

Musculoskeletal Pain Clinic in Singapore-Sacroiliac Joint Somatic Dysfunction as Cause of Buttock Pain

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Abstract

Buttock pain was a predominant symptom in a series of patients seen with recalcitrant "backache" in the author's pain clinic which has a musculoskeletal emphasis. Assessment suggested the sacroiliac joint as the culprit pain generator and patients underwent confirmatory testing which included fluoroscopy-guided intra-articular injections of lignocaine and steroid along with combined therapeutic modalities of oral analgesics, physical therapy, manual medicine techniques and ergonomic assessments. Two case reports illustrate this condition which is probably under-recognised and inadequately addressed locally.

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Case Reports

Case 1

Patient A, a 33-year-old male administrative coordinator presented with left buttock pain of 4 to 5 years duration which radiated down to the leg and lower back. There was no antecedent trauma. The pain was precipitated by prolonged sitting and exacerbates from 3/10 to 8/10 (on a visual analogue scale from 1 to 10 as representing increasing intensity) limiting work performance at the height of pain. There was mild scoliosis with lower extremity weaker (MRC grading at 4/5) secondary to the pain. Straight leg raising (SLR) was 90° bilaterally with sacroiliac joint (SIJ) clinical tests e.g. standing stork (Gillet's) and the FABER's test positive. The erythrocyte sedimentation rate (ESR) was 2 mm in the first hour and the electrophysiology (EMG) tests did not demonstrate lumbosacral plexopathy. A magnetic resonance imaging (MRI) done on January 1997 showed that the L5/S1 disc had increased high signal at its posterior aspect with a small central prolapse and adequate spinal canal. The interforaminal space was not compromised.

He was seen by different clinicians who has prescribed "therapy" to no satisfactory benefit. An attempt in our clinic to administer lignocaine and Kenacort A periarticularly around the SIJ through a spinal needle guided by anatomical landmarks brought complete resolution of symptoms which have plagued him for a long time. The relief was short-lived however lasting slightly

more than a day. However it did lend more credence to our clinical suspicion of SIJ (somatic) dysfunction and Patient A had a series of 5 sessions with a physiotherapist skilled in manipulative techniques directed to the offending SIJ. Additionally he was prescribed short-acting sedatives and Tramadol. This multipronged approach reduced pain to 1 / 10 with infrequent relapses.

Case 2

Patient B, a construction company manager fell off an army vehicle from a low height and landed on his left buttock 1 year before presenting to the pain clinic. Since the fall, he was plagued by left buttock pain which radiated to the posterior aspect of the left thigh but there was no sphincteric or lower extremity weakness. The left sacral sulcus was tender with disordered mobility demonstrated in the Gillet's test. Pelvic compression tests were positive at the side of pain complaint. SLR was 80° bilaterally with no evidence of dural tension.

He consulted physicians at various hospitals and was extensively investigated. MRI of the lumbosacral spine on September 1996 was normal and bone scan 3 months later was non-contributory. ESR was 2 mm in the first hour. Two sessions of SIJ manipulation normalised joint movements on clinical testing with resolution of pain. The patient was apprehensive of needles and hence SIJ injection under fluoroscopy was delayed until July 1997 whereby he experienced complete resolution of pain however, it recurred 5 days later.

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Discussion

Chronic low back pain and buttock pain are common problems in musculoskeletal practice. Arriving at reasonable diagnoses and implementing appropriate treatment regimen may resolve or alleviate symptoms despite their chronicity. Somatic SIJ dysfunction is increasingly recognised as an important primary entity which contributes to low back symptoms or as significant co-pathology in low back pain syndromes. This paper aims to raise the awareness for this condition and details an efficient diagnostic and management plan necessary for a busy musculoskeletal practice.

Somatic SIJ dysfunction is probably the commonest condition involving the SIJ although we are more familiar with other conditions listed in Table I. It refers to the mechanical problems arising from disordered biomechanics and movement of the SIJ in the lumbopelvic-hip kinetic chain. The SIJ forms the base on which the entire spine rests. Hesck et al¹ described the joint as a triplanar shock absorber dissipating axial loads. Hypomobility² and hypermobility derange load-bearing capabilities resulting in pain.

As can be seen from our 2 cases, the problem can present acutely with persistence of symptoms for years. The true prevalence of this condition is unknown but preliminary studies utilising provocative/analgesic by April¹ and presented at the First Interdisciplinary World Congress on low back pain and its relation to the SIJ in 1992 placed SIJ as the sole source of pain as 15% in contrast to the disc as 31% and zygoapophyseal (facet) joints as 14% with contributions up to 23% of patients with multiple pain generators in the spine. However, up to 29% of patients have no identifiable pain generator. Schwarzer et al³ studied 43 patients with low back pain through the use of single diagnostic SIJ blocks under fluoroscopy and found SIJ mediated pain in 13% to 30% of patients studied.

Suspecting the Diagnosis

The possibility of SIJ dysfunction should always be considered in any low back complaints especially in those with "resistant" or significant residual symptoms or absence of supporting radiology findings for the working diagnosis. However, these must be sought for actively.

TABLE I: OTHER CONDITIONS WHICH MAY AFFECT THE SACROILIAC JOINT

1. Seronegative spondyloarthropathy
2. Stress reaction and fracture
3. Infection e.g. tuberculosis and brucellosis
4. Crystal arthropathies e.g. gout and pseudogout
5. Laxity of the para sacroiliac ligaments during pregnancy
6. Tumours—synovial villous adenomas

There may be no known precipitating factors although Patient 2 had a direct fall on the buttock. The literature reports SIJ dysfunction to associated with pelvic ring injury, repetitive rotation through the lumbar spine or rotation coupled with an axial load.^{4,5} Besides a physical work demand inventory, the patient's posture during everyday activities should be looked into as well.

Pain is usually focused over the sacral sulcus, particularly a 3 by 10 cm vertical area just inferior to the posterior superior iliac spine (PSIS)⁶ with radiation to the groin, lower extremity or the abdomen. Hence, atypical sciatica with variable patterns of referral of pain emanate from a richly innervated SIJ (L2 to S2) and additionally pain can also radiate from the lumbar discs, zygoapophyseal joints and deep paraspinal muscles (e.g. quadratus lumborum) to the gluteal regions including the PSIS.

The pain may vary in intensity and the patient has learnt to avoid offending actions such as climbing and sit-stand changes.

Focused Examination

Clinical examination should be directed to the lumbopelvic-hip complex in which the SIJ is an important link of this kinetic chain. Table II shows an annotated list of common easy to perform physical examination routines in a patient with low back and buttock pain. Various authors have debunked the reliability, specificity or sensitivity of traditional clinical tests or positive history.^{7,8} but nonetheless they lead us to suspect SIJ dysfunction before doing confirmatory tests.

The Gold Standard for Confirmation

The gold standard for identifying SIJ as the main pain

TABLE II: AN OFFICE EXAMINATION TO SCREEN FOR CAUSES OF BUTTOCK PAIN

1. Localise painful site and radiation—Is it a muscle, site of sciatic nerve at sciatic notch or radiation from somewhere else?
2. If sacral sulcus or PSIS is tender, suspect SIJ dysfunction:
 - 2.1 Articular spring tests with compression over ASIS or FABER test (spring pelvis with the hip flexed, abducted and externally rotated)
 - 2.2 Movement tests including the standing and sitting flexion and Gillet's test
3. Screen for abnormal lumbar spine mobility including posterior element stress with trunk extension.
4. Screen for myofascial trigger points in the deep paraspinal muscles and piriformis.
5. Straight leg raising flexion of more than 60° may create SIJ movement and create low back pain and pseudosciatica.
6. Neurological examination of the lower extremities including gait and posture assessment.
7. Perianal and perineal examination.
8. Screen for limitation of the hips.

SIJ: sacroiliac joint; PSIS: posterior superior iliac spine; ASIS: anterior superior iliac spine

TABLE III: INTRA-ARTICULAR FLUOROSCOPIC-GUIDED INJECTIONS INTO THE SIJ

Indications

1. Diagnostic block using lignocaine/ bupivacaine if SIJ suspected
2. Therapeutic block using steroid suspensions and local anaesthetics (see text):
 - * used as an adjunct to facilitate manipulation
 - * maybe indicated if other conservative treatment fails

Contraindications

1. Coagulopathy
2. Infection-systemic or local

Procedure

Sterile

Prone position

Fluoroscopy

22 or 25 gauge needle at least 3.5 inch (spinal needle) long

Injectate volume with non-ionic contrast should be 2 ml or less.

Injectates can include combination of 1% lignocaine and steroids.

Bupivacaine 0.75% may be used as a longer-acting anaesthetic.

Target position is the inferior and posterior aspect of the joint, approximately 1 cm to 2 cm proximal to the most inferior osseous margin.¹³

Assessment: Patient can be re-evaluated for pain 15 to 30 minutes after the injection. Positive response taken as >75% relief of original pain.

Complications

Under fluoroscopy is rare. May include vascular puncture or if needle is placed too anteriorly, may result in viscera perforation.

SIJ: sacroiliac joint

generator is the fluoroscopy guided, contrast enhanced, intra-articular injection of local anaesthetic and obtaining a pain relief of more than 75% or using 2 blocks with different agents of different durations of action. The actual incidence of false positives has not been established. Table III elaborates on the indications, precautions and outline of this procedure. Huston reported 20 out of 37 patients with documented SIJ dysfunction through positive SIJ block experienced pain relief by 50% (on visual analogue scale). These patients also upgraded work status or maintained duty (personal communication).

Initial tests may include a complete blood count and ESR but these are likely non-contributory to the diagnosis of SIJ dysfunction. Radionuclide scans including bone scans are used to exclude infection, inflammation, fracture, neoplasms or stress reactions (found in sportsmen). Bone scans were shown to have low specificity for SIJ somatic dysfunction and this limits usefulness.⁹

Plain films are not diagnostic and would yield late or gross pathology of sclerosis and erosions from conditions other than SIJ somatic dysfunction. Clinical correlation to symptoms is rational in any intelligent spinal study especially if expertise and support are not readily available for SIJ injections. The computerised

tomographic scans identify bony detail best¹⁰ whilst the MRI scans provide exquisite soft tissue detail of inflammatory conditions and tumours.¹¹

Management Plan

The management is likely to be interdisciplinary and may vary according to the expertise and background of the clinician referred. Acute pain relief is obtained with non-steroidal inflammatory drugs, tramadol, weak oral opioids, moist heat and even TENS for pain treatment. The patient is told of the working diagnosis in order to elicit cooperation and compliance to therapy which may initially exacerbate the pain. As can be seen in our patients, they have “practitioner-hopped” many times and are wary and weary from the process. Education and belief in their symptoms go a long way to establish a therapeutic relationship based on mutual trust. Clinical practitioners familiar with musculoskeletal medicine would direct therapy towards correcting postural dysfunction, joint motion or segmental motion dysfunction, soft tissue inflexibility and weakened musculature. Manual medicine utilising mobilisation techniques benefited Patient B transiently with correction of abnormal signs (of Gillet testing) and maintained Patient A’s pain at low intensity which allowed good function. Caution should be exercised especially in suspected infection, trauma-related SIJ dysfunction or in joints which have been anaesthetised (through SIJ articular blocks). Interested readers should refer to the text by Greenman¹² for more information on this. Clinical observations of efficacy have not been subjected to the rigours of a controlled prospective study in the use of manipulation in SIJ dysfunction and more work is awaited in this area. The issue of maintenance of a pain-free state may then hinge on the patient avoiding activities which exacerbate pain (a work-station or work activity ergonomic assessment may be carried out by the occupational therapist) or even the use of a sacroiliac belt (worn above both greater trochanters).

Conclusion

The SIJ is increasingly recognised as a primary pain generator in patients with low back pain. Although its contribution can be suspected clinically, confirmation is possible only through the significant reduction of pain if it is anaesthetised through intra-articular blocks administered under fluoroscopy for accurate placement of local anaesthetic. The use of combined treatment techniques such as simple analgesics, physical modalities, physical therapy, manual medicine and intra-articular mixture of steroids and anaesthetic should hopefully alleviate some distress emanating from a troubled SIJ. More clinical research needs to be done.

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