CASE STUDY

Resolution of Daily Cervicogenic Headaches in a 13-Year-Old Male Under Chiropractic Care

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Abstract

Objective: To describe in a case report format the chiropractic care of a child experiencing daily cervicogenic headaches concomitant with the presence of vertebral subluxations.

Clinical Feature: The patient was a 13-year-old presenting with a chief complaint of daily headaches of several years duration. The patient denied trauma or triggering factors preceding his headaches nor any palliative care.

Intervention and Outcome: This patient was cared for with adjustments to the cervical and thoracic spine characterized as high velocity, low amplitude thrust type adjustments. The patient’s headaches resolved during the course of chiropractic care consisting of 8 visits over a 2-month period.

Conclusion: This case documents significant improvements in headache related complaints in a pediatric patient after receiving conservative chiropractic care.

Key Words: headache, subluxation, child, chiropractic, adjustment, spinal manipulation

Introduction

Pediatric headache has been estimated to have 10-20% prevalence in school age children and progressively increases to 27-32% at the age of 13-14 years for a one month prevalence and 87-94% at one year prevalence.¹ Headache is considered one of the most common somatic complaints of children that affects their health-related quality of life and associated with several comorbid conditions generalized as neurological, psychiatric and cardiovascular system disorder.²

In an analysis of the quality and the outcomes of published, randomized, controlled trials assessing the effectiveness of spinal manipulative therapy (SMT) in cervicogenic headache (CH), Fernandez-de-Las-Penas et al.³ found strong evidence of effectiveness (i.e., level 1) with respect to headache intensity, headache duration, and decreased medication intake but no more than limited evidence (level 3) in reducing headache frequency. The authors noted that a greater number of well-designed, randomized, controlled trials are required to confirm or refute the effectiveness of SMT in the management of CH.

Other reviews on the use of SMT for headaches in general and cervicogenic in particular essentially provides similar support for this mode of care.⁴⁻⁶ Specific to the pediatric population; to the best of our knowledge, we are aware of only one clinical trial examining the effectiveness of manual therapy for pediatric cervicogenic headaches.⁶⁻⁸ Unfortunately, the study did not find significant differences between the placebo and true spinal manipulation groups with respect to their defined

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main outcome measures (i.e., headache frequency and intensity). With respect to the study by Borusia et al.\(^9\), Alcantara et al.\(^9\) raised the issue of a questionable dose-response in the trial and highlighted that not all SMT techniques are the same. Given the scarcity of data on the effectiveness of chiropractic care (i.e., chiropractic adjustments with adjunctive therapies) to address pediatric headaches, we describe in a case report format the successful care of a child with chronic daily headache.

Case Report

The patient was a 13 year old male accompanied by a parent and presented for chiropractic consultation and possible care with a chief complaint of headaches that the boy had been experiencing daily for “several years.” The parent and the child denied trauma or triggers preceding his headache attacks. According to the patient, his headache attacks would generally occur later in the day and were not worse after any specific activity or any specific days of the week. The mother of the child noted that though her son had complained of the headaches to his family physician, the family physician was of the opinion that the headaches were sinus related and did not initiate any treatment or further workup.

Physical examination of the patient incorporating inspection, palpation and range of motion (ROM) as well as motion palpation revealed the following notable findings. The patient had bilateral hypertonic muscles in the posterior cervical spine, upper thoracic spine and trapezius muscles, bilaterally. On active range of motion of the cervical spine, the patient demonstrated limited ROM in all directions and misalignment in the cervical and thoracic spine based on motion palpation. The patient was determined to have subluxation findings of ASLP (\(-\Theta X;+\Theta Y\)) at the C1 vertebral body (VB), a C2 PL (-Z; -\Theta Y) and T4 PL (-Z; -\Theta Y). The child’s mother was apprised of the history and examination findings and consented for her child to undergo a trial of chiropractic care.

With the patient’s assent, the patient was adjusted using Diversified Technique characterized as high velocity, low amplitude thrusts in the following manner. The patient was placed in the supine position and C1 VB was adjusted with a transverse process contact on the left side. The C2 VB was adjusted with the patient in a similar position using a lamina contact on the right side. The patient was placed in the prone position for the adjustment of the thoracic spine. The T4 VB was adjusted using a double thener upon transverse process segmental contact point. The patient was scheduled for a follow-up appointment 2 days later, at which time the patient reported that he had not experienced any headaches since his first set of adjustments.

The patient was scheduled at two times per week for 2 weeks, then a follow-up appointment was scheduled for 1 week, then for 2 visits 2 weeks apart and then for a visit 1 month later. The patient’s scheduling was based on his response to ongoing chiropractic care. The patient was attended to over a total of 8 visits over a period of 2 months with positive outcome. This patient’s response to chiropractic care was immediate (i.e., abatement of headache attacks), and has made a substantial impact on this patient’s overall ability to function.

Discussion

This case report raises a number of issues for discussion. In addition to the role that chiropractic care has played in the case reported, there is the issue of diagnosis. This child suffered from chronic daily headaches diagnosed by the attending chiropractor as CH. Given this diagnosis, a discussion on the pathophysiology, diagnostic criteria and care approaches is warranted for children suffering from chronic and daily CH.

The prevalence of chronic-nonprogressive (or chronic-daily) headache during adolescence is 0.2 to 0.9 percent.\(^10\)-\(^11\) No specific diagnostic criteria have been established, although ongoing studies in children define chronic-nonprogressive headaches as those lasting four or more hours and occurring 15 or more times a month for a period of four or more months.\(^12\) Many adolescents have continuous, unremitting daily headache.

Chronic daily headache affects 2-4% of adolescent females and 0.8-2% of adolescent males. Chronic daily headache is diagnosed when headaches occur more than 4h/day, 15 headache days per month or more, over a period of 3 consecutive months, without an underlying (medical) pathology. Additionally, the diagnosis is made when the patient suffers from headaches occurring for ≥15 headache days per month, over a period of 3 consecutive months, and with no underlying pathology. The headaches last for more than 4 hours a day. Patients with chronic daily headache will frequently have sleep disturbance, pain at other sites, dizziness, worsening anxiety and mood, and school absences. The child presented in this case report was such a child.

With respect to CH; according to the International Headache Society\(^13\), subjective symptoms forms the basis for its diagnosis. First coined by Sjaastad et al.\(^14\) in 1983, the diagnostic criteria for CH include headache associated with neck pain and stiffness. Typically the headaches are unilateral, beginning from one side of the posterior head and neck, migrating to the front, and sometimes are associated with ipsilateral arm discomfort.\(^15\)-\(^16\) The estimated prevalence of the disorder ranges from 0.7% to 13.8% depending on the research design.\(^17\) Associated manifestations may include complaints of cervical spine pain and tenderness to palpation, a history of trauma, shoulder pain, nausea, vomiting, and photophobia.\(^18\)

Chiropractic care

CAM use is common in pediatric neurology patients and most respondents felt that it was helpful, with few or no harms associated.\(^19\) In a secondary data analysis of the National Health Interview Survey 2007, Child Alternative Medicine file as well as the Child Core Sample, Ndetan et al.\(^20\), estimated that 2.3 million children (2.3%) in the United States had used C/O/M in 2007. Spinal manipulation was the most common CAM procedure with children aged 12-18 years more likely to have attended this type of care than the younger age groups. The most common complaints were back and neck pain. Other conditions for which children were seen included other musculoskeletal conditions, sinusitis, allergies, and headaches.

Given the relationship between cervical joint dysfunction and
CH, there is support for the effectiveness of spinal adjustments or SMT as well as mobilization. To the best of our knowledge, this is the 4th description in the scientific literature describing the chiropractic care of a pediatric patient diagnosed with CH concomitant with spinal subluxations.

Olsen and Alcantara described the care of a 6-year-old male with chronic headaches of 2 years duration. No organic cause was determined by extensive medical diagnostics with ibuprofen deemed ineffective. Under chiropractic care, the child received high velocity, low amplitude thrust-type adjustments directed to the cervical spine. The patient attended care for a total of 10 visits over a 2-month period with resolution of the patient’s headache complaints. Olsen and Alcantara described the previous 3 case reports and are summarized here. Nelson Hassel described a case report format the care of a 10-year-old male with chronic headaches of 5-year duration.

The patient received care consisting of relaxation techniques and HVLA-type adjustments over 12 visits in a 6-week period. From visit 5 and onwards, the patient reported continued improvement in his headache symptoms along with improved sleep, no symptoms of ear pain and more relaxed. Jonasson and Knaap described the care of an 8-year-old male with a presenting complaint of cervicogenic headaches and neck pain. The child’s care consisted of chiropractic adjustments of the upper cervical spine in combination with cranial treatment and adjunctive dietary advice with initial response to care.

However, the patient was found to suffer from gastroesophageal reflux disease and the patient was referred to a specialist for suitable treatment. Fedorchuk and Wheeler described the care of a 13-year-old male with daily CHs for a period of 4 years. The patient was cared for using Chiropractic Biophysics technique (CBP) to include segmental adjustments, mirror-image adjustments, 2-way traction, and therapeutic exercises.

As previously mentioned, we are aware of only one clinical trial thus far to examine the effects of spinal manipulation for children with CH. Borusiak et al. performed a multicenter, prospective, randomized, placebo-controlled, and blinded trial in 52 children and adolescents (21 boys, 31 girls; aged 7-15 years). After prospective baseline documentation for 2 months, the patients were assigned to either a placebo group or received true manipulation with another 2-month follow-up.

The main outcome measures were percentage of days with headache, total duration of headache, days with school absence due to headache, consume of analgesics, intensity of headache. The investigators did not find a significant difference comparing the groups with placebo and true manipulation with respect to the defined main outcome measures. A critical appraisal by Alcantara et al. of this study raised the point that not all spinal manipulative therapies are the same and there is the question of dose-response as the subjects received only one visit of care. In a clinical trial examining the relationship between pain relief and the number of chiropractic treatments in adult patients with CH, substantial benefit in pain relief was observed with 9 and 12 treatments compared with only 3 visits.

In the case reported, a history of trauma was denied by the patient or his mother. There nonetheless still exists a mechanism for structural dysfunction in the cervical spine, vis a vis spinal subluxations. According to Szeto et al. alterations in the biomechanics of the cervical, scapulothoracic and lumbar regions may be more important contributing factors in CH patients without previous trauma than in those with a trauma history. It is thought that these biomechanical features are associated with a more compensatory extended cervical spine posture and result in multiple segmental misalignments and from a chiropractic perspective, spinal subluxation.

Over time, the altered biomechanics lead to dysfunction. It is thought that nociception from muscles, the intervertebral discs, ligaments and nerve structures converge into the trigeminal spinal nucleus. This neuroanatomical basis for CH is referred to as the “trigemino-cervical nucleus” in the spinal grey matter of the spinal cord at the C1-C3 level - the greater occipital (GON), the lesser or minor occipital (LON), the third occipital nerve and possibly the greater auricular nerve. From the attending chiropractor’s perspective, support for CH diagnosis was based on the patient’s history and fulfilled diagnostic criteria C in that: one, the patient’s headache developed in temporal relation to the onset of the cervical disorder, in this case cervical subluxation and second, the patient’s headache significantly improved or resolved in parallel with improvement in or resolution of the cervical lesion known as subluxation.

In closing, we caution the reader on the lack of generalizability the case reported. The lack of a control group, spontaneous remission, self-limiting course and natural history of the disorder, subjective validation, and expectations for clinical resolution on the part of the patient make cause and effect inferences difficult. Nonetheless, the purpose of this case series is to describe the clinical encounter, which in turn may inform higher-level research designs. Conversely, such clinical observations are epistemologically in harmony among practitioners’ clinical experience and therefore forms a basis for generalization. Furthermore, case reports provide an understanding of our clinical experiences as chiropractors that may lead to increase in our conviction on the effectiveness of our care approaches.

Conclusion

This case report provides supporting evidence on the effectiveness of chiropractic adjustments characterized as high-velocity, low amplitude thrust to sites of vertebral subluxations. We encourage further research on the use of this type of care in children suffering from CH.

References


