

Reversal of Cervical Artery Stenosis and improvement in physical functioning in a 78-year-old stroke survivor under concentrated Chiropractic care: A Case Report

Sarah Kotlerman, Avery Martin, Michael Carter, Ruth Postlethwaite and Clare McIvor

Background: A 78-year-old female presented for chiropractic care following a week long stay in hospital for multiple Transient Ischemic Attacks (Mini-strokes). She had been advised that more mini-strokes would very likely occur as her medical doctors could not adequately diagnose the source of any bleeding, of which there were likely several. This caused further health-related anxiety and difficulty with sleep.

Management: The patient undertook three five-day courses of concentrated Chiropractic care over the course of three months. During this time, a variety of Chiropractic adjustments were deployed alongside complementary therapies.

Outcomes: Notably, the forecasted repeat strokes did not occur, and arterial regeneration was achieved concomitant with regenerative chiropractic care.

Indexing Terms: Chiropractic; Subluxation; TIA; stroke; Cervical Artery Stenosis; concentrated care.

Introduction

Chiropractic and stroke is an established field of clinical interest, previously clouded in controversy. The first indication that Chiropractic care had been incorrectly cast as a causal factor in stroke came when Church et al found no evidence for causation regarding chiropractic care and vertebral artery dissection. (1)

This was soon followed by groundbreaking research into outcomes with stroke survivors under Chiropractic care. Not only was Chiropractic found to not cause stroke, it is emerging that Chiropractic care may be helpful to patients undergoing in stroke recovery.

Holt et al reported that a single session of Chiropractic care increased measures of strength, cortical drive and spinal cord excitability. (2) This was

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shown by measuring plantar muscle strength in post-stroke patients both before and after a session of Chiropractic care. Furthermore, researchers narrowed this effect down to an increase in V-wave amplitude, and found changes in H-reflex parameters that suggested the change was occurring at a supraspinal level.

Holt et al then followed with another study examining the effects of four weeks of Chiropractic care on motor function in people with stroke. (3) While the control group in the study received physical therapy and did show improvement, the group receiving Chiropractic intervention, who also received physical therapy, showed greater improvements.

Other research has indicated that Chiropractic care can have a neuroplasticity-enhancing effect. (4) While we do not currently know the length or strength of this effect, it is of value to consider that this may be of importance to those who have suffered a severe neurological event such as a stroke.

Given the broad-reaching effects of stroke on the structure and function of the brain, and thus on quality of life (QoL) and a person's ability to undertake their daily activities (ADL), it is vital that we understand the best way for chiropractors to support their patients should a stroke occur.

This case discusses stroke recovery with concentrated Chiropractic care of a woman in her late 70's.

Case details

A 78-year-old retired female presented for a concentrated course of Chiropractic care, having survived multiple transient ischemic attacks (mini-strokes) one week prior. She was an irregular Chiropractic patient who maintained a moderate level of physical activity up to the stroke event preceding the current presentation.

Medical History

The patient reported to the Chiropractic clinic after a week-long stay in the hospital due to multiple *Transient Ischemic Attacks*. This patient had previously been under various forms of Chiropractic care for occasional adjustments throughout the years, but her care had been irregular and there had never been enough to reverse the significant spinal abnormalities and subluxations in the patient's spinal neurological system.

During her time in hospital post-stroke, her medical team had been unable to locate the site of any bleed, but medical doctors had communicated to the patient that there were several likely bleed locations and that '*she would be back*'.

The patient presented with balance and gait abnormalities, abnormal functional brain tests, and abnormal balance and fall risk assessment. Cervical radiographs were taken to show abnormal cervical spine alignment, with degenerative findings and abnormal calcium in arteries of the neck.

At the time of her presentation, the patient's quality of life was severely reduced as she was in the immediate aftermath of stroke events which required rehabilitation. She was unable to walk without assistance due to dizziness that came in waves, and was not able to drive her car.

The patient also reported that she had left-sided numbness, left arm weakness and restriction, low back weakness, and balance issues. She was not able to independently take care of herself and her adult daughters were taking turns staying with her around the clock to assist with activities of daily living such as cleaning, cooking, assistance going to the restroom, (etc.). This care was necessary for the first month, although the patient stabilised significantly after the first week of concentrated care.

The patient was experiencing abnormal and challenged sleep due to panic and terror that she was going to have another stroke(s).

In addition to stroke pathology, the patient reported a history of slip and falls, car accidents, birth trauma (as the mother), physical abuse, surgery, prior strokes, relationship challenges, work stress, financial stress, verbal abuse, grief, smoke abuse, recreational drug use, prescription drug use, over-consumption of animal protein, over-consumption of processed foods, history of mercury dental amalgams, history of hormone replacement therapy, and alcohol use.

Clinical findings

The proximity of her presentation to the time of her most recent strokes meant that a battery of tests were deployed to gain a full picture of her health challenges. Averio Health Institute is a Regenerative Chiropractic facility and thus uses a number of functional and objective tests, more than is typically expected. This patient's examination included several sets of objective tests, including analysed spinal radiographs in order to capture how the brain and/or other tissues are being compromised by the patient's damaged and/or abnormal spine and central nervous system (i.e. subluxations).

Notable tests and results in this case are as follows:

- ▶ The patient returned an abnormal blind spot test, whereby she was several hundred percent over the normal blind spot average. This indicated that Cerebrospinal Fluid movement was compromised
- ▶ The patient presented with a 79/21 front-to-back distribution on her weight balance testing through balance Tracking Systems. This should show 50/50, and thus the result indicated severe abnormal function of the brain and brainstem. The patient failed her Modified CTSIB test in the areas of proprioception, vision, and vestibular function
- ▶ The Heart Sound Test was abnormal, indicating reduced function in mitral, and tricuspid valves with abnormal valve tonicity in aortic and pulmonic valves
- ▶ The patient returned an abnormal result in the SAGE cognitive test which measures indicators of Alzheimer's Disease or Dementia
- ▶ A positive (abnormal) result was returned on her Fukuda's Test, which measures vestibular function, her Wykes Balance Test, which offers indicators of cerebellar function, and her Tandem Walking Assessment
- ▶ Spinal X-rays showed significant abnormal alignment to C1, C2, C3, and C4 with a reversed cervical curve C5, and C6. Degenerative joint disease and Degenerative Disc Disease were present in C4-C5, C5-C6, and C6-C7. The patient also presented with a reduced throat shadow on radiographs
- ▶ The patient's blood oxygen levels were low while her blood pressure was high
- ▶ The patient was also found to be clinically dehydrated with low body water (43.4%) on initial examination.

Initial care

The initial aims of care were to stabilise the patient and reverse the arterial breakdown by regenerating better spinal alignment (i.e. reversing subluxation to a level where structural-neurological regeneration can take place). A by-product of this process would be improved central nervous system function and regulation. Given the findings on her examination, the cervical spine was a focus point so as to restore stability and enable neuroplastic and vascular regeneration post-stroke.

Management

This patient was seen for three, 5-day Averio concentrated care programs, once per month for three months. This commenced only days after being released from the hospital with the

inference that she was just to 'wait for the next stroke'. The hospital doctors were anticipating that she would have another major bleed within days to weeks.

During the 5-day program, her primary care regime consisted of regular *Averio Functional Neurological Technique* (gentle, low force) adjustments, Class 2 Photobiomodulation Laser Treatments and Brain Wave Training Sessions. This was to reduce subluxation and to enhance neuroplasticity and brain rehabilitation immediately post-stroke.

Secondary to her Chiropractic-specific care, she undertook several other complementary therapies on site in order to support her system in a holistic manner. These included: cryotherapy, contrast therapy, myofascial release, active release technique, reflexology and spinal cupping, nutritional therapy, active and passive motion therapy and neurological exercises and rehabilitation.

The patient was placed on an anti-inflammatory diet during her stay and was supported with information to enable this post release. She was also given recommendations for specific neurological exercises and specific icing and topical anti-inflammatory support as at-home self-care.

She was referred to outpatient Chiropractic at the end of her concentrated care stay in order to maintain a level of appropriate intervention in subluxation patterns.

Outcomes

This case presented at a crucial time in her health history, as the initial days and weeks post-stroke are known to be significant for rehabilitation. Notably, the patient's vascular breakdown stopped and reversed. This was measured by noticeable improvements in Anterior to Posterior radiographs of cervical artery stenosis. The patient went from very limited function, to better than normal function with a full return of independent living and activities. Given the prognosis she had received during her hospital stay, this is significant.

The most significant outcome of this case is that she did not suffer the predicted stroke relapse. At the 12-month mark, she still had not had another stroke, was well able to undertake the activities of daily living, and felt that she had her life back. She credits chiropractic for saving her life and giving her a second chance.

Discussion

Through three weeks of concentrated chiropractic care, the first of which occurred just days after the last stroke event, stabilisation of the patient was able to be achieved, along with a reversal of all symptomatology related to the stroke and cervical artery stenosis.

The impacts on her QoL are profound, given she was reliant on family for care prior to commencing her concentrated Chiropractic care program. Now she has an improved likelihood of a normal retirement without disease. This was in stark contrast to the prognosis given in post-stroke and pre-Chiropractic intervention. At this point, future health emergencies or premature death were likely, due in no small part to abnormal inflammation, spinal abnormalities, and the corresponding dysfunction in the regulation of the central nervous system and vascular tissues.

While the concentrated Chiropractic care regime included multimodal treatments as given in this report, no other treatments were attempted over the three-month period of care.

Conclusion

This case report suggests that Chiropractic care, when gentle, specific and concentrated, has the potential to stimulate the brain to restart tissue regeneration cycles. Future research into these clinical findings in the Chiropractic context has the potential to change how chronic disease processes are assessed and handled and ultimately the results of such cases.

As per normal convention, no generalisations can be made based on case report data alone. However, future research into concentrated Chiropractic care, stroke rehabilitation, neuroplasticity and regeneration of function and tissue would be beneficial. This would allow chiropractors to more confidently claim their role in chronic disease management and stroke recovery, and ultimately gain more credibility as a necessary part of person-centred care for chronic conditions.

Avery Martin
BS, DC CCEP
The Averio Institute

Michael Carter
DC
The Averio Institute

Ruth Postlethwaite
BBiomedSc
Writer, ASRF

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

Sarah Kotlerman
BS, DC, NTP
The Averio Institute
drkotlerman@averiohealth.com

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The Journal holds written, signed patient consent for the use of these data and images.

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Images

Fig 1: Pre-concentrated care

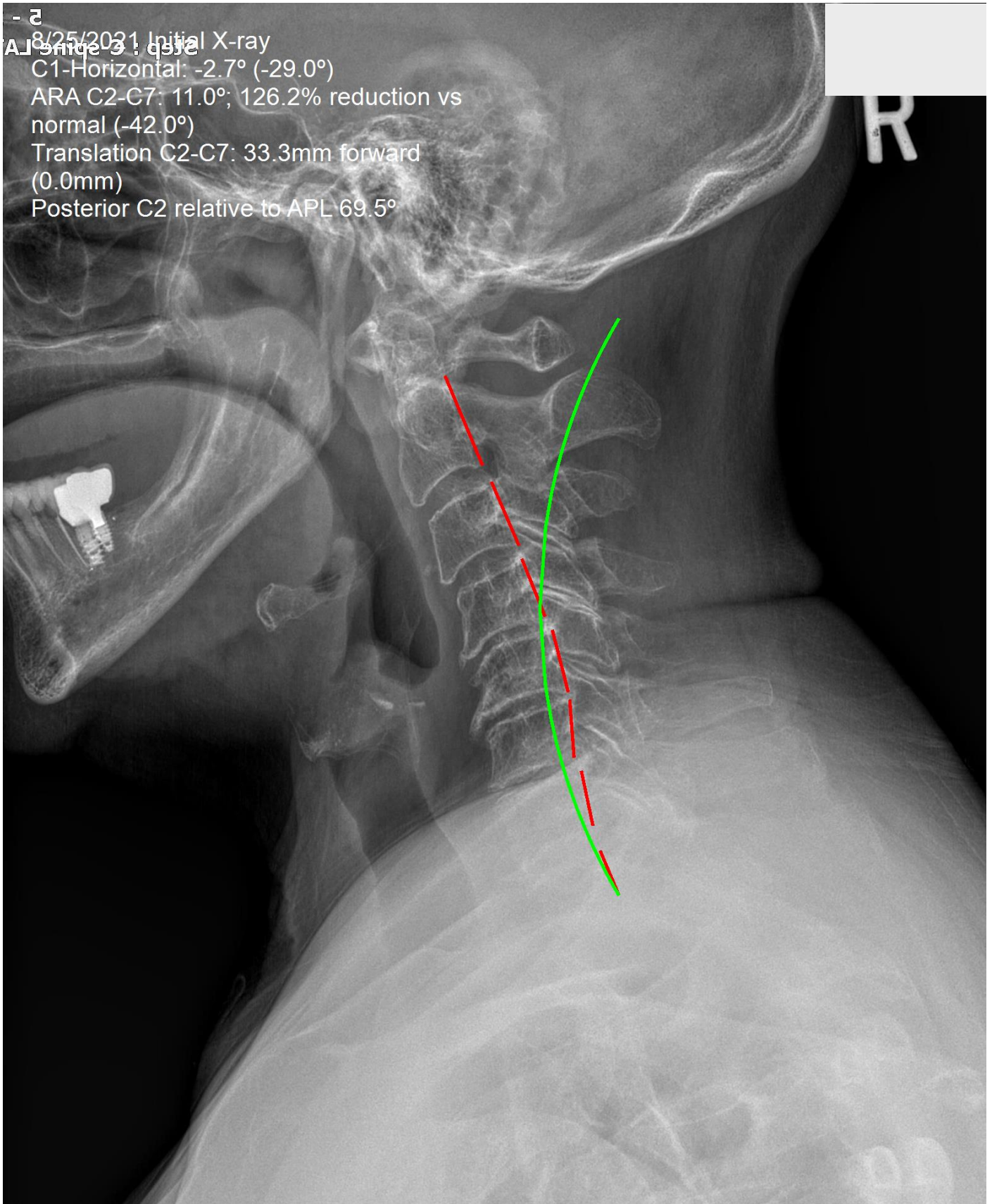


Fig 2: Post-concentrated care

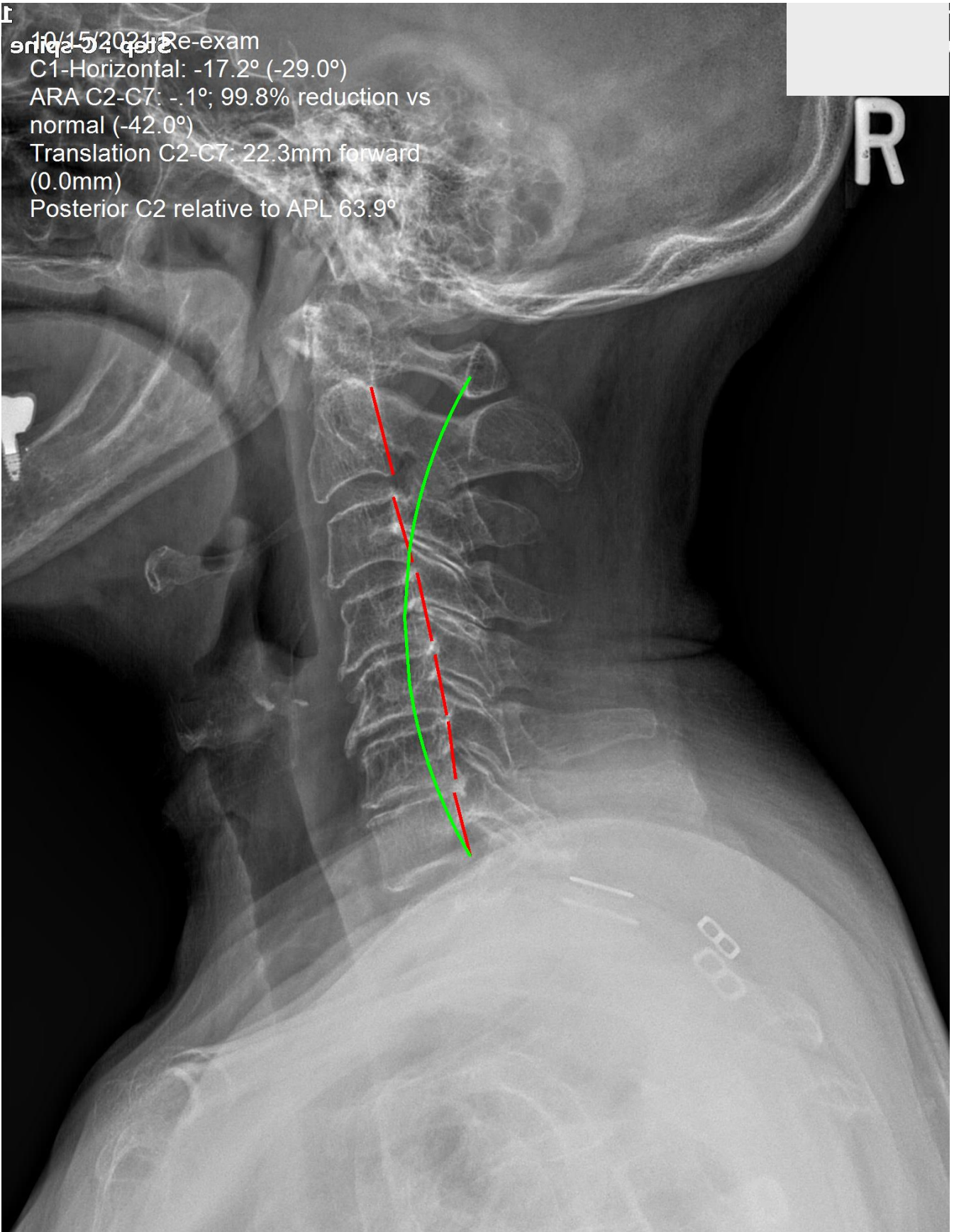
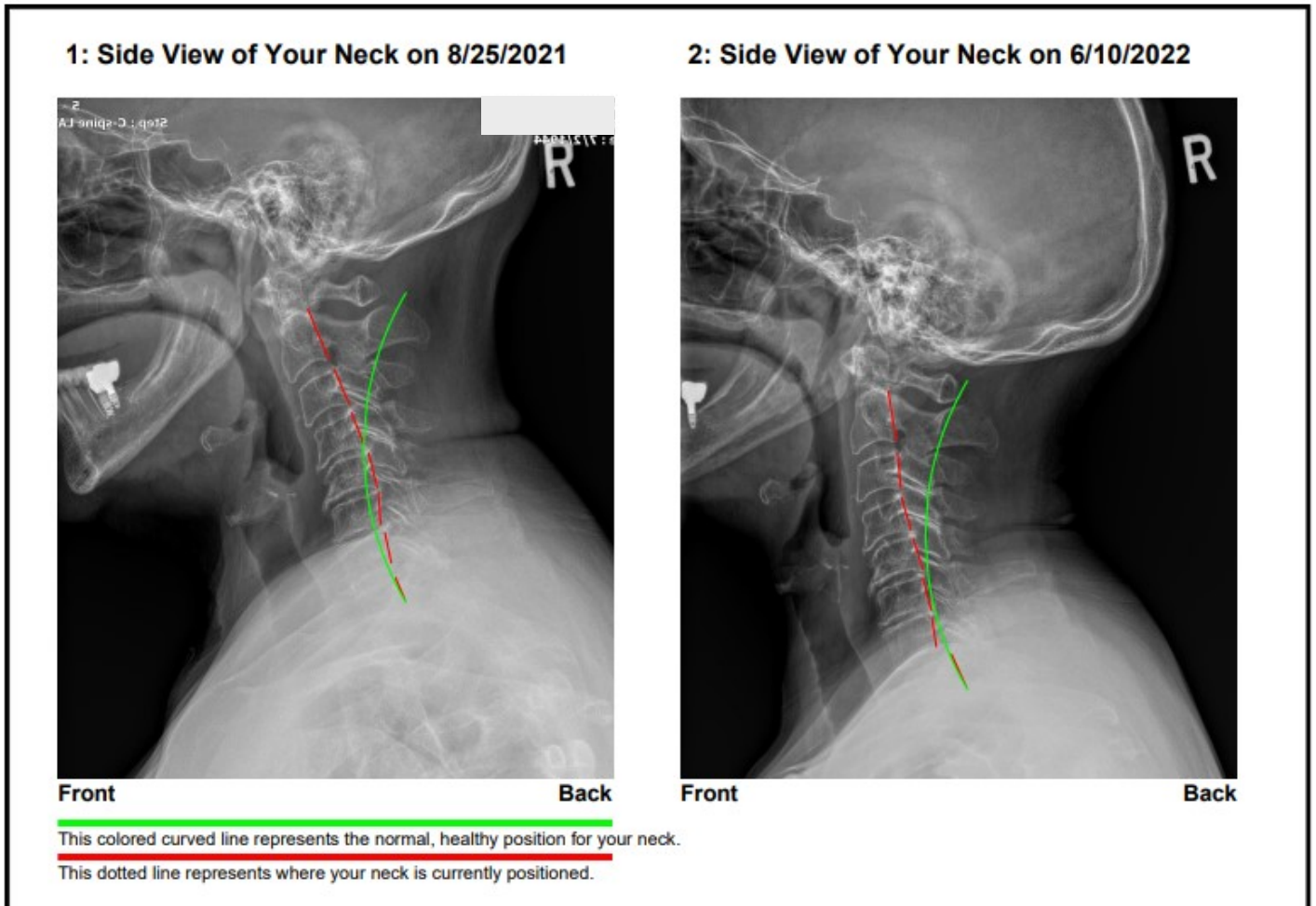


Fig 3: Pre-Post comparative views

X-RAY Comparative Report



Declarations

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 valuable project is made possible by the generous fundraising and contributions of ASRF supporters.

Patient consent was documented and is held by the lead Authors and the Journal.

All data with appropriate clinical commentary were provided by authors Kotlerman, Martin, and Carter.

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.'

About the Institute

The *Averio Institute* is a neurologically focused, multimodal health care facility that offers regenerative therapies alongside chiropractic care, nutritional support, rest, exercise and other functional neurological interventions in a five day concentrated care program tailored to individual guests.

Also by these authors

Kotlerman S, Martin A, Postlethwaite R, Mclvor C. Chiropractic Management of an 18-year old female with lupus: A Case Report. *Asia-Pac Chiropr J.* 2021;2.3. URL apcj.net/paper-issue-2-5/#AverioLupus

Kotlerman S, Martin A, Postlethwaite R, Mclvor C. Improvement in memory, balance and hearing in a 91-year-old male under chiropractic care: A Case Report. *Asia-Pac Chiropr J.* 2021;2.6. URL apcj.net/papers-issue-2-6/#AverioMemory

Mclvor C, Postlethwaite R, Kotlerman S, Martin A. Depression, ligament Instability and chronic pain improvement concomitant with a course of concentrated Chiropractic Care: A Case Report. *Asia-Pac Chiropr J.* 2023;3.3 URL apcj.net/Papers-Issue-3-3/#AverioDepressionChronicPain

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