

Improvement in Obstructive Sleep Apnoea symptoms in a 26-year-old male concomitant with Chiropractic care: A case report

Jan Wesdorf, Ruth Postlethwaite and Clare McIvor

Background: Disordered and inadequate sleep is a growing public health concern. One of the most common sleep disorders is obstructive sleep apnoea, a condition that interrupts sleep through multiple episodes of airway collapse and subsequent decrease in oxygen saturation.

With many of the treatments being invasive and the outcomes unreliable, there is a significant need for alternative and effective management options for individuals with OSA. The following case report details the effective management of obstructive sleep apnea in a young adult with chronic pain from previous injuries, with Chiropractic care.

Intervention: The patient underwent a course of Chiropractic care during which he was adjusted two to three times per week using full spine adjusting, Diversified Technique with manual adjusting.

Outcomes: At the completion of his care plan, his CPAP machine reported a 50% decrease in his apnea episodes, and his sleep quality had increased significantly. This was accompanied by notable increases in spinal range of motion tests, resolution of his cervical syndrome, and a decrease in musculoskeletal pain.

Conclusion: This case report indicates that Chiropractic care may be useful in managing sleep apnea, but further research is required to confirm the mechanisms and strength of this effect.

Indexing Terms: Chiropractic; Subluxation; obstructive sleep apnoea.

Introduction

Disordered and inadequate sleep is a growing public health concern. From the extensive research that has been reported, the thinking that the biggest concern with having a lack of high-quality sleep is daytime tiredness has been confidently debunked.

Sleep loss has been associated with obesity, diabetes, cardiovascular morbidity, impaired mood and cognition, and increased age-specific mortality. (1) Young adults aren't immune to these long-term health consequences of poor sleep, and with one observational study finding sleep disorders were present in over 40% of their participants, finding effective

... Chiropractic care may be of therapeutic benefit to cases of OSA linked, directly or indirectly, to correcting the Vertebral Subluxation Complex ...'



management options is paramount for individual and public health. (2) Research findings draw a clear link between sleep, synaptic plasticity, learning and memory, and cognitive deficits in the absence of quality sleep. (3)

One of the most common sleep disorders is *obstructive sleep apnoea* (OSA), a condition that interrupts sleep through multiple episodes of airway collapse and subsequent decrease in oxygen saturation. Upper airway anatomy and muscle tone are important factors that play a role in the pathogenesis of OSA. (4) Obesity is a clear risk factor for the development of OSA, and it follows that weight loss often leads to improvements in the severity of the condition. This is due to the increased deposition of adipose tissue around the pharyngeal airway, making it more likely to collapse. OSA is also more common in males, and frequency increases with ageing, although the true increase with age is unclear due to multiple factors. (5)

Treatment options

Current treatment options for OSA include lifestyle changes, continuous positive airway pressure (CPAP) devices, oral appliances, and surgery. Thoroughly understanding the physiological causes behind the development of the condition is vital to selecting the appropriate treatment option, particularly when considering invasive interventions. However, even with a clear understanding, predicting which individuals will respond best to which intervention remains difficult and inaccurate. (5) With many of the treatments being invasive and the outcomes unreliable, there is a significant need for alternative and effective management options for individuals with OSA, not only to improve their quality of life day-to-day but also to avert the potentially serious long-term effects of inadequate sleep.

Case report

The following case report details the effective management of obstructive sleep apnea in a young adult with chronic pain from previous injuries with chiropractic care, adding to the emerging evidence in this area of research.

Patient details

A 26-year-old male bartender with a self-reported moderate activity level presented for Chiropractic care in July of 2019. His chief presenting concerns were chronic ankle, shoulder, and elbow pain as a result of previous sports injuries. At the time of his presentation, he had only limited experience with chiropractic care.

On presentation

Upon presentation he underwent an intake medical history and detailed Chiropractic examination during which it was discovered that he was diagnosed with Obstructive Sleep Apnoea in 2016 and was prescribed a CPAP machine. Monitoring showed he would have approximately thirty episodes per night of three to forty-nine seconds without breathing. Episodes were measured by the CPAP machine. While he was getting seven to eight hours of sleep per night, he reported that he had trouble falling asleep and did not find it restful.

At the time of his presentation, his blood pressure was 118/82 with a respiration rate of 24 breaths per minute, and a temperature of 98.5°F/36.9°C. He was 5'9"/175.3cm and weighed 166lbs/75.3kg.

Clinical findings

Subluxation levels were assessed using Motion Palpation, Static Palpation, and Visual Posture Screening. Sleep apnoea data were taken from the patient's CPAP machine.

During this examination, postural imbalances were noted, with a decreased left cervical rotation, a positive Gillet's Test, and a positive result for Cervical Syndrome at C5 on the right. He also returned a positive Derefild test on the right, where his leg was one-half inch short.

Vertebral subluxation complexes were noted in the cervical, thoracic and lumbar spinal areas as well as the sacroiliac joint. Other extremities where subluxations were noted included the pelvis, ankle, elbow and shoulder. Spinal, orthopaedic and neurological tests were otherwise unremarkable.

Below is a table of vertebral subluxations adjusted per visit.

- 1 Sacrum, T9, C1
- 2 Sacrum, C1, Lower Extremity
- 3 Sacrum, T10, C5, Upper Extremity
- 4 Sacrum, T5, C5, Lower Extremity
- 5 Sacrum, T12, C5, Lower Extremity
- 6 Sacrum, T11, C5, Lower Extremity
- 7 Ilium, T7, C1, Lower Extremity
- 8 Sacrum, T12, C1, Lower Extremity
- 9 Sacrum, T9, C1, Lower Extremity
- 10 Sacrum, T11, C2, Lower Extremity
- 11 Ilium, Sacrum, T11, C2, C5 Lower Extremity
- 12 Sacrum, T11, C2, C5, Upper Extremity
- 13 Sacrum, T12 C2, C5 Lower Extremity
- 14 Sacrum, T10, C4, Upper Extremity
- 15 Sacrum, T9, C5, Upper Extremity
- 16 L5, T3, C5, Sacrum, T9, Upper Extremity
- 17 Sacrum, T3, T6, T9, C5, Upper Extremity
- 18 Sacrum, T3, T6, T9, C1, C5, Upper Extremity
- 19 Sacrum, T3, T6, T9, C1, C5, Upper Extremity, Lower Extremity

Management

Following the initial assessment, the patient commenced a Chiropractic care plan whereby he was checked and adjusted two to three times per week over seven weeks for a total of nineteen visits. He was adjusted using full spine adjusting, manual adjustments and diversified techniques.

It should be noted that he had been smoking cigarettes and vaping for five years. Six months before starting Chiropractic care, he quit smoking and was primarily vaping while only smoking a cigarette occasionally. No changes in the patient's lifestyle or health habits were reported during the seven weeks of care.

The care plan aimed to detect and correct chronic subluxations, and to support recovery from musculoskeletal pain due to sports injuries.

Outcomes

At the patient's review following seven weeks of care, examination revealed that he now had significantly increased segmental range of motion and was returning negative results for Cervical Syndrome and on a Seated Gillet's test. His CPAP machine tracking revealed that his sleep apnoea episodes had reduced by 50%, and the patient reported that he was now getting better sleep and waking feeling rested.

As per his initial presenting symptoms, he reported that he had experienced a significant reduction in pain relating to musculoskeletal complaints, and was able to attain improved physical functioning in sports-related activities.

Discussion

This case details the successful management of a patient with obstructive sleep apnoea through a course of Chiropractic care. The patient reported a 50% decrease in sleep apnoea episodes, as recorded by his CPAP machine, and noted more restful sleep. There was also a concurrent reduction in pain and an improvement in function when playing sport, as reported by the patient.

Previous case reports have noted similar improvements in cases of obstructive sleep apnoea following Chiropractic care and recommended lifestyle modifications. (5, 6) Outside of the case report literature there exists little evidence to support the efficacy of Chiropractic care for sleep disorder management, as no large-scale studies have been completed in this area. This case may be somewhat remarkable in terms of clinical insight, given that the OSA sufferer in question was young, lean and physically fit, and made no other changes to his lifestyle during the seven weeks of care documented over the course of this care plan.

Conclusion

This case demonstrates that Chiropractic care may be of therapeutic benefit to cases of OSA linked, directly or indirectly, to the Vertebral Subluxation Complex. While there is not enough substantive evidence to make confident claims as to the mechanism behind the improvement noted in this case, muscle responsiveness and tone may be significant in OSA, as the onset of sleep suppresses control of the *pharyngeal* muscle. Research has indicated that individuals who have lower muscle responsiveness to the *pharyngeal* muscle may be more likely to suffer from OSA. (8)

Preliminary chiropractic research has indicated that chiropractic care increases the cortical drive to specific muscle groups. (9) The *pharyngeal* muscles, and the *genioglossus* muscle which acts as the main upper airway dilator muscle significant in OSA cases, have not yet been studied in a Chiropractic context. (10, 11)

Nevertheless, as we continue to understand how correcting subluxations removes interference from the nervous system and allows better communication between brain and body, it follows that these muscle groups may in time be measured and confirmed as being responsive to Chiropractic care. Only more research can confirm this.

Generalisations cannot be made from a single case report, however, this case does add to existing case report data, all following a similar pattern of positive effects in OSA cases following Chiropractic care. This conservative approach should be considered in conjunction with the use of other devices, such as a CPAP machine, to reduce the severity and frequency of episodes in OSA cases.

Future research in the form of more case reports, case series, or small-scale clinical trials could add evidence to the literature about this phenomenon.

Clare McIvor
BBus(Admin),
GD Comms(ProfWrit,Edit),
GD(Psych)(Cand)
Writer, ASRF

Ruth Postlethwaite
BBiomedSc
Writer, ASRF

Jan Wesdorf
DC
Chiropractor-Academic,
San Francisco Bay area, CA
jwesdorf@lifewest.edu

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About the Chiropractor

Dr Jan Wesdorf is a second generation Chiropractor with her dad serving the profession for over sixty years. She has been practicing in the San Francisco Bay Area in California for twenty seven years, and has been teaching for ten years as a full time professor, health centre mentor, and Chiropractor.

She specialises in Diversified Technique, and has a CT junction move named after her at *Life West*. She is presently launching a continuing education seminar in Advanced Diversified Adjusting, and is in the process of becoming certified in Animal Adjusting.

She graduated from Life West with a *Doctor of Chiropractic* in 1997.

About the Case Report project

This Case Report is a part of the [ASRF Case Report Project](#), 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.

ASRF definition of subluxation

'A vertebral subluxation is a diminished state of being, comprising a state of reduced coherence, altered biomechanical function, altered neurological function and altered adaptability.'

