

A 23 Years Old Low Back Pain Patient with Sacroiliac Joint Dysfunction: A Case Report

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ABSTRACT

SIJ dysfunction generally refers to aberrant position or movement of SIJ structures that may or may not result in pain (Mark Laslett, 2008). Abnormal movement at the SIJ can alter the mechanics of the spine and pelvis thereby causing pain. This abnormal motion often results in inflammation of the sacroiliac joint, and can cause debilitating pain. The sacroiliac joint (SIJ) is a common source for individuals with low back pain (LBP). We investigated a case of a young lady with sacroiliac joint dysfunction who reported to hospital facility due to low back pain. We summarized the published evidence of sacroiliac joint dysfunction, symptoms, radiological investigation and the management.

Keywords: Sacroiliac Joint, Low Back Pain (LBP), Spine, Abnormal Movement.

Introduction

The term "Low Back Pain" refers to pain felt near the midline in the lumbar or sacral region (Hans-Raimund Casser et al). Low back pain (LBP) is not a specific disease but rather a complaint of large number of underlying problems of varying levels of seriousness. LBP as a condition can be categorized as mechanical, non-mechanical, or referred pain (Manusov EG, 2012). Based on duration, LBP can be classified as acute (pain lasting less than 6 weeks), sub-chronic (6 to 12 weeks), or chronic (more than 12 weeks). It is a disorder that has many possible etiologies with many definitions.

LBP is a very common problem that most people will experience at some point in their life. It affects work performance and social responsibilities, such as family life, and is increasingly a major factor in higher health-care costs. The annual prevalence of LBP is 15-45% with a point prevalence of approximately 30% (Anderssen, GBJ). It is the most common musculoskeletal condition affecting the adult population.

The symptoms of LBP can be derived from many anatomic sources (such as nerve roots, muscle, fascial structures, bones, joints, intervertebral discs (IVDs), and organs within the abdominal cavity) as well as neurological pain mechanism causing neuropathic LBP. The diagnosis of patients with low back pain has long been characterized by considerable variation. The ability to determine the source of the pain is very important to effective therapeutic approach.

Attention should be given to history as this is enough to guide towards making an impression except in cases of red flags. The recommendation of the American College of Radiology that no imaging should be done for LBP within the first 6 weeks unless red flags are present should serve as a guide in managing acute LBP. The recent guidelines for

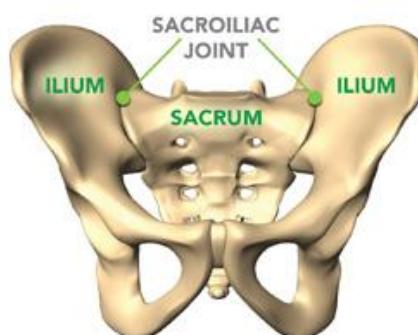
the management of LBP involve understanding the mechanism of the pain. As LBP (particularly chronic LBP) could be caused by multiple sources, a multi-disciplinary diagnosis and multimodal treatment is sometimes important.

Sacroiliac Joint Dysfunction

SIJ dysfunction generally refers to aberrant position or movement of SIJ structures that may or may not result in pain (Mark Laslett, 2008). Abnormal movement at the SIJ can alter the mechanics of the spine and pelvis thereby causing pain. This abnormal motion often results in inflammation of the sacroiliac joint, and can cause debilitating pain. The sacroiliac joint (SIJ) is a common source for individuals with low back pain (LBP).

The prevalence of SIJD as the source of LBP is high. It is believed that about 13% (95% CI: 9-26%) of patients with persistent low back pain have the origin of pain confirmed as the SIJ. 15% to 30% of idiopathic low back pain is explained to be accounted for by SIJD.

Over the years, the SIJ has been an area of focus for researchers as regards its role in relationship to movement and pain. It is believed that the SIJs act as important stress relievers in the 'force-motion' relationships between the trunk and lower limb. SIJD otherwise known as sacroiliac joint instability is believed to be due to either hypermobility or hypo mobility. In hypermobile SIJ, the abnormality is regarded as an extra-articular dysfunction because articulating surfaces are normal, the dysfunction is due to abnormality in the joint ligaments or capsules. No degenerative changes seen until many years if the dysfunction is being allowed to continue. SIJ instability as a result of hypomobility occur when the joint lock or movement reduce due to tearing and wearing down which could be as a result of age, degenerative joint disease or inflammatory disease. SIJD generally can be due to ligamentous or tension in the capsule, extraneous compression or shear forces, hypermobility or hypomobility, altered joint mechanics, and myofascial or kinetic chain dysfunction causing inflammation.



Sacroiliac Joint Image. (Source: Arthritic.com)

The sacroiliac joint is a true diarthrodial joint. It is a synovial joint formed by the union of the ilium and the sacrum. The SI joint is a symmetrical joint (i.e. is paired) with an oblique

coronal orientation and is located at the S1-3 level. It allows for minimal gliding and rotation. The SIJs are highly specialized joints that permit stable (yet flexible) support to the upper body. The sacroiliac joint contains numerous ridges and depressions that function in stability. The joint is highly dependent on its strong ligamentous structure for support and stability. Anteriorly and posteriorly, ligaments and muscles are attached to the joint, primarily on the ilial or sacral surfaces.

Symptoms associated with SIJD include: low back pain, buttocks pain, sciatic leg pain, groin pain, hip pain, dyspareunia, changes in bladder function, and "transient numbness, prickling, or tingling sensation. SIJD pain is worsened with any activity that involves loading the SIJ, such as walking, stairs climbing, standing, or sitting upright.

Radiological imaging (X-ray, CT scan, or MRI) have been found to be ineffective in diagnosing SIJD as they usually do not detect any abnormality. Making a diagnosis of SIJD is a bit challenging. According to the criteria set by International Association for the Study of Pain (IASP) for evaluation of patients who have suspected SIJ dysfunction: Pain must be in the SIJ area, should be reproducible by performing specific provocative maneuvers, and must be relieved by injection of local anesthetic into the SIJ.

Relief from pain following joint injection confirmed under fluoroscopy or CT-guidance using a local anesthetic solution is the "gold standard" for diagnosis of sacroiliac joint dysfunction. Diagnosis is made when patient reports a significant relief from pain. However, the use of provocative maneuvers for testing SIJ dysfunction can help a clinician to develop a probable diagnosis of sacroiliac joint dysfunction. Gaenslen test, Thigh Thrust test, FABER or Patrick test, Iliac Gapping Test and Compression Test are stress test that can be used as provocative test for testing SIJD. A diagnostic algorithm of SIJD should first focus on using the distraction test and the thigh thrust test. If these two tests are positive, there is reasonable evidence to suggest SIJ dysfunction as the source of LBP. In a situation where there is no positive result, the addition of other tests can point to a diagnosis.

Management of SIJ dysfunction can be broadly categorized into operative and non-operative management. In cases where diagnosis of SIJ dysfunction is still presumed, understanding the cause of the problem is very vital in its management. An explanation to the source of SIJ pain might be due to inflammatory condition within the joint or unstable joint through ligamentous laxity or tearing of the joint capsule. At the acute phase, it is important to recommend rest for the patient. A resting period of 1 to 2 days is recommended; more than this is not advisable as doing so may worsen stiffness and could cause increase pain.

Pharmacological treatments of SIJD include those drugs administered topically, orally or through *Sacroiliac joint injections*. Oral drugs include Over-the-counter pain relievers (such as

acetaminophen) and anti-inflammatory medications (NSAIDs), may be recommended for mild to moderate pain relief. Prescription medications such as muscle relaxants or narcotic painkillers may be used during episodes of severe, acute pain. Thermotherapy (cold and hot) has proven to be effective in reducing pain, heat therapy applied around the painful area may help relieve pain by reducing muscle tension or spasms while cold therapy help to reduce inflammation and alleviate pain. For SIJ injection, a local anesthetic (such as lidocaine or bupivacaine) with an anti-inflammatory medication (such as a corticosteroid) is injected into the SIJ to reduce inflammation and help alleviate pain.

Exercise therapy that centered on strengthening exercises that help support the sacroiliac joint and lower back can be incorporated by physiotherapist in management of SIJ dysfunction. Tension in the muscles caused by sacroiliac joint dysfunction can be reduced by stretches. Stabilizing pelvic floor muscles through exercises is also important in SIJ dysfunction management. Postural and dynamic muscle imbalance should also be addressed through exercise program.

Manipulative therapy is another non-operative management provided by a chiropractor, osteopathic doctor, physiotherapist or other qualified health professionals that can be highly effective in sacroiliac joint pain management caused by too little motion. It helps in reducing joint fixation, muscle tension, and restoring normal range of motion.

When the SI joint is hypermobile, an orthotics supports or braces can be used to support the joint. A pelvic brace which is an orthotic support can be used when the joint is inflamed and painful. Radiofrequency ablation (RFA) is a procedure that provide a minimally invasive technique for pain relief from SIJ dysfunction. It offers a long-lasting effects .The procedure is usually performed under fluoroscopic guidance and the target structures are the lateral branches of the sacral rami, the dorsal ramus of L5, and the ligamentous structures overlying the joint. In operative management, the standard surgery used to address SIJ dysfunction is sacroiliac joint fusion. The goal of this procedure is to completely eliminate movement at the sacroiliac joint by grafting together the ilium and sacrum. Open SIJ fusion is no longer performed because of possible damage to the surrounding anatomic structures. Minimally invasive techniques with novel implants are currently being used which allowed for permanent SIJ stabilization with a reasonable safety profile.

The Case

A 23 years old lady who presented at our physiotherapy clinic with a 6 months history of low back pain with symptoms worsened around the left pelvic. Her symptoms are aggravated by activity and regularly interfere with many of her usual activities. She had taken oral NSAIDs and used topical NSAID with no improvement in condition. Lumbo-sacral X-ray imaging

show no abnormality. Patient tested positive to provocative maneuvers (Gaenslen test, Thigh Thrust, FABER or Patrick test, Distraction Test and Compression test) on the left SIJ while she tested negatives to all the tests on the right SIJ. Digital pressure elicited pain in L5-S1. Forward flexion elicited pain around L5, S1. NO swelling observed, no history of trauma, no limb length discrepancy but there was antalgic gait. Using a Visual analogue scale (VAS), on a scale of 0-10 (where 0 is no pain and 10 is the worst pain ever possible), patient score was 9.

Likely Diagnosis

The most likely diagnosis for this patient is low back pain secondary to SIJ dysfunction. The differential diagnosis includes; Myofascial pain, trochanteric bursitis, piriformis syndrome, lumbosacral facet syndrome, Lumbar radiculopathy and lumbosacral disc herniation. Pain was felt around the area and reproduced by performing specific provocative maneuvers, these two met two out of the three criteria set aside by IASP. Management of the patient was solely on physiotherapy and manipulation. Thermotherapy (*Short Wave Diathermy*) was used for twenty minutes around the painful sites, followed by massage with topical gel and then SIJ manipulation. Abdominal core and back strengthening exercises with stretches were incorporated in patient management. After ten treatment sessions, pain rating by patient was 1 on VAS. Her walking has improved significantly. She was discharged from the clinic, advised on proper ergonomics and placed on home program, basically exercise.

Discussion

This is a report on the management of a young woman with low back pain secondary to sacroiliac joint dysfunction using combination of both physiotherapy and manipulative therapy. The combination of thermotherapy, soft tissue massage, exercise therapy and manipulation were used in successfully addressing the patient's condition. The interventions were aimed at restoring normal joint space, stretch and strengthening the joint muscles, reduce her pain at the low back and at reducing her chronic sacroiliac joint pain.

There is little evidence on examining the effect of thermotherapy on low back pain and conflicting evidence on appropriateness of these methods for this pain. This intervention seem to yield better outcomes if applied continuously even for short term application when combined with other modalities for pain management. Manipulative therapy has shown to be effective in the management of sacroiliac joint dysfunction. Evidence has shown that this approach had positive outcomes, this include improved muscle performance, gait abnormality correction, improve postural balance and position, and improved joint range of motion. This case report has one major limitation. We did not perform a sacroiliac joint anesthetic which is a goal standard to confirm SIJ dysfunction.

References

- Borczuk, Pierre (2013). "An Evidence-Based Approach to the Evaluation and Treatment of Low Back Pain in the Emergency Department". *Emergency Medicine Practice*. 15 (7): 1–23.
- Manusov EG (September 2012). "Evaluation and diagnosis of low back pain". *Primary Care*. 39 (3): 471–9.
- Koes BW, van Tulder M, Lin CW, Macedo LG, McAuley J, Maher C (2010). "An updated overview of clinical guidelines for the management of non-specific low back pain in primary care". *European Spine Journal*. 19 (12): 2075–94.
- Anderssen GB. (1999). Epidemiologic features of chronic low back pain. *Lancet*. 354; 581-5
- Cherkin DC, Deyo RA, Wheeler K, Cirol MA. (1994). Physician variation in diagnostic testing for low back pain. Who you see is what you get. *Arthritis Rheum*. 37(1): 15-22
- Balagué F, Mannion AF, Pellisé F, Cedraschi C. (2012). Non-specific Low back pain. *Lancet*. 379(.9814); 482-91
- Amirdelfan K, McRoberts P, Deer TR. (2014). The differential diagnosis of low back pain: a primer on the evolving paradigm. *Neuromodulation*. 17 Suppl 2:11-7.
- Monie AP, Fazey PJ, Singer KP. (2016). Low back pain misdiagnosis or missed diagnosis: Core principles. *Man Ther*. 22:68-71.
- Won-Suh Choi, Jin-Sung Kim, Kyeong-Sik Ryu, Jung-Woo Hur, Ji-Hoon Seong, Hyun-Jin Cho. (2016). Endoscopic Radiofrequency Ablation of the Sacroiliac Joint Complex in the Treatment of Chronic Low Back Pain: A Preliminary Study of Feasibility and Efficacy of a Novel Technique. (2016). BioMed Research International.
- Moayad Al-subahi, Mohamed Alayat, Mansour Abdullah Alshehri, Omar Helal, Hammad Alhasan, Ahmed Alalawi, Abdullah Takrouni, Ali Alfaqe. (2017). The effectiveness of physiotherapy interventions for sacroiliac joint dysfunction: a systematic review. *J Phys Ther Sci*. 29(9): 1689–1694
- C.Ramírez, L.Sánchez, B.Oliveira. (2018). Prevalence of sacroiliac joint dysfunction and sacroiliac pain provocation tests in people with low back pain. *Annals of Physical and Rehabilitation Medicine*. 61; e152
- A Vleeming, M D Schuenke, A T Masi, J E Carreiro, L Danneels, F H Willard. (2012). The sacroiliac joint: an overview of its anatomy, function and potential clinical implications. *J Anat*. 221(6): 537–567.
- Massimo Allegri, Silvana Montella, Fabiana Salici, Adriana Valente, Maurizio Marchesini, Christian Compagnone, Marco Baciarello, Maria Elena Manferdini, Guido Fanelli. (2016) Mechanisms of low back pain: a guide for diagnosis and therapy. *F1000research*. 1530

- B W Koes, M W van Tulder, S Thomas. (2006). Diagnosis and treatment of low back pain. BMJ. 332(7555):1430–1434.
- Hans-Raimund Casser, Susann Seddigh, Michael Rauschmann. (2016). Acute Lumbar Back Pain; Investigation, Differential Diagnosis, and Treatment. Dtsch Arztebl Int. 113(13): 223–234
- L Manchikanti. Epidemiology of Low Back Pain. (2000). Pain Physician. 3(2):167-92
- Robert E Poley, James R Borchers. (2008). Sacroiliac Joint Dysfunction: Evaluation and Treatment. Phys Sports med; 36(1):42-9.
- Guilherme Barros, Lynn McGrath, Mikhail Gelfenbeyn. (2019). Sacroiliac Joint Dysfunction in Patients with Low Back Pain. Fed Pract. 36(8): 370–375.
- Mark Laslett. (2008). Evidence-Based Diagnosis and Treatment of the Painful Sacroiliac Joint. J Man Manip Ther. 16(3): 142–152.
- Behdad Hamidi-Ravari, Sharwin Tafazoli , Hamilton Chen , Danielle Perret.(2014). Diagnosis and Current Treatments for Sacroiliac Joint Dysfunction: A Review. Curr Phys Med Rehabil Rep 2:48–54.