CASE STUDY

Resolution of Childhood Enuresis and Neck Pain in a 10 Year Old Male: A Case Report

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Abstract

Objective: The purpose of this case study is to present the chiropractic management and resolution of a case of childhood nocturnal enuresis.

Clinical Features: Case report of subluxation based chiropractic care for a ten year old boy with a history of nighttime enuresis that occurred two to three times per week.

Interventions and Outcomes: High Velocity, low-amplitude adjustments were given one to two times per week for ten weeks. Diversified technique was utilized to assess for the areas of vertebral subluxation that were present and an adjustment was given. The patient and his mother reported a decrease in the frequency of occurrence of the bedwetting.

Conclusions: The case report of a ten year old boy who is dealing with a history of nocturnal enuresis is presented. Chiropractic evaluation and care is presented with subluxations noted and adjusted. A decrease in severity and frequency of enuresis was noted. While more studies need to be performed, chiropractic care appears to be beneficial in the effects on nocturnal enuresis in children and adolescents.

Key Words: Chiropractic, enuresis, nocturnal enuresis, bedwetting, pediatric, subluxation, nighttime incontinence

Introduction

Nocturnal enuresis (NE) is more commonly referred to as bedwetting or nighttime incontinence. According to the DSM-IV, nocturnal enuresis is defined as repeated voiding in clothing or bed that occurs in a child over the age of 5 and occurs at least 2 times per week for more than 3 months.¹ Bedwetting is one of the most frequent problems seen in childhood and affects roughly 10% of all children at the age of 7 ½.² There are many potential causes for NE including small bladder size, decreased antidiuretic hormone, and deep sleep with an inability of the body to be awoken when the bladder is full.² There are also many treatments for bedwetting including tricyclic antidepressants such as desmopressin,³ behavioral treatments including alarms and bells, and decreased fluid intake. This case study looks specifically at vertebral subluxation and its possible relation to the problem, with chiropractic adjustments as a potential management protocol. Butler found that over 30% of children with nocturnal enuresis had uninhibited bladder contractions while sleeping, leading to bladder hyperactivity.⁴

He also states that it is not been found to have any correlation to deep sleep as “wetting episodes occur during all stages of sleep in proportion to the amount of time spent in that stage”. He goes on to state that there is no correlation in sleep patterns on nights that patients are wet versus nights where they remain dry. According to the research he’s reviewed, he believes it is more appropriate that the child has an inability to arouse when

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the bladder is full, but is not directly related to the state or quality of sleep at the time of incidence.

**Case Report**

**History**

A 10 year old boy presented to a chiropractic clinic with complaints of neck pain. The issue of bedwetting was mentioned later in the course of care. It was later noted that the patient dealt with nocturnal enuresis two to three times per week and intermittent diurnal enuresis and incontinence that he described as “leaking”.

**Examination**

At the initial examination the patient went through a standard physical where vitals were taken, including blood pressure, pulse and respiratory rates, history was evaluated and his mother was questioned about the birth and childhood milestones. The birth appeared to be a normal vaginal birth with no complications and the patient met all childhood milestones appropriately. During the physical, the patient was found to have postural distortions including 1/2” long leg on the right when laying supine, as well as a high right iliac crest, high right shoulder, high right ear and decreased cervical flexion. Due to the age of the patient, no x-rays were performed. The patient was diagnosed as having a thoracic vertebral subluxation complex (VSC) at T1 and poor posture, which were indicated by the postural distortions recorded in the physical. The management plan was created to see the patient one time a week for four weeks and to work on correct posture while sitting.

**Intervention**

Chiropractic care ensued and the patient was evaluated for subluxation using motion and static palpation as well as leg length inequality and subluxations were corrected using Diversified Technique which utilizes a high velocity, low amplitude (HVLA) thrust in the thoracics with a P-A thrust as well as a supine adjustment in the cervical region. Diversified is said to be the most generic of the chiropractic techniques and its goal is to restore proper movement, function and structure to the spine. The patient was then re-evaluated to ensure the motion had been restored to the area. At the first visit, the patient was evaluated via static and motion palpation and found to have a pelvis listing of −Z. -Y around the axis of the innominate on the right as well as a subluxation present at T1. Both were adjusted.

At the next visit the patient and his mother reported that he had only had one occurrence of nocturnal enuresis and it was the night before the second appointment. Patient was evaluated and found to have held the ilium adjustment and it did not need to be adjusted at that visit. Subluxations were found at C2 and T1 and adjusted.

Over the next week, the patient had three occurrences of enuresis, possibly due to some trouble he had in school and showing a possible psychological and emotional connection to the enuresis as well as mechanical and physiological causes including, decreased antidiuretic hormone, small bladder size and deep sleep. After having his C2, T2 and L4 subluxated vertebral segments adjusted the patient did not report any more occurrences for the next two weeks. The patient was not seen in the clinic for the following four weeks and when he presented again for care he stated he had two to three bedwetting incidents the previous week.

He was evaluated and found to have a C2 and T8 subluxation which were adjusted. The following week he was seen and adjusted again, presenting again with a T8 subluxation as well as C6 which were adjusted. At the next appointment he stated he had a bad week with bedwetting. He was again checked and subluxations were adjusted at C2 and T9. At that time, he went for 2 weeks without any incidents of bedwetting.

**Outcome**

Over the next eight weeks (eight visits) he was adjusted in his lower thoracics (T8-11) and cervical region when necessary. The patient and his mother reported only one incident of nocturnal enuresis during that time and stated he did not have any more reported incidents of diurnal enuresis. The patient was seen a total of 15 times in the clinic, which resulted in a decrease in nocturnal enuresis from two to three times per week to once in an eight week time period. Nothing else in the patient’s diet or daily activities was changed.

It has been proposed that success of treatment for nocturnal enuresis is based on a category system with initial success being 14 consecutive dry nights in a 16 week period. Continued success entails no relapse in 6 months after the initial success period. In another proposed system, a full response of success is considered 90% or greater reduction in nocturnal enuresis episodes, while 50-90% is seen as partial response and under 50% is considered a non-response. Utilizing these scales, this case shows a possible relationship between the subluxated vertebrae and neurological dysfunction in the central nervous system and the resolution of nocturnal and diurnal enuresis, with an over 90% success rate in the initial stage of care.

After the first adjustment, the patient reported that his neck was not hurting. At his 3rd appointment he stated that it was hurting from sleeping wrong. After this adjustment, he never mentioned any more trouble with neck pain.

**Discussion**

As noted earlier, nocturnal enuresis effects approximately 10% of all children at the age of 7½. While it is such a prevalent issue facing children, little research has been conducted regarding its cause or treatments. This has allowed an open playing field for chiropractors to show the importance of a properly working nervous system, free of subluxations and the benefits of said chiropractic care in the treatment protocol of this condition.

The vertebral subluxation and adjustment of such are unique to chiropractic. While the term subluxation is used in various fields within the medical and physical therapy communities, chiropractic’s definition for a vertebral subluxation differs. The World Health Organization, in its *Guidelines on Basic Training and Safety in Chiropractic* defines subluxation as
"A lesion or dysfunction in a joint or motion segment in which alignment, movement integrity and/or physiological function are altered, although contact between joint surfaces remains intact. It is essentially a functional entity, which may influence biomechanical and neural integrity."

The Association of Chiropractic Colleges defines subluxation as a “complex of functional and/or structural and/or pathological articular changes that compromise neural integrity and may influence organ system functions and general health.” This differs from other definitions of subluxation in that chiropractic theorizes there is a neurological involvement as well as the soft tissue and biomechanical and structural abnormalities.12

It is well known in science that the sympathetic nervous system is located from the vertebral levels of T1-L2 in the spinal column.13 While the sympathetic nervous system is responsible for what is known as the “Fight or Flight” response, increasing heart rate and lung capacity, it would have a slowing effect on the abdominal viscera, including the bladder, when in a sympathetic state. When the patient is sleeping, the parasympathetic nervous system is in control and in the case of enuresis, is being found to cause an overactive bladder.

Welch, et al found that with a thoracic adjustment, a sympathetic response was elicited.14 The same has been shown in other research, showing a link between chiropractic adjustments in the thoracic region with sympathetic impact on the viscera and regulatory systems in the body.15 These studies on thoracic adjustments are beneficial to the overall understanding of how the viscera in the human body is affected by chiropractic adjustments.

**Review of Literature**

Within chiropractic there are various techniques that can be utilized to perform the spinal adjustment. In trying to understand the possible relationship between chiropractic adjusting and the success in relieving nocturnal enuresis several studies, utilizing various techniques, were explored. In a study in Australia performed by Poecke, et al 33 children between the ages of 3 and 18 who presented with nocturnal enuresis were evaluated.16

In this study, a complete history was performed on each patient and a two week diary was kept for each child to record the number of wet nights and any possible triggers related to them including parties or stressful situations. Adjustments were made, when needed, utilizing both sustained light force and a high velocity, low amplitude (HVLA) techniques based off of Toggle Recoil and Logan Basic. At the conclusion of the study, it was found that 66% of the participants saw a resolution to their NE with no relapse during the study period. This compares to the use of Desmopressin which is stated in the article to have a success rate of 38-59% but also has a high rate of relapse when the treatment is terminated.

In a study by Rodnick, the case of an 11 year old boy dealing with nocturnal enuresis and attention problems is presented.17 This patient was evaluated and adjustments were given using Gonstead technique with a HVLA thrust, as well as Activator. Over the course of care, the patient reported that his episodes of bedwetting had decreased from 7 days per week to once every two to three weeks.

Another case performed by Gunlogson, also uses HVLA technique and shows a decrease of NE from up to seven nights per week to an average of 0.08 per week.18 Alcantra and Weisberg, utilized an HLVA technique (Diversified), seeing the patient 1 time per week for 6-8 weeks.19 By the 7th visit, it was reported that the patient had been dry for 2 weeks. At the 4 month follow-up, it was revealed that the NE had not returned.

Reed, et al utilized a controlled study in which a HLVA adjustment was utilized while a sham Activator adjustment was utilized for the control group.20 It was found that the treatment group showed a decrease in NE frequency from 9.1 nights per 2 weeks to 7.6 nights per 2 weeks compared to the control group showing no change. Throughout the literature, it would appear that the technique utilized for the adjustment is not important, but that chiropractic care is demonstrating to be beneficial in the relief and management of nocturnal enuresis.

There is some variance in the literature as to the amount of time or duration of chiropractic care that is necessary before the resolve of enuresis. In a case report by Blomerth, an 8 year old boy had an issue with NE. In this case, he had a sports accident and the NE returned, but after only a single adjustment, the NE was resolved. In the case by Rodnick, the patient was seen a total of 33 times.17 In a case study reported by Gemmell and Jacobson, a 14 year old male patient had never had a single night without wetting his bed.22 After only one adjustment, he saw improvements to the frequency and reported that out of the following 21 days he had 15 dry nights.

Bachman and Lantz reported on the case of a 34 month old male at the National Conference of Chiropractic and Pediatrics.23 While this does not fall within the guidelines of the DSM for nocturnal enuresis1, the report states that after the 3rd adjustment over an 11 day period of time, the NE ceased for over 8 weeks. After a fall from a small step ladder, the NE returned, but disappeared after an unreported number of adjustments. After 2 years, the NE had not returned. Marko presents a case study of a 5 year old female with NE for the 2 months previous.24 After a failed attempt at antibiotics for a possible bladder infection, her mother sought out help from a chiropractor and after only 2 adjustments, she went 3 weeks without any occurrences of bedwetting.

Lastly, in the above mentioned case written by Gunlogson, the patient was seen for 2 visits per week for 5 weeks followed by 1 visit per week for 2 weeks, proceeded by 1 visit every 2 weeks for 4 visits and one visit every 3-4 weeks for 7 visits.18 After the first 2 months, the patient was averaging 2.33 wet nights per week. By the time they reached 5 months it had decreased to an average of 0.33 per week.

Gunlogson concludes her case study by saying that this patient came to her office only 6 months into the opening of her chiropractic practice and states “I would speculate and expect that it may have taken fewer visits to obtain the resolution of symptoms with a more experienced practitioner.” With a
review of the literature, it would appear that it does not matter which chiropractic technique is used in regards to the adjustment that is given. Whether it is Activator or Toggle Recoil and a very specific adjustment or Diversified and Gonstead, they all appeared to be beneficial in cases of resolving nocturnal enuresis. It also would appear that it varies from person to person as to the duration of time that will be required for the resolution of NE. While some patients seemed to only need a single adjustment, it took others months to see the full effect of the chiropractic adjustments in regards to the nocturnal enuresis.

In the case reported here, the patient initially presented for treatment of neck pain. In a study done by Kjaer et al they found that of the 771 children surveyed between 28 and 48% of them had low back pain (LBP) and between 7 and 15% had neck pain (NP). The question needs to be asked “What constitutes neck pain?” Is it frequency, duration of the pain, intensity of the pain or is there something else? Pousa et all utilized a survey of 430 children and defined neck pain as 8 days of pain within the last year. It was determined in this study that there was a link between short statured females and neck pain.

Auvinen et al investigated the potential link between insufficient sleep and neck, shoulder and low back pain.27 For their study, pain was defined as any pain symptoms within the 6 months before study. They found that of the 1773 students who participated in the survey and study, the highest incidents of neck, back and shoulder pain was in those who did not have adequate sleep. They added that technology, including television and computers have altered the daily routines of many teens and adolescents, often leading to poor sleep quantity.

In a paper written by Houghton, low back pain in children is usually limited to the posterior elements of the spine, including the spinous processes and facet joints.28 The author gives a very detailed protocol for evaluating the patient as well as many causes of pain, including inflammatory disorders, scoliosis, and tumors but concludes that most cases of back pain in children is non-specific and often self-limiting. It raises the question, then, if it is self-limiting, what is the chiropractor’s role in managing the back pain, especially in children and adolescents and is it safe?

As to the safety of a chiropractic adjustment in regards to children and adolescents, Doyle performed a large literature review found that there is a .53 to 1% chance of the child having a mild adverse event (AE) after an adjustment when given by a chiropractor.29 He found that this is significantly less than the manipulative therapy of an osteopath, which is on average 9%. Medical practitioners who attempt to give utilize a manipulative therapy show an AE rate of 6%. Doyle also found that this low rate within chiropractic is also less of a chance of an AE than if the child was taking a medication for the problem, although no percentages were given regarding the medications.

In answering the question of what a chiropractor’s role is in pediatric chiropractic, Vallone et al states “All chiropractic colleges’ undergraduate courses in paediatrics recognize the unique anatomy and physiology of the paediatric patient.”30 She continues by stating that the colleges promote the idea and understanding that students and future doctors need to modify the evaluation and techniques when working with pediatric patients.

In a study by National Center for Health Statistics, it shows that 14% of chiropractic patients are children through age 18.31 Vallone lays out a detailed approach including signs and symptoms that a chiropractor may see that need an immediate medical referral as well as contraindications to adjusting. She finishes her paper by giving a thorough guide to the history taking and physical exam for the young patient that is in line with Houghton’s information. She concludes by saying that there is ‘amassing evidence’ as to the effectiveness and low risk and safety of pediatric chiropractic, but agrees that more research is needed. Chiropractors are the number one complementary and alternative medicine provider (CAM) visited by adolescents in the United States.32

Conclusion

In the case presented in this paper, the patient reported a significant decrease in the frequency of nocturnal enuresis from 2-3 times per week to 1x in an 8 week period after high velocity low amplitude Diversified chiropractic adjustments.

While there is growing evidence of the safety and importance of chiropractic care for children and adolescents with both musculoskeletal and non-musculoskeletal complaints, such as enuresis, much research is still needed to further evaluate the cause and effect as well as the chiropractors’ role in the treatment of this and other childhood issues.

References

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