

Improvement in mood, sleep, head symmetry and socioemotional engagement in a 19-month-old male concomitant with chiropractic care: A case report

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Background: A 19-month old male was presented for chiropractic care with his mother noting concerns about his emotional state. He was constantly agitated and emotional, and the mother also reported he had issues with moods and reactions, sleep, head shape (asymmetry), poor neck movement and position, difficulties with digestion and feeding, as well as some difficulties with crawling and walking.

Intervention: The patient was placed on a course of chiropractic care during which he was adjusted using Diversified Technique, with hands-on adjusting using Manual adjusting and Activator methods. Tonal checks, Logan technique, and Cranial work were also utilised.

Outcomes: Significant improvements in the patient's subluxation listings were noted alongside massive changes in his affect and ability to engage with life. His parents described him as "a completely different child." Spinal range of motion, digestion, head symmetry and other secondary concerns also improved significantly.

Conclusion: This case report has significant linkages to supporting vagal tone in paediatric patients, and supporting neurodevelopment and co-regulation through subluxation-based care and supporting exercises.

Indexing Terms: Chiropractic; Subluxation; infant care; socio-emotional engagement; adaptability.

Introduction

Recent medical research has seen an increase in evidence for Vagus Nerve stimulation as a therapeutic intervention for illnesses like depression and epilepsy, and even fields such as psychology have begun to examine the applications of the vagus nerve as part of their approach to client care. (1)

However, these applications occur after the diagnosis, and some interventions are quite invasive. Chiropractic is a non-invasive care-based system of health care, and vagal tone is vitally important to our patient base. This is as true of emotional regulation as it is of stress vulnerability on a physical level. (2, 3)

... Mum felt he was going to end up being diagnosed with a label due to just being so agitated all the time and was now 'thrilled to have her son back ...'



In early life, emotional regulation is as much a mother-child co-regulation phenomenon as it is individual. The role of the *Vagus* nerve in supporting and developing the infant's ability to co-regulate is critical, though it may be poorly understood. Researchers have reported a link between mother and infant co-regulation and vagal tone, with findings illustrating a connection between autonomic nervous system activity undergirding an infant's ability to engage in said co-regulation, and impacting temperament. (4) Other research has confirmed that vagal tone in infancy is associated with socioemotional development as well as gastric motility. (5)

While other research investigates the potential for vagus nerve stimulation to be harnessed therapeutically for behavioural and neurodevelopmental disorders, (6) Chiropractors have a unique opportunity to non-invasively support vagal tone. How this might impact a child throughout their lifetime is yet to be fully explored. However, when the basic science paints a picture of vagal tone being imperative for temperament, mood, neurodevelopment and co-regulation and social-emotional connection with care-givers, it is clear that ignoring warning signs of low vagal tone is irresponsible at best, and detrimental at most.

This case examines improvements in vagal tone, temperament and social function, as well as the integration of retained primitive reflexes in a toddler under Chiropractic care.

Case details

A male infant, aged 19 months, was presented for Chiropractic care by his mother. He was a novice to Chiropractic care and presented with parents raising concerns that he was constantly emotional and agitated. The mother assumed it may have been a phase, as prior to six months old he had been a lot more amiable, but she was growing concerned with his temperament. She reported that he had issues with moods and reactions, sleep, head shape (asymmetry), poor neck movement and position, difficulties with digestion and feeding, as well as some difficulties with crawling and walking.

A secondary but significant complaint was that of low mood. The mother remarked that he was always sad and never smiled. He appeared to have difficulty enjoying life and was always agitated.

Medical history

A detailed medical history included some birth trauma and the fact that the infant was a surprise baby, with the parents not preparing to be pregnant. The infant was born at 41 weeks gestation, at 9.8 pounds. He was bruised and swollen. The mother reported that he woke up screaming '*from day one*' and slept on his belly. He was breastfed until three months, and on formula from then as he struggled with poor latching.

Sleeping difficulties commenced at 13 months when he would wake up miserable. The mother reported that he would only be calm for '*a couple of hours*'. Otherwise, he was described as being constantly agitated, whinging, and crying as if he were in pain. She reported that he had good eye contact when he was younger, but his mood changed at six months and this ceased.

Clinical findings

At the initial consultation, the *Well Kids Assessment* was used, during which the patient was tested using active and passive range of motion tests, cranial assessments, peripheral orthopaedics, and subluxation assessments. A tone assessment was used, during which the Chiropractor assessed the infant's ability to perform vertical suspension, pull-to-sit, prone extension, supine positioning, scarf sign, arm recoil and more. The assessment included arm and leg traction, shoulder stabilisation and postural assessment while seated. Cranial nerves, muscle stretch reflexes, and primitive and postural reflexes were tested as well as gait analysis.

The Chiropractor attempted a gross motor assessment, however, the patient was non-compliant.

The Chiropractor's examination revealed severe restrictions in the cervical spine and low vagal tone. The majority of his primitive reflexes were presented long past integration expectations. Additionally, the patient exhibited poor cortical strength and was too overwhelmed to finish the initial examination. He showed poor emotional and physical resiliency and poor adaptability as he aged. At the time of the initial consultation, he had a flat affect, and appeared '*absent*'. There was a clear regression in his capacity to interact with the world.

At the initial consultation, subluxations were located bilaterally at the Occiput, Atlas, C6, T2, T6, L2, and the left sacroiliac joint. His right shoulder, hip, ankle and foot were also restricted.

The infant was placed on a care plan whereby he was seen two times per week for six weeks. At the first review, a second care plan commenced where he was seen two times per week for four weeks and then once per week for four weeks. A third care plan was then instigated where he was seen once per week for six weeks and every two weeks for four weeks. A full re-examination occurred at each review.

The patient was checked and adjusted using the Diversified Technique, with hands-on adjusting using Manual adjusting and Activator methods. Tonal checks, Logan technique, and Cranial work were also utilised.

During the first care plan, big brain play was recommended. In order to stimulate the right brain, jiggle pops* and the left sensory brush were recommended, as well as using bilateral arm and leg proprioception distraction and ball rocking. These recommendations continued through the second and third reviews, and supplementation was added to include Magnesium, Zinc and Vitamin D.

Aims of care focused on developing the right brain and supporting postural tone and gut health overall. The Chiropractor aimed to help the patient function at his best by restoring appropriate function of the nervous system. This involved decreasing nervous system irritation and supporting better resilience, aiming to see improved Spinal Range of Motion, decreased cranial tension and improvement with primitive reflex integration.

After establishing this baseline, the care team aimed to move forward into improved neurological reflexes, cranial nerve function and postural strength and tone leading to better body positioning in sitting. Further focus on right brain deficiency was also deemed important during this time.

At the second review, the focus on brain, gut health and tone remained, and the Chiropractor commenced a new goal of supporting the patient's brain/body communication. Further improvements in spinal range of motion, muscle tone and strength were also targeted, as well as postural strength and symmetry. Long-term goals included further improvement in neurological function (including cranial nerves and reflexes) and gait symmetry.

These foci continued through to the third review, with an aim to continue improving brain/body awareness.

Outcomes

In the first and second reviews, positive changes were already recognisable. Sleep quality, mood and general behaviour had improved, along with a marked improvement in his ability to deal with stress. Posture, coordination, body symmetry and balance had also significantly improved alongside a decrease in hours spent crying.

The patient was also showing an improvement in general resilience, evidenced by his increased ability to deal with separation (i.e. he was showing a decrease in separation anxiety). His shoulders weren't scrunched up anymore and he was '*less clingy*'.

The patient showed an increased sense of ease and had even begun to show some independence. His mother reported that he went from '*always crying, always clingy and having a scrunched up face and in pain/dys-ease, never getting off mum's lap*' to being '*happy, lighter in the face, smiling more, more able to participate in family life*'. He was now showing more ease with the whole family and able to engage in enjoyable family times, even exploring and engaging in other scenarios such as at the park, with other people or other family members. He had begun to run up to other friends and family members and hug them, which he had not done previously. He was beginning to show self-confidence and self-assurance.

At the second review, his subluxations had reduced to left C0 (Posterior), C6, T4, T10, and Left Sacroiliac.

From the second to the third review, further improvements were noted in general behaviour, mood and ability to deal with stress. His posture had begun to improve, though some clumsiness and tripping remained. He showed improvements in movement (walking), achieving his milestones and coordination.

Parents remarked that he seemed to hold himself better and be more open, and was starting to string words together. The mother noted that he still had tantrums. While these were no longer every day, she noted that on big days, these were difficult and he struggled when his mother left the room.

At the third review, subluxations were now only present at Occiput, Atlas, C6, T4, T9, and L5.

In this review, the mother noted a huge shift in how the patient was able to relate to the world. He was less whiny and now able to enjoy life. He could shift and adapt when moving from one activity to another and participate in family life much better. The patient was now smiley, and his ability to maintain eye contact had also improved.

Significantly, primitive reflexes had now integrated to a point where they were age-appropriate, and the patient now had the capacity to get through the exam (whereas he could not do so in the beginning).

The mother was extremely satisfied with the care, as she had previously been very concerned with his long-term capacity with life. She felt he was going to end up being diagnosed with a label due to just being so agitated all the time and was now '*thrilled to have her son back*'.

Discussion

Witnessing this child respond to care indicates the capacity of Chiropractic care to increase adaptability even in young patients. Significantly, the improvement in adaptability has led to a toddler being far more able to participate in life and family, enjoying new experiences and interacting with his environment.

With this patient, the impact of improved vagal tone may be a factor in his improved adaptability. He was now holding less stress in his nervous system and body, allowing him to interact with the world as it was now more '*safe*' for him to be in.

The impact of subluxation and poor vagal tone had likely contributed to dysafferentation and poor cortical stimulation. Caring for him by reducing subluxation and thus increasing afferentation and cortical stimulation was potentially life-changing.

Conclusion

This paper provides a rationale for further research into the impact of subluxation-based care on vagal tone and thus cortical stimulation, especially within infancy and young childhood.

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* jiggle pops are a series of movements that help stimulate different afferent fibres - we use light touch, deep touch, joint play, distraction of the joints (shoulder, elbow, wrist, fingers - same with leg).

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About the Chiropractor

Dr Jacey Pryjma obtained her Bachelor of Chiropractic Science in 2005, and later her Master of Chiropractic in 2007, from Macquarie University. Jacey founded *Well Kids* in 2013, developing the *Well Kids Program*, and is now the Director of the [Australian Children's Chiropractic Centre](#) in New South Wales, Australia

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.

