

CASE STUDY

Sacral Subluxation Correction in an Asymptomatic 12-Year-Old Girl using the Pierce Results System™

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Abstract

Objective: A case report showing the use of the Pierce Results System™ resulting in sacral subluxation correction after three visits.

Clinical features: An asymptomatic 12-year-old girl was assessed for the presence of vertebral subluxation complex with the use of infrared thermography, radiography, and videofluoroscopy. These assessments revealed variations from normal limits indicating the presence of vertebral subluxation. The AP lumbosacral radiograph showed sacral displacement of 20 mm.

Intervention and outcomes: Following the protocols outlined by the Pierce Results System™ for vertebral subluxation correction, the patient received infrared thermal scans on each visit to monitor progress. Chiropractic care was administered to the patient over the course of the first three visits. At that time it was determined that a significant improvement on thermography was made in order to determine a post-radiographic assessment. The assessment revealed the sacrum to be displaced by only 3mm a correction of 85% over the course of three visits.

Conclusion: An asymptomatic 12-year-old girl was assessed for the presence of vertebral subluxation. After undergoing chiropractic care under the Pierce Results System™ the patient had a dramatic reduction of vertebral subluxation demonstrated by changes on thermography and radiography. Further research is necessary to understand Pierce Results System™ effects on asymptomatic vertebral subluxation correction resulting in structural changes.

Key words: *Pierce Results System*®, *vertebral subluxation*, *chiropractic*, *sacral subluxation*, *pattern analysis*, *videofluoroscopy*, *thermography*

Introduction

It has been documented by the use of pre and post radiographic images that rapid structural changes to the spine take place following the protocols for vertebral subluxation correction used within the Pierce Results System™.^{1,2} This system of analysis was developed by Dr. Vernon Pierce, Sr. with the use of radiographs, videofluoroscopy, thermography, and a variety of adjusting applications in order to facilitate structural changes.³ These structural changes are monitored with the use of clinical infrared thermography based on the

concept of pattern analysis. It is theorized that these structural changes as a result of a chiropractic adjustment will also manifest with associated changes in neurophysiological responses monitored with the use of infrared thermography.⁴

These neurophysiological responses that take place are common to all of the models of vertebral subluxation.⁵ These responses are important for the doctor to monitor because it determines when to and when not to deliver a spinal adjustment by hand, instrument, or pressure.³ Monitoring structural changes after a chiropractic adjustment is important because there are specific alignments that are considered

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normal in the human spine. The normal alignment of the human spine from anterior to posterior is vertically straight and in the lateral alignment there are four curves present; two anterior (lordotic) curves comprised by the cervical and lumbar regions, and two (kyphotic) curves comprised by the thoracic and sacral regions.^{3,6} By restoring normal spinal biomechanics through chiropractic care the nervous system will be influenced.

Corrective chiropractic care is driven by the restoration of normal spinal alignment and not solely focused on the reduction of symptoms and pain.⁷ There are no documented case reports of asymptomatic sacral subluxation correction in the literature. The following is a case report showing subluxation correction after three visits in a 12-year-old girl undergoing care by a Pierce Results System™ practitioner. The system is dedicated to the detection and removal of the vertebral subluxation complex (VSC) with the use of advanced technology and specific analysis.³

Case Report

History

The patient was a 12-year-old girl that presented to a chiropractic office with her family that was looking to get under chiropractic care. She had no symptoms or significant medical history. She has a family history of type-1 Diabetes, heart disease, and cancer.

Examination

A chiropractic examination was given to the patient and it included range of motion, palpation, thermal scans, videofluoroscopy, and radiographic films. The patient was given three full-spine thermal scans from sacrum to occiput with a Titron™ C-5000 scanner coupled with the Platinum System's infrared thermography camera on her first visit (Figure 1). This evaluation revealed that there were multiple thermal asymmetries present on the patient.

There was a hypothermic zone in the lower dorsal, lumbar, and sacral regions that was over 0.8°C, as well as a hyperthermic zone in the upper dorsal and cervical regions greater than 0.8°C. Thermal scans are an important part of the Pierce technique for several reasons. Pierce found that there were certain normal values that a patient would have that included: a scan that would change from visit to visit, a median temperature of 34.1°C, an atlas differential temperature of 0.0°C, and a scan that would normalize to vertically straight with little variations.³

The scan can show temperature changes from side to side on a patient. A shift of the temperature to the left and then right would indicate a hypothermic zone and then a hyperthermic zone. The variation from normal of the patient's thermal scans on three consecutive scans warranted the use of radiographic technologies (Figure 1).³ The radiographs of the patient showed that there were biomechanical changes to the patient's sacrum.

The AP lumbosacral film analysis revealed that the sacrum was displaced to the right by 20 mm (Figure 4). There was

also lumbar body rotation to the side opposite of sacral displacement. These findings correlate to a Pierce Results System™ listing known as a false IN/EX. The IN/EX listing represents the appearance of the left ilium rotated internally and the right ilium rotated externally with the sacrum deviating to the externally rotated ilium.

The patient also had cervical x-rays taken. The lateral cervical x-ray showed that the patient had a +28 cm curve measured by an AcuArc ruler (Figure 6). A cervical curve of +17 cm is considered normal as determined by the Pierce Results System™. A videofluoroscopy exam was also conducted revealing several cervical vertebral levels of intersegmental kinesio pathology known as "vertebral locking" in the Pierce technique. Cervical flexion and extension were performed under videofluoroscopy.

T1 and T2 were locked in extension indicating that they did not exhibit a normal motion pattern, in which the vertebrae are supposed to approximate or come closer together.³ The chiropractic thermographic and radiographic examination showed that multiple vertebral subluxations were present and located at sacrum and the upper dorsal spine. These findings are correlated to the kinesio pathological and neuropathological components of the VSC model proposed by Lantz.⁵

Intervention

The patient was managed following the protocols developed by the Pierce Results System™ for the correction of vertebral subluxation. The system was developed by the use of hand, instrument, and pressure adjustments, as well as the use of Logan™ chiropractic technique.³ The patient was seen a total of three times over three days. Each visit a thermal evaluation was given to the patient in order to check the progress of the care and monitor any changes that were made due to the chiropractic adjustment (Figures 1-3). Infrared thermography is used to show the patient's response to care.⁴

Pierce, with the assistance of Stillwagon, developed the use of infrared thermography in chiropractic. Dr. Pierce credited his entire work in the Pierce Results System™ to infrared thermal scanning. The use of the thermal scans guide the doctor on the course of care.³ Miller describes pattern analysis as, "Persons free of neurological interference tend to display skin temperature readings which continually change, but when the vertebral subluxation and interference to normal neurological function appear on the scene, these changing differentials become static. They no longer display normal adaptability and at this time the patient is said to be in pattern."⁸

The patient was in pattern on their first visit (Fig 1). As Miller described there was no longer any adaptability present and the differentials became static on the patients first visit. In order to address the sacral rotation, a P-A toggle-set was performed on the patients left sacrum halfway between PSIS and S2 on the side of lowest lumbar body rotation.

The doctor used a thumb contact reinforced by the opposite hand's pisiform. The toggle-set used was a high velocity low amplitude thrust delivered to the sacrum assisted by a pelvic

drop mechanism on the Zenith model 60 table. A P-A toggle set was also performed in the dorsal spine at T1 and T2 in accordance with the fluoroscopic findings. This was performed using the dorsal and cervical drop pieces on the Zenith Model 60 table.

The doctor placed his fleshy pisiform on the most posterior inferior aspect of the spinous process being adjusted, and was reinforced by placing the opposite hand's pisiform in the anatomical snuff box of the contact hand. On the second and third visit the patient was scanned and was determined to not be in the original pattern (Figures 2-3).

During the third visit the patient was adjusted on the original listing with a handheld Variable Frequency Adjuster™ made by Sigma Instruments Inc. The handheld adjusting instrument allows the doctor to change the rate, force, and pre-load to the selected area in order to have precision when contacting the vertebral segment in question.² This protocol is used within the Pierce Results System™ when a patient is not in the original pattern.³

Outcomes

Each visit the patient was scanned and those scans were analyzed. The autonomic nervous system is being analyzed for interference to the transmission of information resulting in static patterns upon each thermal scan.⁹ The third visit showed a drastic improvement from the original thermal scans that were taken (Figure 3). The patient no longer had a hyperthermic zone in the cervical spine and only had a minor hypothermic zone of less than 0.4° C variations in the lumbar spine.

This prompted the doctor to take a follow up x-ray in order to document changes to the normal alignment of the spine. A follow up AP- lumbosacral radiograph showed that the sacrum was only displaced 3 mm from the center (Figure 5). That is an 85% percent improvement on the static radiograph after 3 visits. Follow up cervical films were not taken. The patient continued to remain asymptomatic after the three visits in which they were seen.

Discussion

Pierce Results System

The Pierce Results System™ was developed on the basis of using the latest technology available in order to effectively remove the vertebral subluxation complex. Dr. Pierce felt that it was necessary to always evaluate the tools being used by chiropractors in order to achieve the fastest subluxation correction yielding "results." The main goals within the system are restoring the spine to its proper structure and achieving proper motion within the spine.³

Chiropractic literature shows that variations from normal spinal curvatures are correlated to the health of individuals.^{6,10,11} There have been problems in the past within chiropractic when it comes to the area of analysis because the lack of a normal spinal model.¹² Dr. Pierce Sr. was the first to develop a complete normal spinal model based on structure and motion which became the benchmark for determining the

presence of the VSC.² The Pierce Results System™ protocols and analysis relies on the use of advanced technologies such as videofluoroscopy, radiographs, and infrared thermography in order to clinically evaluate the presence and removal of the kinesiopathology and neuropathology within the VSC. Pierce spent his chiropractic career in pursuit of defining a model for normal spinal structure. His evaluation was based on identifying normal spinal structure versus spinal structure with congenital anomalies. He found that individuals that had congenital malformation would not achieve the rules of normal spinal structure.³

It was determined by Pierce that the normal pelvis had nine specific qualities: 1) a heart shaped pelvic opening, 2) almond shaped obturator foramen, 3) level sacral base, femur heads, and iliac crests, 4) the coccyx sitting an inch and a half directly above the pubic symphysis, 5) both iliums are the same width from side to side, 6) no lumbar body rotation, 7) a lateral lumbar curve from +19 - +24cm measured with an AcuArc ruler, 8) both ischial tuberosities the same distance from the bottom of the film, and 9) the film would be symmetrical if superimposed from side to side.^{1,3}

Technology Utilization

A component of vertebral subluxation is misalignment, which is visible on the static radiograph.^{13,14} In Pierce; misalignments are detected with the use of static radiographs and are used to determine variations from the normal pelvic models called "listings." Chiropractic literature has shown that visual analysis as well as line analysis is a common way of analyzing radiographic films.¹⁵ Line analysis has been studied as being a reliable way to measure misalignment from a normal spinal model.^{13,16} Slusher et al. found that visual analysis for the sacral listings to be reliable in locating the misalignment.¹⁵

As previously discussed there are two components of vertebral subluxation that are common to all models of subluxation, kinesiologic dysfunction and neurological involvement.⁵ Pierce Results System™ uses technology in the form of videofluoroscopy to address the kinesiologic dysfunction and infrared thermography to address neurological involvement. Both technologies have been found to have high inter-examiner reliability.¹⁷⁻¹⁹

Videofluoroscopy has been demonstrated as a gold standard for measuring intersegmental kinesiopathology at an agreement rate of 94% when used for the detection of fixation.¹⁹ This is a much higher percentage than the 55% inter-examiner detection of fixation with the use of traditional motion palpation.²⁰ Infrared thermography is utilized for assessing the neurological involvement associated with the VSC and for documenting the changes to the autonomic nervous system.²¹ As previously reported thermography helps determine if the autonomic nervous system responds to a chiropractic adjustment and is a way of monitoring patient progress between chiropractic visits.⁴

The use of thermography within the Pierce Results System™ is not only used as an objective way of monitoring patient progress but is also used to correlate thermal changes with structural change noted on radiographs.³ Stillwagon suggests that the use of thermography with imaging studies showing

structural change offer the broadest spectrum of assessing patient progress.⁴ In a review of paraspinal thermography, McCoy points out studies conducted by Elster linking vertebral subluxations on radiographs with abnormal neurophysiology documented by thermal scanning.²¹ The use of thermography is vitally important in assessing patients in the Pierce Results System™. It is so important that Dr. Pierce credits the entire system to infrared thermography.³

Adjusting Techniques

There are three different types of adjusting techniques that are used in the Results System™. The first is the use of a hand adjustment in the form of a high velocity no recoil thrust known as a toggle set. The second is the use of instrument adjusting in between periods of time when hand adjustments would have a negative effect on the progress of VSC correction.

Galgano and Turo describe the use of instrument adjusting in the system in detail in their paper associated with the use of the Pierce protocols.² The third method of adjusting is the use of pressure adjusting based on the Nimmo-Receptor Tonus technique to remove trigger points that may be complicating components of the VSC.¹ Instrument and pressure adjustments are used more often in the system and their use is determined by changes noted on the patient's thermography reading that is taken at each visit.¹⁻³

Conclusion

This is a case report of an asymptomatic 12-year-old girl showing sacral subluxation correction verified by pre and post radiographs as well as improvement in infrared thermography readings. The Pierce Results System™ uses advanced technology and specific analysis focused on removal of the VSC resulting in spinal structural correction.^{1,2} Further studies are necessary to explore the efficacy of the Pierce Results System™ and its relationship to the removal of the VSC resulting in changes to normal spinal structure.

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Figures

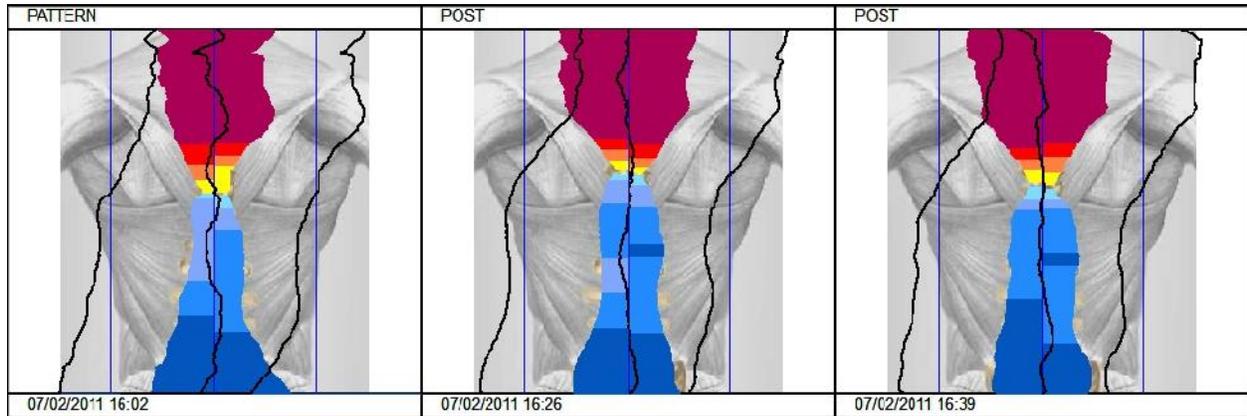


Figure 1. Day 1 initial 3 Titron™ Thermal Scans

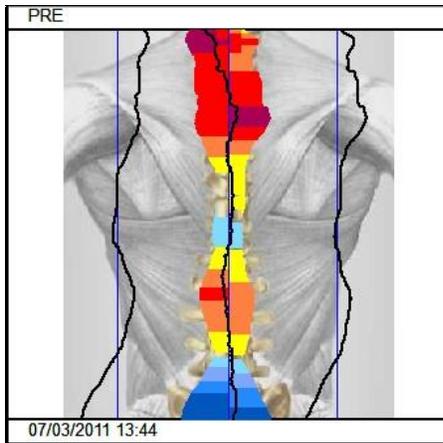


Figure 2. Day 2 Titron™ Thermal Scan

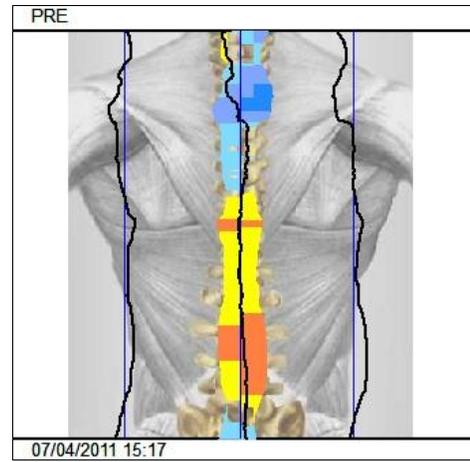


Figure 3. Day 3 Titron™ Thermal Scan showing improvement

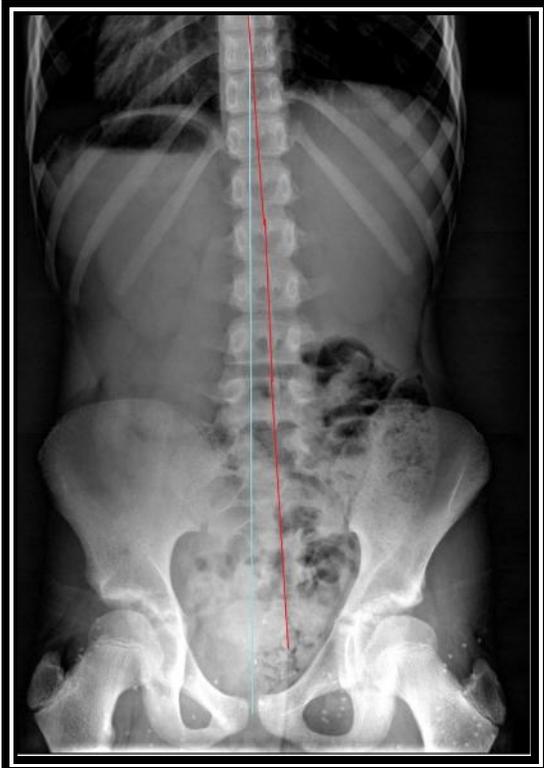


Figure 4. Pre- AP Lumbosacral Radiograph



Figure 5. Post- AP Lumbosacral Radiograph



Figure 6 – Initial Lateral Cervical X-ray