**CASE STUDY**

**Correction of Subluxation and Alleviation of Asthma Symptoms in a Pediatric Patient: A Case Study**

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**Abstract**

**Objective:** To report on the outcomes of a child suffering with asthma, chronic colds and respiratory issues undergoing subluxation based chiropractic care.

**Clinical Features:** A two-year-old male suffering from asthma, chronic colds, and respiratory issues since birth was presented by his mother for chiropractic evaluation and possible care. At the time of initial examination the patient was taking two medications, Flovent and Singulair, daily.

**Interventions and Outcomes:** The patient was cared for using specific, low-force adjustments with the Activator adjusting instrument to address areas of vertebral subluxation in the cervical, thoracic and lumbosacral spine. Within approximately two weeks (4 adjustments) the patient’s mother reported improvement in the boy’s condition.

**Conclusion:** This case report reviews the benefit a young boy suffering from asthma experienced while undergoing chiropractic care. It is recommended that further investigation be conducted on this subject with large clinical trials.

**Key Words:** Chiropractic, asthma, vertebral subluxation, pediatric, children, thermography

**Introduction**

Chiropractic has demonstrated much success in the care of patients with musculoskeletal conditions such as neck pain and low back pain.\(^1\) Continuing surveillance studies support this phenomenon with only a small percentage of patients reporting improvement in non-musculoskeletal conditions in the adult population.\(^2\)

Asthma in children is very prevalent in the general population with 9 million U.S. children under 18 being diagnosed with asthma. In 2005, an estimated 22.2 million people in the U.S. suffered from asthma.\(^3\) Asthma is the leading cause of school absence in the United States, with the prevalence rates in children less than 5 years of age increasing 160% from 1980-1994.\(^4\)

Miller explained possible reasoning for the dramatic increased incidence stating that some blame could be placed on new home construction because they are more insulated and have less air exchange than older homes. Wall-to-wall carpet is much more common, as well as central heating.\(^5\)

Asthma is a respiratory condition that is characterized by inflammation, increased responsiveness of the airways and mucus production. It has many provoking factors such as pollens and molds, animal dander, dust, exercise, aspirin, and cold air.\(^5,7\) Besides being a multifactorial condition, it is the most common chronic disease of childhood.\(^8\)

Common symptoms among pediatric asthmatics are wheezing, shortness of breath, or dyspnea. Other information is often retrieved to determine possible co-factors for the condition. One category is parental characteristics such as: allergies, presence of other conditions or diseases, and smoking habits. Another important area to address is the patient’s prenatal

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Anemia of visit the Pediatric, Maternal & Family Health J. natal history revealed that the patient was delivered induced hypertension, and weeks of gestational age Respiratory failure July 7. by emergency cesarean Asthma care attendance, allergies, respiratory and niatric g

A hand held device is rolled up 13.  The patient was 9 hours of good quality sleep per night.  He was able to autonomic nervous set at 2 Apnea of prematurity patient was admitted 11 Hyperbilirubinemia 5. old Caucasian male that was initial examination revealed a decrease in all cervical or provides a sacrum on the initial visit, as well ost common and frequent areas of vertebral 14,15 ed to formula for the month later. Solid foods were introduced at 8 months and cow's milk was introduced at 12 months. The patient's mother said that he was also taking Singulair almost daily.

Pre-natal History

The pre-natal history revealed that the patient was delivered prematurely at 31 weeks gestation by emergency cesarean section. The pregnancy was complicated by triplets, premature rupture of membranes, pregnancy-induced hypertension, and hyperemesis. Because of an incompetent cervix, the patient’s mother had been hospitalized two months before his birth. She received tocolytic therapy (medication to prevent preterm labor) and cerclage (a suture inserted in a woman’s cervix to prevent preterm labor). She was also given steroids for fetal lung maturation and was on Actigall for pruritus.

At delivery the baby had a good cry and good initial respiratory effort, but soon developed increased work of breathing and an apneic episode requiring intubation. APGAR scores were 7 at 1 minute and 8 at 5 minutes. Because of prematurity and the apneic episode, the patient was admitted to the neonatal intensive care unit (NICU). The patient was discharged one month later.

There were eight final diagnoses listed on the patient’s discharge summary from the NICU and were as follows:


At the initial chiropractic examination the patient was “fully vaccinated” as per CDC recommendations. The patient was breast fed for 16 weeks and then switched to formula for the next year. Solid foods were introduced at 8 months and cow’s milk was introduced at 12 months. The patient’s mother denied any food allergies or intolerances at the time.

The developmental history indicated the patient was getting 11-12 hours of good quality sleep per night. He was able to sit-up at 9 months, cross crawl at 10 months, stand alone at 11-12 months, and walk alone at 14 months. The patient had chicken pox at 12 months of age.

Chiropractic Examination

The initial examination revealed a decrease in all cervical ranges of motion as well as a right high shoulder and right head tilt. Static palpation of the patient’s spine and paraspinal soft tissue elements revealed paraspinal musculature changes. Notably increased muscle tone and tenderness were palpated at the levels of C1, C5 and T2.

Edema was noted over the base on the right side of the sacrum. Motion palpation revealed restricted intersegmental motion and vertebral subluxation complex at C1, C5, T2, and sacrum. A vertebral subluxation complex (VSC) can be described as a misalignment of a vertebra(e), occluding an opening containing a nerve causing impingement or interference on the nerve. Lantz explains the VSC model using nine components: Kinesiology, Neurology, Myology, Connective tissue physiology, Angiology, Inflammatory response, Anatomy, Physiology, Biochemistry.

A thermal scan was performed using the Insight Subluxation Station to determine heat differentials and temperature variations along the spine. Thermal scanning has been shown to be a valid and reliable procedure for measuring paraspinal temperatures and clinical studies to explore the clinical meaningfulness of these measures have been conducted.

The thermal scan is used to assess the autonomic nervous system by measuring skin temperature differentials. It utilizes data published in the Journal of Neurosurgery for normative comparison and reporting. A hand held device is rolled up the spine starting at the first sacral tubercle and ending at the second cervical vertebrae. A reading is then taken at the left and right sides of the first cervical vertebrae. The patient’s initial scan revealed mild to moderate temperature variations at the levels of C1, C5, C6, T1, T2, T6, and sacrum. No radiographs or further orthopedic testing were performed on the patient.

Intervention and Outcomes

The patient’s initial care plan frequency was set at 2-3 times per week for the first 4 weeks. Chiropractic adjustments were delivered to C1, C5, T2 and sacrum on the initial visit, as well as to other subluxated vertebral segments on successive visits utilizing the Activator adjusting instrument.

The Activator instrument is a tool often used to deliver a high velocity, low force adjustment. The Activator provides a controlled, fast thrust that is comfortable for the patient. There is research supporting that Activator adjustments are so quick, the body’s muscles are less likely to resist, allowing for a more precise and accurate adjustment.

The most common and frequent areas of vertebral subluxations were at C1, C2, C5, C6, T2, T6, T7, and right sacrum. A reassessment of patient’s progress was given after approximately 10 visits. However, after the 4th visit the
patient’s mother reported that due to her son’s improvement and decreased symptomatology, she was no longer giving her son the Flovent or Singulair. At the time of the writing of this paper the patient was still being seen in the chiropractor’s office for wellness care once every other week and has reported only one cold with a respiratory “flare up” once in the past two years.

**Discussion**

**Chiropractic Literature**

The amount of peer-reviewed articles discussing chiropractic care in the case of a two-year-old male with asthma is somewhat limited. However, a search was performed that unveiled similar articles concerning chiropractic care for pediatric patients with asthma. PubMed and the Index to Chiropractic Literature were searched using a combination of the following keywords: Chiropractic, asthma, vertebral subluxation, pediatric, children, and thermography. The results were reviewed and a small number of peer-reviewed articles were found that help support the case.

Alcantara et al. discussed the case of a 7-year-old male suffering from chronic colds, allergies, and asthma since the age of 5 months. The patient was on 1x/day dose of prescription medications for allergies and asthma upon initial examination. The patient’s illness caused him to miss approximately 1-2 days a month due to colds and symptoms of asthma, as well as monthly visits to his medical doctor. The patient was adjusted using the Activator Instrument addressing vertebral subluxations in the cervical, thoracic, and lumbosacral areas. Within 2 weeks of initiating chiropractic care, the patient was able to discontinue his medications (as decided by his parents) and the use of his nebulizer. In the first 5 months after beginning chiropractic care, he has had only wellness checkups at the medical doctor. The following school year the patient had not missed any days of school due to illness.16

Kachinsky and Kachinsky discussed the management of a 3 year-old boy with asthma as an alternative option to traditional medical care. The patient had also been diagnosed with Neurofibromatosis Type 1, asthma and ear infections. He was having frequent asthmatic episodes requiring emergency room visits two times a month. He also had a history of a previous RSV (Respiratory Syncytial Virus) infection. The patient was adjusted using Diversified chiropractic technique 2-3 times per week. Within one month of care the patient no longer had emergency asthmatic episodes and was able to sleep through the night with decreased rescue inhaler use.17

Balon et al. conducted a randomized controlled trial on 91 children aged 7-16 who had continuing symptoms of asthma despite medical treatment. Subjects were randomly assigned to receive either active or “sham” chiropractic manipulation for four months. Peak expiratory flow was measured from a change in baseline line.

Of the 91 children, 80 had outcome data that could be evaluated. Small improvements in both treatment groups were noted, with no statistically significant difference between groups with reference to a change in baseline measurements.

Asthma symptoms and use of Beta-agonists decreased and quality of life increased in both groups with no statistically significant difference between groups. The authors concluded that children with mild to moderate asthma would not benefit from the inclusion of chiropractic spinal manipulation to usual medical care.18

A case report by Elster revealed success using upper cervical techniques for a 9-year-old boy with Tourette syndrome, Attention Deficit Hyperactivity Disorder, depression, asthma, insomnia, and headaches. Evaluation of the patient’s condition occurred through doctor’s observation, patient’s and parent’s subjective feedback of symptoms, as well as thermographic scans. After six weeks of care, all of the six aforementioned conditions were no longer present. Due to continued improvement in the boy, his mother consulted with her son’s physician and discontinued all of his medication, with the exception of Wellbutrin (for Attention Deficit Hyperactivity Disorder), which was cut in half.19

Whittle-Davis & Czegus discussed the management of a 23-month-old female suffering from asthma, gastrointestinal complaints and frequent colds. The patient was taking a series of different asthma medications and was also under constant monitoring by her pediatric pulmonologist. Diversified and Activator adjustments were both utilized to address the areas of vertebral subluxation. Within 11 months, the patient’s parents reported a 90% improvement of their child’s condition. The patient was able to reduce her care plan frequency and discontinued use of all medications. The parents also reported a decrease in their child’s asthma, sinus problems and frequency of colds.20

Kaminsky et al. reviewed eight studies that addressed the effectiveness of chiropractic care for patients with asthma. For the purposes of that review, chiropractic care encompassed spinal manipulative therapy, mobilizations, soft tissue therapy and/or breathing exercises. Subjective measures varied amongst the selected literature, including reported number of asthma attacks, medication usage, quality of life, patient-reported changes in asthma symptomatology, modified Oswetry rating scale, and asthma diary logs. Improvement was recognized in these measurements in the reviewed literature, although none were statistically significant. Spirometry readings were the main objective measures used, which included peak expiratory flow, vital capacity, and forced expiratory volume. Some improvements in these objective measures were noted. No statistical significance was reported with chiropractic care during the treatment of children with asthma. However, positive clinical changes were seen in a number of subjects leading to the conclusion that spinal manipulative therapy may be pursued as a complement to medical management.21

In another case study by Fedorchuk, a 7 year-old girl presented with three years of uncontrolled asthma that was attempting to be managed with several pharmaceuticals taken daily. Contac-specific, high velocity, low-amplitude adjustments (Full Spine and CBP mirror image) were applied to the areas of vertebral subluxations. No other adjuncts to care or modalities were given. The patient experienced instant reduction in cough as reported by the patient’s mother. In 30
days, no medication was being used. Upon subsequent visits to the pediatrician, the patient also demonstrated a marked increase in lung volume.3

The previous case studies and reports utilized various types of chiropractic care. The following case study discussed a different type of chiropractic technique as well as additional nutritional management. The study involved a 6-year-old male that presented with a history of asthma that was diagnosed at age 4. His mother sought chiropractic care to help control and relieve his symptoms that would worsen depending on the season. A total of six chiropractic adjustments using Koren Specific Technique (KST) were delivered to the boy in conjunction with recommendation of daily intake of omega 3 supplementation and probiotics. The patient no longer needed his daily inhaler dose of Albuterol after having received his first adjustment and was able to sleep undisturbed through the night with no asthmatic flare-ups.22

Koren Specific Technique was derived from two existing chiropractic techniques; Directional Non-Force Technique (DNFT) and Spinal Column Stressology. The analysis consists of a quick scan of the entire body’s structural system and follows up with muscle tests using the base of the skull as a yes/no device to determine if the structure is in proper position. When the body part is challenged, moved ever so slightly, if a problem exists the occipital bone with drop slightly to the left. This is known as Occipital Drop (OD). The body part is adjusted using the ArthroStim device.22,23

**Proposed Mechanisms**

Asthma is a chronic inflammatory disorder with increased mucus production and airway hypersensitivity that result in a decreased airflow. This is characterized by recurrent episodes of wheezing, coughing, shortness of breath and a feeling of chest tightness.24 2

Guyton and Hall state that in an asthmatic person, the allergen-reagin reaction occurs in the bronchioles of the lungs. Here, an important product released from the mast cells is believed to be the slow-reacting substance of anaphylaxis, which causes spasm of the bronchiolar smooth muscle. Consequently, the person has difficulty breathing until the reactive products of the allergic reaction have been removed.25

The underlying pathophysiology of asthma is airway inflammation, due to an abnormal regulation of T-cell lymphocytes originate from the bone marrow, migrate to the thymus where they mature and then leave as either CD4 or CD8 cells. CD4 are helper T-cells which produce cytokines needed for the immune response and CD8 cells are killer T-cell which directly attack an invading antigen.5,26 Evidence suggests that in asthmatics there is an overproduction of CD4 cells resulting in an overactive immune response.5

The hypothesis that there is an imbalance of parasympathetic to sympathetic activity in individuals with asthma would lead us to assume that an increase in sympathetic activity to the body via a chiropractic adjustment would be beneficial in assisting to regulate the respiratory response.27

Balon discussed two assumptions that lead to the expectation of benefit from chiropractic manipulation in persons with asthma, the first of which described asthma as a reflex irritation of somatic and autonomic nerves at the spinal and nerve-root levels being caused by the vertebral subluxation.18

The subluxation causes a mechanical and neurological dysfunction of the tissue and surrounding structures. A thoracic subluxation may affect either the chest wall function, alter the airway tone and/or responsiveness directly or by means of neurogenic inflammation which results in a predisposition or induction of asthma in the individual.1,28 Therefore, by addressing and correcting the subluxation via a chiropractic adjustment, neurological and mechanical function may be improved, restoring balance to the respiratory system.2

**Conclusion**

In the case of a 2-year-old male suffering from asthma, chronic colds, and respiratory issues since birth, there was a resolution of symptoms after receiving four adjustments over the course of three weeks. Evidence in this case supports chiropractic care in the management of asthma and associated symptoms. However, this is a case of one patient and one cannot assume results will be the same for other cases. Given the small number of randomized controlled trials published there needs to be further investigation to explore chiropractic as a viable alternative to medical care in the management of asthma related conditions.

**References**


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