
CASE STUDY

Improvement in a Patient with Fibromyalgia Following Knee Chest Upper Cervical Specific Care: A Case Report

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ABSTRACT

Objective: To review outcomes of upper cervical chiropractic care on a patient with fibromyalgia.

Clinical Features: The patient was a 64 year old woman with the chief complaint of fibromyalgia diagnosed 6 years before presentation. She also had complaints of sleep apnea, loss of coordination, glaucoma, degenerative disc disease, and changes in bowel habits. After a thorough examination was done, it was determined that the patient had an upper cervical subluxation of C1. This was determined by cervical radiographs, paraspinal thermography, prone leg length analysis, and postural assessment.

Intervention and Outcome: The patient received Knee Chest Upper Cervical care for three months and at the time of this study had 80 percent relief of symptoms and an improvement in energy level.

Conclusions: Although no definite conclusions can be drawn from one single case study, this study does show improvement of a patient presenting with fibromyalgia syndrome. This study does warrant the need for a larger study such as a randomized controlled clinical trial to further understand the benefits of chiropractic on those with fibromyalgia.

Keywords: *Knee Chest, Upper Cervical, fibromyalgia, thermography, subluxation, chiropractic*

Introduction

Fibromyalgia is a syndrome that was first described in 1904 by Sir William Gowers as “Fibrositis.” The term fibrositis was an inaccurate description because later studies revealed that there was no inflammation present within the effected connective tissues.¹ In 1976, the term “Fibromyalgia” was first used by the American Rheumatism Association, which is now known as the ACR.¹

Fibromyalgia is the most common cause of widespread pain, and has a predilection for women with a mean onset age of 20 to 40 years.² Women are 10 to 20 times more likely to have fibromyalgia than men, but in the general population there is only a prevalence of 3 to 5 percent.² It is estimated that approximately 3 to 6 million people suffer from fibromyalgia in the United States.³ It is estimated that it accounts for 2% of family medicine visits, 10% of general internal medicine referrals, and 20% of referrals to rheumatologists according to Blunt et al.³

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Fibromyalgia is characterized by chronic diffuse pain that is longer than three months in duration accompanied by 11 of 18 soft tissue tender points. The condition is frequently associated with stiffness, fatigue, lack of sleep, paresthesias, headaches, dysmenorrhea, and irritable bowel syndrome.¹⁻⁷ In a study done by Giesecke et al., there was suggestion that there may be three subtypes of fibromyalgia; one group with extreme tenderness, but no associated psychological abnormalities, another group with moderate tenderness and no psychological abnormalities, and a third group with psychological abnormalities such as mood and cognitive factors that they believe would influence how the patient reported their symptoms.⁴

Fibromyalgia has an unknown etiology, but there are many different theories about the etiology of the condition. Some of the more recent theories have to do with central sensitization, autonomic dysfunction, and genetics. However some of the older theories suggests that fibromyalgia has some relation to psychosocial factors as a possible cause or exacerbation of the symptoms.⁷⁻¹⁰ There has also been many different studies on the treatment options for fibromyalgia that are both pharmacological and nonpharmacological in nature.

The pharmacological treatments have shown very little efficacy according to Ekici et al.¹¹ According to Schneider et al, "Most systematic reviews and guidelines all recommend 3 interventions as having the strongest evidence support: (1) low-dose antidepressant medications, (2) light aerobic exercise, and (3) CBT (cognitive behavioral therapy), and moderate evidence supports the use of massage, muscle strength training, acupuncture, and spa therapy, and limited evidence supports spinal manipulation."⁷ The purpose of this paper is to show the outcomes of the Knee Chest Upper Cervical adjustment in the management of a patient with the condition of fibromyalgia.

Case Report

History

A 64 year old female presented with a previous diagnosis of fibromyalgia. This diagnosis was made 6 years prior to presentation. Additional complaints included sleep apnea, loss of coordination, glaucoma, and degenerative disc disease. Upon further questioning, she also had complaints of arthritis, depression, photophobia, and indigestion, changes in her bowel habits, frequent urination, sinusitis, allergies, shoulder pain, mid back pain, low back pain, high cholesterol, hypertension, and neck pain.

She could not walk long distances without assistance. She described the neck pain, and upper back pain as moderate. She described the low back pain and digestive problems as severe. She described the shoulder pain as mild.

She stated she had not been sleeping well at night. She had been using a CAP machine to manage the sleep apnea. She also advised that she was taking the following medications: Crestor for high cholesterol, Kepprat and Liboderm patch for fibromyalgia, Meloxicam for pain associated with Degenerative Disc Disease, Flulicasone for allergies, Xalatan, and Brimonidine Tartrate for Glaucoma.

She had a past history of falling off of a horse as a teenager. She denied having any other past traumas.

Examination

The examination included a posture analysis and paraspinous thermal scan. The visual postural analysis revealed the postural distortions of a high left ilium, left high shoulder, and right head tilt. She had a short left leg upon prone leg check.

Paraspinal thermal analysis was performed using the TyTron C-3000 from the spinous process of T1 to the base of the occiput to establish a pattern. The paraspinous analysis of the cervical spine revealed a significant temperature deviation on the right at C1 that measured 2.6 degrees Celsius. The following radiographs were taken: Lateral Cervical, Anterior to Posterior Open Mouth, and Base Posterior. The radiographs revealed a subluxation at C1. The misalignment was anterior and superior on the right. The lateral cervical revealed loss of the cervical lordotic curve.

Any deviation, which represents thermal asymmetry of .5 degrees Celsius or higher indicates neuropathophysiology.¹² Owens et al, studied the intraexaminer and interexaminer reliability of the TyTron C-3000 and found it to have reliability of 91.8% for interexaminer and 98.4% intraexaminer reliability.¹³

Hart et al reported, "Thermal pattern analysis is considered one assessment of the autonomic nervous system, accompanied with the concept that high levels of similarity between repeated thermal scans implies a state of poor neurological adaptability", this is a concept known as pattern theory.¹⁴

Intervention

The Knee Chest Upper Cervical Specific technique¹⁵ was used to correct the subluxation of atlas. The patient was positioned on the knee chest with her midsternal notch on the rounded off portion on the lower aspect of the headpiece. Her knees were on the floor with her femur at a 90 degree flexed position. Her head was turned to the right for the ASR listing. Her neck and ear on the left side was in firm contact with the headpiece. The doctor was on the right side of the table with the right leg in the axillary fossa, and the left leg a shoulder width apart. The doctor's hips and shoulders were squared up to the table.

A tissue pull was taken using the chiropractic index finger of the doctor's left hand, in a semicircular sweep in a clockwise direction. This was followed by taking the contact point. The contact point was the posterior arch of the atlas on the right side of the patient, for the ASR listing. This was followed with a roll in. The doctor's right hand was positioned in an arched toggle position with the elbow bent at approximately 150 degrees. The doctor's hand rolled in a counter clockwise direction to move more tissue out of the way and to firm up the contact between the doctor's pisiform and the posterior arch of atlas.

The set down occurred when the doctor's left hand was placed on top of the contact hand in a criss-cross fashion with the non contact elbow bent at the same angle as the contact hand side

After the adjustment, the patient rested supine for 15 minutes. After the rest period, she was rescanned with the TyTron 3000 to determine if the pattern was still present or if it was clear. The scan was clear.

Her care plan consisted of being seen three times a week for one month, and then two times a week for two months. Each visit included a thermal scan and a prone leg check to determine the presence of an atlas misalignment. She was adjusted in the knee chest position 4 times out of 35 visits over a three month period. No other osseous structures were adjusted during the other visits.

Outcome

The patient held her first adjustment for approximately 45 days before her pattern showed up again. At the first reassessment, which was during the 18th visit, she stated that her neck and shoulder pain had improved, her middle back pain had improved, and her eyesight as well. She was still not sleeping well, and still had low back pain. She did state that she felt as if she was “70 percent” better than when she had started care.

During the second reassessment, which was three months into care, she reported being “80 percent” better. She also reported having a much better mental outlook, much more energy, her general strength had improved, and she was able to stand and walk for longer periods of time with no pain. The patient had a follow up lateral cervical radiograph which showed a 14 degree cervical curve which had improved from no cervical curve three months prior.

She was being monitored clinically by thermal pattern analysis and prone leg checks to determine the presence of atlas subluxation, and follow up x-rays to track progress of the restoration of her cervical curve. The restoration of her cervical curve along with the reduction of thermal asymmetry in her thermal scans is the objective measures that are reflective of the patient’s progress and the overall improvement in her health.

Discussion

Fibromyalgia is a condition with an unknown etiology belonging to a group of syndromes called Functional Somatic Syndromes.⁴ There have been many different proposed theories of fibromyalgia and its etiology. Some reports say that fibromyalgia is caused by central sensitivity in the central nervous system.⁴ In a study done by Harris et al, they stated that “emerging data suggests that FM arises through augmentation of central pain processing pathways”.⁸ In this study Harris et al. found that 18 of their 19 subjects had an increased amount of the neurotransmitter glutamate at the posterior insula portion of the brain.⁸

Glutamate is an excitatory neurotransmitter that is associated with pain pathways. They found that the amount of glutamate correlated to a decreased experimental pain threshold in their subjects; thus indicating there was some mechanism that was causing this hyperactivity in the area of the posterior insula.⁸ Harris et al, also stated that “this could arise from local increases in glutamate or enhanced ascending activity to this

area”.⁸

Another theory associated with fibromyalgia or Functional Somatic Syndromes was discussed by Mutsuura et al. This study stated that there was an apparent HPA axis (Hypothalamus, Pituitary, Adrenal Axis) dysfunction and autonomic nervous system dysfunction associated with fibromyalgia.⁹ The study showed that people with fibromyalgia showed an increase in free salivary cortisol levels in the morning when compared to the control group, which indicated a hyper-functional HPA axis.⁹ However this article showed no causal relationship between the HPA axis and fibromyalgia.

Our study is proposing a possible mechanism between the upper cervical misalignment and the central sensitization theory as a possible cause of fibromyalgia.

In a study by Hack et al there was a discovery made of a soft tissue connective bridge of the Rectus Capitis Posterior minor muscle that stretched from the atlas vertebra by way of the Posterior Atlanto—Occipital membrane to connect with the dura mater.¹⁶ There was also posterior connective tissue bridging to the posterior arch of C1 and to the lamina of C2.

According to Grostic, the spinal cord has an extension of the pia mater that runs directly horizontal at the level of C1 which is called the dentate ligament.¹⁷ This dentate ligament pierces the arachnoid mater and acts as an attachment to the dura mater to secure the spinal cord in the neural canal during normal body movements.¹⁷ According to Grostic, the dentate ligament is strong enough to distort the spinal cord.¹⁷ Due to the relationship of the dentate ligament and the lateral portions of the cord, a misalignment of the atlas can transfer mechanical stresses to the cord and cause a mechanism of neurological compromise.¹⁷

One of the lateral cord tracts that could be affected is called the spinal thalamic tract, which is responsible for transmitting sensations of pain and temperature.¹⁷ If this spinal thalamic tract was neurologically compromised it is plausible to think, even though the research does not show the connection, that this could be a mechanism of dysafferentation that could lead to the previously mentioned theory of increased glutamate secretion at the site of the posterior insula.⁸ However more research would need to be done in this area before any conclusions about this mechanism could be made. The correction of the upper cervical misalignment in this patient did significantly improve her symptoms.

The outcomes from previous studies involving spinal manipulation in the treatment of fibromyalgia related symptoms showed much more efficacy if the patient had symptoms of less than one year, and when the patient is young.³ Most of the research that has been done on chiropractic management of fibromyalgia states that somewhere between 12 and 15 treatments the patient will reach maximum medical improvement and that treatment should be terminated at that time.^{2,5} This case shows promising results for removing an upper cervical subluxation and the reduction of symptomatology associated with fibromyalgia related symptoms.

Conclusion

As a result of this case study we see that there is a possible link between upper cervical subluxation and the symptoms associated with fibromyalgia. Although no concrete conclusions can be drawn from this single case study, this does open the door to more future studies on upper cervical care and fibromyalgia. The patient is still currently under care. In order for there to be a more decisive conclusion drawn about the efficacy of upper cervical care and the treatment of fibromyalgia more research is needed.

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