Rehabilitative Principles in the Management of Thoracolumbar Syndrome: A Case Report

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ABSTRACT

Objective: The purpose of this case report was to describe the chiropractic management of thoracolumbar syndrome using multimodal therapies.

Clinical Features: A 33-year-old woman with 3 weeks of back pain presented to a chiropractic clinic. Nerve tension tests and local tenderness were present in a pattern described by Maigne, and she was diagnosed with thoracolumbar syndrome (Maigne syndrome) at her initial visit.

Intervention and Outcomes: The Oswestry Disability Index for low back pain (62%), STarT low back screen tool for clinical outcomes (6 points total, with a 2-point subscale), numeric pain rating scale (6/10 constant, 10/10 with provocation), and test-retest exercise audits were outcome measures. She received 3 treatment sessions, each with progressive exercise audits, and discharged with advice. At discharge, the patient scores substantially improved (Oswestry Disability Index: 8%, STarT: 1 point total, numeric pain rating scale: 1/10, 10% of the time), and she exhibited greater confidence in home care. Endurance tests were performed to establish baselines for future care, which included static back endurance test (timed 52 seconds) and side bridge endurance test (timed 43 seconds).

Conclusion: The patient responded positively to chiropractic care. After a short course of care, the patient reported reduced pain, alleviated symptoms, and improved physical function. (J Chiropr Med 2017;16:331-339)

Key Indexing Terms: *Spine; Lumbar Vertebrae; Thoracic Vertebrae; Manipulation, Chiropractic; Rehabilitation; Exercise Therapy*

INTRODUCTION

Back pain consistently ranks highest among conditions resulting in pain and disability. It is the most prevalent musculoskeletal condition[1] and has been noted as having a lifetime occurrence of between 59% and 84%.[2] With a wide range of reported health costs extending upward of $100 billion,[3] it is necessary to refine management strategies that lead to improved outcomes and reduce the economic burden on health care systems. The literature continues to place chiropractic services as a more cost-effective approach to common back conditions.[4,5] One such study by Liliedahl et al concluded that care initiated by a chiropractor (DC) rather than care initiated by a medical doctor (MD) was 20%-40% less expensive to manage.[6]

There are many potential causes of back pain including those that originate from fascial strain and associated entrapment of various muscles and nerves. Entrapment neuropathies are often considered clinically based on their anatomic location and distribution of the nerve. For example, the sciatic nerve (and later the tibial nerve) is derived from the sacral plexus and extends inferiorly down the posterior of the leg. Along this course, it lies anterior to the piriformis muscle, exposes itself at the semitendinosus/bicep femoris split, and falls deep through the tendinous arch of the soleus. Neurogenic symptoms along the course of the nerve can lead examiners to assess not only the originating area (sacral plexus), but also these common entrapment locations for the recreation of symptoms. Specific to this case, there are neural branches from the posterior primary rami of the upper lumbar and lower thoracic nerves that have been found to be affected as they penetrate the lumbar fascia.[7] Irritation to these nerves, also known as the cluneal nerves, will manifest as referred pain to the cutaneous and subcutaneous areas of innervation to include

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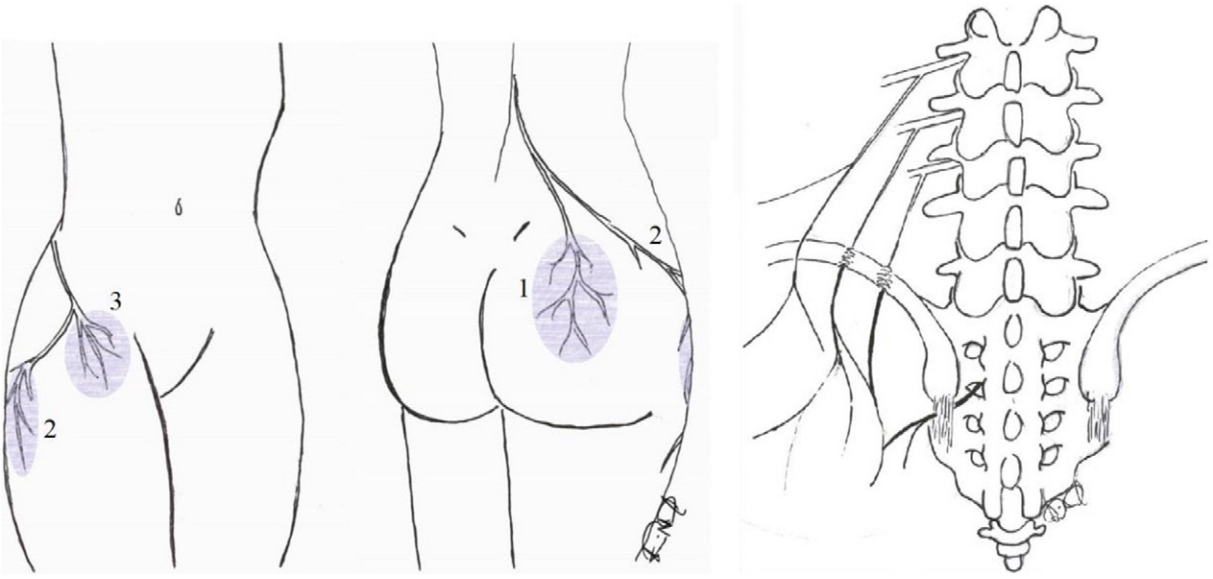

Fig 1. *Referral pattern and visual representation of cluneal nerves as they pertain to diagnostic criteria. Numbers indicate referral regions as posterior pelvis (1), lateral thigh (2), and inguinal region (3).*

the low back over the upper gluteal region, the ipsilateral inguinal crease, and the lateral hip region (Fig 1).[7]

The cluneal nerves were first explored as etiological agents of low back pain in Maigne's early work from 1980 to 1991, which described the full course of the nerve.[8-10] It was observed that "constricting fascial rings" occurred in the cluneal nerve pathway through the osteofibrous tunnel between the thoracolumbar fascia and the iliac crest.[8-10] Based on these findings and associated clinical presentations, Maigne and Doursounian proposed diagnostic criteria to include: (1) pain in the distribution of the nerve (Fig 1); (2) trigger point/tunnel compression pain; and (3) relief of symptoms following nerve block.[11] Since then, more recent investigations continue to show examples of cluneal nerve entrapment as a possible cause of not only low back pain, but also gluteal and leg pain.[12,13] Medical approaches for cluneal nerve entrapment include anesthetic nerve block injections and anti-inflammatory steroid injections and, if these treatment approaches are unsuccessful, then surgery.[8,11,13-15]

There are few cases in the literature investigating cluneal nerve entrapments[11,13-15] and even fewer exploring its management with manual therapies.[16,17] As the evidence base supports chiropractic treatment options for lumbosacral back pain,[18-22] this case explored chiropractic care to include manipulative therapy, active care exercise progressions, and soft tissue mobilizations to treat thoracolumbar back pain originating from cluneal nerve entrapment. From a rehabilitation perspective, this case also used a test-retest approach for functional outcomes and exercise prescription.

Case Report

History

A 33-year-old Caucasian woman with a 3-week history of thoracolumbar pain following a motor vehicle accident presented to the office for evaluation and conservative management. She was initially evaluated by her medical doctor, who ordered radiographs and magnetic resonance imaging (MRI) of her lumbar spine. Imaging demonstrated no acute osseous pathology, dislocation, fracture, or mass. She received an anesthetic nerve block injection in the lumbar spine without experiencing any relief, which was then followed by bilateral gluteal steroid injections that provided "a lot" of relief lasting 3 days. She was also prescribed Flexeril to relax her lumbar musculature and gabapentin to treat nerve pain associated with her back pain and was advised to take an over-the-counter nonsteroidal anti-inflammatory drug. She reported that the medications "helped a little."

Following 3 weeks of medical care, she presented to our office with pain to the left hip and buttock, forward antalgic posture, and an asymmetrical gait with shortened stride length favoring the right. Using a 10-point numeric pain rating scale (NPRS), with 0 being no pain at all and 10 being worst pain imaginable, she reported constant 6/10 pain with periods of 10/10 pain from various activities. Specifically, she noted that bending, sitting, lifting, and standing for more than 10 minutes had become difficult, and any change in body position exacerbated symptoms. Clinical outcome assessments included the Oswestry Disability Index (ODI)[23] and STarT back screening tool.[24,25] Her Oswestry low back score was 62%, and her STarT low back screen tool scored 6 points total, with a 2-point subscale (medium risk package for biopsychosocial management). She denied increased symptoms with coughing, sneezing, or bowel movements. Past medical history was remarkable for anxiety and headaches. Current medications included clonazepam and Imitrex, as needed. Pertinent social history was a 9-pack-year, everyday smoker. No additional past, family, or social history was deemed pertinent.