

A case report of improved behavior and a reduction in violent outbreaks in a 10-year-old boy with chiropractic care

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This paper has been self-funded.

No conflicts of interests are known with this paper.

There have been no additional sources of support.

ABSTRACT

Objective: To present a single case study in which a reduction in violent behavior with a 10-year old boy was achieved when the patient underwent chiropractic treatment. **Design:** A case report. **Setting:** Private chiropractic practice. **Subjects:** This case involved a 10-year-old male who presented with behavioral issues, including dramatic changes from a calm manner, to suddenly becoming violent. He was also reported to have difficulty sleeping due to emotional detachment disorder and frequently suffered from panic attacks. His mother also reported that he had difficulty noticing when he was sufficiently full following eating. His behavioral changes caused him to be suspended from school. Upper cervical, thoracic and lumbopelvic dysfunction were recorded in this case. **Methods:** The patient received diversified low-force chiropractic manipulation to the spinal areas noted, including toggle-recoil and drop piece technique. His changes were recorded through the Measure Yourself Medical Outcome Profile (MYMOP) questionnaires over the course of his treatment. Treatment was provided over a 4-week, twice weekly period, with a MYMOP questionnaire being filled out after his 3rd, 6th and 8th adjustment. **Results:** A reduction in a MYMOP score of 6/6 to 1.6/6 for behavior and violent outbreaks after 8 chiropractic adjustments. Further improvements were noticed with sleep and anxiety, as well as a dramatically improved awareness of feeling full after eating. **Discussion:** This case suggests a possible association between the development of spinal segmental dysfunction and consequential manifestation of behavioral disorders. It also highlights the use of the MYMOP questionnaire in cases outside of musculoskeletal pain syndromes, especially where evidence may be limited or where there may not be an existing tool to measure change.

Key words: chiropractic, pediatrics, behavior, violence, spinal manipulation.

Introduction

Previous research into the relationship between behavioral problems and chiropractic has focused on children diagnosed with behavioral disorders such as autism and ADHD. There appears to be no previous research amongst the literature that involves children that are yet to be diagnosed, or who have been shown not to be suffering from autism or ADHD, but still have behavioral problems. A search of *PubMed and Index to Chiropractic Literature (ICL)* was carried out using the keywords in various combinations: *chiropractic, pediatrics, behavior, violence, adhd and autism*. As of September 2014, there were no previous studies of any evidence level that were similar to this case.

In general, chiropractic research in pediatrics has been focused on the younger child, under 12 weeks of age, with most common presenting complaints being that of a musculoskeletal origin, and excessive crying¹. Even in this demographic, research was previously criticized as being weak, but further developments including a single blind pragmatic RTC on excessive crying helped bolster this evidence². Furthermore, there is an apparent dearth of clinical

trials related to chiropractic and pediatrics, with many existing studies being of low evidence³.

Karpouzis⁴ systematic review of chiropractic care for children with ADHD illustrated the lack of evidence in support of chiropractic care, with most of the studies used being of low evidence. However, the patient in this case report had not been diagnosed with ADHD or other conditions. It is therefore prudent to report on this case, where behavior and violent outbreaks improved, seeing as there seems to be no prior published articles that highlight this relationship.

Autism is characterized by severe and pervasive impairment in reciprocal socialization, qualitative impairment in communication, and repetitive or unusual behavior⁵. ADHD is then characterized by inappropriate, chronic levels of inattention, hyperactivity and impulsivity⁶. There is also an association with difficulties in academic achievement, and behavioral control, and as a consequence, they have difficulty in establishing positive relationships with family, authority figures and their peers⁶.

Currently pharmaceutical management is the mainstay of care for many children with ADHD⁴. Medication of youths has a common side effect of weight gain⁷, as in the following case, and may be a reason behind poor adherence to medication. There is growing research with regards to the use of non-pharmaceutical management of symptoms. 28.9% of youths with mental health disorders are reported to be using CAM therapy, compared to 11.6% of youths without mental health disorders⁸. Research also indicates that 10% of the US population use chiropractic care for non-musculoskeletal conditions and up to 14% of all visits is for pediatric care⁴.

It can be difficult to effectively measure change in patients presenting symptoms, especially when there are no standardised tests to measure change. Due to this, in the UK, The Royal College of Chiropractors recommend the Measure Yourself Medical Outcome Profile questionnaire (MYMOP)⁹. MYMOP measures patient-perceived changes in symptom severity, wellbeing and ability to undertake a key activity. These measures are combined to provide a 'profile' that is quantified before and at one or more intervals during a course of treatment.

A demonstration of positive change among patients through use of such a tool does not unequivocally prove the clinical effectiveness of the intervention, but it does show that important aspects of a patient's health status improve during the period they are receiving care⁹. Patients are invited to choose one symptom which they are most concerned about on a scale of 0-6, where 0 is as good as it can be, and 6 being as bad as it could be. They then choose an optional second symptom. This is then followed by an optional activity that the symptom affects, plus a rated general feeling of wellbeing question, again rated 0-6.

Case report

A 10-year old male patient presented to a chiropractic clinic with behavioral issues, including a change from a calm relaxed manner, to sudden outbreaks of violence. His mother reported that he suffered from frequent panic attacks and periods of anxiety. These behavioral issues affected his schooling, and he was suspended from several schools, and was only allowed to attend school for 50 minutes a day. Due to being suspended from schools, he had not started the "statementing process" and was not diagnosed with a specific condition.

The Local Education Authority carries out the Statementing Process in the UK. The Statement of Special Educational Needs is a legal document that sets out the learning and educational needs of an individual child. These are usually issued to children who find it significantly harder to learn than other children of the same age, through medical, com-

munication or behavioral problems and where the school is unable to meet the needs of the child through its own resources¹⁰.

The patient was previously diagnosed with Emotional Detachment Disorder, and was unable to sleep alone, and reported poor, unrefreshing sleep. His health history revealed a difficult birth, being born in an occiput posterior fetal position, which had to be corrected during labor. He suffered from several bouts of otitis media as a child, with three operations to fit grommets. The mother did not recall whether or not he was prescribed antibiotics for these bouts. His mother reported that he was often clumsy and had poor fine motor skills. His bowel habits were described as being variable, between bouts of constipation and diarrhea. His mother also explained that he had difficulty noticing when he was sufficiently full following eating. He had been medically prescribed Aripiprazole, which helped improve his behavior, but the side effects of increased weight gain caused him to stop taking this medication.

The patient appeared above average size for his age. Cervical, thoracic and lumbar active and passive ranges of motion were full, painless and unrestricted. Palpation of segmental motion revealed restriction of the upper cervical, mid thoracic and lumbar spinal segments, accompanied by significant tenderness of the left sub occipital muscles. Sensory, motor and reflex (SMR) neurological tests were unremarkable.

The patient's mother completed a MYMOP questionnaire, which is a validated patient-reported outcome measurement tool. It is helpful in identifying whether, from the patient's perspective, certain aspects of their health status change over time⁹.

On the initial consultation the mother highlighted the patient's violent behavior as being the symptom that concerned her the most, rating it as 6/6. Her second most important symptom was the patient's poor sleep, which again she rated as 6/6. Overall, she rated her son's overall health and sense of wellbeing as being 6/6. This gave a MYMOP 'profile' score of 6/6.

The patient was recommended a course of chiropractic care. The schedule included a twice-weekly schedule over a 4-week period. Chiropractic care consisted of diversified, Thompson drop technique and toggle-recoil adjustments, with gentle soft tissue therapy. His mother also completed a follow up MYMOP questionnaire after his 3rd, 6th and 8th adjustment.

The patient responded positively to his chiropractic adjustments, and by the 4th adjustment his MYMOP profile score

dropped to 4.6/6, then to 3.3/6 by the 7th adjustment and finally to 1.6/6 by the review stage of his care on the 9th visit. His mother reported that his violent behavior had decreased. Furthermore, when his outbursts did occur, it was easier and quicker to ease him out of the violent episodes. She also noted that his behavior was more settled, and noted that he was becoming generally more positive with his outlook. At this review stage she also mentioned that he was sleeping better and was able to sleep in his own bed, by himself. She also reported that since starting care, he had no panic attacks. In addition, she reported that he was more aware of when he was full following eating.

No adverse events were reported or noted as a result of chiropractic care. The patient was not receiving any other care at the time of the study.

Discussion

This was a unique case presentation of an improvement in violent behavior in a male child with chiropractic care. Previous studies have focused on children with medical diagnoses of conditions such as ADHD and autism. The search of the literature indicated no previous studies that have shown a similar link.

As stated in the introduction, children with mental health problems are using complementary medicine, including chiropractic care as a tool to improve their overall health. Studies have shown that 28.9% of children with mental health are using CAM⁸.

It is important that patients and families of those affected by mental health are aware of the alternative and complementary forms of treatment, which may improve their health and wellbeing. However, as this case indicated, the research that is being produced by chiropractors is either not being reported or not being published. Although case studies are low-level evidence they are useful in indicating possible responses to chiropractic care and provide details regarding many different aspects of a patient's medical situation, which is missed or undetected by clinical studies¹¹.

Traditional pharmaceutical treatment of behavioral problems may include prescription for Aripiprazole, such as in this case. Aripiprazole is an anti-psychotic medication, which commonly produces side effects, including weight gain in children⁷. Side effects such as these may result in a high non-compliance rate¹². Owing to this, chiropractic care may be an attractive alternative to family and patients concerned with side effects of medication, especially as chiropractic care with children has shown to be safe and effective¹³.

There is a large amount of research that represents patients' responses to musculoskeletal conditions. This is likely to

be due to the plethora of standardised outcome measures such as the Bournemouth Questionnaire. However, many conditions are hard to measure and quantify. The MYMOP questionnaire has been shown to be practical, reliable and sensitive to change¹⁴⁻³⁰. It is evident that questionnaires such as MYMOP allow us to quantify, in the patient's experience, the change that may have occurred through chiropractic care. This will then hopefully generate interest in the relationship between chiropractic care and behavioral changes, and then lead to future high-level studies.

Conclusion

This case report demonstrates that chiropractic spinal adjustments, the only treatment being rendered, were effective in improving the child's behavior. This study suggests that chiropractic care helped to reduce violent outbreaks as well as to improve the patient's sleep, with additional improvements to satiety and frequency of panic attacks. Chiropractic care may be an effective tool that children with behavioral and other mental health problems may be able to use to improve their health and wellbeing. This study has illustrated a dramatic improvement with chiropractic care, without any adverse reactions or side effects to care. In children who have reactions or side effects to medication for their behavior, chiropractic care can be a safe and effective alternative.

Current research highlights possible hypotheses that may explain the improvements noted in this study. One potential mechanism is that "altered afferent feedback from a vertebral subluxation alters the afferent milieu into which subsequent afferent feedback from the spine and limbs is received and processed, thus leading to altered sensorimotor integration of the afferent input, which is then normalised by high-velocity, low-amplitude adjustments"^{31, 32}. It is thought that if a vertebral subluxation creates neuroplastic changes in the central nervous system due to altered afferent input, its impact on the sensorimotor integrative system may have neurological manifestations far beyond the mechanical local site of the vertebral subluxation³².

A second hypothesis suggests that chiropractic care may improve brain function by increasing cerebral blood flow, resulting in a restoration of normal cerebral function^{33, 34}.

It is clear that further research needs to be carried out in order to assess the benefits of chiropractic care for children with behavioral problems. In addition, more research into the neurophysiology of spinal adjustments may help our understanding of why these changes occur.

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

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