Chiropractic management of chronic idiopathic meralgia paresthetica: a case study

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Abstract

Objectives: This report describes the case of a patient with chronic idiopathic meralgia paresthetica associated with bilateral sacroiliac joint dysfunction who was managed with chiropractic care.

Clinical Features: A 35-year-old white woman presented to a private chiropractic clinic with a complaint of numbness in the right anterolateral thigh region. Neurological assessment revealed a diminution of sensibility and discrimination on the right lateral femoral cutaneous nerve territory. Pain was rated as 8.5 on a numeric pain scale of 0 to 10. Musculoskeletal examination of the pelvic region disclosed bilateral sacroiliac joint dysfunction.

Intervention and Outcomes: Chiropractic management included pelvic mobilizations, myofascial therapy, transverse friction massage, and stretching exercises. After 3 visits (2 weeks later), result of neurological evaluation was normal, with no residual numbness over the lateral thigh.

Conclusion: In the present case, chiropractic management with standard and applied kinesiology techniques resulted in recovery of meralgia paresthetica symptoms for this patient. © 2012 National University of Health Sciences.

Introduction

Meralgia paresthetica (MP) is an uncommon neuropathic disorder characterized by a localized area of paresthesia and numbness along the anterolateral aspect of the thigh. In this condition, compression or effacement of the lateral femoral

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cutaneous nerve (LFCN) causes paresthesia with tingling and burning sensation.¹ These symptoms range from mildly uncomfortable to painfully disabling. Others have reported that these symptoms are aggravated by walking and affect sleep.² Some have described rare allodynia over the nerve distribution area and vasomotor disturbance. In the United States, the incidence rate of MP is 4.3 per 10 000 person-years; and sex predominance has not yet been clarified.³ Meralgia paresthetica is most common among the middle-aged adults but is reported in all age groups. The condition is unilateral, although 20% of patients present bilateral complaints.

Therapeutic options include conservative measures and surgery. Some treatments cited in the literature such as local anesthetic block and local steroids injections have been reported to produce a good response.³ In other studies, conservative measures incorporate analgesics, nonsteroidal anti-inflammatory drugs, amitriptyline, phenytoin, carbamazepine, various narcotics, and cooling with ice packs.⁴ Surgical intervention, which is reserved for those who are resistant to conservative management, consists of neurolysis (ie, decompression) or neurectomy (ie, nerve section). High success rates are associated with both decompression (88%) and nerve section (94%).⁴ Unfortunately, to the best of our knowledge, no studies have investigated the efficacy of complementary and alternative medicine approaches such as chiropractic on MP; and few case reports exist. Lumbar spinal manipulative therapy and manual intervention combined with exercise have, respectively, been reported in these few previous case reports. However, associated sacroiliac and pelvic involvement has never been reported.

With an important number of patients (22%) seeking chiropractic care for low-back problems and considering that MP mimics the symptoms of lumbar herniated disk and radiculopathy, chiropractors are more than likely to encounter patients suffering from MP.¹² On the other hand, the prevalence of sacroiliac joint disorders varies considerably between 13% and 53%; and it is also a common finding among chiropractic patients with pelvic pain.¹³ Sacroiliac dysfunctions and pelvic deficiencies are associated with muscle spasm and could contribute in some cases of MP to the impingement of the nerve along its tortuous course.¹⁴ The purpose of this case study is to describe the chiropractic management, using standard chiropractic and complementary applied kinesiology techniques, of a patient with chronic idiopathic MP and bilateral sacroiliac joint dysfunction.

Case report

A 35-year-old white woman presented to a private chiropractic clinic with a complaint of numbness in the right anterolateral thigh region. The onset of pain appeared gradually and was persistent for the last 3 years. Lately, the pain had been worsening, making it difficult for her to sleep. The patient described her pain as numbness and rated it at 8.5 on a pain intensity scale of 0 to 10. It was associated with bilateral posterior pelvic pain. Aggravating factors included long walks. The patient was relieved by massaging her thigh. She had not received any earlier chiropractic care. However, result of a neurological consult was negative; and 2 osteopathic sessions produced no beneficial results.

Postural evaluation showed a low iliac crest on the right side and hyperextension in the upper thoracic region (T1-T2). Result of range of motion evaluation of the thoracic, lumbar, and right hip was normal. Orthopedic examination was performed with negative straight leg raise, Valsalva maneuver, and sacroiliac stress tests (sacral thrust test, thigh thrust test, and Gaenslen's test). Neurological assessment of the sensory territories with light touch and sharp/dull testing, using a disposable sterile pin, showed hypoesthesia in the right LFCN territory. However, the result of the rest of the sensory examination was normal, as with motor and deep tendon reflexes of the right lower extremity. Muscle palpation detected tenderness and hypertonicity of right upper inguinal fossa, right iliopsoas muscle, right pes anserinus attachment in the medial knee region, left lower inguinal fossa, and left tensor fascia lata. Complementary functional neurological assessment by manual muscle testing revealed a conditionally inhibited right rectus femoris muscle, which did not strengthen with neuromuscular spindle cell spread-apart manipulation.^{15,16} Complementary musculoskeletal examination of the pelvic region was conducted with the category system of analysis developed by DeJarnette and modified by Goodheart.¹⁷ In this case, the patient presented with a bilateral category II, that is, a right posterior and external ilium (PIEX) and a left posterior and internal ischium at physical examination. Category II is associated with dysfunction at the sacroiliac articulation between the sacrum and the innominate. The patient also showed a pelvic category I that, briefly, is equated with imbalance or torsion at the anterior aspect of the sacroiliac junction and related to other distortions throughout

the body. Static and motion palpation evaluation of the bilateral sacroiliac joints revealed the same restrictions. Based upon these findings, the patient was diagnosed with chronic idiopathic MP with bilateral sacroiliac joint dysfunction.

Management and outcome

On the first treatment visit, the right rectus femoris was treated by the Injury Recall Technique (IRT). This is based on the theory that a conditionally inhibited muscle should strengthen with neuromuscular spindle cell spread-apart manipulation (autogenic facilitation). This is done by applying spreading pressure on the muscle belly with the thumb and forefinger. Failure of muscle facilitation indicates a need for the IRT.¹⁷ Originating from a podiatric method, IRT consists of pinching the area of previous injury and gently pulling the ipsilateral talus inferiorly. It is believed that the ankle is related to trauma by the withdrawal reflex mediated through flexor reflex afferents.¹⁷ Furthermore, suprastructural injuries are known to chronically affect the feet via muscle chain reactions.¹⁸ For this patient, the right rectus femoris was conditionally facilitated immediately after applying the IRT. The PIEX malposition was corrected by right pelvic manipulation with pisiform contact on the posterosuperior iliac spine (PSIS). Similar pelvic chiropractic manipulation with pisiform contact on the ischial tuberosity was performed to rectify left posterior and internal ischium malposition. Transverse friction massage was applied over the inguinal ligament. Friction massage is a technique where an involved muscle, tendon, or ligament is massaged by applying pressure with a reinforced finger.^{21,22} To address general inguinal hypertonicity, myofascial therapy, including active stretching and fascial release of the iliopsoas muscle, was performed at each visit. The patient was instructed to massage daily the right inguinal ligament at its entire length and received a stretching exercise prescription aimed to the right iliopsoas muscle.

On her second visit a week later, a reexamination indicated improvement of her sensory complaints. The patient reported an 80% improvement and rated her pain as 2 on a pain intensity scale of 0 to 10. She mentioned a diminution of territory numbness. Her left sacroiliac dysfunction remained corrected from the first visit, and the right rectus femoris tested strong. As with the first treatment, right pelvic manipulation with pisiform contact on the PSIS

served to correct the PIEX malposition. Right pelvic category I was corrected with chiropractic blocking technique with a pumping-type movement manipulation over the right PSIS.

On the third visit, 2 weeks later, the patient reported no pain (0) on a pain intensity scale of 0 to 10 and verbally self-reported a 95% improvement and no residual numbness over the lateral thigh. Reexamination indicated normal neurological assessment, and the right pelvic category I remained corrected. The same right pelvic manipulation served to correct the PIEX malposition. Iliopsoas myofascial therapy and transverse friction massage over the inguinal ligament were still performed. The patient was instructed to massage the right inguinal ligament and stretch the right iliopsoas muscle daily. The patient continued with elective care at the clinic.

Discussion

Aberrant biomechanics of the pelvic and lower extremities are known to cause myofascial hypertonicity.¹⁹ In this case study, a patient suffering from MP in association with sacroiliac dysfunctions was successfully treated with manual therapy and chiropractic management.

Meralgia paresthetica is typically due to compression of the LFCN causing paresthesia with tingling and burning sensation in the thigh area. The LFCN is a sensory lumbar plexus branch, arising from the L2-L3 spinal nerve roots.⁴ The LFCN runs obliquely down and laterally in the pelvis along the lateral border of the psoas muscle, crosses the iliacus, and then passes through a fibrous tunnel in the lateral end of the inguinal ligament, about 1 cm medial and inferior to the anterior superior iliac spine (Fig 1). Entrapment at this level is common. As the nerve enters the thigh, it remains beneath the deep fascia, piercing it about 10 cm below the inguinal ligament to become superficial (Fig 2).⁴ Just superficial to the sartorius muscle, the nerve ends by dividing into anterior and posterior branches. The anterior branch runs vertically under the fascia lata on a line between the ASIS and the center of the patella. The distal branches communicate with the anterior femoral cutaneous nerve and the infrapatellar branches of the saphenous nerve, forming the patellar plexus.⁵ The anterior branch innervates the anterolateral cutaneous region from the thigh to the knee. The posterior branch crosses the fascia lata to innervate the superolateral cutaneous region of the thigh, the greater trochanter, and the midthigh.⁶

Fig 1. Normal anatomy of the lumbar plexus and surrounding musculature.

Meralgia paresthetica results most commonly from impingement due to mechanical stress usually in the region of the inguinal ligament. A common etiological factor is direct impingement of the nerve related to the wearing of a belt in an obese patient. In fact, obesity doubles the risk of MP, perhaps because of increased pressure from abdominal protrusion.⁷ However, MP can also occur in lean subjects, as in this case, and children.⁸ Other causes of the neuropathy are lead poisoning, chronic alcoholism, AIDS, leprosy, diabetes, as well as pregnancy.^{1,3,4} A familial form has been reported.⁹ Meralgia paresthetica can also be idiopathic or iatrogenic.³ It is a rare complication of many orthopedic and surgical approaches, for example, laparoscopic cholecystectomy, appendectomy, hysterectomy, herniorrhaphy, and spine and pelvic osteotomy surgery.^{1,3} However, tremendous variability of the nerve and its course might be the cause. In the upper thigh region, sports injuries, heavy weight imposition on the region, and misplaced intramuscular injections are also known to evoke LFCN damage.⁴

Meralgia paresthetica is usually diagnosed by a coherent clinical history. Differential diagnosis should include iliac crest metastasis, appendicitis, anterosuperior iliac spine avulsion fracture, and a herniated lumbar disk. Meralgia paresthetica is also known to

mimic lumbar radiculopathy.¹⁰ Clinical examination should first rule out these conditions. In addition, according to Nouraei et al² (2007), pelvic compression testing reproduces the symptoms and has shown a sensitivity of 95% and specificity of 93.3% for MP in a study of 45 patients. Patients with other sensory deficits, deep-tendon reflex changes, and motor deficiencies should be assessed carefully. Plain pelvic radiographic views and lumbar spine computed tomography should be undertaken when a structural lesion is suspected. Electrodiagnostic testing is performed in case of doubtful diagnosis after patient history and physical examination. Current studies prioritize sensory nerve conduction velocity for diagnostic electrophysiological MP testing because the validity of somatosensory-evoked potentials is debatable, even if it has good sensitivity.^{3,11} Electromyography may also be helpful to rule out upper lumbar radiculopathy.

The LFCN may be encapsulated in the inguinal ligament or ensheathed in the tendinous origin of the sartorius muscle.³ In a surgical study to relieve MP symptoms, thickened, constrictive fascial bands around the nerve were observed in a majority of cases (19 of 21).⁸ These anatomical considerations indicate the importance of proper muscular evaluation in MP.

Fig 2. Distribution of the LFCN in the anterolateral thigh.

Despite the actual effectiveness of surgery, conservative care should always be considered before more aggressive forms of management. Surgery has many possible iatrogenic complications compared with chiropractic care, which has rare and benign adverse effects.²⁰ Transverse friction massage has been advocated by a number of authors in the management of different musculoskeletal conditions. The transverse action is said to prevent the formation of scar tissue, whereas longitudinal friction affects the transportation of blood and lymph; but the author believes that it also has a positive effect in releasing constrictive fascia bands in the inguinal ligament.²¹ Moreover, friction massage is known to stimulate fibroblast proliferation and collagen fiber realignment with cross linkages.²² Although there is limited evidence that home stretching exercises improve MP, the incorporation of these exercises and active patient participation have been a major factor in improving the condition.²³ Iliopsoas muscle stretching has been shown to relieve nerve entrapment mononeuropathy, and the author believes

that it should also be considered as an important alleviating factor in MP.²⁴

Limitations

Limitations of our study include the lack of outcome measurements, such as questionnaires and electrodiagnostic tests. A combination of pelvic mobilization, IRT, myofascial therapy, and home exercises was used in the chiropractic management, making it difficult to distinguish which intervention has the best outcome. It is possible that the patient improved because of the normal course of the disorder, and the results of this report may not necessarily be generalizable to other patients. Additional case studies, case series, and clinical trials could better prove the effectiveness of chiropractic management in MP.

Very few studies have assessed manual therapy and complementary and alternative medicine approaches, such as chiropractic, in uncommon neuropathies such as MP. Chiropractic management with standard and applied kinesiology techniques should be examined. The inclusion of chiropractic management in future clinical MP guidelines is recommended. It is suggested that conservative management of MP with manual therapy should be considered before attempting more invasive procedures.

Conclusion

A patient with chronic idiopathic MP associated with bilateral sacroiliac joint dysfunction benefited from clinical chiropractic management.

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