

Sacroiliac joint dysfunction: a case study

Rita Urbani

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NATIONAL ACADEMY of OSTEOPATHY
121 LIMESTONE CRESCENT
TORONTO, ONTARIO M3J 2R1.
CANADA.

Sacroiliac joint dysfunction clinic case

Patient: Ricky, male, 31 years old, student.

Reason of Complaint

Pain in lumbar-sacral –iliac area, right side that manifest frequently over more than one year. Occasional pain/ tingling sensation in buttock, back tight and foot.

Examiner Questions

Is your pain on one side or both sides?

What does the pain feel like? dull, sharp, throbbing, or burning?

This is the first time you have had back pain?

When did the pain start? It started suddenly?

Did you have a particular injury or accident?

What was he doing just before the pain began? You were lifting or bending? Sitting at the computer? Driving a long distance?

If you have had back pain before, is this pain similar or different? How is it different?

We do not know the cause of previous episodes of back pain?

How long does each episode of back pain usually last?

Feel that your back pain radiate elsewhere, such as the hip, thigh, leg or foot?

You have numbness or tingling?

What makes the pain worse? Lifting, twisting, standing, or sitting for long periods of time?

What makes you feel better?

There are other symptoms present? Weight loss? Fever? Change in urination? Change in bowel habits?

Patient anamnesi

More than one year ago the patient lifted a heavy box, twisting his torso and pelvis to the right side and finally falling on his buttock.

Pain

Patient feels at the bones at the dimples in his lower back, that the right side is sticking out more than the left, there is small lump in right dimple where the bone is coming through a bit on that side. Patient has been suffering with frequent pain with it for over a year now with occasional radiating pain/tingling sensation in the buttock area, back tight and foot. Pain aggravated by sitting position, laying down supine.

TEST

Examiner observe the back of the patient, ask the patient to bend down to see any significant curvature, and to lean back. Check ROM, side bending, rotation. Examiner palpate bony element, muscle for tight band or not in that region. Then examiner moves down to SI in the pelvic area. To evaluate Sacroiliac joint dysfunction examiner apply different manoeuvre.

Standing forward flexion test (SFFT): Palpate with thumb loose on PSIS inferiorly. Ask patient to bend forward. The thumb positioned on the PSIS should move symmetrically upward in cephalic direction. If one of the two thumb travel further, there will be an SI dysfunction. Rule out muscle tightness, a tight Quadratus Lumborum muscle will pull on one side of the pelvis giving a false diagnosis of the SFFT, and so contralaterally a tight hamstring will lead to pull inferiorly the pelvis giving a false diagnosis.

Stork/Gillet test to assess the restriction of the normal posterior medial movement present with an iliac shifted. Stand on one leg with other leg to the chest, one thumb on S2 and other thumb on inferior part of PSIS. Restriction will stop normal movement of thumb posterior-inferior-medial that follow the normal iliac movement when leg is lifted.

Leg length discrepancy.

Faber test

Gaenslen test

Distraction test

Piriformis test to rule out Piriformis Syndrome.

Disc compression test to rule out disc problem

Dagnosis

Sacroiliac dysfunction

Ligament distraction (Ilio-lumbar)

Patient might have sprained Sacroiliac Ligament with an upslip of the Left ilium.

Left PSIS superior vs. right. Right PSIS superior vs. left

Leg discrepancy, left leg slightly shorter than right leg.

Sacro-tuberous Laxity + on the left, + on the right

Imaging diagnosis

Xray

MRI (to rule out disc protrusion)

Treatment

Prone lift leg support the knee below and the ankle and flex and extend the leg, emphasizing on the extension. Ask patient to simulate a kick out action when you extend leg. Do it for a couple of time.

MET for Posterior Subluxation (upslip): For this MET, the patient lies supine, while the clinician will hold the left leg and places it in 30° of abduction and flexion. The examiner pulls the leg inferiorly to apply gentle traction. Have the patient take a deep breath in and out normally. The

examiner add additional traction upon exhale. Perform this 2-3 times. After the final repetition, provide a quick longitudinal pull on the leg.

Massage Tissue: apply a deep transversed friction on the SI ligament and fascial work skin rolling in SI area and on gluteus muscle.

Side-Lying Exercise: this movement stretches the muscle that connects the pelvis to the lower back. Relaxing this muscle helps lower the hip to its natural position.

Back-Lying Exercise: reducing the tension in the muscles that connect the back of the hip to the spine helps correct the upslip and reduces hip pain.

Balance-Ball Exercise: to strengthening both hips equally as part of the body's core rehabilitates an upslip and protects your hips and pelvis from further muscle imbalances.

Strengthen your core

Pursue treatment two to six weeks at varying intervals.

Ice (15 minutes on and 15 minutes off) initially, frequently - two to eight times per day, and use of a sacroiliac support belt. Sitting for longer than 20 - 30 minutes without getting up and moving around is prohibitive.

Postural education

Patient current situation

Treatment improved general alignment of the pelvis of the patient. Significant improvement also of the pain that just occasionally manifests, especially when patient spend long time in sitting position.

Sacroiliac joint dysfunction: general view

Millions of people suffer with lower back pain. It is a common complaint which may persist for months or years. Much of what is thought of as "lower back pain" can be actually caused by a ligament sprain or sacroiliac joint malalignment, just to mention two reasons. Sacroiliac joint pain is one of the most commonly misdiagnosed causes of lower back pain. This is because identify the specific symptoms that indicate a sacroiliac joint problem, can be very challenging. Sacroiliac joint dysfunction does not usually show up on X-ray, MRI or CT scans and so this makes it difficult to accurately diagnose. In the case study above we assist to a slip of the ilium, a "dislodgment" or subluxation of the ilium and pelvic malalignment. This can often occur with a mild type of sprain. When this condition is ignored, the joint instability continues, a moderate sacroiliac sprain can ensue and malignment lead to low back pain and various other unpleasant condition.

Sacroiliac joint

The sacroiliac joint, the joint between the ilium and the sacrum, has key role in the transmission and dissipation of trunk loads to the lower extremity allowing various types of motions:

Gliding

Rotation

Tilting

Muscles are functionally connected to SI joint ligaments; therefore their actions can affect joint mobility. Muscles involved:

Gluteus maximus and minimus

Piriformis

Biceps femoris

Quadratus lumborum

Erector spinae

SI ligamentous structure is extensive and functions as a connecting band between the sacrum and ilia:

Sacrospinous and Sacrotuberous resists forward tilting (nutation) of the sacrum on the hip bone during weight bearing of the vertebral column

Interosseous resists anterior and inferior movement on the sacrum; strongest ligament supporting the SI joint

Posterior (dorsal) sacroiliac resists backward tilting (counternutation) of the sacrum on the hip bone during weight bearing of the vertebral column

Changes begin in puberty and continue throughout life. Pathological changes affecting SI joint structures

Capsular or synovial disruption

Capsular and ligamentous tension

Hypomobility or hypermobility

Extraneous compression or shearing forces

Abnormal joint mechanics

Microfractures or macrofractures

Soft tissue injury

Inflammation

Causes of Sacroiliac joint pain

• Injuries that strain or tear the SI ligaments e.g. a direct fall on the butt, a blow to the side of the pelvis or a weight-lifting accident. The injury can come from a direct fall on the buttocks, a motor vehicle accident or a sports related trauma. Si transfer force between leg and rest of the body or between back and leg Intense force jarring the low back and transmitting into the leg or force jarring the back will be transferred to the sacroiliac joint. Injured muscle can also affect

the Sacroiliac joint, hamstring muscle, gluteal muscle, back extensor. The force from these injuries can strain the ligaments around the joint. Tearing of these ligaments can lead to hypermobility in the joint. This excess motion and lack of stability is thought to be the main cause behind sacroiliac joint dysfunction

- Asymmetrical flexibility, restricted movement on one side, too much movement on the opposite side e.g. hamstrings, quadratus lumborum, latissimus dorsi, rectus femoris, sartorius and/or adductors, external oblique
- Excess movement in one or both SI joints, inflammation and pain, shuts down muscles crossing the joint, more instability and pain. Over time, degenerative arthritis.
- Multiple pregnancies
- Dysfunction in the lateral system, Trendelenburg syndrome, over-reliance on the ligamentous structures, excessive sheering in the SI joints.
- Dysfunction of the inner unit will reduce or eliminate the nutcracker effect.
- A weak pelvic floor, trauma or dysfunction can indirectly cause SI joint dysfunction and pain, since the pelvic floor musculature is on the same neurological loop as the quadratus lumborum and the TVA
- Leg length discrepancies may also play a role in sacroiliac joint dysfunction. If a person has one leg that is shorter than the other, the abnormal alignment may end up causing SI joint pain or malalignment issues.

Common symptoms of sacroiliac joint dysfunction:

Lumbosacral pain

Buttock Pain is reported as a generalized distribution of “achiness” which can radiate into the thigh. Hence a misdiagnosis of Piriformis Syndrome can be produced.

Hip pain

Groin pain

Urinary frequency

Iliac crest pain

Transient numbness, prickling or tingling

Increased pain with stair climbing. This is a result of increased demands on the skeletal and soft tissue system of the pelvic girdle during these activities. This symptom may also be present in disc pathologies.

Increased pain with sustained positions (i.e., sitting, walking, lying)

Treatments can be divided this way:

Correcting the underlying pathology and alleviating symptoms

Stretching and strengthening the weak muscles

Pelvic stabilization

Restoration of postural and dynamic muscle imbalances

Sacroiliac joint dysfunction does not usually show up on X-rays, MRI, or CT scans and so this makes it difficult to accurately diagnose. The most accurate way of determining whether the SI joint is a pain generator is to perform a diagnostic injection directly into the joint. Because the joint is so deep, this must be done using X-ray guidance with a fluoroscope. A numbing agent and steroid is injected directly into the joint. If the patient reports a drastic improvement in pain, then the physician may conclude that the SI joint is a pain generator.

Upslip condition

.An upslip (or Posterior Iliac Subluxation) occurs when the hipbone sits higher on one side. Any force that pushes the leg or pelvis upward can cause an upslip. Typical causes of upslips are motor vehicle accidents, or falling onto one knee or onto one buttock.

An ilium can be shifted upward when the back muscles pull against it. This can happen while you're bending, twisting and lifting. If you bend forward, rotate to your right, then lift a heavy object, the left ilium bone could shift upward, giving you a painful upslip on the left side. Because the sitting bones (ischial tuberosities) are also uneven, people who suffer from an upslip condition typically experience sacroiliac pain while sitting, usually on the affected side, but in a small percentage of cases, on the opposite side. When upslip occurs on the left side, an anterior innominate (pelvic rotation) occurs on the on the right side; one of the most common sign for unslip and anterior innominate is a functionally shorter leg length on the left. Lifted ilium can cause the leg to shorten, leading to pelvic bone to become misaligned. The pelvis will than rotate anteriorly to compensate the misaligned and in order to keep both feet on the ground for standing and deambulation, so an upslip on left ilium can cause left leg to shorten, pelvis to twist and right ilium to become higher, this condition together with muscle tightness can provoke pain and various biomechanic change in the spine,.

Fatigue, early in the day, is another indicator of an upslip condition. An early "fatigue point" could mean that a person is working harder, to maintain balance, because of an upslip.

Brain and muscle work together to produce the effort needed to maintain one's balance. Because balance is a function of the autonomic nervous system, people aren't consciously aware of the processes involved.

Correcting an Upslip

Physical therapists, skilled in manual therapy, are able to quickly assess your condition by observing your bony landmarks. They'll look for an elevated ilium bone while you're standing,

sitting and lying in the supine (on your back) position. A functionally short leg will be apparent on the side of the elevated ilium.

While in the prone position, an elevated ischial tuberosity will also be evident on the elevated ilium side. The physical therapist very gently rocks or pulls the functionally short leg to pull the elevated ilium back into its proper position. After making the correction they must then look for two possible secondary dysfunctions (pubic subluxation or posterior ilium) and correct these problems, too, if they are found to exist.

Conclusion

Despite easy recognition, pelvic upslip and anterior innominate are often missed on evaluation. These pelvic malalignments elicit musculoskeletal dysfunction across the entire, both to the upper extremities and lower extremities.

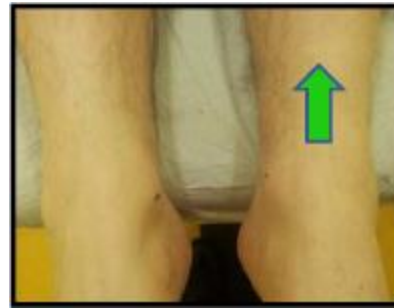
Can be useful to keep in mind few important factors to consider when diagnosing and evaluating back pain:

1. Posture
2. Movement/biomechanics
3. Alignment
4. Strength-flexibility balance
5. History of injury
6. Structural damage or degeneration

Some reference picture for Sacroiliac Upslip



Superior migration of left thumb upon forward flexion



Leg discrepancy



Iliac crest left height superior than right height

Sacroiliac Pain Rehabilitation Exercises



References

Raymond Richard (Author), D. Fetus Azzimonti (Translator), 2000, Lesioni Osteopatiche iliache, Marrapese Editore Roma, 2013.

Rakel D. lombalgia. . In: Medicina Integrativa Elsevier; 2003:423-431.

Matthew Wallden,2013, Practical Approaches to SI Joint Pain.

Charles L. Blum, D.C., C.S.C.P.Sacro Iliac Joint Sprains.

Slipman, C.W., Whyte, W.S., Chow, D.W., Chou, L., Lenrow, D, Ellen, M. (2001). Sacroiliac Joint Syndrome. *Pain Physician*, 4, 143-152.

Dott. Virgilio Salutarì, Medico Fisiatra, Osteopata. Casi clinici controversi in Riabilitazione muscolo-scheletrica.Acts of Congress “Lombalgia cronica, Approccio Osteopatico” Roma 20/21/22 Giugno 2013.