

Case Study

Improvement in Vision in a Patient with Diabetic Retinopathy Following Network Spinal Analysis Care

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Abstract

Objective: To describe the reorganization and reduction of intraocular pressure (IOP) in a chiropractic patient with diabetic retinopathy and concurrent loss of vision undergoing Network Spinal Analysis (NSA) care.

Clinical Features: A 46-year-old male with type I insulin dependent diabetes presented for chiropractic care. His complaints included numbness in both arms and fingers of the left hand, and diabetic retinopathy with total loss of vision for the past five years.

Intervention and Outcomes: The patient received NSA care 221 times over three years. After 8 months of care, he reported seeing shapes and colors through his left eye only for the first time in 5 years. He also reported a drop in intraocular pressure from an initial 50 mm Hg down to 18 mm Hg.

Conclusion: The patient in this case experienced improved intraocular pressure and vision following Network Spinal Analysis care. More research is warranted to better understand this link between Network Spinal Analysis care, chiropractic and the diabetic patient.

Key words: Network Spinal Analysis Care, Intraocular Eye Pressure, Systemic Blood Pressure, Diabetic Retinopathy, Vision, Chiropractic, Vertebral Subluxation

Introduction

Diabetic retinopathy (DR) is the leading cause of preventable blindness in adults worldwide.¹ Kermorvant-Duchemin, et al, described DR as a form of ischemic retinopathy that is characterized by an initial microvascular degeneration, followed by an abnormal hypoxia-induced neovascularization.² Advanced DR causes vision loss and blindness via two distinct mechanisms.

The most common mechanism is diabetic macular oedema, which occurs as the blood retinal barrier breaks down with subsequent blood vessel leakage and retinal thickening.³ The other mechanism is via proliferative diabetic retinopathy (PDR), where neovascularization occurs in response to ischemia, later resulting in bleeding of newly abnormally developed blood vessels.³ The consequences of diabetic retinopathy are: vitreous haemorrhages, neovascular glaucoma (NVG), tractional retinal detachment, and/or vision loss.³ Conventional treatment involves retinal photocoagulation with laser or surgery.⁴

Management of NVG consists of controlling the high IOP by medical and/or surgical means to minimize the visual loss.⁵ IOP is also directly linked to systemic blood pressure. A population based study of people between the ages of 43-86 with a 5 year follow up of systemic blood pressure and IOP found that change in IOP is directly and significantly associated with changes in systemic blood pressures.⁶

Association between systemic blood pressure and IOC was studied using a linear regression where further investigation was done on identifying the role of antihypertensive medication and its direct effect on IOP and hypertension. However, the inclusion of such medication removed the association between IOP and hypertension.⁷ This therefore led the investigators to conclude that there is a common physiologic factor that is responsible for the relationship between blood pressure and IOP such as the effect of generalized sympathetic tone.⁷

As stated by Crawford et al, the role of the chiropractor is to recognize the important interaction of both the sympathetic system and the vascular components and to correct potentially deleterious imbalances in tonic activity, thus affecting the

return to a normal state of homeostatic function.⁸ Chiropractic acknowledges that there are marked physiological changes, which occur in the presence of a subluxation. Addressing the subluxation results in improvement in physiological function, thus implying a cause-effect relationship.⁹

Network Spinal Analysis (NSA) care is an evidence-based application utilized by chiropractors whereby gentle precise touch to the spine cues the brain to create new wellness promoting and reorganizational strategies.¹⁰ These appropriate force contacts are applied in a specific sequence at areas of or in proximity to specific spinal-dural attachments, termed Spinal Gateways.¹⁰

According to Pauli, NSA evolved from subluxation-based, vitalistic chiropractic into a system of specific low force spinal applications designed to enhance the cognitive and precognitive awareness of an individual's spinal structure, body tension patterns, and the development of unique Somatopsychic and Respiratory waves of skeletal motor activity purported to assist in improved self-organization of the nervous system.¹¹⁻¹²

These spinal waves, which are witnessed in NSA Care, have been linked to reorganization of the neural circuitry of the spine,¹³⁻¹⁴ spinal oscillation,¹⁴⁻¹⁵ and the function of the autonomic nervous system.¹⁶ NSA Care has also been suggested to produce a "sympathetic quieting effect" contributing to a more "relaxed" state for those receiving care.¹⁶ Care is advanced through a series of levels of care, each with unique outcomes, assessments and physiologic markers.¹⁷

Study into the nature of the Somatopsychic wave phenomenon (also termed 'network wave') has demonstrated an increased level of complexity and organization with increasing levels of care.¹³⁻¹⁵ NSA Care has additionally been studied for broad reaching quality of life changes and behavioral lifestyle improvement. A study with 2,818 people receiving NSA care demonstrated self-reported improvement across five domains: physical state, mental/emotional state, stress evaluation, life enjoyment and overall quality of life.¹⁸

NSA care views the subluxation as a multi-component phenomenon. Epstein states, "Vertebral subluxation is consequent to a neurological response to physical, emotional, or environmental stress. The neurological response may precipitate or be precipitated by misalignment(s) between articulations of the spinal column or its immediate weight bearing components of the axial skeleton. The integrity of the nervous system is diminished as changes occur in morphology/oscillation/tension of the tissues occupying the neural canal and/or intervertebral foramina."¹⁰ Clinical outcomes as well as the self-regulation of subluxation are tracked through the above mentioned levels of care utilizing spinal and neural integrity subsystems as well as assessments by both practitioner and patient.^{10, 17}

NSA Care, as an application of the Reorganizational Healing model, involves the dynamic relationship and outcomes of structural, behavioral and perceptual shifts in enhanced energetic (thermodynamic) efficiency, as well as the

promotion of enhanced spinal-neural coherence.¹⁹⁻²⁰ Recent publication has noted that NSA Care, as an application of spinal Reorganizational Healing, is an integrally informed structural approach to the developing field of integral health and medicine in which internal subjective and external objective developmental stages and states can be monitored and evolve.²⁰

This case study addresses the normalization of intraocular pressure (IOP) in a diabetic patient with diabetic retinopathy and concurrent loss of vision using Network Spinal Analysis care. During a three year period of NSA care, the IOP pressure decreased and normalized. This case will add to the existing evidence that chiropractic care is beneficial in reorganizing intraocular pressure.²¹

Case Report

Upon presentation for chiropractic care the patient was a 46-year-old blind, insulin dependent (type I) diabetic male. He was married and medically unemployed. His chief complaint was numbness in both arms and fingers of the left hand. He also reported having progressive vision loss in both eyes due to diabetic retinopathy.

He advised that the numbness in both arms and fingers had occurred 9 years prior which resolved after receiving chiropractic care. The numbness in the arms had returned three months prior to presentation with numbness to the fingers of the left hand. He stated this condition came and went with no other changes. The patient also reported loss of vision in both eyes due to diabetic retinopathy which was diagnosed 4 years prior. He had been diagnosed with type I diabetes 24 years prior to his first visit.

Right eye vision loss had begun two years previously. At the time of his initial visit he stated that loss of vision to both eyes had been progressive. Further, he reported that his retina specialist informed him of poor circulation to the optic nerve in the right eye and that there was bleeding into the left eye. In addition, he his IOP in both eyes was 50mmHg. Normal intraocular pressure is between 10-20 mm Hg.⁷

He advised that he had been in multiple automobile accidents over the years. 30 years prior to his first visit he had been hit by a truck while riding a motorcycle.

At the time of his initial visit, the patient was asked three standard questions asked to all patients receiving care in the office of the NSA Care provider:

1. What activities would you like to do that your health is impairing you from doing?
2. How would your life change if you had optimal health?
3. What needs to happen in order for you to have optimal health and healing?

The patient answered that he would like to get back on his bicycle, generally enjoy his life, look forward to getting up in the morning, and cure his diabetes and loss of vision.

Examination

The patient was examined using the following: Posture Photo, Spinal Crepitus, Pain with motion, Weight Balance, Paraspinal Thermal Scan, and Surface EMG (sEMG) Scan.

A posture photo was taken that showed evidence of posture degeneration. The patient reported that there had been a change in how he used his body since becoming blind. He reported that he had to lean forward to hear the echo from the sidewalk. Spinal Crepitus was positive and he experienced pain with motion in the lower cervical and upper thoracic regions of the spine.

Weight balance of the left leg was 85 lbs and the right was 95lbs. A paraspinal thermal scan was utilized to determine skin temperature differences based upon asymptomatic normal individuals.²²

According to Uematsu et al, "These values can be used as a standard in assessment of sympathetic nerve function and the degree of asymmetry is a quantifiable indicator of dysfunction... deviations from the normal will allow suspicion of neurological pathology to be quantified and therefore can improve assessment and lead to proper clinical management."²² The scans revealed asymmetries in the lower cervical and upper lumbar regions. The surface electromyography revealed areas of hypertonicity throughout the lumbar spine.

Intervention

Patient management involved application of the Network Spinal Analysis protocol. The Network phasing system was utilized to determine the presence of Adverse Mechanical Cord Tension (AMCT) in the spine and nervous system, as well as assessment of spinal and neural integrity.

The patient received NSA care 221 times within a 3-year period where the Network protocol was administered sequentially through three levels of care. Each level of care represented a specific set of desired clinical outcomes that involve from Basic care (Level One) to Intermediate care (Level Two) and Advanced care.¹⁷

Each visit involved a low force contact on specific spinal gateway region, relative to the level of care and phase of AMCT presenting in the patient. Initially the patient was seen 3 times a week for NSA Basic care. This level of care is introductory resulting in a marked reduction of AMCT, the development of the respiratory wave, and the beginning of a patient's ability to better self-regulate spinal tension patterns.^{10, 17}

After 5 months of care, the patient had reached NSA Intermediate care. At this point he had recovered substantially from the presenting patterns of spinal cord facilitation. Intermediate care develops the Network wave, through three sublevels, to increase the dynamic function of the spine. Patients experience unique reorganization of the spinal structure, internal perceptions and physiologic and lifestyle behaviors.¹⁷

After 6 months of care, he had reached NSA Advanced care. This level is administered to individuals with fully developed Network waves and linked vertebral oscillation, and is utilized as a wellness application. Epstein remarks that this is a unique level of care where 'patients' truly become 'practice members' as they take more responsibility for their wellbeing and overall health. Individuals seek care at this level not merely for the "alleviation of symptoms or a cure for a particular ailment",²³ but for a greater internal connection to themselves and greater expression of quality of life.¹⁷

Outcomes

At eight months into NSA care the patient reported seeing colors and shapes through his left eye. This period of time coincided with him receiving NSA Advanced care. Advanced care is the maximum expression and synergy of the effects of the Respiratory and Somatopsychic Waves that are unique to NSA care.¹⁷ Follow up sEMG scan readings, at this time, were indicative of normal muscle tone. Surface EMG scans are one of the most reliable objective measures that chiropractors use to monitor the muscular and neurological components of vertebral subluxation.²⁴

After three years of NSA care the patient reported that his retina specialist had explained to him that although his right eye was completely blind due to a blood clot on the optic nerve, the IOP in his left eye had decreased from 50 mm Hg to 18 mm Hg. The retina specialist stated to the patient that "the retina was re-attaching to the eye contributing to his vision coming back."

The patient also reported that he was no longer experiencing numbness in both arms and in the fingers of the left hand.

Discussion

The positive outcome of the left eye retina could be due to the cervical sympathetic stimulation received as part of the reorganization of the spine utilizing the NSA protocol. According to Wingfield BR et al, in human subjects it was found that cervical sympathetic stimulation has been shown to reduce blood supply to the retina.²⁵ There is apparent evidence of sympathetic stimulation based on the thermal scans (Table 1).

Conway proposes that the mechanism of the normalization of IOP is due to the direct correlation of the cervical spine and its relationship to the central nervous system.²¹ Recent studies showed systolic blood pressure to be the cardiovascular variable to have the strongest correlation to IOP.⁷ Studies have been conducted to show the sensitivity of the cardiovascular system to neurological changes in both normotensive and hypertensive patients.^{9,26} A trial done by Yates et al determined that patients who presented with increased systolic and diastolic blood pressures showed a median decline in their overall blood pressure after chiropractic care.²⁷⁻²⁸

Limitations of the Study

Being a case study by design, limitations of this study have to do with its inability to be generalized to a larger population.

While the patient did not report receiving any additional on-going treatment different than what he had received coming into NSA care, this was not fully controlled for in the study. However, with the changes witnessed in this study, more research is warranted to better understand the link between Network Spinal Analysis care, chiropractic and the diabetic patient.

Conclusion

A potential link between Network Spinal Analysis care and the decrease and normalization of intraocular pressure was witnessed in this case study. Self reported wellness and physiologic changes were reported by the patient. In addition, objective examination findings on behalf of the practitioner were demonstrated over the course of care. These changes were linked through each of the developmental levels of NSA care. We can infer a connection between the increased spinal and neural integrity and the decrease of spinal subluxation patterns, with a positive effect on the sympathetic nervous system.²⁵

The effect of generalized sympathetic tone is the common factor that is responsible for the relationship between blood pressure and IOP.⁷ Sympathetic tone is addressed in chiropractic through the reduction and self-regulation of the vertebral subluxation and the reorganization of spinal and neural integrity which is a clinical goal of NSA care.¹⁷ The benefits of NSA care are evident during the early months of care,¹⁷⁻¹⁸ as seen in the case of our study patient reporting improvement in vision of the left eye. A study by Schuster et al¹² reports that individuals who underwent NSA care successfully “reorganized”²⁹ which is perhaps the process the arterial system underwent when the IOP began decreasing and normalizing, thereby leading to visual improvement.

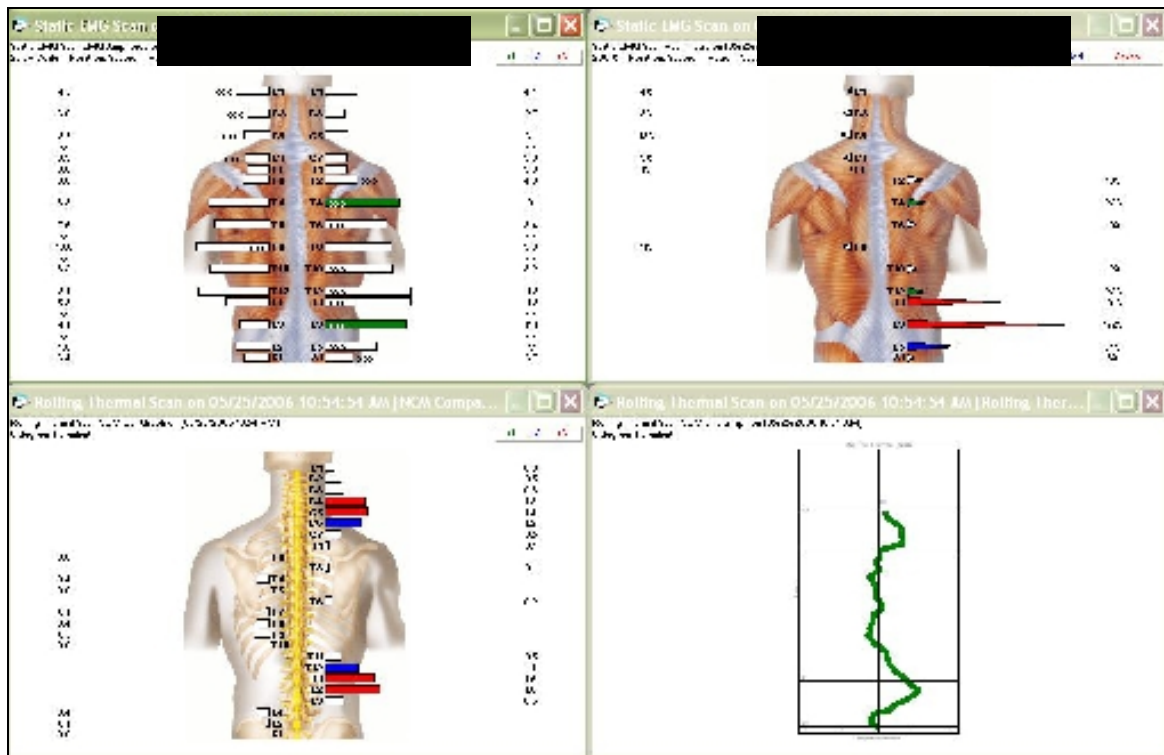
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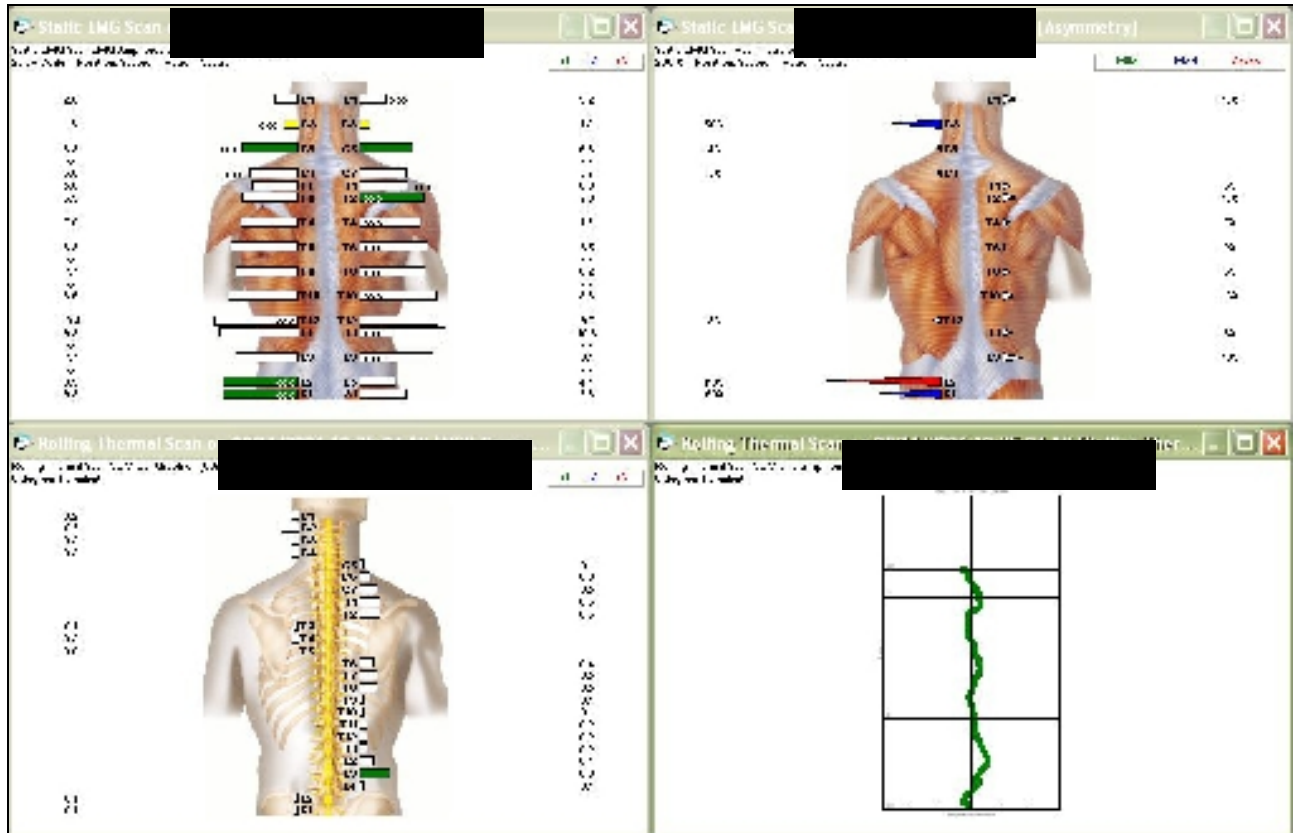
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Figures

Initial Thermal and Surface Electromyography Scans



Thermal and Surface Electromyography Scans Four Months into care.



Thermal and Surface Electromyography Scans Six Months into care.

