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ASRF CASE REPORT PROJECT

Chiropractic management of a 30-year-old male with Motor Neurone Disease: A case report

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Abstract: *Objective/Clinical Features:* A 30-year-old male presented for chiropractic care, with a diagnosis of Amyotrophic Lateral Sclerosis (ALS) type of Motor Neurone Disease (MND). He became symptomatic in 2017 and was diagnosed in March of 2019. At the time of presentation, he was newly diagnosed, receiving acupuncture, and was beginning to see a physiotherapist. His primary concern relative to the condition was emerging speech difficulty. His initial consultation revealed balance difficulty, compromised Achilles and patellar reflexes bilaterally, and a positive Shimizu test, along with muscle fasciculations noted in deltoids and triceps. The patient also had notable muscle wastage in the levator scapulae supraspinatus and tongue muscles.
Intervention/Outcomes: Predominant adjustments included Sacro-Occipital Technique (SOT) blocking, activator methods technique, shoulder mobilisation, TMJ adjustments and muscle releases, as well as wrist diversified adjustments, Talus traction pull, drop piece adjusting, and gentle diversified technique at approximately 10% of the normal strength used on an adult of that age and size. The focus was on the whole body due to the nature of disease. Initial treatment schedule was constructed to include four weeks of care, after such a point the patient sought ongoing treatment due to the relief experienced concomitant with chiropractic care, and he continues care with his chiropractor to the present day. Notable outcomes included retention of function and slowed progression of his disease (in comparison to expected outcomes).
Conclusion: This case suggests that subluxation-based, whole-of-body focused chiropractic care may contribute to successful management of ALS type Motor Neurone Disease.

Indexing Terms: Amyotrophic Lateral Sclerosis, Motor Neurone Disease, Chiropractic Care, Subluxation, Speech difficulty, chiropractic, sacro-occipital technique, activator methods, cranial chiropractic care

Background

Motor Neurone Disease (MND) is a progressive neurological disease characterised by gradually-worsening muscle weakness. (1) While there are several subtypes of the disorder, *Amytrophic Lateral Sclerosis* (ALS), in which upper and lower motor neurons degenerate at the same time, is thought to be the most common. There are multiple manifestations varying from patient to patient, but the degeneration of the motor neurons drives the common symptomatology of MND/ALS including difficulties with speech, swallowing, breathing, walking, strength in upper and lower limbs, as well as potential changes in thinking or behaviour. (1)

Despite extensive research, the pathophysiology of MND is still poorly understood. (2) Potential etiological factors may include '*atherosclerosis,*

'... A diagnosis of ALS raises many issues for the patient, including and not least, Quality of Life. This report shows how low-impact chiropractic care and a close interactive relationship with the patient has maintained patient dignity and an acceptable QoL ...'

inflammation, tumours, cataracts, diabetes mellitus type 2, ageing, and degeneration of the nervous system,' as well as oxidative damage to neurons and glial cells. (2) While further research is required to confirm or rule out such factors, existing research has indicated that use of complementary and alternative therapies may have some effectiveness in managing the severity of symptoms. Acupuncture is one such therapy, although the mechanisms behind its effectiveness are still unclear. (3)

At this point in time, there is a paucity of chiropractic literature regarding the chiropractic management of ALS or MND sufferers. At the time of writing, one case report exists pertaining to chiropractic management of an ALS/MND patient. (4) In that case report, the patient presented with upper limb weakness in the right side which had been misdiagnosed as carpal tunnel syndrome, potentially due to the atypical presentation of ALS. Usually, the effects of the disorder manifest bilaterally, while that patient was only showing weakness on one side of the body. (4) This being the case, the chiropractor referred the patient for a neurological consult at which point the diagnosis was confirmed. Sadly, opportunities for an improved outcome due to an early diagnosis had been missed.

The purpose of this current case report is to describe the chiropractic management and the disease progression of a patient with an existing diagnosis of Amyotrophic Lateral Sclerosis (ALS) Type of Motor Neurone Disease.

Motor Neurone Disease in a 30-year-old male

History and Examination

A 30-year-old male presented for chiropractic care, with a diagnosis of Amyotrophic Lateral Sclerosis (ALS) type of Motor Neurone Disease (MND). He became symptomatic in 2017 and was diagnosed in March of 2019. At the time of presentation, he was newly diagnosed, receiving acupuncture, and was beginning to see a physiotherapist. His primary concern relative to the condition was emerging speech difficulty.

Notable medical history included having sustained head injuries during his professional football career. He reported suffering from headaches and having '*difficulty with heights*' as a child. He also reported that, as a child, he would frequently hallucinate that he was going to fall forward.

His initial consultation included a chiropractic examination which revealed the patient could stand on his toes and heels only with some difficulty. This was attributed to balance more-so than strength. His Achilles and patellar reflexes measured +1 bilaterally (BL). A *Shimizu* test was performed and found to be positive BL.

The *Shimizu* test is a muscle stretch reflex that predominantly involves the upper portion of the trapezius, the *levator scapulae*, and the *deltoid*, and provides information about the dysfunctions of the upper motor neurons (cranial to C3). (5) Muscle fasciculations were noted in *deltoids* and *triceps* after reflex each time. Subluxations were noted at C2 (right posterior superior), Cranial Sphenoid, Temporomandibular joint, and right sacrum.

Muscle wasting was noted in his *levator scapulae supraspinatus*. Additionally, muscle wastage was diagnosed using a visual assessment whereby the tongue appeared wasted, rough edged, and had a white coating. He could not make a tube with his tongue but could lift it by sucking to the roof of his mouth. His eye tracking was unremarkable. There was a right head tilt with decreased cervical rotation to the right-hand side. His lumbar and thoracic range of motion were within normal limits and unremarkable. At the time of his first visit, the patient used sticks to walk, but the purpose of this was more for stabilisation than for strength.

There was a frank conversation that the chiropractor could not treat MND or 'fix it' in any way. The program of care was agreed to be subluxation-based and focussed on supporting the nervous

system with the objective to improve his Quality of Life and by extension, for his his family who assisted with his care.

Treatment

Post-examination, a course of chiropractic care commenced in which cranial work was paired with Activator Methods technique. At first, he underwent roughly one session of chiropractic care per week (see Appendix A). The patient's initial care plan covered 4 weeks of chiropractic care, after which he decided to continue care up to the present day due to the benefits he experienced.

While the focus of care was on the whole body due to the nature of the disease, predominant adjustments performed were SOT blocking, activator methods, shoulder mobilisation, TMJ adjustments and muscle releases, wrist diversified adjustments, Talus traction pull, drop piece adjusting, and gentle diversified technique.

The percentage of normal force used was in direct response to the patient's state of strength and ambulatory ability. While 10% of normal force was used when more muscle wastage was noted, and activator methods were used before gentle manual adjusting in response to the patient's X-rays and history of concussion, up to 60% of normal force was used when the patient was strong and ambulatory. Lower force was used to avoid ligamentous strain due to decreased muscle support, also taking into account that bone density would likewise be decreasing. The approach to treatment remained dynamic through the two years of care.

The patient followed a relatively classical presentation of MND, beginning to lose the movement in the upper limbs and speech first. Thus, initial treatment was directed toward maintaining functionality in the shoulders, TMJ, and spine, as well as nervous system and musculoskeletal function for as long as possible. This was facilitated via subluxation-based care, adjustments, and muscle releases. Additionally, the care assisted in maintaining lumbopelvic stability to prolong the patient's mobility. The patient self-reported significant relief from pain and discomfort.

The lower brachial plexus was clearly being affected and causing muscle wasting in associated myotomes. This was seen in the patient's right forearm. As these areas lost function and therefore tension, the focus of treatment shifted toward *hip flexors, hamstrings*, and *glutes*.

As the disease progressed the patient began to lose some feeling in the bottom of his feet, and adjusting the feet appeared to be helpful in retaining effective proprioception. Over time there was a gradual decrease in function. The patient would reach a plateau and stabilise with chiropractic care, but events would occur such as a fall, an infection, or a surgical procedure that would cause a decrease in function.

While the majority of function was able to be regained once treatment resumed, they would stabilise again with a slightly lowered level of overall function. Head injuries, infections, and weight loss are all significant risks to individuals with MND and thus minimising the effects of these risks was a highlight of care.

Outcomes

By the second visit, the patient was experiencing better speech and could be understood without a family member translating. While he had a fall before the third visit, his palsy was showing improvement (though it continued to occur sporadically). At the third visit, his partner reported that the appearance of his '*claw hand*' had resolved and the physiotherapist observed improved motion. The patient noted at this point that he '*couldn't wait to come in for relief from stiffness in the shoulders and neck.*' He also reported that his cervicogenic headaches were relieved with care.

By the 7th visit there were significant improvements in strength and control. By the 36th visit, the patient and chiropractor noted:

- Improvement in speech
- A general reduction in falls (which was attributed to both improved proprioception and patient education)
- Increased comfort levels (which the patient attributed to chiropractic care)
- A slowing loss of function
- Increased speed in recovering from viruses
- No adverse events were reported, and the patient appeared to respond well post adjustment at all appointments. While the patient did report tiredness, he slept after care and looked forward to this as he usually found it difficult to sleep.

Toward the end of the recorded treatment period the patient took a break in treatment of roughly two weeks for travel purposes. During this time, the patient noticed he was not sleeping well, found it harder to hold his head up, and his partner reported he was in cervical flexion a lot of the time. He also reported struggling to use the joystick for the chair, and when asked, he confirmed breathing was more difficult. This contrasted with his condition prior to the halt in chiropractic care in which there had been no deterioration.

Overall, there was still some muscle wasting, stiffness/soreness, and fatigue became a major complaint toward the end of the treatment period, but most other complaints had resolved. The enduring complaints included muscle weakness, stiffness, bumps and bruises from kids running up for hugs, and extended walking or exertion. The patient noted an improved resilience and recovery from infections while under chiropractic care.

It is important to keep in mind that MND is incurable. Any treatment or care was targeted at slowing the progression of the disease and maintaining the best quality of life possible for the longest possible time. It is therefore significant that, over the past few years, doctors have asked what he was doing as the disease progression in his case was so slow.

The chiropractor provided ongoing care for this patient beyond the original 4-week course of care. This was due to the patient experiencing self-reported benefits. The patient's partner remarked that, while he would sometimes skip his other therapy appointments, he would never skip his chiropractic appointment. The patient himself noted that chiropractic care was of great benefit to him in terms of retaining function, recovering as well as possible from setbacks, and retaining quality of life for as long as possible. He stated that '*Every week I look forward to seeing my chiropractor. Even if I've had little to no rest and no sleep I will find the energy to get up and attend my cChiropractic appointments. I personally believe without the chiropractic care over the past couple of years I would not be as comfortable as I could possibly be with Quality of Life, helping with my muscle pains and aches and helping to get through each week. I always feel better after seeing my chiropractor and hope more research into chiropractor and MND can be done.*'

Discussion

ALS is a debilitating disease driven by the progressive degeneration of motor neurons resulting in the gradual loss of motor control and restriction of movement. Unfortunately, the current prognosis and quality of life for patients with ALS is disappointing, and as such there is a great need for effective management options to provide patients with as much support as is possible in lieu of a cure. The current case documents the chiropractic care and MND progression

of a 30-year-old male with a pre-existing diagnosis of ALS. Every patient will experience a unique version of ALS, in that symptomatology and speed of progression may vary from person to person. As supported by this case, it is hoped that early intervention and management may preserve function and quality of life for as long as possible.

In this case, the patient's medical doctors noted the slow progression of the disease, which is a subjective but significant observation.

The previous case report published on this topic details the management and progression of ALS in a 35-year-old woman. (3) The diagnosis for this patient was difficult to achieve and made managing the condition with adequate treatment from the earliest stages of disease progression difficult.

In this preceding instance, progression was rapid and led to the death of the patient just 15 months after diagnosis, which was obtained a month after first presenting for chiropractic care. The primary discussion in this case was the value of early diagnosis, and the importance of chiropractors knowing what to look for in terms of typical and atypical symptomatology of MND.

The current case at hand places less emphasis on the positive recognition of suspected MND in patients presenting for chiropractic care, and expands on the foundation of the slowed progression and improvement of quality of life that can be achieved for patients with MND through spinal manipulation, and other alternative health care modalities. Improving the quality of life and slowing disease progression are vitally, if not the most, important aspects of disease management in conditions that remain incurable.

Considerations and future direction

The patient received a Vitamin C injection at one point in his care schedule and received acupuncture throughout. Around the same time, early on his treatment schedule, he also had a feeding tube put in on his medical doctor's recommendation. Following common practise, the patient was on a management plan that involved standard medications, as directed by his medical doctor.

Viral and bacterial infection were of concern as coughing can be exhausting and difficult for patients with impaired neuromuscular function. This occurred very rarely during the extensive course of care reported for this case, although when these infections did arise, the patient self-reported a faster recovery time than prior to chiropractic care. During his course of care, the patient was medicated for overproduction of saliva as well as antibiotics (prescribed by a medical doctor to decrease risk of pneumonia following a cough). Due to the risk of pneumonia increasing with the disease's progression, this threat was taken seriously, and nutritional support had been offered to boost immune function.

Initially, the patient was seeing a physiotherapist. Apart from hip flexor releases and home environment assessments, little is known about the disease's progression prior to the patient engaging with chiropractic care. Additionally, a multimodal approach was used and while chiropractic care appears to have been a significant contributor to the slowed disease progression (in comparison to the expectations of the medical doctors overseeing this patient), its impact cannot be quantified with certainty in this case as acupuncture and physical therapy also contributed to his care.

His chiropractic care focused on; subluxation nervous system-based care, assisted proprioception, assisted mobility, decreased pain and discomfort, postural advice (including when to introduce the soft collar), nutritional advice, maintenance of function, and referral to other medical care as required.

This case report is the first to indicate slowed MND/ALS progression concomitant with chiropractic care. The current paucity of chiropractic literature pertaining to MND/ALS means

that appropriate comparison with other cases cannot be achieved at this point. Further research is required to ascertain how chiropractic care may affect the pathophysiological mechanisms driving MND, the efficacy, and effect size of chiropractic care for MND/ALS with more confidence. Until such research is done, generalisations for chiropractic care and this disease cannot be made. However, the potential benefits of chiropractic care in terms of quality of life and slowed progression for incurable degenerative diseases certainly warrant further investigation.

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Abbreviations

ALS: Amyotrophic Lateral Sclerosis; MND: Motor Neurone Disease; SOT: Sacro-Occipital Technique; BL: bilaterally

About the Chiropractor

Dr Elizabeth Ullman graduated from Macquarie University with a Bachelor of Chiropractic Science and a Masters of Chiropractic in 2005. She has been in practice for 16 years and during this time has undertaken further studies in Paediatric Chiropractic with a passion for treating childhood and pregnancy related disorders. She uses a combination of chiropractic techniques and is certified in Neuro Emotional Technique.

About the Case Report project

This Case Report is a part of the ASRF Case Report Project 2021, a project designed to gather client studies from chiropractors and transform them into much-needed case reports, focused on the effects of chiropractic care on clinical presentations highly relevant to chiropractic, such as stress, immunity and adaptability. This project was made possible by the generous fundraising and contributions of ASRF supporters.

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