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CASE REPORT Open Access

Pelvic pain in Maigne's syndrome—a multi-segmental approach

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Abstract

Background: Maigne's syndrome is a poorly understood condition that affects the thoracolumbar junction. The symptoms can range from pain in the low back, pelvis, hip, lower abdomen, and groin. These symptoms can have bio-mechanical and neurophysiological attributions due to the complexity of spinal mechanics. Thoraco-lumbar junction (T12-L1) is a transitional zone with a higher degree of mean angular motion and a mean translation motion than T10-T11 and T11-T12. This higher degree of translational and rotation mobility predisposes these segments to a higher degree of stress, making them more prone to biomechanical faults such as dysfunctions and positional faults. These altered static and dynamic mechanics can create a cascade of problems along the biomechanical chain. The co-existence of thoracolumbar junction problems with pelvic pain and dysfunctions strengthens the idea of regional interdependence.

Case presentation: The patient is a 44-year-old Caucasian male who reported pain in the low back with symptoms radiating to the right hip, iliac region, lower abdomen, and gluteal region. The patient tested positive for Sacroiliac joint dysfunction with both Laslett's cluster testing and palpatory sacroiliac examination. In addition, the segmental examination showed restriction in thoracolumbar junction with positive skin rolling test and hypomobility in manual segmental testing. Thus, the manual therapy treatment targeted the thoracolumbar junction and sacroiliac joint to address the underlying biomechanical dysfunctions.

Conclusions: The manual therapy targeting both sacroiliac and thoracolumbar spine can improve pelvic and thoracic spine mobility. In addition, therapeutic exercises can focus on enhancing anterior and posterior chain force generation capacity. This combined approach helped improve functional outcomes with a significant decrease in the Modified Oswestry Disability index and significant improvement on Visual analog scale.

Keywords: Maigne's syndrome, Pelvic pain, Sacroiliac joint, Thoracolumbar spine

Introduction

Low back pain is one of the most familiar conditions affecting the human population. The first-ever episode can range from 6.3 to 15.4%, and the chances of recurrence within 1 year can be up to 90% [1]. There could be a wide variety of etiology for low back pain. One of the causes of the low back could be Maigne's syndrome. It is an umbrella term for "Maigne facet," "thoracolumbar junction syndrome," "cluneal nerve entrapment," "posterior iliac crest trigger point," and "pseudosciatica" [2]. It primarily affects thoracolumbar joints and may cause peripheral involvement of the lateral cutaneous branch of the dorsal rami [3]. The mechanism of the injury and prevalence is usually unknown, and almost no literature is available on the etiology or cascade of events that lead to this diagnosis [3]. The invasive treatment could vary from percutaneous rhizotomy, electrocoagulation, and surgical denervation of the involved facet joint, superior and middle cluneal nerve release, and ultrasound-guided neural blocks [3–6]. The conservative management includes a selective exercise regimen, analgesic or anti-inflammatory medication, and spinal

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manipulative therapy [7–9]. No literature exists that talk about regional interdependence and Maigne's syndrome [10, 11]. The case study focuses on the association of thoracolumbar junction disorder with underlying sacroiliac dysfunction. The diagnosis is poorly understood, and there is an absence of any specific clinical prediction rules or clear diagnostic criteria present in the literature. The diagnosis of Maigne's syndrome is established by palpation of T12-L3 and comparing sensitivity difference between iliac crest (cluneal nerve), the inguinal canal (inguinal nerve), and greater trochanter (lateral perforator nerve) [12]. According to Maigne, X-ray findings are usually negative for signs of degeneration [12]. A skin rolling test can also be performed to compare heaviness on either side [13]. The reliability and validity of these tests are not available in the literature. The diagnosis of Maigne's syndrome can be established by understanding the thoracolumbar referral pattern of pain [14]. The symptoms are present in the dermatomal pattern of T12-L2. The severe symptoms are rarely present around the thoracolumbar junction. The literature on the co-existence of Maigne's syndrome with sacro-iliac joint dysfunction is lacking. The site of pain is usually the sacroiliac joint and pelvic region; therefore, a physical examination of the sacroiliac joint can be performed to improve the understanding of the kinetic chain.

Case presentation

The patient is a 44-year-old male who presented with pain in the low back with symptoms radiating to the right hip, iliac region, lower abdomen, and gluteal region (VAS-8-9/10). The patient reported no other significant medical history and is currently taking no other medications. The patient tested positive with increased sensitivity in the iliac crest and inguinal region. Skin rolling was heavier on the right side. Dynamic palpation tested positive on the right side with SI examination. Sitting flexion and stork testing was also positive on the right side. The intratester reliability of dynamic palpation is poor [15]. Laslett's cluster was performed to improve the reliability of testing. The patient tested positive for 4/5 on the series of tests [16]. Static palpation showed prominence and tenderness of the right sacral base called unilateral sacral extension as per osteopathic classification [17, 18]. Sacral sulcus was more prominent on the right side than on the opposite side. The patient demonstrated segmental restriction in extension and right side bending in T12-L1 and L1-L2. A fellowship-trained manual therapist performed the physical exam. Modified Oswestry Disability Index determined the functional disability with the score of 62% disability score [19]. The initial treatment was focused on improving the altered biomechanical motion. The thoracolumbar spine (T10-L2) manipulation targeted the positional fault (Fig. 1). Muscle energy techniques and sacro-iliac manipulation targeted the affected sacroiliac mobility (Figs. 2 and 3). The manual treatment was provided for the first four appointments. This approach was supplemented with pelvic activation and core activation exercises that targeted force closure [20]. The focus was on improving the force generation capacity of anterior and posterior chains [21]. The exercises were progressed gradually over the period of 6 weeks. The patient reported significant improvement in low back pain (VAS-1-2/10), with symptoms improving significantly with Oswestry reducing to 12%. The dynamic palpation was negative as the patient showed improved mobility, with negative other tests like stork standing and sitting flexion. Laslett cluster

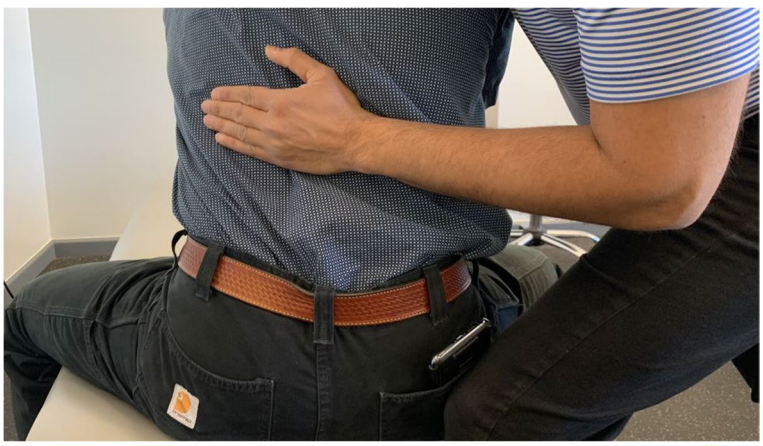

Fig. 1 Thoracolumbar manipulation—the patient in sitting with legs cradling the bed. Rotational thrust applied to T12-L1. Images taken with written consent and permission provided by the participant

Fig. 2 Muscle energy techniques to the sacroiliac joint—unilateral sacroiliac extension—patient prone—force applied to the sacral base in ventral direction while patient actively pushes down on the therapists hand. Images taken with written consent and permission provided by the participant

Fig. 3 Long-axis distraction manipulation of sacroiliac joint-hip in abduction, internal rotation, and extension. Images taken with written consent and permission provided by the participant

was negative with all the five tests were negative for sacroiliac pain. The patient showed a pain-free physiological range of motion in all directions with improved segmental mobility of T12-L1 and L1-L2. The static and dynamic stability was achieved through a focused and thorough in-clinic and home-exercise program.

Patient perspective informed consent

The patient gave verbal and written consent to participate in the study. The patient reported that he was surprised that the comprehensive manual therapy was influential in addressing severe and chronic patients. In addition, the patient said that manual therapy provided him superior long-term relief compared to opioids and the use of corticosteroids.

Discussion

Maigne's syndrome is a highly underdiagnosed condition, and symptoms can be highly debilitating. The available literature either targets the thoracolumbar junction or cluneal nerves. This approach does not account for the cause of dysfunction and only provides symptomatic relief to the patients. The available literature does not account for regional interdependence and cascade

of mechanisms that causes thoracolumbar dysfunction. Regional interdependence should be kept in mind to treat secondary dysfunctions that may precipitate or complicate the diagnosis [10, 11].. It is hard to say whether the thoracolumbar joint is a primary or secondary dysfunction. The occurrence of sacroiliac joint dysfunction may be a possible culprit or maybe driving the thoracolumbar joint into dysfunction. It is imperative to address and treat both primary and secondary dysfunctions for better patient outcomes. The multi-segmental treatment approach strengthens the idea of regional interdependence and improves the understanding of the biomechanical cascade that can cause this diagnosis.

Conclusions

It is crucial to address both sacroiliac joint and thoracolumbar junction in patients with Maigne's syndrome via meticulous examination and specific manual therapy techniques. This approach restores pelvic mechanics, and thoracolumbar mobility can provide resolution from severe symptoms of pain.

Abbreviations

VAS: Visual analog scale.

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Authors' contributions

TS provided the interventions to the patient in the case study. TS and PK wrote the main manuscript. All authors have read and approved the manuscript.

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Availability of data and materials

Available.

Declarations

Ethics approval and consent to participate

Written consent was given to participate, and all images were taken with verbal and written permission.

Consent for publication

All patients included in this research gave written informed consent to publish the data contained within this study. If the patient was less than 16 years old, deceased, or unconscious when consent for publication was requested, written informed consent for the publication of this data was given by their parent or legal guardian.

Competing interests

The authors declare that they have no competing interests.

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