

A MANUAL THERAPY AND EXERCISE APPROACH TO MERALGIA PARESTHETICA IN PREGNANCY: A CASE REPORT

CLAYTON D. SKAGGS, DC^{ab}, BRETT A. WINCHESTER, DC^c,
MICHAEL VIANIN, DC^b, HEIDI PRATHER, DO^d

^aDepartment of Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, MO. ^bDivision of Research, Logan College of Chiropractic, St. Louis, MO. ^cPractice of chiropractic. ^dDepartment of Orthopedics, Washington University School of Medicine.

Submit requests for reprints to: Dr. Michael Vianin, 100 Milwaukee St., Ste 230, Saint Louis, MO 63122

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ABSTRACT

Objective: To present a case of a pregnant patient with meralgia paresthetica who improved using manual therapy and exercise procedures.

Clinical Features: A 22-year-old patient in the sixteenth week of pregnancy had low back pain, bilateral anterolateral thigh paresthesia and groin pain for a duration of 1 month. She had no motor deficits in either lower extremity and her reflexes were intact. As a standard clinic procedure, a battery of functional tests were performed including: active straight leg raise, long dorsal ligament test, and the pelvic pain provocation procedure. Based on her clinical history and physical responses to the aforementioned functional tests, the diagnosis of meralgia paresthetica was deduced.

Intervention and Outcome: Treatment was provided at 6 visits over a 6-week period where the patient underwent evaluation, manual intervention, and exercise prescription. Active Release Technique (ART) was performed to the restricted right sacroiliac (SIJ) complex and quadratus lumborum muscles. ART and post-isometric relaxation were applied to the iliopsoas muscles. The home exercise program consisted of pelvic/low back mobility, stabilization and relaxation exercises. After 6 treatments, the patient reported complete resolution of low back pain and left lower extremity symptoms and a 90% improvement in the right thigh symptoms. At her one-year follow-up, the patient reported no further complications and the absence of pain.

Conclusions: Manual therapy and exercises may serve as an effective treatment protocol for pregnant patients expe-

riencing low back pain complicated by paresthesia. Because these conservative procedures offer a low-risk intervention, additional clinical studies are warranted to further study this treatment. (*J Chiropr Med* 2006;5:92-96)

Key Indexing Terms: Pregnancy; Pelvic Pain; Meralgia Paresthetica

INTRODUCTION

Low back pain (LBP) is often prevalent during pregnancy.^{1,2} Multi-focal pain including low back pain, pelvic pain (PP), and pubic pain have been classified in pregnancy and associated with increased pain severity and disability compared to LBP alone.^{2,3} Previous studies on low back pain/pelvic pain (LBP/PP) in pregnancy have excluded subjects with neurologic leg symptoms, such as meralgia paresthetica (MP), due to their clinical complexity.^{4,5} Thus, no studies were found offering the results of soft-tissue therapy combined with exercise in treating patients with MP and/or lumbar paresthesia either in pregnant or non pregnant populations.

MP is a mononeuropathy that results from entrapment of the lateral femoral cutaneous nerve as the nerve exits the pelvis and travels into the lower extremity. While it is often reported as a self-resolving disorder, it can prove to be very uncomfortable and even disabling for patients, and shown to last for a duration of up to 16 months.⁶ Numbness, tingling, and burning on the anterolateral side of the thigh characterize MP. Common treatments for nerve entrapment, including entrapment of the lateral femoral cutaneous nerve, consist of nerve injections, removal of causative factors such as space occupying lesions, physical therapy and nerve resection.

According to Kitchen and Simpson,⁷ pregnancy and recent parturition represent the majority of MP

cases in females between the ages of 20 and 40. Wong et al⁸ showed that within 48 hours of delivery the most common neurological lower extremity symptom is meralgia paresthetica. The key factor in diagnosis is sensory loss while all motor neurological testing remains intact. Sensations of burning, stinging, and tingling are localized on the patient's skin on the anterolateral thigh. These symptoms are usually aggravated by walking or prolonged standing and relieved by sitting.⁹ However, MP can often mimic lumbar referred paresthesia due to the similarity of the presenting symptoms. Therefore, a thorough clinical exam is pertinent for correct diagnosis.

It has been suggested that fibrosis between connective tissues, such as muscular and neural tissues, can develop from repeated trauma or suboptimal loading forces of muscles and/or joints. The formation of such fibrotic adhesions between the lateral femoral cutaneous nerve and paraspinal soft-tissues through which it passes can be an etiologic factor of MP.¹⁰ Patient reassurance and surgery have proven to be successful in managing MP.^{11,12,13} These traditional approaches are however often contraindicated during pregnancy due to increased risks of complications and disability of this population, therefore alternative treatments approaches are warranted.

This case report suggests that meralgia paresthetica in the pregnant population can be treated conservatively via a thorough exam, soft-tissue techniques and a specific exercise program. Soft-tissue techniques utilized in the treatment of this case of MP were Active Release Technique (ART) and Post-Isometric Relaxation (PIR). ART offers specific treatment protocols for nerve entrapment sites, and is designed to help reduce soft-tissue adhesions and improve tissue sliding. PIR allows for reflexive relaxation of overactive muscles, and therefore enhances optimal muscle function and loading. Pelvic flossing/mobility (cat-camel) exercises and lumbo-pelvic stability exercises (abdominal bracing) were integrated into the patient's treatment protocol to promote normal tissue function and nerve sliding capabilities.

CASE REPORT

A 22-year-old patient in her fourth month of pregnancy presented to the Musculoskeletal Pain in Pregnancy clinic (MSPP) in the department of obstetrics at the Washington University's School of

Medicine in St. Louis, Missouri. At the time of her exam, the patient had experienced low back pain, bilateral anterolateral thigh paresthesia and groin pain for 1 month. An obstetrician referred the patient to the MSPP after his examination ruled out any pathological conditions or complications for the pregnancy.

As standard procedure at the MSPP, the straight leg raise, active straight leg raise, long dorsal ligament test, and posterior pelvic pain provocation procedure are performed on all pregnant patients. Although these tests do not have a direct relationship to MP, positive findings from this battery of tests are indicative of abnormal soft-tissue and joint loading in the lumbopelvic region in pregnant women. Because these tests are well referenced in the literature the exact procedures will not be discussed in this study.^{4,14}

The straight leg raise was negative for radicular pain. The active straight leg raise was rated as a 5 (unable to do) on the right and 4 (very difficult) on the left. The long dorsal ligament test was positive for pain on the right. The patient initially showed pain on palpatory provocation at the level of L2-L3, and the left sacroiliac joint, and a positive posterior pelvic pain provocation procedure. Tightness in the right anterior hip musculature (iliopsoas, tensor fascia lata) and adductors bilaterally was noted. The initial neurologic exam showed no motor deficits in either lower extremity and reflexes were intact. Paresthesia was noted both objectively and subjectively on the antero-lateral thighs proximal to the knee bilaterally.

The consideration of these objective findings led to the diagnosis of meralgia paresthetica, complicated by low back pain and posterior pelvic pain. During the first visit, the patient was treated with Active Release Technique to the right sacroiliac joint complex, including the long dorsal sacral ligament, distal erector spinae and proximal hamstring musculature. The cat-camel exercise was given to help floss the nerves of the lumbo-pelvic area (Fig 1). Finally, a self-PIR to the adductors was demonstrated and the patient was instructed to perform this exercise at home twice a day.

One week later, the patient was re-examined, and no change in leg paresthesia or pain levels in the low back and groin were reported. Objectively, the posterior pelvic pain provocation procedure was the



Figure 1. 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. Reprinted with permission from: Ducar D, Skaggs CD. Conservative management of groin pain during pregnancy: a descriptive case study.

only improved variable. During this follow-up consultation, ART was performed bilaterally on the hip flexors (iliopsoas) and the home exercises remained unchanged.

The following week, the patient had a decrease in low-back and groin pain. Provocation to the lumbar spine was now negative. The patient reported persistent hypersensitivity and paresthesia of the lateral thigh, primarily on the right side. This hypersensitivity translated into pain when the patient wore pants and when the bedcovers touched her legs at night during sleep. During this visit, ART was performed to the iliopsoas and quadratus lumborum muscles at a point where they envelop the lateral femoral cutaneous nerve, and the hip flexors were additionally treated with PIR. The patient's home exercise program was progressed to a stabilization exercise (abdominal bracing). Abdominal bracing is an exercise where the patient is cued to activate different layers of the abdominal and back musculature to promote spine and pelvis stability. This exercise is taught to the patient in a quadruped position where they are told to brace the muscles surrounding the pelvis as if they were preparing for a punch. The patient is then instructed to push their shins into the table while maintaining the abdominal brace. This cue aids in lateral trunk muscle activation.

On the third visit, the patient reported elimination of further back or groin pain and confinement of the paresthesia to the right anterolateral thigh. The straight leg raise was negative. The active straight leg raise was rated as a 1 (minimal difficulty) on the right and 0 (no difficulty) on the left. The long dorsal ligament test and posterior pelvic provocation procedure were negative bilaterally. Despite the improvement in the back and groin pain, the patient was showing only slow improvement in the paresthesias. Thus, she was then referred for a neurological consult. This consult confirmed the previous diagnosis of meralgia paresthetica (sensory deficit with no motor loss). The neurologist recommended continuation of the soft-tissue treatments.

On the fourth and subsequent visits, treatment was concentrated on ART of the adhesion sites between the lateral femoral cutaneous nerve and the iliopsoas and quadratus lumborum muscles. The patient reported 90% improvement in paresthesia in the right leg at her sixth visit and was able to manage any additional pain or paresthesia with the previously assigned exercises. She reported no further limits to her normal daily activities. When called 1 year later, the patient was symptom-free and independently managing her self-care exercises. The patient provided consent for this study.

DISCUSSION

The results of this case study suggest that a mechanical entrapment of the lateral femoral cutaneous nerve can be manually released, resolving paresthesia symptoms. The lateral femoral cutaneous nerve comes from roots of L2-L3 and is entirely sensory; therefore L2-L3 nerve root pathology must routinely be ruled out first.

The lateral femoral cutaneous nerve travels through the psoas and across the pelvis where it passes under the inguinal ligament. Near the inguinal ligament it takes a sharp turn across the ridge of the ilium and splits into anterior and posterior branches. The nerve then passes through fascia about 9 cm below the inguinal ligament and supplies innervation to the skin of the lateral thigh. In a surgical study to relieve symptoms of MP, there were findings of thickened constrictive fascia bands around the lateral femoral cutaneous nerve in 19 of the 21 involved cases¹⁰ making soft-tissue adhesions of the nerve the most common etiology of symptoms.

Nerve entrapments caused by connective tissue adhesions are often the result of the natural healing process following acute trauma or repetitive tissue injury. These areas of fibrosis represent modified tissues that surround and link muscles, joints, and nerves impeding the tissues' ability to slide and function properly. As the lateral femoral cutaneous nerve exits the pelvis, it is subject to compression and stretching injuries. Theorized to break up the adherence of soft tissues surrounding nerves, ART has protocols for nerve entrapments that address the most common sites of tension development or entrapment.^{15,16} In this case, ART seemed to be a key component in resolving the patient's neurological symptoms.

Previously published clinical literature suggests that MP is best managed conservatively with heat, physical therapy and non-steroidal anti-inflammatory drugs. However, there are no reports on specific manual therapy options available to address this type of paresthesia. Thus, following a trial of failed conservative management, adults with less than 1 year of symptoms and all pediatric patients undergo simple nerve decompression (a surgical procedure) and patients in the first group who have persistent or recurrent symptoms are considered for nerve resection.¹⁷

In a study by Jones,¹⁸ 55 of 74 patients with MP had permanent relief of symptoms following 18 months of doctors reassuring patients that their symptoms did not represent signs of more permanent neurological disorders. While this represents a relatively high percentage of recovery, it requires lengthy time of patient suffering and disability compared to the results of this study. Whereas ART has been shown to be successful in improving similar chronic neuropathic pain conditions involving the upper extremity,¹⁹ similar evidence is so far lacking for the lower extremity.

Unfortunately at this time, the manual care study cannot pinpoint the exact intervention method that proved most effective. However, clinically it appeared that when isolated Active Release Techniques were performed at the lateral femoral cutaneous nerve entrapment sites, the patient's symptoms improved significantly (90%). The magnitude of the involvement of the home exercises in this particular case is however unknown. However, we believe that teaching the patient how to maintain proper pelvis mobility and stability through

exercises is both empowering and significant in maintaining normal tissue tension throughout the pelvic area during pregnancy. Further, we suspect that the pelvic and groin pain was a co-morbidity factor to the lateral femoral cutaneous nerve entrapment, although these conditions can co-exist without any causal relationship.

Lack of outcome measurements throughout the case is a fault of this report. Also, the one-year time window for a follow-up exam may be considered excessive with the pregnant patient giving birth during that time window considering symptoms could have resolved after the birthing process. However, we do know that this particular patient was in need of intervention and we believe this manual care approach offered the least invasive and most cost effective solution. This case demonstrates that pregnant patients with meralgia paresthetica may benefit from manual therapy and exercise. Further research in the form of additional case reports, case series, or small-scale clinical trials could add evidence to the literature about this phenomenon and better prove its efficacy.

CONCLUSIONS

This case report describes a conservative approach for the management of pregnant patients suffering with LBP, anterolateral thigh paresthesia and groin pain. No firm conclusion can be reached from the results of a single case study, although it does suggest that manual therapy and exercise may be beneficial for patients suffering from MP during pregnancy. In this patient's case, the combination of ART, PIR and a targeted home exercise program seemed effective. We feel that ART specifically administered at entrapment sites of the lateral femoral cutaneous nerve was the key link in this particular case and strongly recommend that a similar conservative approach be considered before invasive procedures are pursued in pregnant patients with meralgia paresthetica.

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