains back into her diet to be eaten on occasion. She was instructed on how to do specific types of surge training exercises designed to maximize the body's oxygen capacity and positively effect hormonal levels. She also attended classes on stress & time management. Later on into her care heavy metal testing was implemented, which revealed elevated levels of lead in her system. She was then placed on a lead detoxification program.

Outcome

After approximately 12 visits, the patient reported improvement in pain levels throughout her body. The patient reported better mobility and increased activities as well. Her lung capacity improved from 2610c.c. to 2700c.c.

Posture continued to improve as the bilateral weight scales showed only a 2 pound displacement to the left. After using the heavy metals detoxification program, the levels of lead decreased to a level within normal limits. She was also able to decrease frequency of taking asthma and GERD medications, to once a day and every other day respectively. She was eventually able to stop taking the GERD medication entirely.

A series of thermal and surface electromyography scans were performed throughout the course of care utilizing the Insight Subluxation Station®. Two thermal scans and four SEMG scans were performed. (Figs 1-6) Instrumentation revealed what appeared to be consistent mid and upper cervical spine hypertonicity and dysautonomia during the care intervals reported. The most significant area of hypertonicity is in the upper cervical region and the ongoing areas of hypertoncity are felt to be related to changes in muscle activity secondary to changes in cervical spine structure. Follow-up Thermal scanning revealed a decrease in the dysautonomia in the cervical region from the initial scan. (Fig 2)

Follow-up radiographs (Figs 8, 10 & 12) revealed an improvement in the mild right cervicothoracic list which had completely corrected. The mild right lumbar scoliosis was decreased to a minimal 2° right lumbar list. The patient's forward head translation decreased to 5mm from 27mm and her cervical curve increased to 29° from 20°. The patient stated that she has had an overall improvement in her health from chiropractic care and wished to continue to improve in hopes of achieving a normal cervical curve.

Discussion

Chiropractic has been extensively documented in the literature regarding producing favorable results in treating neck pain, back pain, and headaches. It has also been cited in the literature for successfully treating several conditions like, asthma, osteoarthritis, and scoliosis.

Seeking chiropractic care to cope with the symptoms of multiple sclerosis has been cited in the literature dating back to the early 1990's. In 1993, Stude and Mick completed a case study on a patient with multiple sclerosis and the response to chiropractic care.[4] This case took a multidisciplinary approach to care and quickly saw a decline in the patient's symptoms following a chiropractic adjustment.

"The patient reported almost complete absence of symptoms within minutes after the first adjustment."[4] The patient was then seen on two later occasions stating the intensity of the symptoms had returned by 10% before each adjustment. A follow up medical neurologist evaluation confirmed that MS was still the diagnosis but it was considered not active at the time of the evaluation.

In their paper, Dougherty and Lawrence discussed how chiropractic care can be a viable treatment option for those who suffer from chronic pain due to MS. Implementing chiropractic care as part of a multidisciplinary team in long-term care showed a trend toward improvement.[5]

Another study by Elster[6] included 44 MS patients, who received chiropractic care following a protocol developed by the International Upper Cervical Chiropractic Association (IUCCA). This upper cervical adjusting method yielded a 91% improvement in 40 of the patients involved with the other four showing no change. Elster described that the patients experienced symptom relief and/or reversed or had no further progression of the disease, over the five year period of the study. Most of these patients did have a history of head or neck trauma and the author suggested through a review of the literature that there may be a causal link between trauma, upper cervical injury, and disease onset.[6]

Positive effects of chiropractic care on the symptoms of MS were also demonstrated in a study by Kirby.[7] The patient received upper cervical adjustments via an adjusting instrument. The patient's progress was measured using the Rand Health Survey which showed improvement in the symptoms related to MS.[7]

The literature also shows evidence of people seeking chiropractic care for treatment of gastroesophageal reflux disease (GERD).[8-12] GERD effects a wide variety of people, ranging from the pediatric patient to the adult. In their paper, Alcantara and Anderson[10] discussed a case of a pediatric patient with GERD. At the age of 2 months, the patient was diagnosed with GERD and placed on medication. After the 4th visit, the patient's mother decided to take her off the GERD medication, as the mother began to realize the improvements in her child since beginning chiropractic care. By the 7th visit, the patient was only vomiting once a day, whereas before she would vomit after each feeding. The patient also displayed a fuss-cry-irritability with a sleep disorder and irritable infant syndrome of musculoskeletal origin, which all improved with chiropractic care. Long term follow up revealed full resolution of symptoms.[10]

A preliminary randomized clinical trial included 62 patients with mild to severe GERD, divided into two groups.[11] One group received only spinal manipulative therapy for the first 20 visits and then 20 more with the addition of ischemic

compression; and the other group received only ischemic compression for 20 visits. Changes in their GERD symptoms were recorded via questionnaires. The results showed both therapies to be effective methods in treating GERD.[11]

Another study described adults receiving chiropractic intervention for chronic dyspepsia.[12] This was a prospective cohort study which included 83 participants. All were treated with a combination of chiropractic and soft tissue techniques. Of the participants, 59 reported improvement in their symptoms, while 24 remained unchanged, and none reported any worsening of symptoms.[12] This study concluded that chiropractic care could be effective in treating dyspepsia and GERD like symptoms.[12]

Approaches to Treatment

Aside from drug therapy, there are various complementary and alternative treatment options for those who suffer from multiple sclerosis. This was demonstrated in a study done in the UK which showed complementary therapy use by persons with multiple sclerosis to be "extremely helpful."[13] The therapies most used were massage, yoga, reflexology, relaxation and meditation, acupuncture, and aromatherapy. After being diagnosed with MS, many realize they must be actively involved in their care as this becomes a life-long commitment. Alongside conventional medical interventions, one will seek other complementary and alternative interventions as well. It is wise to educate oneself before mixing conventional and non-conventional treatment methods as they can sometimes have side effects.

A survey done, by Nayak et al, found that 57.1% of patients with multiple sclerosis sought at least one non-allopathic treatment, with 25.5% using chiropractic care. Of those under chiropractic care, the most common reason was for pain relief.[14] Also, in a retrospective cross sectional postal survey, patients with a diagnosis of multiple sclerosis were administered a questionnaire to assess their level of awareness and utilization of chiropractic care. A total of 231 questionnaires were completed and of those 210 (91%), reported using alternative modalities, with chiropractic care being the 3rd most popular at 42% . Of those under chiropractic care, the majority were using it to manage symptoms and stated they would recommend it to others with MS.[15]

In the book, "Complementary and Alternative Medicine and Multiple Sclerosis," the author describes several therapies that one can consider when looking for symptom relief due to MS. There are five major categories of therapies: Biologically based therapies, Mind-Body therapies, Alternative medical systems, Manipulative and Body based therapies, and Energy therapies.[16]

Biologically based therapies include diet, herbal medicine, orthomolecular medicine, and pharmacologic interventions. Mind-Body therapies include biofeedback, guided imagery, hypnosis, meditation, prayer, music, pets, and yoga. Alternative medical systems include acupuncture, ayurveda, homeopathy, and Tai chi. Manipulative and body based therapies include chiropractic, craniosacral therapy, massage, pilates, feldenkrais, reflexology, tragerwork, colon, and hippotherapy.

The energy based therapies include magnets and electromagnetic therapy and therapeutic touch therapy. But the therapies of choice appear to be massage, diet/supplementation, chiropractic, acupuncture, meditation/guided imagery, and yoga.[16]

Pettibon Technique

This technique was developed to "establish a model of the optimum upright spine and procedures for taking, marking, and measuring x-rays so abnormal spinal form can be measured and treatment effectiveness assessed".[17] It is a scientific approach to chiropractic that restores function to the body. A key principle upheld in this technique is the fact that the functional spinal environment is gravity and the spine and posture must develop and relate to it.

Pettibon treatment starts with a series of seven seated x-rays which are compared to a series of x-rays taken during and at the end of treatment. This is done to assess and document the patient's progress. The x-rays are taken seated to increase the stress in the para-vertebral soft tissue and also to avoid leg contraction from the muscles that attach to the spine.[17] Pettibon allows measurable outcomes because the x-rays are "always taken, marked, and measured the same way, everytime."[17]

This is a proactive technique in that patients are encouraged to do prescribed exercises at home and in the office on the day of a visit based on their needs. They do exercises including warm up stretches, Wobble Chair, and Cervical Traction while waiting to be seen.

There are three phases to care in Pettibon: Acute, Rehabilitation, and Maintenance.[17] The acute phase works to relieve pain, restore the cervical curve, and balance the spine anterior to posterior. The rehabilitation and correction phase is designed so the patient receives permanent correction of abnormal spinal deviations. The last phase, maintenance and supportive care, is focused on maintaining and enhancing the spinal and postural corrections made over the course of treatment.

Chiropractic Mechanism

Those who have multiple sclerosis also face the presence of co-morbidity. Chiropractic management of patients with multiple sclerosis has produced positive results in the cases discussed. Chiropractic care might be successful because, in this case, it reduced vertebral subluxations and helped improve the quality of life for a woman who suffered from several other conditions as well.

Proposed mechanisms as to why chiropractic has an effect on multiple sclerosis have both a mechanical component and a neurological component. The mechanical component includes mitigation of stiffness due to the fibrotic tissue from previous trauma or degenerative changes.[7,18] Cramer et al. described gapping of the zygopophyseal joints after a spinal adjustment which was thought to break up the fibrous adhesions and in turn increase or restore range of motion.[18] Since MS patients

usually have less mobile spines due to hypertonic spinal musculature, it is thought that the spinal adjustment may help improve range of motion while reducing stiffness.

The neurological mechanism involves inhibiting unwarranted reflex activity in spinal musculature and facilitating inhibited muscle activity.[7,19] This mechanism is based on the concept of nerve compression. Nerve compression causes various changes in the spine especially affecting the vertebral bodies, facets, and the spinal canal with the formation of osteophytic growths. These changes in turn lead to reduced neural function which may express itself as hypertonicity. In patients with multiple sclerosis, the spinal adjustment can reduce and correct subluaxtions which allow proper restoration of neural function, therefore relieving areas of hypertonic muscles, thus relieving this MS related symptom.

Also, in her paper, Elster[6] reported that a majority of the study participants recalled head or neck trauma prior to the onset of the disease. In the study, each patient was examined to confirm "trauma-induced spinal injuries" which revealed cervical subluxations in every case.[6] After commencing chiropractic care, 91% of the MS patients reported improvement and there was no further progression of the disease noted during the treatment period. Elster proposed that multiple sclerosis can be induced from head or neck trauma, which results in upper cervical spine injury. So, correction of these subluxations may prevent any further advancements of the disease.[6]

Another mechanism described by Zamboni et al,[20] found that MS was strongly associated with chronic cerebrospinal venous insufficiency. The study included 65 patients with MS divided into groups based on the classification of the disease and 235 patients as the control group. Each MS patient and 48 of the control patients underwent a Doppler examination and selective venography to identify abnormal cerebral venous outflow. The venography revealed extracranial venous stenosis in most cases localized to the cervical and thoracic cerebrospinal venous segments for those with MS. With venous drainage being impaired, multiple substitute circles assume the responsibility of venous outflow, which leaves room for reflux and loss of regulation of the cerebral venous outflow.[20]

Proper cerebrospinal circulation is very important in chiropractic in that chronic subluxations oftentimes are the culprit. When the body's ability to circulate the fluid has been compromised, one may express the signs and symptoms of many conditions, but in this case, MS. Chiropractic's goals is to find and remove/reduce vertebral subluxations in order to restore proper mental impulses, remove nerve pressure and allowing for proper nerve function.

Conclusion

This paper set out to describe the case of a female with a past history of multiple sclerosis, asthma, GERD, and scoliosis. Dramatic improvements in symptoms were noted following the introduction of chiropractic care concomitant with a reduction in vertebral subluxation. Since it is impossible to generalize the results of a single case study to the population of those with multiple sclerosis, additional research on multiple sclerosis and the relationship to chiropractic is warranted.

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Instrumentation

A series of thermal and surface electromyography scans were performed throughout the course of care. Two thermal scans and four SEMG scans were performed.

Instrumentation revealed what appear to be consistent mid and upper cervical spine hypertonicity and dysautonomia during the care intervals reported. The most significant area of hypertonicity is in the upper cervical region and the ongoing areas of hypertoncity are felt to be related to changes in muscle activity secondary to changes in cervical spine structure. Follow-up Thermal scanning revealed a decrease in the dysautonomia in the cervical region from the initial scan.

Figure 1 Initial Thermal Scan

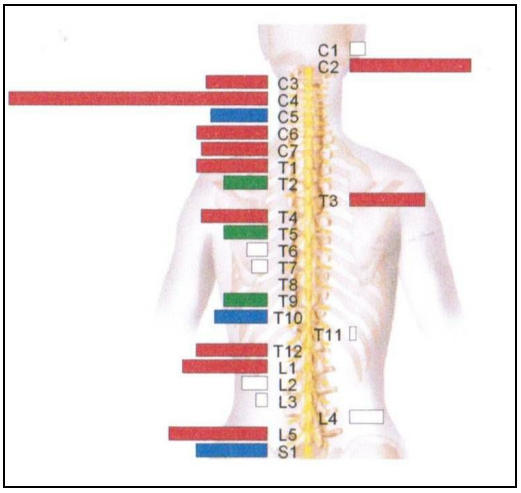


Figure 2 Thermal Scan – 7 Months Later

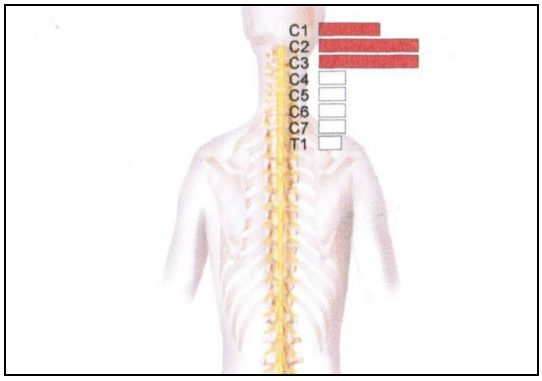
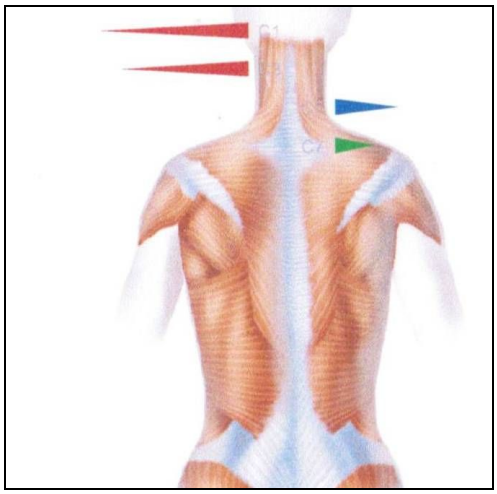


Figure 3 Initial Surface Electromyography Scan



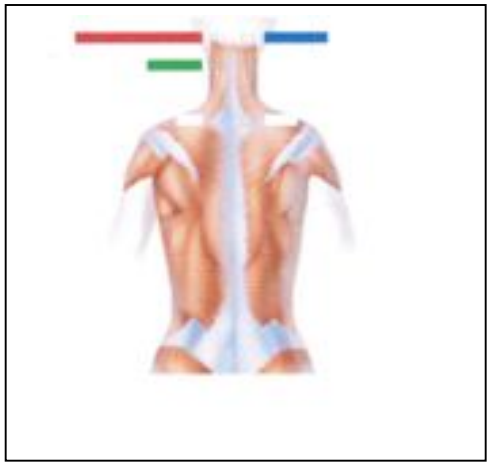


Figure 4 Surface Electromyography Scan – 3 Months Later

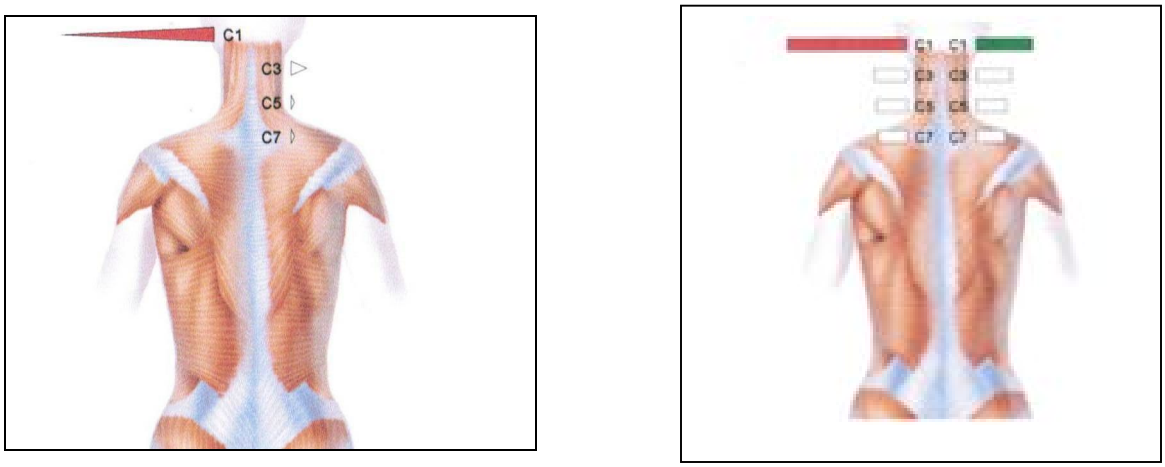


Figure 5 Surface Electromyography Scan - 5 Months Later

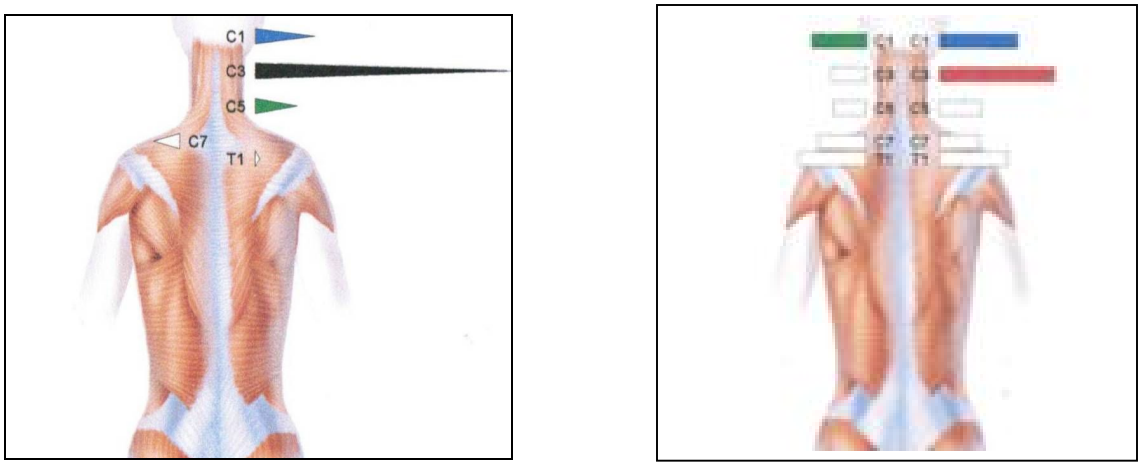
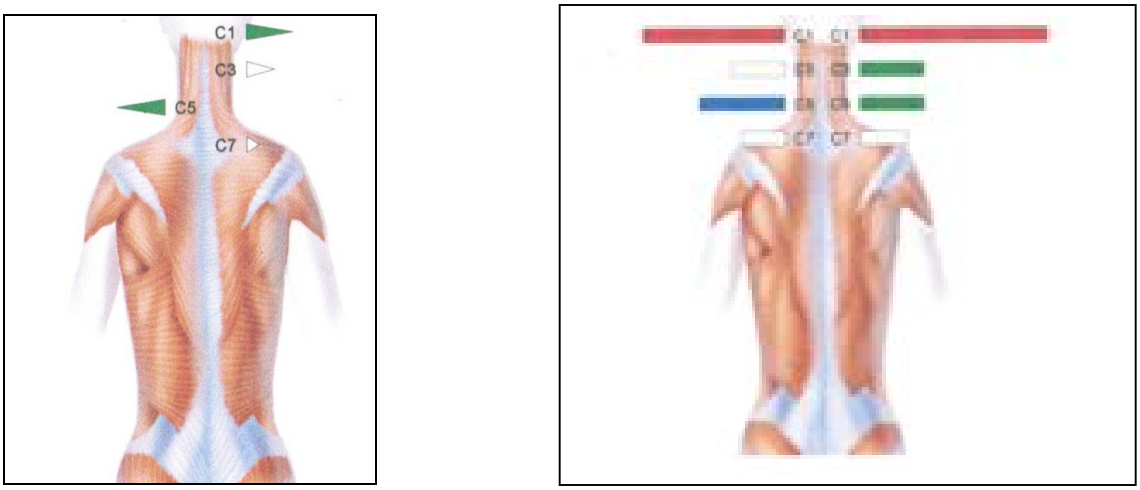


Figure 6 Surface Electromyography Scan – 1 Year Later



Radiography

Lateral cervical, AP cervicothoracic, AP lumbopelvic radiographs were taken and revealed the following: The lateral cervical x-ray revealed disc space narrowing throughout the cervical spine. There was a 20° cervical lordosis indicating a 56% loss of the normal cervical curvature. Also noted was 27 mm of forward head translation. The Anterior to posterior cervicothoracic x-ray revealed a mild right cervicothoracic list. The anterior to posterior lumbopelvic x-ray revealed a mild right lumbar scoliosis as well as mild degeneration at L5/S1.

Follow-up radiographs revealed an improvement in the mild right cervicothoracic list which had completely corrected. The mild right lumbar scoliosis was decreased to a minimal 2° right lumbar list. The patient's forward head translation decreased to 5mm from 27mm and her cervical curve increased to 29° from 20°. The patient stated that she has had an overall improvement in her health from chiropractic care and wished to continue to improve in hopes of achieving a normal cervical curve.

Figure 7 – Initial A-P Cervico-Thoracic X-Ray

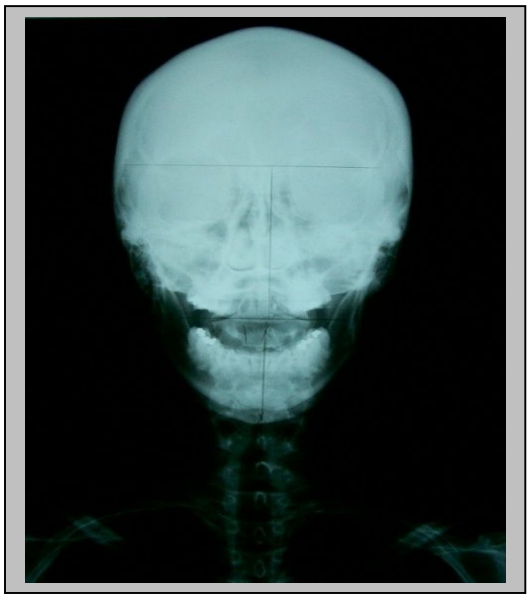


Figure 8 – Post A-P Cervico-Thoracic X-Ray – 6 Months Later

Figure 9 – Initial Lateral Cervical X-Ray

Figure 10 – Post Lateral Cervical X-Ray- 6 Months Later

Figure 11 – Initial A-P Lumbo-Pelvic X-Ray

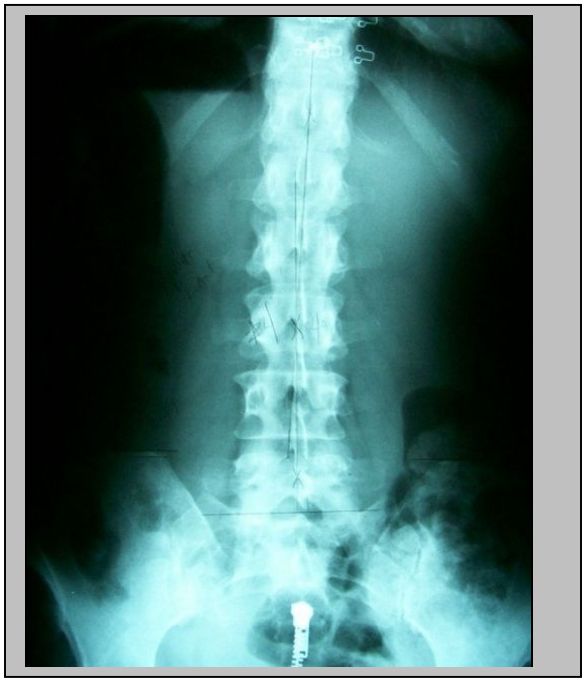


Figure 12 – Post A-P Lumbo-Pelvic X-Ray – 7 Months Later