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## Sacroiliac joint pain post lumbar fusion: A case report

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### Abstract

Sacroiliac joint dysfunction is an often-overlooked cause of chronic lower back pain, with a prevalence of at least a quarter of cases of lower back pain. Diagnosis is challenging due to the broad range of differential diagnoses, requiring a combination of history, physical exams, and special tests such as the Cluster of Laslett. This case report describes a 54-year-old male who experienced SIJ dysfunction following L4-5 and L5-S1 laminectomies, a manifestation of Failed Back Surgery Syndrome. After years of persistent symptoms, the patient was finally diagnosed with SIJ dysfunction using physical tests and diagnostic nerve blocks, leading to successful treatment with therapeutic SIJ injections. This case highlights the importance of considering SIJ dysfunction in patients with FBSS and demonstrates SIJ blocks' efficacy as diagnostic and therapeutic tools.

**Keywords:** Sacroiliac joint dysfunction, low back pain, nerve block

### Introduction

Sacroiliac joint (SIJ) dysfunction is a historically overlooked cause of low back pain. It is thought to be the culprit of between 15-30% of chronic, non-radicular lower back/buttock pain in adults [1]. Despite such a jarring prevalence, diagnosis of SIJ dysfunction remains a challenging obstacle for medical providers worldwide. This can be attributed to the broad range of similar differentials, including lumbar disc herniation, lumbar muscle spasm, facet syndrome, and radiculopathy. A thorough history must be combined with a physical exam and special tests to make an accurate diagnosis. The set of special tests currently used is called the Cluster of Laslett. This cluster includes five tests to elicit nociception from a dysfunctional sacroiliac joint structure-namely, the distraction of the SIJ, thigh thrust, Gaenslen, SIJ compression, and sacral thrust. Laslett *et al.* (2005) noted that the cluster has a sensitivity of 88% and a specificity of 78% when two or more of the tests above are positive upon physical exam. However, the current gold standard diagnostic tool remains the SIJ nerve block, whereby anesthetic is inserted into the SIJ under fluoroscopic guidance. It is generally accepted that if such a nerve block relieves 50-75% of the patient's pain on two or more occasions, SIJ dysfunction can be diagnosed [2].

Similar to the multitude of differentials, there are numerous etiologies underlying SIJ dysfunction. The underlying commonality of all etiologies is that each causes abnormal motion at the joint. A common culprit of hypermobility is increased estrogen and relaxin hormone production during pregnancy. Conversely, pelvic fractures and a sedentary lifestyle can cause hypomobility, also falling under the umbrella of SIJ dysfunction [3]. Perhaps a less intuitive cause of dysfunction is iatrogenic. Failed Back Surgery Syndrome (FBSS) is gaining traction in the orthopedic community as a common cause of SIJ dysfunction as well. FBSS occurs when a patient experiences significant, prolonged pain following spinal surgery. Manzetti *et al.* (2023) reported a 59% prevalence of SIJ pain following fixed lumbar spine arthrodesis [4].

Our article discusses a case of SIJ dysfunction following L4-5 and L5-S1 laminectomies- a common culprit of FBSS. It also highlights the importance of considering the sacroiliac joint when developing a list of differentials for mechanical low back pain, as this patient underwent years of extensive testing and treatment before finally achieving the symptomatic relief he so desperately sought after SIJ dysfunction was diagnosed and treated.

**Case Description:** A 54-year-old male with a history of L4-5 and L5-S1 laminectomies over a decade ago presented with back pain radiating to the posterior and anterior thigh, leg, and toes, consistent with the L5-S1 dermatome. The pain was exacerbated by flexion and unchanged with extension. X-rays were unremarkable, but MRI revealed L4-L5 disc protrusion and significant right-sided herniation at L5-S1 with annular tearing. Conservative management, including six weeks of physical therapy, provided minimal symptom relief. The patient continued to experience numbness and tingling in the thigh and leg without bowel or urinary incontinence. A transforaminal epidural injection at L5-S1 provided mild relief for two weeks. After excluding other conditions, such as multiple sclerosis and ALS, L5-S1 fusion was performed without complications.

Postoperatively, the patient completed two months of rehabilitation and returned to work and daily activities with minimal difficulty. One year later, he returned with severe axial lower back pain localized to the right sacroiliac (SI) joint without leg radiation. SI joint special tests, including distraction, compression, and Gaenslen's test, were positive on the right side. A diagnostic nerve block provided 60-70% relief, leading to a diagnosis of SI joint dysfunction.

A therapeutic SI joint injection was administered, resulting in significant pain relief. The patient resumed work and daily activities independently.



**Fig 1:** T<sub>2</sub> sagittal MRI lumbar spine demonstrating L4-L5 disc protrusion



**Fig 2:** T<sub>1</sub> Axial MRI lumbar spine demonstrating right-sided herniation at L5-S1 with annular tearing



**Fig 3 & 4:** Post-operative plain radiographs demonstrating L5-S1 spinal fusion

### Discussion

The sacroiliac joint (SIJ) plays a crucial role in lumbopelvic dynamic motion, yet sacroiliac joint dysfunction is often an underappreciated cause of low back pain. It is estimated to contribute to at least 25% of cases of low back pain and is more prevalent in patients with trauma, pregnancy, or in certain athletes. The pathophysiology of SIJ pain is linked to increased mechanical load, iliac crest bone grafting, or misdiagnosis of SIJ syndrome. With the rising number of lumbosacral fusion surgeries, studies indicate that many patients continue to experience low back or lower extremity pain. Imaging reveals more frequent SIJ degeneration and symptom provocation in patients with lumbar or lumbosacral fusion than in those without such procedures<sup>[5]</sup>. Accurately diagnosing SIJ dysfunction remains challenging, as no single clinical test has high sensitivity and specificity. Therefore, a combination of clinical assessments is recommended. These include distraction of the SIJ, thigh thrust, sacral thrust, SIJ compression, Gaenslen, and FABER. The likelihood of SIJ dysfunction being the primary pain source increases significantly if two or more provocation tests are positive. Additional indicators include SI joint asymmetry while standing, unilateral pain localized to the SIJ, sacral pain without lumbar involvement, and pain exacerbated upon standing from a seated position<sup>[6]</sup>. No imaging modality consistently yields definitive findings for diagnosing primary SIJ pain. While radiographs are a cost-effective method for imaging the SIJ, studies indicate that approximately 24.5% of asymptomatic individuals over the age of 50 show abnormal SIJ findings on plain radiographs<sup>[7]</sup>. CT scans are more sensitive for detecting bony changes, while MRI is more effective for evaluating soft tissue. Ha *et al.* (2008) found that SIJ degeneration is a common complication of lumbosacral fusion, irrespective of the number of fused segments<sup>[8]</sup>.

Conservative management approaches are often practical, including joint mobilization, physical therapy, anti-inflammatory medications, and sacroiliac joint belts to limit motion. The use of opioids should be restricted to select cases, and surgical arthrodesis should be considered only as a last resort. A double-blind trial involving 40 patients with SIJ pain demonstrated that pain relief following intra-

articular injection into the SIJ under radiographic guidance is both diagnostic and therapeutic [9]. Additionally, Liliang *et al.* (2009) reported that 66.7% of patients experienced more than 50% pain reduction for at least six weeks following SIJ blocks, although the efficacy duration was shorter in those with prior lumbar/lumbosacral fusion [10].

In our case, the patient experienced significant pain reduction following a local anesthetic injection into the SIJ after lumbosacral fusion and multiple spinal surgeries. This case underscores the importance of considering SIJ pathology when evaluating mechanical low back pain to ensure accurate diagnosis and optimal patient outcomes.

### Conclusion

This case report highlights the importance of considering sacroiliac joint dysfunction as a potential cause of chronic lower back pain, particularly in patients presenting with Failed Back Surgery Syndrome following lumbar fusion. Despite its relatively high prevalence, SIJ dysfunction remains underdiagnosed due to overlapping symptoms with other lumbar pathologies and the challenging nature of the diagnosis. The possibility that the SIJ is the source of pain should be considered in patients with failed back surgery syndrome after lumbar/lumbosacral fusion. Our case illustrates that a thorough clinical evaluation, including a range of special tests and diagnostic nerve blocks, is essential for accurate diagnosis. The successful treatment of SIJ dysfunction with therapeutic SIJ injections in this patient highlights the efficacy of this intervention in providing significant pain relief and restoring function. Clinicians should maintain a high index of suspicion for SIJ dysfunction in similar clinical presentations of lower back pain, ensuring timely diagnosis and appropriate management to improve patient outcomes.

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