CONSERVATIVE MANAGEMENT OF GROIN PAIN DURING PREGNANCY: A DESCRIPTIVE CASE STUDY

DEBORAH DUCAR, DC^a, CLAYTON D. SKAGGS, DC^B

^aResearch Resident, Department of Research, Logan College of Chiropractic.

^BResearch Department, Logan College of Chiropractic.

Submit requests for reprints to: Dr. Deborah Ducar, Research Resident, Department of Research, Logan College of Chiropractic, 1851 Schoettler Rd., Chesterfield, MO 63017.

Paper submitted May 5, 2005.

Sources of Support: No funds were received for the preparation of this manuscript.

ABSTRACT

Objective: To describe the management of groin pain occurring during pregnancy using a comprehensive conservative approach.

Clinical Features: A 32-year-old woman 20 weeks into her pregnancy experienced difficulty standing and moving due to groin pain. She also had pain with forward bending and a positive long dorsal ligament test. She had a Quebec Task and Force Disability Scale questionnaire score of 122 and rated her pain as an 8/10 on a visual analog scale.

Intervention and outcome: Active Release Technique, home relaxation exercises, patient education, and ergonomic training were provided over approximately 3 weeks (3 treatments). Her Quebec score was 62 and she had no pain after treatment.

Conclusion: A comprehensive treatment plan of soft tissue release, patient education and home exercises appeared to help minimize this patient's groin pain associated with pregnancy. (*J Chiropr Med* 2005;4:195–199)

Key Indexing Terms: Chiropractic; Pregnancy; Groin

INTRODUCTION

Although musculoskeletal pain is a major complaint in pregnancy, little attention is given to its assessment and treatment. While low back pain (LBP) and

posterior pelvic pain in pregnancy have been studied,^{1–3} groin pain and/or pubic pain during pregnancy are poorly reported. Pubic/groin pain (PGP) is often viewed as a normal condition that is expected and one that will subside after birth. Accordingly, women frequently report being ignored and therefore ignore the problem themselves.⁴ Several studies suggest that women who report PGP during pregnancy have increased pain severity and increased disability.^{2,5} In fact, women with PGP during pregnancy and post-partum have reported a negative impact to job performance, mental and sexual health, childrearing and even inhibited further pregnancy.^{4,5} Current treatment approaches include rest, pelvic belts and exercise. While these are applied clinically, little has been reported regarding their utility or success. We review a case where a comprehensive conservative approach seemed to be successful for decreasing PGP throughout pregnancy.

As with back pain in pregnancy, PGP cannot be explained solely by biomechanical or hormonal factors. There is likely a combination of physical and psychological factors that lead to pregnant women experiencing pain in this region. Possible mechanisms for LBP and pelvic pain that have been suggested are: enzymatic (hyaluronidase), hormonal (relaxin), metabolic (calcium), mechanical (pelvic instability, sacral angle >55 degrees), traumatic and degenerative processes.^{6,7} Albert et al classified 4 syndromes of pregnancy-related pelvic pain: pelvic girdle syndrome, symphysiolyysis, one-sided sacro-iliac joint syndrome, and double sided sacro-iliac joint syndrome. Pelvic girdle syndrome is described as daily pain in all three pelvic joints. Symphysiolyysis is daily pain in the pubic symphysis. One-sided sacro-iliac joint syndrome is daily pain in one joint, while double sided is daily pain in two joints. They determined that pelvic girdle syndrome, pain that includes the posterior pelvic joints and pubic symphysis, had the worst prognosis for pain severity in women during pregnancy and post partum. Additionally, they found in the more severe cases, that

pain persists in women as long as two years after childbirth.⁵

Another theory for PGP is symphysis pubis dysfunction. Most pregnancies are associated with an increased width and vertical shift of the pubic bones due to an increased laxity of the ligaments beginning in the first trimester.⁶ This pelvic girdle relaxation is often used to explain pain in the pelvic region during pregnancy. However, in an attempt to understand this phenomenon, Bjorklund et al found that there is poor correlation to the degree of symphyseal distention and the severity of pelvic pain during pregnancy and/or after childbirth.⁶

Several authors have suggested varied combinations of manual therapy and exercise for pregnancy-related pain.^{1,2,8,9} Recently, Stuge demonstrated success by providing specific stabilization exercise to a population of women with post-partum pain.⁹ We hypothesized that conservative treatment found successful for musculoskeletal pain in the non-pregnant population will be beneficial in women who are pregnant. Based on a model that combines patient education, manual therapy, and stabilization exercise our preliminary results have been positive.¹⁰ This descriptive case study used this functional approach combining patient education, manual therapy and stabilization exercise.

CASE REPORT

A 32-year-old woman presented to her obstetric practitioner for an initial prenatal visit. At the time of exam, her gestation was approximately 20 weeks and she was 151.8 lbs at 5'3" tall. She has a history of hypertension, asthma and depression. She was seen 2 times by her obstetric practitioner and then referred to the Musculoskeletal Pain in Pregnancy Clinic (MSPP).

The MSPP is located at Barnes Jewish Hospital in St. Louis, Missouri and is part of the Department of Obstetrics at Washington University School of Medicine. Chiropractic physicians and chiropractic interns staff the MSPP and coordinate care with obstetricians, obstetric residents and nurse practitioners. The patient's gestation was approximately 21 weeks at her first appointment to the MSPP. A Quebec Task and Force Disability Scale questionnaire (QT) was completed along with an initial visual analogue scale (VAS). The QT averaged a 5 difficulty for most of the tasks and a comprehensive score of 122.

Activities that included bending or walking caused the most difficulty. The VAS was rated as an 8. Her primary complaint was LBP and right-sided groin pain that she stated began with the growth of the baby. Her initial exam noted guarded movements from rising from a seated position and moving from the chair to the exam table.

A long dorsal ligament test (LDLT) elicited pain on the right side. The LDLT is a pain provocation test described by Vleeming.¹¹ It has demonstrated high sensitivity and high correlation to the pelvic pain provocation test for women with LBP and/or posterior pelvic pain in pregnancy.¹¹ In this test, the patient is tested for pain upon bilateral palpation of the long dorsal ligament.

Forward flexion was painful for the patient to perform. The forward flexion test (FFT), also known as Piedallus' test, was performed yielded a positive on the left. The FFT clues the practitioner on soft tissue mobility in the low back or blockage of one of the SI joints. The patient stands and flexes forward while the practitioner observes and applies light palpation to the posterior lumbo-sacral spine and sacroiliac joints. The screen is positive when there is asymmetric motion or tension of the hip extension mechanism.

It was very painful for her to lift her legs in a supine position therefore the straight leg raise (SLR), active straight leg raise (ASLR) and pelvic pain provocation test were not performed. The SLR is used as a diagnostic test for both elastic (passive muscle stretch test) and non-elastic (neurogenic) pathology.^{12,13} Kristiansson found SLR to be positive for neurogenic pain in less than 3% of women during and after pregnancy.² It is performed with the patient supine. The practitioner raises the extended leg and the degree is measured where the patient feels pain. It is important to differentiate whether the patient is feeling pain in the low back or tightness in the hamstrings. The ASLR has demonstrated reliability and validity for LBP and pelvic pain in pregnancy.^{5,14,15} and has been correlated with mobility in the pelvic joints and the strength of the hip muscles. It was also shown to discriminate between healthy subjects and patients with posterior pelvic pain in pregnancy.^{14,15} The ASLR is conducted by having the supine patient actively raise the leg off the table towards the ceiling keeping the leg fully extended. The practitioner notes the ability and ease

at which the leg is raised. The practitioner then has the patient rate their ability to raise each leg (Fig 1).

No hypertonicity was noted in the pyramidalis, but moderate hypertonicity was discovered in her right adductors. She received Active Release Technique (ART) to her left hamstring, left dorsal sacral ligament and right adductors (Fig 2). She was given a home relaxation exercise for her adductors and told to return in one week.

The next visit (1 week later) showed the groin pain had resolved, however, she was still having right-sided LBP. Forward flexion still caused slight pain and was positive on the right side. There was no pain on palpation to any structure tested. The patient could perform the pelvic pain provocation test (P4), ASLR and SLR during this visit. SLR and ASLR were negative and P4 was positive on the right for low back pain. The P4 is a pain provocation test first described by Ostegaard.¹ The P4 has demonstrated high sensitivity in previous studies on women with LBP and or posterior pelvic pain during and after pregnancy.^{2,16,17} The patient is in a supine position with the knee and hip flexed to 90 degrees. The practitioner applies firm pressure on the femur to put posterior pressure on the posterior pelvis and records the location of pain (Fig 3). This test differ-

Figure 1. Active straight leg raise (ASLR). The test is performed as follows: The patient is positioned supine on the examination table and asked to, actively raise the legs, one at a time, above the table 12 inches without bending the knee. The patient is then asked to score the impairment on a 6-point scale with the following choices: 0 (not difficult at all), 1 (minimally difficult), 2 (somewhat difficult), 3 (fairly difficult), 4 (very difficult), 5 (unable to perform).

Figure 2. Active Release Technique being performed on the right adductors.

entiates between pelvic related pain and low back pain.

Visual inspection revealed hypertonicity of her right lumbar spine musculature. As a result of her pain patterns and positive P4 test, ART was performed on her right lumbar spine erector spinae muscles, specifically targeting the multifidus. Forward flexion and the P4 test were less painful after treatment. She was taught the cat/camel home exercise at the end of the visit. The cat/camel exercise has the patient in the quadruped position. The patient flexes

Figure 3. Posterior pelvic pain in pregnancy test (P4). The test is performed with the patient in the supine position. The practitioner will flex the knee and hip to approximately ninety degrees. In that position, the practitioner will apply firm pressure posteriorly and record pain and location of pain.

the spine by tucking the chin to the chest and arching the back toward the ceiling. Then, the motion is reversed slowly to extend the neck and extend the back by dropping the stomach toward the floor (Fig 4). The purpose of the exercise is to promote mobilization in the spine and muscle control. She was encouraged and educated on the importance of staying active to avoid deconditioning and weakness that can lead to pain recurrence. Proper bending and lifting mechanics were also reviewed. Her occupation involved prolonged standing, therefore she was told to prop a foot on a low box or raised area when standing to relieve pressure off her low back.

She returned for follow up in one week with no complaints. All LBP and PGP had dissipated. The LDLT, FFT, PPPT, SLR, and ASLR were all negative. A follow up questionnaire showed her VAS had decreased to 0. Her QT averaged a 1 difficulty for most activities and her two worst were traveling in a car for 1 hour or standing for 20–30 min. Her comprehensive score decreased to a 34. The patient was advised to continue her exercises and return for a follow up.

A follow-up QT was given 8 weeks later. Most activities averaged a 1 for difficulty and a comprehensive score of a 62. The activities that caused her the most problems were moving heavy objects or walking long distances. Her VAS remained at a zero. The

Figure 4. Cat/camel home exercise. The patient flexes the spine by tucking the chin to the chest and arching the back toward the ceiling. Then, the motion is reversed slowly to extend the neck and extend the back by dropping the stomach toward the floor. The purpose of the exercise is to promote mobilization in the spine and muscle control.

patient admitted that she had not been as consistent with her exercises over the past couple months as she was in the beginning of treatment.

DISCUSSION

As described in the case report, we used a test battery of several diagnostic and functional exams to provide diagnostic information relevant to PGP. The selections of tests was based on face validity and intraexaminer reliability.¹⁸ Details pertaining to each test are presented in the case report; thus, no further rationale is presented here.

This study demonstrates the potential benefits of a conservative approach for low back pain and groin pain in pregnancy. The soft tissue manipulation, ART, seemed effective at resolving the patient's pain and quickening her ability to perform exercise and return to normal activities. ART is a procedure used to treat soft tissue problems involving muscles, tendons, ligaments, and nerves. ART releases soft-tissue tension by lengthening hypertrophied or shortened muscles and connective tissue against a specific manual pressure.¹⁹ In this case the adductor magnus was found to be shortened and hypertonic causing tension on the pubic ramus and pelvis. Utilizing ART, the muscle tension was released and immediately altered pain in the groin.

The woman in this study responded very well to specific stabilization exercises. While previous studies have suggested stabilization exercise is effective for LBP and or posterior pelvic pain⁹ there is no report for application to PGP. Our results exemplify how effective exercises can be very simple, yet targeted, to the problems associated in PGP in pregnancy. This type of exercise instruction follows an approach that "spares the tissues" involved in pain generation or injury.²⁰ Therefore, when prescribing exercises such as self-relaxation of the adductors, it is vital to have accuracy in the diagnosis and to insure the patients understanding and skill. Too much recruitment of the adductors and/or recruitment of the opposing muscles can result in a less desirable or negative outcome. Simply handing out a brochure or exercise sheet will usually not suffice.²¹

Pelvic belts have been described for various types of pelvic pain in pregnancy. Their benefit however, seems to be limited to a small percentage of women in pain.²² We suspect that an active approach, either

as a precursor or adjunctive to pelvic belting, might be important for improving the success with belt use.

It has been shown that musculoskeletal pain in pregnancy is associated with increased use of pain medication and poor sleep.¹⁰ The use of pain medication in pregnancy is largely discouraged due to known complications to the mother and fetus.^{23,24} Additionally, it is suspected that severe pain intensity, over a prolonged period of time, could influence early and/or emergency delivery. Accordingly, as previously stated, such experiences involving PGP in pregnancy can lead to women avoiding future pregnancies.²⁵ Therefore, our case study identifies a conservative solution that could significantly reduce the morbidity associated with PGP pain in pregnancy.

CONCLUSIONS

This case study highlights a poorly studied problem in an important population in our society. PGP appears to carry a more severe complexity than LBP or posterior pelvic pain in pregnancy. This case report suggests that a conservative approach can be successful. It is our hope that this report will increase awareness of such problems and stimulate more comprehensive clinical studies in this area.

REFERENCES

- Ostgaard HC, Andersson GBJ, Karlsson K. Prevalence of back pain in pregnancy. *Spine* 1991;16:549–52.
- Kristiansson P, Svarsudd K, Von Schoultz B. Back pain during pregnancy: a prospective study. *Spine* 1996;21:702–9.
- Orvieto R, Achiron A, Ben-Rafael Z, Gelernter I, Achiron R. Low-back pain of pregnancy. *Acta Obstet Gynecol Scand* 1994;73:209–14.
- Berg G, Hammar M, Moller-Nielsen J, Linden U, Thorblad J. Low back pain during pregnancy. *Obstet Gynecol* 1988;71:71–5.
- Albert H, Godskesen M, Westergaard J. Prognosis in four syndromes of pregnancy-related pelvic pain. *Acta Obstet Gynecol Scand* 2001;80:505–10.
- Bjorklund K, Nordstrom M, Bergstrom S. Sonographic assessment of symphyseal joint distention during pregnancy and post partum with special reference to pelvic pain. *Acta Obstet Gynecol Scand* 1999;78:125–30.
- Owens K, Pearson A, Mason G. Symphysis pubis dysfunction—a cause of significant obstetric morbidity. *Eur J Obstet Gynecol Reprod Biol* 2002;105:143–6.
- Daly JM, Frame PS, Rapoza PA. Sacroiliac subluxation: a common, treatable cause of low-back pain in pregnancy. *Fam Pract Res J* 1991;22:149–59.
- Stuge BM, Kirkesola G. The efficacy of a specific stabilization exercise program in the treatment of patients with peripartum pelvic pain after pregnancy: a randomized controlled trial. *Proceedings of the 4th Interdisciplinary World Congress on Low Back and Pelvic Pain*; 2001 Nov 8–10; Montreal, Canada. Montreal: World Congress on Low Back and Pelvic Pain; 2001.
- Skaggs CD, Gross G, Ducar D, Thompson PA, Nelson DM. A comprehensive musculoskeletal management program reduces pain and disability in pregnancy. *Proceedings of the 5th Interdisciplinary World Congress on Low Back and Pelvic Pain*. 2004 Nov 10–13; Melbourne, Australia. Melbourne: World Congress on Low Back and Pelvic Pain; 2004.
- Vleeming A, Devries HJ, Mens JMA, Van Wingerden JP. Possible role of the long dorsal sacroiliac ligament in women with peripartum pelvic pain. *Acta Obstet Gynecol Scand* 2002;81:430–6.
- Goeken LN. Instrumental straight-leg raising: results in patients. *Arch Phys Med Rehabil* 1994;75: 470–7.
- McCombe PF, Fairband JCT, Cockersole BC, Pynsent PB. Reproducibility of physical signs in low-back pain. *Spine* 1989;14:908–18.
- Mens JMA, Vleeming A, Snijders CJ, Stam HJ, Ginai AZ. The active straight leg raising test and mobility of the pelvic joints. *Eur Spine J* 1999;8:468–73.
- Mens JMA, Vleeming A, Snijders CJ, Koes BW, Stam HJ. Validity of the active straight leg raise test for measuring disease severity in patients with posterior pelvic pain after pregnancy. *Spine* 2002;27:196–200.
- Ostgaard HC, Zetherstrom G, Roos-Hansson E, Svanberg B. Reduction of back and posterior pelvic pain in pregnancy. *Spine* 1994;19:894–900.
- Albert HB, Godskesen M, Westergaard JG. Evaluation of clinical tests used in classification procedures in pregnancy-related pelvic joint pain. *Eur Spine J* 2000;9:161–6.
- Mens JMA, Vleeming A, Snijders CJ, Ronchetti I, Ginai AZ, Stam HJ. Responsiveness of outcome measurements in rehabilitation of patients with posterior pelvic pain since pregnancy. *Spine* 2002;27:1110–5.
- Leahy PM. *Active Release Techniques: soft tissue management system*. Colorado Springs, CO; 1999.
- McGill S. *Ultimate back fitness and performance*. Waterloo, Ontario: Wabuno Publ; 2004.
- Friedrich M, Cermak T, Maderbacher P. The effect of brochure use versus therapist teaching on patients performing therapeutic exercise and on changes in impairment status. *Phys Ther* 1996;76:1082–8.
- Mens JMA, Vleeming A, Stoeckart R, Stam HJ, Snijders CJ. Understanding peripartum pelvic pain: implications of a patient survey. *Spine* 1996;21:1363–70.
- Briggs CG, Freeman R, Sumney YJ. *Drugs in pregnancy and lactation*. Baltimore, MD: Williams and Wilkins; 1994.
- Gabbe SG, Neibyl J, Simpson JL. *Obstetrics: normal and problem pregnancies*. New York: Churchill Livingstone; 1991.
- Brynhildsen J, Hansson A, Persson A, Hammar M. Follow-up of patients with low back pain during pregnancy. *Obstet Gynecol* 1998;91:182–6.