

CASE STUDY

The Effects of Gonstead Chiropractic Care on a Patient with Primary Amenorrhea: A Case Report and Review of Related Literature

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Abstract

Objective: To describe the results of chiropractic care on a female with primary amenorrhea and review the related literature.

Clinical Features: A 25 year old female student with a history of primary amenorrhea presented to a chiropractic clinic for care under the Gonstead Chiropractic Technique. She revealed during her history that she had not reached menses by the age of 18 and only menstruated when on prescription birth control pills.

Interventions and Outcomes: Vertebral misalignments were found at the patient's right occiput and the S2 sacral segment and specific, high-velocity, low-amplitude thrusts were performed at each area according to Gonstead protocol. After three adjustments, the patient reported her first menstrual period without the use of birth control. Natural progesterone cream was also used as a supplement to chiropractic care and may have been a contributing factor.

Conclusion: Chiropractic adjustments in this case appear to have been beneficial, but variables in the care plan (i.e. the progesterone cream) must be considered. Research on chiropractic and amenorrhea is lacking and the chiropractic profession is encouraged to conduct more research in this area.

Key Words: *chiropractic, Gonstead, primary amenorrhea, subluxation, autonomic nervous system, infertility*

Introduction

Amenorrhea is defined as the “absence of spontaneous menses in a woman of reproductive age.”¹ Diagnosis of amenorrhea, which can be primary or secondary, is based on the patient’s age and the number of (or absence of) menstrual periods per year. With secondary amenorrhea, a female will exhibit the absence of at least three to six consecutive menstrual cycles,

while a girl with primary amenorrhea will not have experienced any menstrual periods by the age of 16.² While the presence of amenorrhea is easy to determine based on these guidelines, discovering the underlying cause of the condition requires a more in-depth investigation due to the number of health issues and environmental factors that can affect the organs and systems involved in the menstrual cycle.

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In a report on amenorrhea, Golden and Carlson of the Division of Adolescent Medicine at the Stanford University School of Medicine referenced a 2008 study which found that 98% of

the 2,510 female participants in the study reported reaching menarche (their first menstrual cycle) by the age of 15.¹ Although the study did not specify, a portion of this remaining 2% may in fact be comprised of females experiencing amenorrhea. This report seeks to address the issue of amenorrhea, specifically primary amenorrhea, and the effects of chiropractic care as an alternative to traditional medical treatment options.

Chiropractic's role in this condition is based on the principle that there is a "neurospinal influence" upon the physiology of every organ and system within the body.³ This would include the reproductive and endocrine systems, which are primarily in control of the menstruation process. The chiropractic profession maintains that spinal misalignments, or "vertebral subluxations," cause interference to this neurospinal system and that in turn the interference affects one's state of health.⁴ Based on this premise, by correcting subluxations, chiropractic can reduce nervous system interference⁵ and improve nerve function thereby allowing the body, including the reproductive and endocrine systems, to function properly.

In the following case report, a 25 year old female student with primary amenorrhea sought chiropractic intervention with the hope of improving the condition of her nervous system to ultimately reverse her amenorrheal state.

Case Report

On September 4, 2008, the patient began care at a chiropractic facility specializing in the Gonstead Chiropractic Technique. The patient underwent a full chiropractic evaluation, which included the following elements of the Gonstead system: history, visual inspection, general physical examination, static and motion palpation, static radiography, and instrumentation (thermography)⁶.

History

While the patient's chief complaint was tension headaches, in discussing her past history, the patient revealed that she had never started her menstrual period as a child and that currently she had not experienced a menstrual period in approximately three years. As a child, the patient was instructed by her pediatrician to monitor any presence of a menstrual cycle until the age of 18 and to proceed with medical intervention if no signs or symptoms occurred by that time. At 18 years old the patient still had not experienced any signs of menstruation and was diagnosed with primary amenorrhea. At this time she decided per her pediatrician's and gynecologist's recommendations to begin a synthetic progesterone prescription as well as a daily oral contraceptive as treatment.

While on birth control pills, the patient had a normal menstrual cycle, but also stated that she was unhappy with the side effects she experienced. She discontinued her use of the birth control pills for a period of time she could not recall and then resumed her prescription at a later date. When the patient used birth control her menstrual cycle was regular, occurring each month for approximately four to seven days. Similarly, when she did not take the medication, cessation of her signs and symptoms occurred almost immediately. At age 22, the patient chose to permanently discontinue her use of oral

contraceptives and began exploring natural healthcare methods, including chiropractic.

For a period of three years previous to presenting for the care reported on in this paper the patient received Diversified Technique chiropractic adjustments by several different chiropractors. Although the patient reported that no actual menstruation occurred during this time, she did state that for the first time since discontinuing her birth control she noticed other premenstrual signs and symptoms (weight gain, irritability, increased appetite) that seemed to occur cyclically each month.

Physical Examination

After the patient's history was compiled, a complete physical evaluation of the spine was performed including static and motion palpation, cervical, thoracic and lumbar range of motion testing and a selection of orthopedic and neurological exams. All ranges of motion were found to be within normal limits and orthopedic and neurological exams were negative. Static and motion palpation of the cervical spine revealed tenderness and muscle tension in the atlanto-occipital region on the right side of the patient's spine with hypertonic musculature present from the occiput to the C7 vertebral level.

Moderate pressure to the right splenius capitis muscle and bilaterally to the levator scapulae and trapezius muscles stimulated multiple active trigger points in the cervical region. Edema and swelling was also noted along the right side of the cervical spine. From this information, the chiropractor determined that a spinal misalignment existed at the occiput/C1 vertebral articulation on the right with a Gonstead listing of *PS-RS*. A listing in the Gonstead system is defined as the group of letters which describes the direction in which the vertebra has misaligned.⁷ According to a *PS-RS* occiput listing, the patient's right occipital condyle was misaligned posterior in relation to the right lateral mass of the C1 vertebra and was fixated, or immobilized, in that position.⁷

Evaluation of the pelvic and sacral areas of the spine revealed significant edema and tenderness over the S2 sacral tubercle with an overall decrease in sacral flexion and extension on motion palpation. A lateral lumbopelvic radiograph, provided by the patient from previous chiropractic care, also demonstrated a rudimentary, or underdeveloped, intervertebral disc present between the S1 and S2 sacral segments. The presence of the disc, suggested that the patient's sacrum had not yet fused and instead consisted of individual spinal segments. Based on these findings, the chiropractor determined that a Gonstead listing of *P* was present at the S2 sacral segment. The *P* listing indicated that the S2 segment was fixated posteriorly in relation to the S1 segment and the lowest lumbar vertebra.⁷

Additional evaluation using a Nervoscope, a dual-probed thermography device used by many Gonstead practitioners, yielded bilateral temperature differentials in the cervical and sacral areas suggesting the presence of nerve interference.⁶ As mentioned above, the patient also provided spinal radiographs taken previously at another facility, which subsequently confirmed the spinal misalignments found and ruled out any pathology or fracture. The final diagnosis consisted of

segmental and somatic dysfunction at both the occipitocervical and sacral regions.

Intervention

Following the history and physical exam, the patient was adjusted by a specific, high-velocity, low-amplitude thrust at both the patient's right occiput and S2 sacral segment.⁶ The segments were adjusted according to Gonstead protocol and utilizing the appropriate tables and setups.

To adjust the occiput, the right hand contacted the right side of occiput just above the patient's right ear and a thrust was directed from right to left, posterior to anterior and superior to inferior with the patient seated in a *cervical chair*. Developed specifically for Gonstead, this particular chair has an adjustable hinged back and allows the practitioner to deliver a cervical adjustment from posterior to anterior with a "lift and set motion" while the patient is in a relaxed, seated position.⁶ To adjust the sacral segment, the fingertips of the left hand contacted the sacrum's S2 tubercle and a straight posterior to anterior thrust into the segment with the patient lying on her right side on a chiropractic flat bench was performed.

As part of her care plan, the doctor recommended that the patient return once each week to have her spine analyzed and adjusted as needed. During each visit, only occiput and S2 were adjusted.

Outcomes

On her third visit, the patient reported that her tension headaches were much improved, but she still had not yet experienced a menstrual period. During this visit, the doctor recommended that the patient supplement her chiropractic care with the use of a natural over-the-counter progesterone cream. Following the chiropractor's advice, the patient began a regimen of *Source Naturals* brand progesterone cream shortly after her third visit. On her fourth visit, 19 days after her initial chiropractic evaluation, the patient reported she experienced two days of menstruation for the first time in her lifetime without the use of birth control.

Discussion

As previously mentioned, an adolescent female is diagnosed with primary amenorrhea if she fails to reach menarche by the age of 16 years old. If amenorrhea is suspected, the American Academy of Pediatrics recommends using the following criteria to determine whether or not a patient should undergo additional medical testing:¹

1. She has not had menarche by age 15 years
2. She has not had menarche and more than 3 years have elapsed since thelarche (breast development)
3. She has not had menarche by age 13 years and has no secondary sexual development
4. She has not had menarche by age 14 years and:
 - i. there is a suspicion of an eating disorder or excessive exercise, or
 - ii. there are signs of hirsutism, or
 - iii. there is suspicion of genital outflow obstruction

Upon diagnosis of amenorrhea, further evaluation can help determine the possible clinical factors contributing to the patient's condition. The process is extensive, however, as it can be due to a number of different anatomical, genetic or neuroendocrine abnormalities.⁸

While research demonstrates that most cases of amenorrhea occur as a result of ovarian dysfunction,⁸ anomalies may also exist at the level of the hypothalamus, the pituitary gland, the thyroid gland, the adrenal glands or perhaps even the uterus or vagina.¹ In addition, depending upon which organ(s) is (are) malfunctioning, a patient with amenorrhea will likely have imbalances of any one or multiple hormones related to reproduction including: gonadotropin-releasing hormone (GnRH), follicle stimulating hormone (FSH), leutinizing hormone (LH), corticotropin-releasing hormone (CRH), adrenocorticotropin hormone (ACTH), cortisol, thyroid stimulating hormone (TSH), prolactin, estrogen and progesterone.^{1,9}

Additional inorganic causes of amenorrhea include eating disorders, certain medications and excessive exercise or stress.¹ Many women and adolescent girls fit the criteria for the "Female Athlete Triad," a syndrome including amenorrhea, disordered eating and osteoporosis which often occurs with female long distance runners and gymnasts.² In the case of the Female Athlete Triad both the excessive exercise and the disordered eating put a physiological strain on the body and, as a result affect the "highly sensitive" female reproductive system.²

Once diagnosed, traditional medical treatment of amenorrhea usually involves hormone replacement therapy (HRT), consisting of synthetic estrogen and/or progestin (progesterone) supplementation.¹⁰ DiVasta and Gordon discuss the use of HRT in adolescents stating that "the overall goal of successful HRT is to induce normal secondary sexual characteristics," which includes regular menstruation.¹¹ While the patient in this case never underwent the necessary medical evaluations to determine the source of her amenorrhea, her medical doctors recommended an HRT regimen consisting of a synthetic progesterone supplement to trigger menstruation followed by recurrent use of daily oral contraceptives. In other cases reviewed, there was an overwhelming use of birth control pills in instances of amenorrhea^{5,12,13} and it appears that oral contraceptives are a standard course of treatment for the condition.

The issue with HRT or oral contraceptive use, however, is that research fails to provide sufficient information on the appropriate hormone form and dosage required for each type of patient, making the safety and efficacy of the treatment questionable.¹¹ Concerns also exist surrounding the potential negative effects of the synthetic sex steroids comprising these medications on the skeletal, nervous, and cardiovascular systems.¹¹ Regardless of the effects of HRT, however, no amount of hormonal replacement will fully "correct the underlying pathology"¹⁰ within the patient's body which is causing the amenorrhea to occur.

In contrast to her medical care, chiropractic intervention included procedures to address nerve interference as the possible underlying issue resulting in her condition. In

reviewing the literature on the “neurovertebral influence” on the nervous system, Rome begins by quoting Gray’s Anatomy which states that the “function (of the nervous system) is to control and coordinate all the other organs and structures” of the human body.³ Chiropractic was founded on the premise that “anatomical displacements,” or “subluxations,” of the vertebra of the spine disrupt nervous system function and therefore have a negative effect on one’s health.⁴ If indeed the nervous system is responsible for the control and coordination of all other systems and organs in the body then it is hypothesized that subluxations will bring about disease processes in other regions of the body. More specifically, there is research that addresses the “articular integrity” of the vertebra of the spine and how it affects the autonomic nervous system—the visceral division of the nervous system which regulates the actions of cardiac muscle, smooth muscle and glands.^{3,4} Spinal misalignments or subluxations can consequently have detrimental effects on visceral functions, such as those controlled by the reproductive and endocrine systems.

While there are a number of different theories discussing the cause of subluxation, the Gonstead system maintains that a subluxation is “a vertebral misalignment that results in nerve interference,” which occurs “secondary to the misalignment...at the intervertebral disc.”⁶ Clarence Gonstead, founder of the technique, believed that portions of a damaged intervertebral disc protrude into the intervertebral foramen causing pressure on the nerve in the foramen and ultimately resulting in autonomic nervous system dysfunction.⁶

Furthermore, Gonstead practitioners tend to address the spine and the autonomic nervous system according to its parasympathetic and sympathetic divisions. According to Dr. Gonstead, the parasympathetics are regulated by those nerves from occiput to C5 and also those below the L5 vertebral level, while the sympathetics can be found from C6 to L5.⁶ Due to the opposing forces of the sympathetic and parasympathetic nervous systems, many Gonstead doctors believe that when dealing with an issue of visceral nature, adjustments should never be performed on segments housing both systems on the same visit.⁶

Adhering to Gonstead principles, the chiropractor in this case chose to adjust only occiput and sacrum based not only on exam findings, but also because of their relationship to the parasympathetic nervous system, which is largely in control of reproductive and endocrine function. It was suspected in this particular case that perhaps the patient’s subluxations at the occiput and sacrum and the resultant nerve interference at these locations may have been responsible for her amenorrhea.

Although the current research on chiropractic and primary amenorrhea is scarce, there are a number of cases in the literature addressing the effects of chiropractic on secondary amenorrhea as well as on other reproductive issues such as infertility and dysmenorrhea.

Courtis and Young discuss two cases of females diagnosed with “idiopathic” secondary amenorrhea, in which 18-year-old and 17-year-old students both began menstruating after a total of approximately six to seven weeks of chiropractic care.

Similar to the patient discussed in this paper, the young woman in “Case Report A” first sought medical treatment for her condition and was prescribed an oral contraceptive which caused her to menstruate, but also produced unfavorable side effects. Her chiropractic care included adjustments of the cervical, thoracic, lumbar and pelvic regions of the spine as well as “mobilization” of the cranial sutures of the skull.¹² A specific technique, in this case, was not discussed.

In “Case Report B,” the patient experienced menarche at age 13 and became amenorrheal at age 16. She was also prescribed birth control pills, but in her case menstruation did not result. Patient “B’s” care plan included adjusting the T9/T10 thoracic segments and L5 lumbar segment using the Chiropractic Manipulative Reflex Technique.¹² After six weeks of adjustments, patient “A” experienced menses while patient “B” reported menstruation after seven weeks of care.

Another successful case regarding chiropractic and amenorrhea, involves a diabetic patient who reported being unable to menstruate without the use of oral contraceptives. In this case, the patient received chiropractic adjustments at T7 and the sacrum utilizing the Applied Kinesiology technique, which bases its subluxation findings largely on muscle testing.⁵ In addition to spinal adjustments, the chiropractor performed an adjustment of the patient’s “subluxated” uterus, which he discovered as a result of positive muscle testing upon “challenging,” or eliciting slight pressure to the area of the uterus.⁵ After three weeks of care, the patient began passing blood clots and after a total of four months, she reported her first period without use of the contraceptive medication.

Chiropractic care has also been reported to demonstrate improvements with infertility, which often occurs as a result of amenorrhea. In a case by Sims and Lee, a 23 year old woman with a history of amenorrhea and intermittent oral contraceptive use received Diversified chiropractic adjustments and achieved menstruation for the first time without birth control pills after three and a half months of care.¹³ One month later, the patient, previously diagnosed as infertile, successfully conceived her first child.

Kaminski discusses another infertility case which involves a 31 year old woman who sought chiropractic care because she was experiencing difficulty conceiving her second child. She reported that her menstrual and ovulation cycles were irregular and that her medical doctor diagnosed her with a “lazy [reproductive] system.”¹⁴ After approximately one month of adjustments using the Diversified Technique, the patient’s menstrual cycle began to normalize. Nine months later, with the addition of Network Spinal Analysis and Torque Release Technique in her care plan, the patient reported that she was pregnant.

Cases have also been reported which specify the use of the Gonstead System in cases of infertility. Lyons describes the case of a 27 year old female athlete experiencing infertility who reported a successful conception after just one month of chiropractic care, which included Gonstead adjustments of the cervical, thoracic, lumbar and pelvic regions of the spine.¹⁵

Dysmenorrhea, defined as “menstrual pain that commences

with the onset of blood loss from the uterus, and usually lasts 48-72 hours," has also seen success with chiropractic care.¹⁶ A study by Genders *et al* assessed the possibility of a clinical relationship between dysmenorrhea and dysfunction of the sacroiliac joint.¹⁶ Using the Gonstead system of analysis and adjusting, the study concluded that indeed there was a significant correlation between dysfunctional motion palpation of the sacroiliac joint and dysmenorrhea.

Based on the literature and the results of this case, there is a possibility that chiropractic can play a role in dealing with amenorrhea and other related female health issues. With respect to the case in this report, however, it is important to address the patient's use of natural progesterone cream as a possible contributing factor to achieving menstruation. Natural progesterone cream is a pharmaceutical grade transdermal progesterone supplement made from soy, wild yam root and other natural ingredients.¹⁷ For premenopausal women, recommended use includes application of $\frac{1}{4}$ to $\frac{1}{2}$ of a teaspoon of the cream to a smooth area of the skin twice daily for the 14 days prior to menstruation.¹⁷ As the patient in this case did not experience any amount of menstruation, her chiropractor suggested she apply the cream on a daily basis.

Due to the resistance met by many medical professionals, peer-reviewed literature surrounding the use of natural progesterone as opposed to synthetic progesterone is nearly non-existent. Support for using progesterone transdermally (through the skin) over orally, especially when dealing with adolescent patients, is discussed by DiVasta and Gordon, yet their research surrounds the use of a synthetic version of the hormone.¹¹

Though not peer-reviewed, the literature and research of John R. Lee, MD provides strong support for natural hormone supplementation, especially transdermal progesterone. Lee maintains that synthetic hormones, which differ in "molecular configuration" from hormones made in the body, "do not provide the same total physiologic activity as the hormones they are intended to replace and...will provoke undesirable side effects not found with the human hormone."¹⁸ On the other hand, sex hormones from natural sources, which he terms "bioidentical" hormones, are received and utilized in the same manner and with the same success as those hormones actually created in the body.¹⁸

In the particular case of the patient in this report, perhaps the use of bioidentical progesterone cream along with the chiropractor's specific adjustments of occiput and sacrum provided her body with the necessary *natural* neuroendocrine balance that it appeared to be lacking. Without the use of necessary control mechanisms in introducing the natural progesterone cream, it is difficult to draw definitive conclusions about the effectiveness of either intervention for amenorrhea.

Conclusion

An interesting observation in this case and in the literature, is the common practice of prescribing oral contraceptives as a treatment for amenorrhea. Of further consequence is the resistance or dissatisfaction the women in these cases felt toward the medication, despite the fact that it did help them

achieve menstruation. In using birth control as a hormone replacement, the patient is essentially tricking the body into thinking its hormones are in proper balance. Reproductive and endocrine function will likely normalize, but the underlying cause of the patient's amenorrhea will still exist. Many women are aware of this concept, especially with natural healthcare approaches gaining popularity, and are seeking alternative solutions to their female-related health problems.

As a healthcare model that works with the body's own natural mechanisms to restore balance and homeostasis, chiropractic focuses on the root of the problem rather than the resultant symptoms of a condition. Chiropractic addresses the nervous system—the main control station for the entire body—and reduces or removes any interference present in the system to allow the rest of body to function at its fullest potential.

The unfortunate limitation in this particular case is that since the patient began using the natural progesterone cream within the same timeframe of receiving chiropractic care, it is difficult to determine which was the primary factor in producing the outcome. If the progesterone cream was the primary factor causing menstruation, this case supports natural hormone replacement therapy, which while beneficial still does not *correct* the pathological process occurring within the body. Due to the fact that the progesterone cream was used in a relatively short period of time in comparison to the chiropractic care, we suggest that her menstrual period occurred more likely as a result of correcting her spinal subluxations.

As demonstrated by this case report and the related research, chiropractic may be beneficial to women experiencing amenorrhea and other reproductive issues. The research is scant, however, and more information regarding the benefits of chiropractic as a natural means of achieving health must be produced and made available to women dealing with female-related conditions. More importantly, parents of adolescent girls with issues such as amenorrhea need to be educated that a healthy nervous system from birth and throughout adolescence, achieved with the help of chiropractic care, may be a potential contributing clinical factor to correcting the underlying cause of menstrual dysfunction before it is even apparent.

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