

General

Platelet-Rich Plasma Facet Joint Injections for Post-Traumatic Lumbar Facet-Mediated Pain: A Two-Patient Case Report

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Background

Lumbar facet-mediated pain is a common contributor to axial low back pain and may occur after traumatic or mechanical injury, even when advanced imaging demonstrates only mild degenerative or nonspecific findings. Standard interventional treatment pathways often include diagnostic medial branch blocks followed by radiofrequency ablation, or intra-articular facet joint injections with corticosteroids. However, some patients wish to avoid corticosteroid exposure or neuroablative procedures. Platelet-rich plasma (PRP) is a biologic injectate that could be used for the treatment of facet-mediated low back pain, although the available clinical evidence remains very limited

Case Presentation

We present two patients with post-traumatic axial low back pain clinically localized to the lumbar facet joints who elected to undergo lumbar facet joint PRP injections after declining medial branch blocks, radiofrequency ablation, and corticosteroid injections to the facet joints. The first patient was a woman in her 40s who developed low back pain after a motor vehicle collision. Lumbar MRI demonstrated minimal structural abnormalities, but examination revealed focal facet-region pain worsened with lumbar extension. She underwent PRP injections at the bilateral L3–4 and L4–5 facet joints, corresponding to the areas of maximal pain. At 6-week follow-up, she reported approximately 60% pain relief and continued participation in physical therapy and a home exercise program. The second patient was a man in his 50s who developed low back pain after falling from a ladder. Imaging demonstrated mild lumbar spondylosis and degenerative disc disease. He preferred PRP over corticosteroid injections, medial branch blocks, or radiofrequency ablation. PRP injections were performed at the L4–5 and L5–S1 facet joints, corresponding to his areas of maximal pain. At 6-week follow-up, he reported approximately 70% sustained pain relief. No complications were noted in either case.

Conclusion

These cases suggest that lumbar facet joint PRP injections may provide moderate pain improvement in carefully selected patients with clinically suspected facet-mediated pain after acute injury, particularly those wishing to avoid corticosteroid injections or ablative procedures. However, diagnostic certainty may be lower when confirmatory medial branch blocks are not performed. Further controlled studies are needed to define optimal patient selection, PRP preparation, injection technique, and durability of response.

INTRODUCTION

Lumbar facet joints are paired synovial joints in the posterior spinal column that may contribute to axial low back

pain through degenerative, inflammatory, or post-traumatic mechanisms. Facet-mediated pain is often suspected clinically when pain is predominantly axial, localized to the paraspinal or facet region, and exacerbated by lumbar extension, rotation, or facet loading maneuvers. Imaging may

demonstrate facet arthropathy, spondylosis, or degenerative disc disease, although radiographic abnormalities do not always correlate with pain generation and may be minimal during acute facet joint injuries.¹ Conversely, patients may have clinically meaningful facet-mediated pain despite only mild imaging findings.²

Standard interventional approaches for suspected lumbar facet-mediated pain include diagnostic medial branch blocks followed by medial branch radiofrequency ablation in appropriately selected patients, as well as intra-articular (IA) facet injections with local anesthetic and corticosteroid.³ While these treatments are widely used, not all patients are willing to pursue corticosteroid injections or neuroablative procedures. Some patients may have concerns regarding steroid exposure, repeated injections, tissue effects, or the concept of nerve ablation and possible multifidus denervation.^{4,5}

PRP is an autologous, blood-derived product containing concentrated platelets and bioactive mediators that may modulate inflammation, support tissue repair, and influence pain signaling.⁶ Although the available evidence evaluating PRP for facet-mediated low back pain remains limited, early findings are encouraging. A comprehensive review by Patel et al. identified three relevant studies, including two retrospective studies and one prospective study. Collectively, these reports suggest growing interest in the use of PRP for facet-mediated low back pain and indicate the potential for meaningful clinical benefit. However, larger, well-designed prospective trials are needed to better define efficacy, safety, optimal patient selection, injection technique, and standardized treatment protocols.⁷

We present two patients with post-traumatic low back pain clinically localized to the lumbar facet joints who declined medial branch blocks, radiofrequency ablation, and corticosteroid injections and elected to proceed with lumbar facet joint PRP injections.

CASE PRESENTATION

CASE 1

A woman in her 40s presented with persistent axial low back pain following a motor vehicle collision. Her pain was localized predominantly to the lower lumbar paraspinal region without a clear radicular component. She reported pain exacerbation with lumbar extension and activity. Lumbar MRI demonstrated minimal structural abnormalities. On examination, she had pain localized over the lumbar facet region, with reproduction of her typical symptoms during lumbar extension and facet-loading maneuvers.

The patient was counseled on standard diagnostic and therapeutic options, including diagnostic medial branch blocks with possible progression to radiofrequency ablation, as well as corticosteroid-based facet injections. She declined medial branch blocks, radiofrequency ablation, and steroid injections, expressing a preference for a non-steroid and non-ablative treatment option. After discussion of the limited evidence base for PRP in facet-mediated low

back pain, she elected to proceed with lumbar facet joint PRP injections.

Facet joint PRP injections were performed at L3–4 and L4–5, corresponding to the areas of maximal pain. No corticosteroid was used. A total of 0.5mL of PRP was administered IA with another 1mL administered extra-articular around the capsule. The procedure was tolerated without immediate complication. At 6-week follow-up, the patient reported approximately 60% improvement in low back pain. She continued with physical therapy and a home exercise program. No adverse events or delayed complications were noted.

CASE 2

A man in his 50s presented with axial low back pain that developed after falling from a ladder. His symptoms were primarily mechanical and localized to the lower lumbar region. Imaging demonstrated mild lumbar spondylosis and lumbar degenerative disc disease. His pain was most prominent over the lower lumbar facet region and was exacerbated by lumbar extension and mechanical loading.

Treatment options were reviewed, including conservative care, diagnostic medial branch blocks with possible radiofrequency ablation, and corticosteroid-based facet interventions. The patient declined medial branch blocks, radiofrequency ablation, and steroid injections. He expressed interest in PRP as a non-steroid and non-ablative option.

Facet joint PRP injections were performed at L4–5 and L5–S1, corresponding to his areas of maximal pain. No corticosteroid was used. A total of 0.5mL of PRP was administered IA with another 1mL administered extra-articular around the capsule. The procedure was completed without immediate complication. At 6-week follow-up, the patient reported approximately 70% pain relief, which was sustained at that visit. No complications were reported.

DISCUSSION

Facet-mediated pain arises when one or more lumbar facet joints become a clinically significant source of axial low back pain. Patients may report pain that is worse in the morning or with prolonged standing, walking, axial loading, lumbar extension, or direct palpation over the facet region. Potential pain generators include capsular strain, synovial inflammation, repetitive mechanical stress, and degenerative injury to the joint complex.⁸ Both patients in the present report demonstrated clinical findings consistent with facet-mediated pain, including localized tenderness over the facet region and pain provoked by lumbar extension. Imaging findings were mild or nonspecific, which is common in patients with axial low back pain and further emphasizes the importance of correlating imaging with the clinical examination.

Early clinical studies have suggested that intra-articular PRP may provide meaningful benefit in patients with lumbar facet joint pain. In one prospective study, 19 patients with lumbar facet joint syndrome underwent fluoroscop-

ically guided intra-articular injections of autologous PRP and were followed for three months. The authors reported that the procedure was safe and associated with improvements in pain and function, supporting the feasibility of PRP as a treatment for facet-mediated low back pain.⁹ Although limited by the small sample size and follow-up period of 3-months, the study provides early evidence that PRP can be administered safely under image guidance and may produce clinically relevant benefit.

Additional comparative studies have suggested that the effects of PRP may be more durable than those of local anesthetic alone. In a CT-guided study of 78 patients with chronic facet joint syndrome, 59 patients received PRP and 19 received local anesthetic injections. Both groups experienced pain reduction during the first two weeks. However, from six weeks through one year, the PRP group demonstrated greater improvement in pain scores compared with baseline. The PRP group also showed superior Oswestry Disability Index scores at 3, 6, and 12 months.¹⁰ These findings suggest that PRP may offer a more sustained effect through biologic mechanisms that extend beyond temporary neural blockade. Of note, the patients receiving PRP injections underwent a series of 3-5 injections.

Similar findings have been reported in comparisons between PRP and local anesthetic combined with corticosteroid. In one study of 46 patients, participants were divided into an intra-articular PRP group and an intra-articular local anesthetic/corticosteroid group. Early outcomes were similar, and the local anesthetic/corticosteroid group reported high satisfaction at one month. However, satisfaction in that group declined substantially by six months, whereas satisfaction in the PRP group increased over time. The authors concluded that PRP may provide superior long-term benefit despite a less pronounced early response.¹¹ This temporal pattern may reflect the difference between the rapid anti-inflammatory and anesthetic effects of corticosteroid-based injections and the potentially slower, biologically mediated effects of PRP. A separate comparative study likewise found that patients treated with intra-articular PRP experienced greater improvements in pain and function at six months than those treated with corticosteroid. Mean Oswestry Disability Index scores were significantly better in the PRP group at the six-month follow-up.¹²

Taken together, these studies suggest that PRP may provide more durable clinical benefit than local anesthetic or corticosteroid injections in selected patients with facet-mediated low back pain. However, the available literature re-

mains limited by small sample sizes, nonrandomized treatment allocation in some studies, variable PRP preparation methods, and inconsistent outcome reporting. Larger randomized controlled trials are needed to confirm efficacy, identify appropriate patient-selection criteria, and establish standardized preparation and injection protocols.

LIMITATIONS

Several limitations should be acknowledged. First, this is a two-patient case report without a control group with an acute injury with concurrent rehabilitation may have contributed to improvement. Second, neither patient underwent confirmatory medial branch blocks because both declined that pathway, which reduces diagnostic certainty. Third, outcomes were limited to patient-reported percent pain relief at 6 weeks, without standardized functional measures. Fourth, the durability of response beyond 6 weeks remains unknown. Despite these limitations, the absence of complications and the moderate short-term pain improvement observed in both patients support further investigation of facet joint PRP in selected patients with post-traumatic or mechanically provoked axial low back pain who decline or wish to avoid steroid-based and ablative interventions.

CONCLUSION

Lumbar facet joint PRP injections were associated with moderate short-term pain improvement in two patients with post-traumatic axial low back pain who declined medial branch blocks, radiofrequency ablation, and corticosteroid injections. The first patient reported 60% relief and the second reported 70% sustained relief at 6-week follow-up, with no complications noted. These cases suggest that facet joint PRP may be a reasonable non-steroid, non-ablative option for carefully selected patients, particularly those with acute mechanical injuries or strong preferences to avoid corticosteroid exposure and neuroablative procedures. Although preliminary results appear promising, patients who wish to proceed should be fully counseled regarding the limited evidence and available conventional treatment options.

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