CASE REPORT

Case Study in Pediatric Asthma: The Corrective Aspect of Craniosacral Fascial Therapy

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INTRODUCTION

Asthma is an inflammatory disorder of the airways that causes wheezing, shortness of breath, chest tightness, and coughing.[1] Nine million children in America under the age of 18 have been diagnosed with asthma.[2] The asthma rate in American children under the age of five has increased more than 160% from 1980 to 1994.[3] Approximately 5,000 Americans die every year from asthma.[2] Healthcare costs in America for asthma are over $16 billion annually.[2] An estimated 300 million people of all ages and ethnic backgrounds from all over the globe suffer from asthma and approximately 250,000 people a year die from it.[4]

Current Western treatment focuses on managing asthma with two types of medication. Anti-inflammatory drugs (corticosteroids) reduce swelling and mucous formation in the airways. Secondly, bronchodilators relax the smooth muscle cells that tighten around the airways; the child's breathing improves when the tracheobronchial tree opens.[5]

An alternative strategy for reducing and potentially eliminating asthma symptoms involves manipulation of the craniosacral fascial system. This system is an integration of the craniosacral and fascial or connective tissue components. Sutherland[6] discovered the craniosacral aspect about 100 years ago. He found that the cranial bones and sacrum moved as the brain "breathed." More recently, Upledger and Vredevoogd[7] furthered the concept by discovering that the strain from trauma was primarily held in the connective tissue of the cranial dura and not the bones.

In the craniosacral concept, human physiology is strongly dependent on the slight motion of the brain and spinal cord and the fluctuation of the cerebrospinal fluid within the meningeal and osseous systems.[8-15] Craniosacral theory holds that trauma can impair the normal rhythms of this fluctuation and result in disease and organ dysfunction. Manual therapy can help rebalance these natural nervous system rhythms and allow a return to health.[16]

Craniosacral therapy is currently being recognized as an important tool for an integrated approach to healthcare.[17] Erickson et al[18] presented a case study of a child with recurrent otitis media and upper respiratory illness. This child, who had reactive airway disease potentially developing into asthma, responded positively to craniosacral therapy as part of an integrated approach. Mehl-Madrona et al[19] studied the synergy of acupuncture and craniosacral interventions in the clinical outcomes of adults with asthma. In their investigation of 89 chronic adult asthma sufferers, they concluded that craniosacral therapy was potentially a useful adjunct to the conventional care of adults with asthma.

In this approach, the craniosacral or *brain cycle* is the key indicator to check how well the craniosacral fascial system is working. The brain cycle is the amount of "breathing" time for the brain to fully expand and fully contract in its inherent motion. The longer the brain breathes, the better it functions.

In asthmatic children, the cycle is typically much shorter than is healthy—often under 10 seconds. A cycle of 80 seconds or above is generally considered healthy. Thus, the primary goal of the craniosacral therapist in the treatment of a child with asthma is to help restore the healthy longer cycle of cerebrospinal fluid fluctuation and flow.

The fascial or connective tissue component of the craniosacral fascial system is a full body web that intertwines and infuses with *every* structural cell of the body, including muscles, nerves, blood and lymph vessels, organs, and bones.[20] The web is a fine network of collagen, reticular, and elastic fibers with many types of cells, all immersed in a fluid ground substance.

Barnes[20] has described how physical trauma to the fascial system can cause strain patterns anywhere in the body. These strain patterns can pull on structures, including the craniosacral and respiratory components, at up to 2,000 pounds per square inch.[21] This invisible pulling inside the body can contribute to many symptoms and conditions, including pediatric asthma. Craniosacral fascial therapy as applied in this case can help release these intense craniosacral and fascial strains and restore normal physiology and health to a child with asthma.

The greatest challenge in applying this technique to clinical practice is that there is no quantitative medical test to identify connective tissue dysfunction for an asthmatic child. Traumas that are considered in the normal range of life, which occur in utero or during birth and childhood, can have the potential to create unwanted strains in the respiratory system. At the time, these traumas may go unnoticed clinically but may later present as effects in the form of thoracic pressure, impaired breathing, and asthma. Frequently, the parents can identify a specific traumatic event that they feel may have been a trigger for their child's asthma.

CASE PRESENTATION

History

A nine-year-old Caucasian boy presented on December 27, 2006, for evaluation. His mother stated that his primary condition was asthma. Over the years, all four of her sisters had brought their children for treatment of various chronic illnesses, but she was still reluctant and very skeptical that this therapy would work for her son because of his advanced condition. He

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had developed respiratory symptoms at age two months, had been seen by many specialists, and had been on multiple medications since that time.

The pregnancy was uneventful until the 39th week, when the mother had edema, headaches, and high blood pressure. Because the fetus was stressed, delivery was induced. After more than six hours of difficult labor, he was delivered with the assistance of a vacuum suction tube. His mother reported that as a result, he had a cone-shaped head for several weeks. He was also treated for jaundice in the first week of his life.

When he was two months old, he developed a recurrent cough. He was started on albuterol, and then at six years of age switched to levalbuterol hydrochloride. At various times, he has also been treated with cromolyn, fluticasone propionate and salmeterol, and montelukast, as well as with a short course of prednisolone for exacerbations. His last course of oral steroids was in March 2006. He has also taken cetirizine HCL and budesonide for seasonal allergies.

The hallmark of his illness was that a cold would always trigger his asthma. Not including weekends and holidays, he missed eight days of school in kindergarten, 19 days in first grade, and 13 days in second grade because of asthma. He had never had any emergency room visits and had never been hospitalized. His asthma symptoms would typically worsen with the weather changes in the spring and fall; the cold winter months were often particularly difficult.

In addition to his asthma, his medical history was remarkable for some bouts of otitis media, seasonal mold allergies, occasional headaches, and croup about three times a year, lasting three to four days for each episode. He has had pneumonia five times in his life, for which he has required oral steroid and antibiotic treatment. According to his mother, he also regularly grinds his teeth at night.

In school, he has had difficulty in reading comprehension and sees a reading specialist for one hour a week. He has not had any surgery or dentistry and is up to date on all of his immunizations. He has had the typical boyhood traumas but has never been unconscious. One trauma, which stood out in his history, was a bicycle accident two years prior; he flipped off his bike, and the handle bar pressed hard under his left rib cage.

Clinical Findings

In the evaluation procedure, I palpated for tissue strain in the diaphragm, lungs, tracheobronchial tree, throat, neck, cranium, and nasal sinuses. The desired result of asthma treatment is to manually help the body relieve soft tissue strain from the nose to the diaphragm over a series of visits to free the respiratory system.

His brain cycle was two seconds, one second in expansion and one second in contraction, indicating an excessive strain in his cranial dural meninges and pressure in his head. This greatly reduced the brain's motion and the flow of nourishing cerebrospinal fluid. His facial bones, sacrum, and dural tube were abnormally tight, with no perceptible movement.

Ideally, the facial bones and sacrum should be moving in synchronicity with the same long brain cycle. The motion of the cranial structures and sacrum are dependent on a moving connecting dural tube, which should slide like a sleeve about 10 to 15 millimeters over the spinal cord. Life is motion, and the whole system must be moving freely for the best possible neurophysiology of the child.

The shape of his head was asymmetrical, a common finding in asthmatic children. The temporal and parietal bones on the left side were internally or medially rotated, and the temporal and parietal bones on the right side were externally or laterally rotated. This indicated cranial trauma at some point in his life, probably from the difficult birth, which created asymmetry, meningeal strain, and a short brain cycle.

A symmetrical head may be important for relief of strain around the vagus nerve and its dorsal nucleus and parasympathetic efferent fibers as it passes through the cranium between the temporal and occipital bones. As the cranial meninges release their strain patterns in therapy, the expectation is the return of a symmetrical head, and at the same time, a longer, more physiologic brain cycle.

Upon palpation of the respiratory system, I found severe fascial strain in the left lung area. Some fascial strain was in the tracheobronchial tree and right lung area, but the left lung area was clearly his most afflicted region. The fascia in his throat was relatively quiet, but strain was present in the back of his neck and nasal sinus area.

In most childhood asthma cases, as was the situation here, fascial strain from the lung area can pull directly through the neck on the sinuses, causing nasal congestion and/or blockage. Because the body is totally interconnected through the craniosacral fascial system, a child's asthma, earaches, and headaches may all have the same traumatic cause. A single strain pattern in one part of the body (the chest causing the asthma) can have a major impact on a distant area (the head causing the earaches and headaches).

Outside of the respiratory system, his fascial web was noncontributory to his asthma. His respiratory muscles were healthy and did not require muscle therapy. Even though some nights he ground his teeth, the occlusion and oral structures did not appear to be a contributing factor for his asthma.

In structurally assessing the patient's case, I told his mother that he had a severe craniosacral fascial strain that started in his left lung area and pulled through his neck into his nasal sinuses. I outlined a series of one-hour treatment visits with the goal of using this therapy to return his respiratory system to health.

Treatment and Results

The goal of the first visit was to begin to help the body allow the length of his brain cycle to increase and start to free the fascial restriction in the respiratory system. His cycle opened from two to 40 seconds, an excellent response to therapy. One can hypothesize that with his history of birth trauma, his brain has been tight with this low cycle his whole life. Thus, after nine years of continuous pressure, possibly on the vagus nerves, his brain responded very positively.

He showed significant expected fascial strain in the left lung area. When I started to work in this region, he could feel the strain as a 30-second pressure pain. Once the tissue started to release, he felt some relief. The whole concept of asthma treatment is to find fascial strain and help the body release it. The great value of this approach is that the practitioner can work through the clothing over the chest and still access and help the body, via the connective tissue web, release the fascia down to the lung tissue. After the treatment session was over, the patient said that he could breathe more freely.

At the second visit, his brain cycle was still holding at 40 seconds. His mother said that he was unusually verbally active for a day after the treatment, and that he had done well overall during the past week. His head was almost symmetrical after only one visit. I did some minor pelvic and leg strain work. His left lung area was still straining but not as much as the first visit. I also worked in the tracheobronchial tree and right lung area. His brain cycle ended the visit at 55 seconds, a very respectable cycle for just two treatment sessions.

At the third visit, his mother surprised me by sharing that, without my knowledge, she had taken him off all of his asthma medication after the first treatment visit to see if this therapy would work. The medication was available, but he had not needed it since therapy started two weeks ago. I ordinarily tell parents not to expect a significant improvement with their child until after the first four to five visits. I always feel more comfortable when the doctor is consulted first about a medication reduction/elimination program. Nevertheless, the patient did appear to me to be doing quite well at this point.

I worked in the left posterior chest area, and the strain was markedly improved. The nasal sinuses were still straining but were in a more opened position, allowing for proper drainage. The patient's mother said that his nose was still stuffy in the morning. He ended the visit at a 70-second cycle, close to our 80-second cycle goal.

At the fourth visit, his brain cycle held at 70 seconds. The strain in the left lung felt much relieved and was primarily confined to the lower posterior area in his back. The strain pattern probably started here at the diaphragm level and traversed the trunk and neck into his sinuses. He finished this visit at an 80-second brain cycle. His mother reported at this visit that the cough he normally would have in the middle of winter was gone. He remained off his asthma medications at this point.

At the fifth visit, I still found strain in the lower left diaphragm area. He and his mother then remembered that bicycle accident he had two years ago when he fell off and the handlebar thrust under his left rib cage, even leaving a scar on the abdominal skin. When I worked here, I could feel the strain pulling through the diaphragm into his left lung.

This strain pattern explained the fact that his mother said his asthma had been worse these past two years but did not know why. The bicycle accident added one more layer of strain into the respiratory system that the body had to deal with, making it even more difficult for him to breathe. Traumas, both remembered and forgotten, can create fascial strain patterns that can last a lifetime if left untreated.[20] That area released easily for him, and his brain cycle completed the visit at 80 seconds.

At the following visit, his mother reported that he had played football with his brother and father recently, in the cold air outside, without coughing. This was a milestone for him. Clinically, he felt very healthy other than some lingering fascial strain in the lower left back area. He was clear throughout the remainder of his respiratory system, including his nasal sinuses. He finished the visit at a 90-second cycle and was ready to complete his therapy at the next visit.

At his seventh and final visit, 30 days after his first visit, his brain cycle was holding at 90 seconds. His mother said that he still had not needed any medication, and his cough had not returned. On one of the coldest days of the winter, he was outside chopping wood and playing football with his dad—without showing any symptoms of asthma. A few days prior to this visit, he had started to come down with a cold, a typical trigger for him; but his asthma did not flare as it would have in the past. In checking his whole body, I worked on the lower left lung area to relieve as much remaining strain as possible.

His brain cycle at this final visit was 100 seconds, an excellent reading. His facial bones, sacrum, and dural tube were all moving freely and in synchronicity with his brain. His head was symmetrical, and the respiratory system and the rest of his body were quiet of any fascial strain. He had completed his course of craniosacral fascial therapy.

Exactly five weeks after this treatment started, his asthma doctor reexamined him. She found his lungs to be clear of any wheezing or other obstructions. His peak flow meter readings were between 275 and 300 liters/minute, which were in an acceptable range for him. The physician recommended that at this point there was no need for any further asthma medication.

DISCUSSION

The results in this case were quite typical of my experience with pediatric asthma patients. This case required seven one-hour visits, well within the typical range of three to 10 visits. In treating asthmatic children like this patient since 1980, I have found that pediatric asthma is related to dysfunction of the craniosacral fascial system. In this case, as in many others, because the respiratory tissues involved with asthma are intimately related with other head and neck soft tissues, a child can have one major upper body craniosacral fascial strain causing headaches, a nasal sinus condition, chronic earaches, a reading problem, and asthma—all at the same time.[22]

Many other chronic childhood illnesses, such as neck aches, gastroesophageal reflux, hyperactivity, strabismus, and colic, in some cases appear to originate, all or in part, from impairment of the craniosacral fascial system.[22] Craniosacral and fascial traumas are often overlooked as potential causative factors in chronic childhood diseases.[20,23,24]

In pediatric asthma, the anatomical focal points for craniosacral fascial therapy can be divided into three main areas: the lung tissue, the vagus nerve, and the nasal sinus area. Fascia infuses throughout the tracheobronchial tree and lung tissue, weaving through every structural cell up to the pseudostratified ciliated columnar epithelial cells.[25]A fascial sheath, called the endomysium, surrounds every muscle cell of the body.[26] Since the fascial system of the body is one interconnected web, trauma to the chest or adjacent areas may cause fascial tightness deeper in the lung tissue around the smooth muscle cells of the bronchioles. This constriction can contribute to the hypersensitive airways, which are pathognomonic of asthma. When this fascial strain is relieved over a series of therapy visits, these lung cells can return to normal physiology, and the asthma can dissipate naturally.

Many asthma researchers have focused exclusively on the physiology of the smooth muscle cells surrounding the bronchioles. The evasive answer to pediatric asthma may be in the physiology of its surrounding endomysium that may actually control the function of the smooth muscle cell. Basic research is needed to investigate the potential role the endomysium plays in pediatric asthma.

The secondary therapy area is around the vagus nerve because it traverses through the jugular foramen formed by the temporal and occipital bones and drops into the upper neck. Craniosacral neuropathology due to head trauma and misalignment can stimulate the dorsal vagal nucleus and parasympathetic efferent fibers initiating asthma. Fascial strain, commonly found deep in the upper neck just inferior to the jugular foramen and deep to the mastoid process of the temporal bone, may also impair the vagus nerve. In the third treatment area around the nasal sinus area, facial trauma can stimulate the trigeminal and glossopharyngeal fibers, causing the same parasympathetic action leading to asthma symptoms.

Craniosacral fascial therapy can also have therapeutic benefits in some adults with asthma. However, the duration of the condition is critical. As an example, a middle-aged woman with no previous respiratory history, who developed asthma after a recent physical trauma, would be much more likely to respond to therapy than another patient presenting at this age with asthma that began early in life. In the latter scenario, airway remodeling due to chronic inflammation has probably occurred over that 40-year period, creating irreversible damage, and the potential for permanent correction probably no longer exists.

This concept can help explain the extremely high rate of success with craniosacral fascial therapy in pediatric asthma; children like the patient in this report have not had asthma long enough for destructive airway remodeling to occur. It appears that the damage to the respiratory system generated by fascial strain early in life may be completely reversible if treated promptly.

The underlying beauty of this synergistic approach is that it appears to address the pathological origin of asthma. The ultimate benefit of clinical care can shift the emphasis of treatment from managing and attempting to control the disease with medications to correcting and reestablishing the normal physiology of the child. Clinical research is urgently needed to establish more definitively the effectiveness of this therapeutic approach.

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