Case Study

Resolution of Chronic Migraines and Hypnic Headaches in a 59-Year-Old Female: A Case Report & Review of the Literature

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Abstract

Objective: To describe the positive health outcomes in a patient suffering from chronic migraines and hypnic headaches.

Clinical Features: A 59-year-old woman suffered from chronic migraines and hypnic headaches along with nausea and skin rashes. Her migraines began 15 years prior and significantly affected her quality of life. Medical care consisted of prescription for Relpax, self-directed reflexology, massage and Tylenol. Despite these approaches to care, they did not resolve her headache complaints.

Intervention and Outcome: The patient was cared for with Thompson Terminal Point and the Webster Coronal Suture Technique. The patient attended care at twice per week for 3 months and then once per week for 6 weeks. The patient experienced resolution of her headaches and continued salutogenic based chiropractic care.

Conclusions: This case report provides supporting evidence that patients suffering from migraines and hypnic headaches may benefit from chiropractic care.

Key Words: *Webster Coronal Suture Technique, migraine, vertebral subluxation, hypnic headaches, chiropractic, adjustment, spinal manipulation*

Introduction

The lifetime prevalence of headache (in general) is 90% and more predominant in women. Historically, the symptoms of headache have been described by Hippocrates in 400 BC with Aretaeus providing one of the earliest classification of headaches around 200 AD. Even further back in time, headache and specifically migraine have been referenced in the Ebers Papyrus from 1200 BC with evidence of trephination from 9000-year-old Neolithic skulls suggesting treatment for such a disorder.[1] Of interest in this case report are migraine headaches and hypnic headaches. Migraine has a global prevalence of 10% and is the seventh leading cause of time spent disabled.[1-2] The disorder occurs most commonly in those aged 25-55-years and is 3 times more common in females.[3-4]

Hypnic headaches was first described by Raskin in 1988[5] and adopted by the International Classification of Headache Disorders, 2nd edition (ICHD-2) in 2004.[6] Hypnic headaches are headaches that wake people from sleep. Its prevalence remains unknown but best estimates based on patients consulting a tertiary headache center place it at 0.07% to 3.5%.[7]

According to the National Board of Chiropractic Examiners (NBCE) Job Analysis of Chiropractic, headache is 3rd only to low back pain and neck pain as a clinical presentation to chiropractors.[8] A systematic review of randomized clinical trials (RCTs) on manual therapies for migraine found that massage therapy, physiotherapy, relaxation and chiropractic spinal manipulative therapy (SMT) might be equally effective as propranolol and topiramate in the prophylactic management of migraine.[9]

In terms of chiropractic case reports, we acknowledge that a number have been published, specifically with migraine headaches. However, to the best of our knowledge, this is the first reporting in the scientific literature of a patient suffering from migraine and hypnic headaches benefitting from chiropractic care utilizing the Wester Coronal Suture Technique. In the interest of evidence-informed practice, we report as such.

Case narrative

A 59-year-old woman presented for consultation and possible care with a presenting chief complaint of migraine and hypnic headaches and secondary complaints of nausea and skin rashes. According to the patient, she had suffered from her headache complaint "all her life" but had progressively worsened in the last 5 months. Upon further inquiry, the patient recalled that her migraines began when she was pregnant and then continued on in the last 15 years.

She also recalled that her mother had migraines that began around her menopause. In terms of palliative and provocative factors, the patient indicated that her migraine headaches are not as painful when she avoids certain foods and the use of over-the-counter Tylenol that provided her with minor and temporary relief. When lying down, she noted that her migraine headaches were worse when compared to sitting up. With respect to her hypnic headaches, the patient found that caffeine improved her hypnic headaches by not awakening her at night. She rated her headache pain intensity on the numeric rating scale for pain (i.e., 0=no pain; 10=maximum pain) as 4/10 but can increase to 10/10 on occasion.

According to the patient, her headaches have affected her quality of life (QoL) in many ways from losing focus at work, unable to be as social, unable to exercise, and unable to perform household duties. Her headaches are described as located at the frontal lobes and at the base of skull (i.e., occiput). Medical care has consisted of a medical prescription for Relpax for her migraine headaches. The patient also received regular reflexology and massage services. Despite these approaches to care, they have not improved her headache complaints.

Examination

On physical examination, the following were noteworthy. Visual inspection revealed the patient as having an anterior head carriage, increased lumbar lordosis, an elevated right shoulder relative to the left side and it was noticeable throughout the examination that the patient constantly cleared her throat. Digital palpation revealed hypertonic lumbar spine and cervical spine paraspinal muscles (bilaterally), hypertonic suboccipital muscles (bilaterally) and the upper trapezius muscles, bilaterally. Motion palpation determined subluxations at the following vertebral segments: C_1, C_6, C_7-T_1; T_8, L_2 and L_4. Active range of motion (ROM) examination of the cervical spine was notable for causing pain at the trapezius muscles, bilaterally. Forward flexion was limited to 30^0 and extension to approximately 45^0 but pain-free.

Orthopedic testing revealed the Valsalva maneuver and Cervical spine compression testing as negative, Thomas' test was positive for hypertonic psoas and rectus femoris muscles. Cranial nerve testing was unremarkable except for the olfactory nerve where the patient tested with minimal smell. With eyes closed and marching in place, the patient deviated 45^0 to the right and forward more than 2 ft. One legged stance with eyes closed resulted in 7 errors on the right and 4 errors on the left. Resisted arm and leg testing supine demonstrated weakness with left head rotation.

Treatment and Outcomes

The patient was apprised of her examination findings and consented to a course of chiropractic care. The technique was Thompson Terminal Point and the Webster Coronal Suture Technique with an initial schedule of care of twice per week for 6 weeks whereupon the patient would be re-examined. The patient attended care at twice per week for 3 months and then abated to once per week for 6 weeks. The patient's response to care was complete resolution of her migraines and headaches.

Due to the benefits of chiropractic care that the patient experienced, she elected to undergo salutogenic model of chiropractic care. Interestingly in terms of the patient's response to care, dramatic decrease in the patient's headache frequency and intensity occurred once the patient received the Webster Coronal Suture adjustments. In addition, the patient changed her diet to a low carbohydrate diet which she reported as also improving her headache complaints. These care approaches under the paradigm of chiropractic care have resulted in the patient now living with rarely occurring headaches and able to perform work and every day duties uninterrupted.

Discussion

The International Classification of Headache Disorders (ICHD) was first established in 1988 with its most recent revision occurring in 2013.[10] Headaches are classified as primary (i.e., no known cause such as migraines) or secondary (i.e., headache due to known cause such as trauma to the head and/or neck).

In terms of a clinical work-up, a thorough history and physical examination are paramount with an emphasis on a neurological examination. It is important to make the distinction that the ICHD is dependent on the characteristics of the headache in the past year, not the individual with the headache. "Red flags" have been identified from the history findings that include: new, first or worst headache experienced, a change in pattern or progressively worsening existing headache, presence of systemic illness, triggered by coughing or Valsalva-like maneuvers).[1] In terms of imaging work-up for migraine, the evidence indicates that concomitant with a normal neurologic examination, imaging is unlikely to be unremarkable.[11] Furthermore, there is no diagnostic test for migraine. The diagnostic criteria for migraine headaches (with or without aura) is presented in Table 1.

Similar to migraine headaches, hypnic headaches are primary headaches of unknown cause. The headache is characterized by recurring attacks during sleep and commonly experienced by the elderly population.[12] As indicated earlier, its prevalence is generally unknown and estimates places it at a low frequency. This may be explained in part due to its under-diagnosis. Hypnic headaches have been found to be more common in women (ratio female/male 1.5) with onset over the age of 50 with men at a mean age of 60.4 years.[13] The diagnostic criteria for hypnic headaches according to the ICHD in provided in Table 2.

Chiropractic Care

As alluded to earlier, chiropractic is popular among headache sufferers as a means of care. In a recent study evaluating research studies on the prevalence of patient use of manual therapies (including chiropractic) for the treatment of headache disorders, Moore and colleagues[14] found the prevalence of chiropractic use for those with migraine ranged from 1.0 to 36.2% within the general population and from 8.9 to 27.1% within headache- clinic patient populations. Moore and colleagues[15] evaluated the prevalence and characteristics of chiropractors who frequently manage patients with migraine. Based on 1869 respondents, the investigators found that a large proportion of chiropractors report having a high migraine caseload (HMC) (n = 990; 53.0%). The strongest factors predicting a chiropractor as having a HMC include the frequent treatment of patients with axial neck pain, thoracic pain (i.e., referred/radicular) and non-musculoskeletal disorders.

As further context to our discussions, we performed a review of the literature on the chiropractic care of patients with migraine headaches. We utilized the databases Pubmed (1966-2018), Index to Chiropractic Literature (1980-2018) and MANTIS (1980-2018). We utilized the search term "migraine headaches." Inclusion criteria for review in this paper include the following: (a) the patient was ≥ 18 years of age; (b) chiropractic care (chiropractic adjustment and/or adjunctive therapy) was applied; (c) the manuscript is written in the English language. Our findings involved both case reports and clinical trials (i.e., randomized controlled clinical trials) and case reports/case series. For brevity, we chose to present only reviews involving RCTs rather than the individual RCTs themselves and focused on the case reports/case series published. We are also aware of the presence of a clinical practice guidelines in the treatment of headaches.[16] We refer the interested reader to this article for an examination of the guidelines proposed.

In terms of clinical trials, we will focus on the publication of systematic reviews as they assist in appraising the literature. Specific to migraines, Bronfort and colleagues[17] found that SMT had an effectiveness comparable to commonly used first-line prophylactic prescription medications for tension-type headache and migraine headache. The following year, Astin and Ernst[18] examined the effectiveness of spinal manipulation for the treatment of headache disorders based clinical trials. The authors found three clinical trials involving migraine sufferers. These authors found considerable methodological limitations in most of the studies, the principal one being inadequate control for nonspecific (placebo) effects.

As such interpretation of the results are unclear given that the observed treatment effects may be attributed to the active care (i.e., SMT) as well as by nonspecific factors (e.g. of personal attention, patient expectation). The author also raised the issue that the long-term changes in headache sufferers remains unknown from SMT.

In 2006, Fernández-de-las-Peñas and colleagues[19] examined the methodological quality of published randomized controlled trials that used SMT and/or mobilization to treat patients with tension-type headache, cervicogenic headache, The most and migraine in the last decade. The authors found only 8 studies meeting all their inclusion criteria. One clinical trial evaluated spinal manipulation and mobilization together, and the remaining 7 assessed SMT. No controlled trials analyzing exclusively the effects of spinal mobilization were found. Methodological scores (based on a set of predefined criteria) ranged from 35 to 56 points out of a theoretical maximum of 100 points, indicating an overall poor methodology of the studies. Only 2 studies obtained a high-quality score (greater than 50 points). No significant differences in quality scores were found based on the type of headache investigated.
common flaws of the examined studies were a small sample size, the absence of a placebo control group, lack of blinded patients, and no description of the SMT procedure. In 2011, Chaibi and colleagues[20] systematically reviewed the RCTs assessing the efficacy of manual therapies (i.e., massage, physiotherapy and chiropractic) on migraines. The investigators found 4 RCTs on chiropractic SMT with migraine sufferers. Only one of the four RCTs on chiropractic utilized a control group, while the other studies compared with other active treatment. That same year, Posadzki and Ernst[21] assessed the effectiveness of SMT as a treatment for migraine headaches in RCTs. Three RCTs met their inclusion criteria. Their methodological quality was mostly poor and ranged from 1-3 on the Jadad scale. Two RCTs suggested no effect of spinal manipulations based on the Headache Index or migraine duration and disability compared with drug therapy, spinal manipulation plus drug therapy, or mobilization.

One RCT showed significant improvements in migraine frequency, intensity, duration and disability associated with migraine compared with detuned interferential therapy. Chaibi and colleagues[22] investigated the efficacy of chiropractic SMT for migraineurs via a prospective three-armed, single-blinded, placebo, RCT of 17 months duration involving 104 migraine sufferers. The RCT consisted of a 1-month run-in, 3 months intervention and outcome measures at the end of the intervention and at 3, 6 and 12-month follow-up.

The primary end-point was the number of migraine days per month, whereas secondary end-points were migraine duration, migraine intensity and headache index, and medicine consumption. Migraine days were significantly reduced within all three groups from baseline to post-treatment. The effect continued in the chiropractic SMT and placebo group at all follow-up time points, whereas the control group returned to baseline. The reduction in migraine days was not significantly different between the groups. Migraine duration and headache index were reduced significantly more in those receiving SMT compared to the control group towards the end of follow-up. Unfortunately, the authors commented that the effect of SMT was probably due to a placebo response.

With respect to case reports and case series, our review found 20 manuscripts and summarized in Table 3.[23-42] Based on our review of the literature, this is the first reporting of the literature on the use of the Webster Coronal Suture Technique and the 2nd reporting on the use of the Thompson Technique in the patients with migraine headaches.

Despite the traditional caveats on case reports, we reject the caveat on the generalizability of this and other case reports. Despite confounding effects (i.e., national history and spontaneous remission and regression to the mean, the effects of placebo, the demand characteristics of the therapeutic encounter and subjective validation on the part of the patient) that may lead the reader to bias in the clinical scenario described, we are of the vision we learn from our individual and collective experiences. Rhetorically - how else has the care of people developed in the past thousand years? Learning from our clinical experience is congruent with evidence-informed practice. We therefore encourage the readers of this case report to interpret the results reported in the context of their clinical experience in the care of similar and future patients.

Conclusion

This case report provides supporting evidence on the benefits of chiropractic care a la Thompson Technique and the Webster Coronal Suture Technique in the care of patients with migraine and/or hypnic headaches. We encourage continued documentation of similar cases to inform clinical practice and research.

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Migraine without Aura		Migraine with Aura	
At least 5 attacks fulfilling the criteria to the right	Headache attacks lasting 4-72 hours (untreated or unsuccessfully treated)	At least two attacks fulfilling criteria to the right	One or more of the following fully reversible aura symptoms: 1. visual 2. sensory 3. speech and/or language 4. motor 5. brainstem 6. retinal
	Headache fulfilling 2 of the following 4 characteristics: 1. unilateral location 2. pulsating quality 3. moderate or severe pain intensity 4. aggravation by or causing avoidance of routine physical activity (e.g. walking or climbing stairs)		
	During headache at least one of the following: 1. nausea and/or vomiting 2. photophobia and phonophobia		At least 2 of the following 4 characteristics: 1. at least one aura symptom spreads gradually over □5 minutes, and/or two or more symptoms occur in succession 2. each individual aura symptom lasts 5-60 minutes 3. at least one aura symptom is unilateral 4. the aura is accompanied, or followed within 60 minutes, by headache

Table 1. Diagnostic criteria for migraine headaches with or without aura[6]

Recurring headache attacks fulfilling the criteria to the right	Developing only during sleep and causing wakening
	Occurring on ≥ 10 days per month for >3 months
	Lasting ≥5 minutes and for up to 4 hours after waking
	No cranial autonomic symptoms or restlessness

Table 2. Diagnostic criteria for hypnic headache[6]

Reference	Age/Sex	Clinical Presentation	Clinical Commentary
Tuchin et al.[23]	A 44-year-old female	The patient presented with chief complaints of neck and thoracic spine pain. She had a history of chronic headaches originally diagnosed as migraine without aura.	The patient was cared for using Diversified Technique. A significant subjective reduction in prevalence and intensity of her headaches occurred over a four-month period. The authors suspect that the patient may have suffered from cervicogenic headaches rather than migraines.
Tuchin[24]	A case series involving a 25-year-old male, a 43-year-old female, a 21-year-old female and a 34-year-old male	Participants in a migraine research trial were reviewed for the symptoms or clinical features and their response to manual therapy.	Four cases of migraine sufferers received chiropractic SMT for migraine. Dramatic improvements were reported including a 90% reduction in frequency, a 38% decrease in duration of each episode and use of medication was reduced by 94%. Patients' nausea, vomiting, photophobia and phonophobia were also reported as reduced.
Davis[25]	A 22-year-old female	Migraine headaches of 2-year duration. Despite medical care, she experienced head pain, primarily left frontal retro-orbital, accompanied by nausea and visual aura of "spots" when severe	The patient was cared for over a 12-week period with rehabilitative exercises in combination with chiropractic SMT (Diversified Technique). Outcome measures, included the use of the Headache Disability Index.
Elster[26]	A 23-year-old female	The patient presented with tension and migraine type headaches following a concussion 12 years prior. The patient utilized daily pain medications to manage the pain.	Chiropractic care in accordance with the International Upper Cervical Chiropractic Association was followed. The patient's headaches were absent following three months of care. At the conclusion of her case at one year, all symptoms remained absent.
Elster[27]	A 23-year-old male	A patient presented for care with rapid-cycling bipolar disorder, sleep disorder, seizure disorder, neck and back pain, and migraine headaches.	At age 17 years, the patient landed on his head from a height of 10 ft while attempting a pole vault. As a result, the patient developed numerous neurological disorders persisting over the next 6 years, during which time the patient sought treatment from many physicians and other health care practitioners. Chiropractic care using an upper cervical technique was administered to correct and stabilize the patient's upper neck injury. Assessments at baseline, 2 months, and 4 months were conducted by the patient's neurologist. After 4 months of care, his migraine headaches were reduced from 3 per week to 2 per month. After 7 months of care, the patient reported the complete absence of headaches. Eighteen months later, the patient remained asymptomatic.

Vilan[28]	A 28-year-old female	The patient presented with migraine headaches since her teenage years	Following one month of care utilizing Diversified Technique, the patient's migraines improved by 80%. At 2 months re-examination, the patient reported not experiencing headaches the preceding month.
Harris[29] .	A 49-year-old female	The patient presented with severe headaches with aura that began after she was involved in an automobile accident 17 years prior.	The patient attended a total of 20 chiropractic visits over a12 weeks. Care consisted of Diversified Technique, physiotherapy (i.e., heat and electrical stimulation) as well as rehabilitative exercises.
Tuchin[30]	A 72-year-old female	The patient presented with a 60-year history of migraine headaches, which included nausea, vomiting, photophobia, and phonophobia.	The patient was scheduled 1-2 times per week receiving chiropractic SMT (i.e., Diversified Technique). The patient reported complete resolution of her migraines and attributed it to chiropractic. She also reported her medication use was reduced by 100%. A 7-year follow-up revealed that the patient had not experienced a single migraine episode over the 7 years.
Alcantara and Cossette[31]	A 24-year-old gravid female with.	The patient suffered from chronic migraine headaches since age 12years	Previous unsuccessful care included osteopathy, physical therapy, massage and medication. Non-steroidal anti-inflammatory medication with codeine provided minor and temporary relief. Chiropractic care involving SMT and adjunctive therapies resulted in symptom improvement and independence from medication.
Chaibi and Tuchin[32]	A 52-year-old female	The patient presented with chronic migraines that included nausea, vomiting, and photophobia.	The patient reported all migraine episodes as eliminated following care (i.e., Gonstead Technique). At 6-month follow-up, the patient had not had a single migraine episode during this period. The patient indicated that there had been no other lifestyle changes that could have contributed to her improvement other than chiropractic care.
Ohlsen[33]	A 32-year-old female	The patient had a history of tension type and migraine headaches that began in her teens and had been controlled with medication	After 5 visits over a 2-week period with a combination of acupuncture and chiropractic SMT, her headaches resolved. The patient had no recurrences of headaches at 1-year follow-up.
Verderame and Hollowell[34]	A 75-year-old female	The patient presented with chronic migraine headaches. Previous care included anti-inflammatory drugs and painkillers, with only a mild reduction in the severity and frequency of her headaches.	The patient was cared for with Blair Technique. The patient reported a decrease in pain intensity from 8/10 to 3/10 after 5 months of care.

Hodgson and Fox[35]	A 21-year-old male	The patient presented with a diagnosis of ADHD and migraine headaches.	The patient received care over a period of 3 months consisting of 13 visits. Chiropractic care utilized the Torque Release Technique® (TRT) Outcome measures utilized were the ADHD and Headache Symptom Regularity and Severity Questionnaires, Digital Postural Assessment, Spinal Range of Motion Analysis, Heart Rate Variability, and a rating system for the TRT indicators of subluxation. Outcomes revealed a significant decrease in the regularity and severity of signs and symptoms of ADHD and migraine headaches that were proportionate to improvement in the functional outcome measures.
Edwards and Alcantara[36]	A 28-year-old female at 14 weeks gestation	She sought chiropractic care to improve her chances of a trial of labor and vaginal delivery for her current pregnancy. History revealed the patient as diagnosed with migraine headaches, hypothyroidism and tachycardia.	The patient was cared for with the Gonstead Technique, Thompson Drop, and Webster Technique. She attended care for a total of 33 visits of 7 months duration. The result was improvement in her presenting symptoms (i.e., migraine headaches) and a successful trial of labor at 40 weeks plus 4 days.
Edwards and Alcantara[37]	A 24 year old female at 26 weeks gestation	The patient presented with severe neck pain extending to both shoulders, migraine headaches, and diplopia. During her care, she was diagnosed with a co-morbidity of pseudotumor of the cerebrum.	The patient was cared for with multiple techniques. She attended a total of 14 visits in 5 weeks, and was scheduled for a Caesarean-section delivery at 37 weeks. Three days after her final visit, the patient's water broke and she successfully delivered vaginally at 30-weeks gestation. Her symptoms (i.e., neck pain and headaches) also improved.
Martin and Seaman[38]	A 23-year-old female	The patient suffered from migraine headaches of 3-month duration.	Dietary and lifestyle changes were recommended in conjunction with the administration of a multivitamin, magnesium oxide, and Ulmus rubra. The patient's migraine headaches improved along with resolution of her gastroesophageal reflux symptoms.
Woodfield et al.[39]	Case series consisting of eleven subjects	This observational pilot study followed eleven neurologist diagnosed migraine subjects to determine if the case findings were repeatable at baseline, week four, and week eight with NUCCA.	The subjects received care over an 8-week period. Postintervention re-imaging occurred at week 4 and 8 concomitant with migraine-specific outcomes measurement. Five of the 11 subjects exhibited an increase intracranial compliance as measured on MRI. However, the mean change was not statistically significant but patients demonstrated clinically significant improvement in symptoms and a decrease in headache days.

Spear and Alcantara[40]	A 28-year-old female.	The patient presented for care at 29-weeks gestation with chief complaints of chronic migraines, pregnancy-related neck and back pain and ultrasound confirmed placenta previa. She also had a desire for a vaginal birth.	The patient was cared for with Diversified and Drop Table Technique. Following a total of six visits over a six-week time period, the patient's presenting complaints (i.e., chronic migraines) were addressed and she had a successful VBAC.
Florencio et al.[41]	An 89-year-old male	The patient presented with chronic daily tension-type headaches, frequent migraines, and chronic right arm and neck pain related to a blast injury from World War 2 and 2 severe motor vehicle accidents.	The patient received chiropractic care utilizing the Torque Release Technique and Activator Methods for a 1-year period. After 12 weeks, the patient's daily headaches, episodic migraines and chronic arm and neck pain had completely resolved.
Fedorchuk et al.[42]	A 43-year-old female	The patient presented with cervicothoracic pain and stiffness, migraines, shoulder pain, low energy, and decreased performance in activities of daily living.	The patient received care with Chiropractic BioPhysics® Technique. Over 3 months consisting of 36 visits, the patient reported improvements in cervicothoracic pain and stiffness, shoulder pain, energy levels, performance in activities of daily living, and frequency, duration, and severity of migraine episodes.

Table 3. Summary of case reports and case series of patients receiving chiropractic care for migraine headaches.