Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Anesthesiology

Resolution of Sacroiliitis-Associated Radiating Pain with L4 Medial Branch and L5 Dorsal Ramus Blocks: A Case Report

Youngsang Yoon[1], Dae Chul Shim[1], Jinyoung Kim[1], Sohyun Kim[1], Sangsoo Kang[1*]

[1]Department of Anesthesiology and Pain Medicine, Kangdong Sacred Heart Hospital, 150 Seongan-ro, Gangdong-gu, Seoul 05355

DOI: 10.36347/sjmcr.2023.v11i11.020 | **Received:** 08.10.2023 | **Accepted:** 16.11.2023 | **Published:** 20.11.2023

***Corresponding author:** Sangsoo Kang
Department of Anesthesiology and Pain Medicine, Kangdong Sacred Heart Hospital, 150 Seongan-ro, Gangdong-gu, Seoul 05355

Abstract **Case Report**

We describe the case of a 74-year-old man who experienced lower back pain and radiating pain due to sacroiliitis, and he was treated with left L4 medial branch and left L5 dorsal ramus blocks.

Keywords: Sacroiliac joint pain, Sacroiliitis, Lower back pain, L4 Medial Branch, L5 Dorsal Ramus.

INTRODUCTION

Pain in both the lower back and legs is common and can significantly impair a patient's quality of life. Among the various causes of lower back pain (LBP), sacroiliac joint (SIJ) pain is often considered among various causes of lower back pain (LBP); however, making a definitive diagnosis can be challenging. In this case, although we initially speculated the severe LBP and radiating pain down the left leg to be caused by a herniated intervertebral disc (HIVD), the pain did not improve after two left-sided selective transforaminal epidural blocks. Therefore, we suspected SIJ pain and performed blocks on the left L4 medial branch and left L5 dorsal ramus. Subsequently, the patient's pain level decreased from a visual analogue scale (VAS) score of 8 to 1.

CASE REPORT

A 74-year-old man presented with severe LBP and a VAS score of 8. Four years prior, the patient had a history of moderate LBP, which was managed using chlorphenesin carbamate and celecoxib. His comorbidities were atrial fibrillation, diabetes mellitus, and dyslipidemia, for which he was taking medications, including apixaban.

Recently, the patient experienced progressively worsening pain, and found even walking a 10-m distance as challenging. Despite taking oral medications such as 100 mg celecoxib, 650 mg acetaminophen, and 50 g pregabalin, he experienced no significant relief from pain. The patient's laboratory results, including C-reactive protein (CRP) level, erythrocyte sedimentation rate (ESR), and white blood cell (WBC) count, were all within the normal range, ruling out the possibility of an infection. Lumbar spine magnetic resonance imaging (MRI) revealed centrally HIVDs at the L4/5 and L5/S1 levels (Figure 1).

Over 2 weeks, the patient underwent two left-sided selective transforaminal epidural blocks at the L5 and S1 levels. However, the pain persisted between 7 and 8 based on the VAS. Subsequently, a pelvic computed tomographic (CT) scan revealed partial ankylosis of both the SIJs, indicating the possibility of bilateral sacroiliitis (Figure 2).

Considering the possibility of ankylosing spondylitis, an HLA-B27 test was conducted and the result was negative. However, we could not exclude the possibility of ankylosing spondylitis, which could cause SIJ pain due to bilateral sacroiliitis. We performed SIJ injection; however, the administration was challenging due to ankylosis, and its effectiveness was minimal.

We performed blocks on the left L4 medial branch and left L5 dorsal ramus, which were considered to contribute to the SIJ pain (Figure 3). The patient reported immediate pain relief.

At a follow-up examination after 2 weeks of the treatment, the patient's VAS score remained at 2, indicating sustained improvement, with the ability to walk approximately 500 m a day. Seven months after the procedure, the patient reported complete resolution of the LBP, with only mild numbness in the left ankle. Ten months after the procedure, there was no LBP or residual

radiating pain in the left ankle, and the patient was able to walk > 7 km/day. Before the procedure, the patient was taking 150 mg pregabalin twice daily. However, 7 months after the procedure, the patient's requirement for analgesics decreased to 25 mg pregabalin when required.

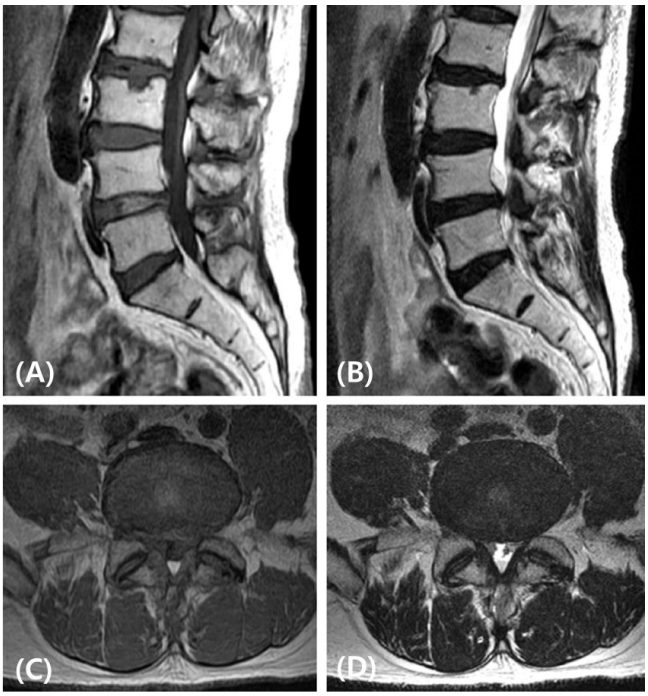

Figure 1: T1 and T2 weighted sagittal and axial magnetic resonance images showing diffuse bulging of the L2-3, L3-4, L4-5, and L5-S1 discs. (A and C) T1-weighted images, (B and D) T2-weighted images

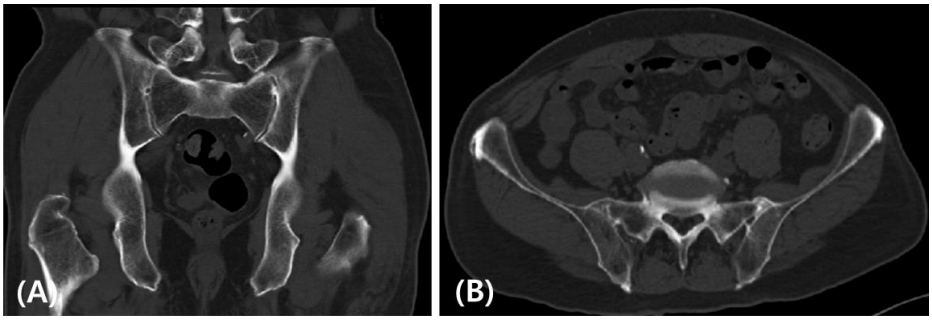

Figure 2: Computed tomographic images show evidence of partial ankylosis of bilateral sacroiliac joints. (A) coronal image and (B) axial image

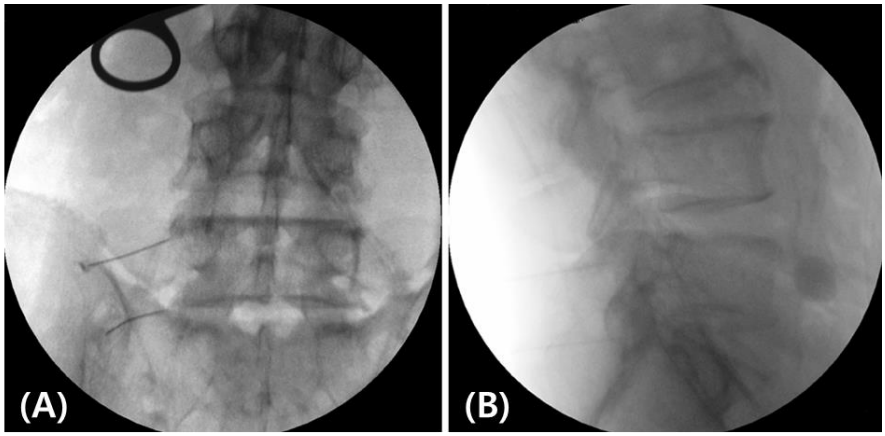

Figure 3: Fluoroscopic view of the left L4 medial branch block with left L5 dorsal ramus block (A) anteroposterior view, (B) lateral view

DISCUSSION

The referred pain patterns of L4/5 facet joint pain are relatively well understood. (Perolat R *et al.*, 2018) This pain can be referred to the lower limbs and may present in a manner similar to radicular lumbar pain. Typically, it radiates to the buttock and trochanteric region, ending above the knee, and pain radiating below the knee is a negative predictor of the facet joint pain. The SIJ pain primarily manifests in the buttocks, lower back, and posterolateral thighs. (Fortin J *et al.*, 1994) Less frequently, other regions with referred pain originating from the SIJ comprise the groin and the lower leg. (Slipman CW *et al.*, 2000) However, clinical symptoms and imaging tests alone are insufficient for diagnosing facet and SI joint pains, and diagnostic blocks are necessary for distinguishing both. (Manchikanti L *et al.*, 2001).

The exact innervation of the SIJ remains a topic of ongoing research. Ikeda *et al.*, (1991) reported that the anterior part of the SIJ receives a nerve supply from the ventral rami of the L5 and S2 nerves. The posterior part of the SIJ is considered to be innervated by the dorsal rami of L5 and lateral branches of the sacral nerves. Dreyfuss *et al.*, (2009) reported that the majority of posterior sensory innervation is transmitted through the lateral branches from the S1, S2, and S3 dorsal rami and the medial branches originating from the L4 and L5 dorsal rami.

In the current case, based on the initial MRI findings and referred pain pattern from the lower back, HIVDs were initially suspected. However, as the diagnostic treatment showed no improvement in pain, other potential causes of pain were considered. The patient exhibited lower leg pain, which was a negative predictor of the facet joint pain, and a CT scan revealed bilateral partial ankylosis of the SIJ; therefore, we suspected SIJ pain. Considering the innervation of the SIJ, diagnostic blocks were administered, which resulted in immediate pain relief and complete resolution.

CONCLUSION

This case suggests the clinical significance of considering SIJ pain as a possible source of lower back and radiating pain. Additionally, our case highlights the potential effectiveness of L4 medial branch and L5 dorsal ramus blocks for SIJ pain.

ACKNOWLEDGEMENTS

The authors declare that they received no funding or financial support.

REFERENCES

- Cohen, S. P. (2005). Sacroiliac joint pain: a comprehensive review of anatomy, diagnosis, and treatment. *Anesthesia & Analgesia*, *101*(5), 1440-1453.
- Forst, S. L., Wheeler, M., Fortin, J. D., & Vilensky, J. A. (2006). The sacroiliac joint: anatomy, physiology and clinical significance. *Pain physician*, *9*(1), 61.
- Perolat, R., Kastler, A., Nicot, B., Pellat, J. M., Tahon, F., Attye, A., ... & Krainik, A. (2018). Facet joint syndrome: from diagnosis to interventional management. *Insights into imaging*, *9*(5), 773-789.
- Fortin, J. D., Dwyer, A. P., West, S., & Pier, J. (1994). Sacroiliac joint: Pain referral maps upon applying a new injection/arthrography technique: Part I: Asymptomatic volunteers. *Spine*, *19*(13), 1475-1482.
- Fortin, J. D., Aprill, C. N., Ponthieux, B., & Pier, J. (1994). Sacroiliac joint: pain referral maps upon applying a new injection/arthrography technique. Part II: Clinical evaluation. *Spine*, *19*(13), 1483-1489.
- Slipman, C. W., Jackson, H. B., Lipetz, J. S., Chan, K. T., Lenrow, D., & Vresilovic, E. J. (2000). Sacroiliac joint pain referral zones. *Archives of physical medicine and rehabilitation*, *81*(3), 334-338.
- Manchikanti, L., Singh, V., Pampati, V., Damron, K. S., Barnhill, R. C., Beyer, C., & Cash, K. A. (2001). Evaluation of the relative contributions of various structures in chronic low back pain. *Pain physician*, *4*(4), 308.
- Ikeda, R. (1991). Innervation of the sacroiliac joint. Macroscopical and histological studies. *Nihon Ika Daigaku Zasshi*, *58(*5), 587-596.
- Dreyfuss, P., Henning, T., Malladi, N., Goldstein, B., & Bogduk, N. (2009). The ability of multi-site, multi-depth sacral lateral branch blocks to anesthetize the sacroiliac joint complex. *Pain Medicine*, *10*(4), 679-688.