Introduction

In a secondary analysis of the 2007 National Health Interview Survey, an analysis for women between the ages of 18 and 49 years who were pregnant or had children less than 1 year old found that 37% of pregnant women and 28% of postpartum women reported using CAM in the last 12 months compared with 40% of nonpregnant/non-postpartum women. Given the multitude of changes, both physiologically and biomechanically during pregnancy a number of pregnancy-related health concerns arise (i.e., low back and/or pelvic pain, headaches, morning sickness, gestational diabetes), and the use of complementary and alternative medicine (CAM) among pregnant women has been established to address a specific complaint and/or promote their health and wellbeing. For chronic pain - pelvic pain for example, the medical approach/perspective is to provide opioids due to their potency despite associated risks for adverse effects, abuse, diversion, and addiction. Concerns regarding these side effects for both the mother and fetus motivates expectant mothers to use CAM. Of the practitioner-based CAM therapies, chiropractic remains a popular choice of care, given its popularity among adults for neck pain and low back pain. Chiropractic therefore is also popular among pregnant women to address both pregnancy-related MSK complains and for wellness care. For pregnant patients presenting to chiropractors, it is not

CASE STUDY

Chiropractic Care of a Pregnant Patient Presenting With a History of Migraine Headaches, Hypothyroidism, and Tachycardia

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Abstract

Objective: To describe the care of a pregnant patient presenting with a history of migraine headaches, hypothyroidism, and tachycardia.

Clinical Features: A 28-year-old woman presented for chiropractic care at 14 weeks gestation with a history of prior Caesarean section. She sought chiropractic care to improve her chances of a trial of labor and vaginal delivery for her current pregnancy. History revealed the patient as diagnosed with migraine headaches, hypothyroidism and tachycardia. During care, the patient experienced visual field disturbances and neurological deficits in the face and upper extremities.

Intervention and Outcome: The patient was cared for with diversified technique consisting of the Gonstead Technique, Thompson Drop, and Webster Technique. She attended care for a total of 33 visits of 7 months duration. The result was a successful trial of labor at 40 weeks plus 4 days and delivery of a healthy baby girl.

Conclusion: This case report provides supporting evidence on the effectiveness of chiropractic as described in the care of a pregnant woman.

Key Words: Chiropractic, pregnancy, migraines, hypothyroidism, tachycardia, vertebral subluxation, adjustment
uncommon for them to present with comorbidities. In this era of collaborative care, an understanding of the implications of these comorbidities to chiropractic care is of the utmost importance. To inform evidence-based practice (EBP), we present the case of a pregnant patient presenting for care with comorbidities of migraine headaches, hypothyroidism and tachycardia.

Case Report

History

A 28-year-old woman presented for chiropractic consultation and possible care at 14 weeks gestation with a history of prior Cesarean delivery. She sought chiropractic care because she felt that it would help improve her chances of a trial of labor and vaginal delivery for her current pregnancy. A review of systems and history examination revealed the patient received a medical diagnosis of hypothyroidism with mild tachycardia and occasional migraine-type headaches.

Examination

A spinal postural analysis demonstrated a mild head and pelvic tilt with a moderate lateral ribcage shift and forward head carriage (see Figures 1A and 1B). In addition to inspection, chiropractic examination of the patient utilized the Webster sacral analysis along with range of motion and static and dynamic palpation. Vertebral subluxations were identified in the upper cervical, pelvic, and upper thoracic spine. The patient was scheduled for care and adjusted utilizing the Gonstead cervical chair, Thompson drop and the Webster Technique.

Intervention & Outcomes

The patient was cared for throughout her pregnancy for a total of 33 visits of seven months duration. Throughout the course of treatment, the patient’s most common complaints were mild headaches and sacral pain. At her 26th week of gestation while away visiting family, the patient experienced “floaters” in the visual field of both eyes, which improved with rest. Immediately following this, she reported losing the inferior aspect of her peripheral vision.

She described a numb, tingling sensation in her left hand and loss of sensation on the left side of her face. Her family took her to the local hospital, where a complete examination was performed, including ultrasound imaging of the carotid and vertebral arteries, cranium and cervical spine magnetic resonance imaging (MRI) and computed tomography (CT). All were negative for any pathology. Shortly thereafter, the aforementioned symptoms spontaneously remitted, and she was released from the hospital.

The patient resumed chiropractic care upon returning home and scheduled a follow-up visit with a local neurologist, who reported finding no abnormalities. At her 30th week of gestation, the patient fell at home and her obstetrician’s palpation found her fetus had moved from vertex to a transverse lie.

After two chiropractic appointments and performing a set of recommended inversion exercises at home, the patient reported feeling the baby had shifted back to vertex. This was confirmed two weeks later by her obstetrician’s internal pelvic examination. During her 38th week of gestation, the patient reported a visual field disturbance in her right eye which limited her peripheral vision. She said her head had become “cloudy” and she felt disoriented. She then reported experiencing tingling in her right hand which wouldn’t go away with movement.

The patient reported feeling the same feeling in her face as if it had fallen asleep, and then she felt a headache. The patient said this was the same pattern of symptoms as the previous episode, but on other side. George’s maneuver for vertebrobasilar artery insufficiency and auscultation for carotid bruits were negative. The patient was adjusted in the cervical spine based on findings of spinal subluxations. Two days after her visit, the patient reported complete resolution of her symptoms.

The patient was able to successfully attempt a trial of labor at 40 weeks plus 4 days and delivered a baby girl weighing 8 lbs. 9 oz. and measuring 21 inches long. She reported not feeling the urge to push until the very end of the delivery, and said her arms and legs were sore from attempting various birthing positions. The patient elected to continue chiropractic care post-partum for 13 visits over 14 weeks before being released to a maintenance program of bimonthly visits.

Discussion

Given the clinical presentation of the patient presented, a number of issues are ripe for discussion and reflects the complexity of chiropractic care beyond the mere application of SMT. Foremost are the patient’s reported visual disturbances and paresthesia during her second trimester. During pregnancy, a number of neurologic disorders such as eclampsia, pseudotumor cerebri, obstetric nerve palsies, subarachnoid hemorrhage, pituitary tumors, and choriocarcinoma can develop.

Of interest in the case reported is the possibility of stroke in this patient given her neurological complaints. Secondly, we have a patient presenting for care motivated by the need to have a vaginal birth. Despite evidence that VBAC is a reasonable and safe choice for the majority of women with prior cesarean, the attending clinician must still be cognizant for the possibility of a uterine rupture resulting in maternal and perinatal morbidity and mortality. Third, the patient presented with a history of migraine headaches, hypothyroidism and tachycardia. The co-morbidities have implications to chiropractic care.

Stuber and colleagues noted that pregnancy and the postpartum period places the pregnant woman at increased risk for thrombophilia and that thromboembolism or pulmonary embolism has been identified as the leading cause of maternal death in the United States. Medical conditions associated with stroke in pregnancy include hypertension, diabetes, sickle cell disease, systemic lupus erythematosus, thrombophilia, smoking and heart disease and migraine headaches.

Risk factors for stroke during pregnancy include age over 35
years or older, alcohol and recreational drug abuse (particularly cocaine) as well as a lupus anticoagulant or anticardiolipin antibody and multiple gestation and greater parity. Complications of pregnancy that are significant risk factors include postpartum hemorrhage, preeclampsia and gestational hypertension, transfusion and postpartum infection.

The clinical history or physical examination is not sufficiently sensitive to address the patient suffering from stroke. Brain imaging in the form of CT or MRI is recommended as quickly as possible after symptom onset or the suspicion of stroke arises. Concerns have been raised regarding the potential teratogenic effects of MRI exposure in early pregnancy. However, MRI remains the preferred imaging option in pregnancy. CT scanning does expose the fetus to radiation. However, if MRI is not available, the benefits of CT scanning greatly outweigh the risks in this situation and should be performed.

It is worth pointing out that migraine with an accompanying aura is still sufficiently common in pregnancy that it should be considered in the differential diagnosis, particularly if there is an evolving neurological deficit rather than an abrupt onset. Neurological examination, augmented by imaging studies (i.e., MRI and CT) demonstrated no perceptible defect or neurological deficit in the patient reported. In addition, the patient was “cleared” by a maternal fetal medicine specialist. The attending chiropractor performed George’s Test along with auscultation for possible bruits prior to adjusting the patient. Note that the patient’s neurological symptoms and visual disturbances occurred prior to the patient being adjusted and 3 months after onset of these symptoms, similar symptoms occurred on the contralateral side. Two days after receiving chiropractic adjustments, including to the cervical spine, her visual and neurological symptoms resolved.

This case report is also unique in that patient reported on attempted a trial of labor after cesarean (TOLAC) with successful outcomes (i.e., VBAC - “successful” trial of labor resulting in a vaginal birth) despite a history of pelvic trauma that repositioned her fetus from vertex to transverse with legs down at 30 weeks. Following two chiropractic visits along with recommended home activities (i.e., inversion exercises), the patient’s fetus reverted from transverse lie (i.e., fetus is lying sideways with the head in one flank and the buttocks in the other) to vertex position (i.e., the fetus presents by the head, with the best fit into the lower pelvis in the occipito-anterior position). This temporal association with the patient’s care via Webster Technique further emphasizes the Webster Technique’s role not as a breech turning technique, but a technique to balance the bony pelvis and soft tissue structures. It is our contention that trauma and the resultant mechanical deformation of the pelvis were related to a change in fetal position.

Chiropractic care to restore a normal physiological relationship within the pelvic bowl facilitated the fetus to regain the vertex position. While obviously important to every expecting mother, this may be especially important to a mother requesting a TOLAC, as it may address the original cause of her prior surgical delivery. Alcantara and Hamel described the chiropractic care of a 29-year-old gravid female with complaints of low back pain. The patient had two surgical Caesarean deliveries for two previous births due to “failure to advance during labor and associated fetal distress.” Similar to the case presented, this 29-year-old patient wanted to undergo a trial of chiropractic care to possibly enable her to have a natural childbirth. The patient was cared for primarily with the Webster Technique, employing a drop-piece mechanism for the sacral adjustments. The patient’s low back complaints were ameliorated along with a successful vaginal birth.

Migraine Headaches

For the pregnant patient presenting for chiropractic care with headaches and migraines in particular, there is an urgent need to recognize the “red flags” that requires the need for urgent medical referral from those that are benign. It should be noted that there is an association between migraine and risk of vascular disease during pregnancy. In a systematic review of the literature by Wabnitt and Bushnell, the authors found an increased risk for gestational hypertension and preeclampsia among migraineurs (compared to nonmigraineurs) as well as thromboembolic events and increased risk of ischemic stroke, particularly with active migraine. We are aware of one study describing the chiropractic care of a pregnant patient with a primary complaint of migraine headaches. Alcantara and Cossette presented a 24-year-old gravid female with chronic migraine headaches since age 12 years.

Previous unsuccessful care included osteopathy, physical therapy, massage and medication. Non-steroidal anti-inflammatory medication with codeine provided minor and temporary relief. Chiropractic care involving spinal manipulative therapy (SMT) and adjunctive therapies resulted in symptom improvement and independence from medication. The authors raised the possibility that chiropractic is a viable alternative to medication during pregnancy.

Borkhuis and Crowell described the care of a 31-year-old female with a chief complaint of upper back and neck tension as well as tension and migraine headaches. The interest of the paper was that following one adjustment, the patient reported normal menstruation and following eight adjustments the patient reported she had conceived. The patient’s headache complaints were also reported as abating.

Alcantara et al. examined a stroke patient’s preexisting conditions of pregnancy, migraine headaches and systemic lupus erythematosus as risk factors for stroke. The authors argued that the increased risks of vertebrobasilar artery (VBA) insufficiency or stroke associated with chiropractic care are more likely due to patients with headache and neck pain. The key to the attending chiropractor’s decision tree in this case to adjust the patient was the “all-clear” signal based on imaging studies and from the neurologist’s findings. According to the attending chiropractor, this case is a good example of when possible stroke symptoms are present but in reality may be related to the presence of spinal subluxations.

Hypothyroidism

The incidence of hypothyroidism in pregnant women has been

Hypothyroidism

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estimated to be 0.3–0.7%. The causes of hypothyroidism during pregnancy include Hashimoto disease, Post-thyroid ablation/removal, iodine deficiency, primary atriopeptic hypothyroidism, infiltrative disease (e.g., sarcoid, amyloidosis) and thyroid stimulating hormone-dependent hypothyroidism. Autoimmune thyroid condition such as Hashimoto’s thyroiditis and post-thyroid ablation therapy are the most common causes of hypothyroidism. The clinical signs and symptoms of a patient with hypothyroidism include reports of having low energy, inappropriate weight gain for gestational age, constipation, goiter, cold intolerance, low pulse rate.

Hypothyroidism (including subclinical hypothyroidism) may lead to obstetric and neonatal complications as well as infertility. A number of studies within the last decade have underscored the critical importance of maintaining adequate fetal thyroid hormone levels during pregnancy to ensure normal central and peripheral nervous system maturation. Low maternal circulating thyroxine levels have been associated with a significant decrement in child IQ and development. In addition to risks for the fetus, hypothyroidism during pregnancy confers an increased risk for obstetrical complications such as intrauterine fetal death, gestational hypertension, placental abruption and poor perinatal outcomes.

Hypothyroidism in pregnancy is treated with a larger dose of thyroxine compared to non-pregnant women. Commercially available thyroid dietary supplements are available. However, keep in mind that the amounts of thyroid hormone in these easily accessible dietary supplements can potentially lead to iatrogenic thyrotoxicosis. Therefore, it is of the utmost importance to monitor the thyroxin levels of the patient during supplementation. During the postpartum period, thyroid dysfunction occurs in 50% of women found to have thyroid peroxidase antibodies in early pregnancy. The hypothyroid phase is symptomatic and also requires thyroxine therapy. A high incidence (i.e., 25-30% in those affected) of permanent hypothyroidism have been found in these women. Women with transient post-partum hypothyroidism should be monitored frequently, as there is a 50% chance of these patients developing hypothyroidism during the next 7 years.

To the best of our knowledge, this is the first reporting of a pregnant patient presenting for chiropractic care with a comorbidity of hypothyroidism. A number of publications have addressed the topic of hypothyroidism but never in the context of pregnancy care.

With respect to the patient’s tachycardia, hemodynamic changes during pregnancy such as increased blood volume and cardiac output, decreased arterial blood pressure and decreased systemic vascular resistance have been observed along with an increase in maternal heart rate (tachycardia). Most of these changes are almost fully reversible and occurs within weeks and months after delivery.

In closing, we caution the reader on the lack of generalizability the case reported. The lack of a control group, spontaneous remission, self-limiting course and natural history of the disorder, subjective validation, and expectations for clinical resolution on the part of the patient make cause and effect inferences difficult. Nonetheless, the purpose of this case report was to share the clinical experience of caring for a pregnant patient with a multiple symptom complex. Arguably, it is from such clinical observations that form the basis for generalizations in clinical practice.

Conclusion

We described the care of a pregnant patient presenting for care with multiple symptom complex in addition to successful VBAC. We described the patient’s presenting co-morbidities as they are relevant to chiropractic care. We support further documentation in the chiropractic care of such patients in the interest of evidence-informed practice.

References


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**Figure 1A.** Antetroposterior view of the patient’s posture.

**Figure 1B.** Lateral view of the patient’s posture.