

## CASE REPORT

# Intra-articular Injection of Platelet-rich Plasma in the Management of Chronic Low Back Pain due to Facet Arthropathy: A Case Report with 12 Months Follow-up

<sup>1</sup>Samarjit Dey, <sup>2</sup>Prithwis Bhattacharyya, <sup>3</sup>Priyanka Dev

## ABSTRACT

Platelet-rich plasma prolotherapy (PRPP) helps to heal the injured tissue. Connective tissue repair is the platelet function that PRPP operates on. Platelet concentrations, when increased in a specific area, stimulate rapid healing. The main focus of PRPP is on the alpha granules, as these structures house all of the growth factors essential to PRPP in inactivated forms. Here, we report a case of lumbar facet arthropathy, which was successfully treated with intra-articular PRP injection. Patient was pain free after 12 months follow-up. We want to highlight that intra-articular PRP injection may be a future potential alternative therapy for facet arthropathy.

**Keywords:** Facet arthropathy, Low back pain, Platelet-rich plasma.

**How to cite this article:** Dey S, Bhattacharyya P, Dev P. Intra-articular Injection of Platelet-rich Plasma in the Management of Chronic Low Back Pain due to Facet Arthropathy: A Case Report with 12 Months Follow-up. *J Recent Adv Pain* 2015;1(1): 26-27.

**Source of support:** Nil

**Conflict of interest:** None

## INTRODUCTION

Prevalence of facet joint arthropathy is between 5 and 15% of the population with axial low back pain. Result of repetitive stress and/or cumulative low-level trauma.<sup>1</sup> Inflammation, which can cause the facet joint to be filled with fluid and swell, which in turn results in stretching of the joint capsule and subsequent pain generation.<sup>2</sup> Inflammatory changes around the facet joint can also irritate the spinal nerve via foraminal narrowing, resulting in sciatica.<sup>3</sup> Multidisciplinary treatment includes,

conservative (pharmacological treatment, cognitive behavioral therapy, exercise therapy and rehabilitation and detailed psychological evaluation) as well as interventional pain management techniques.<sup>1</sup>

Platelet-rich plasma prolotherapy (PRPP) involves the injections of autologous blood—in particular, the portion concentrated with platelets—back into the donor's body at the site of concern. Normal platelet activation leads to three necessary stages of healing: inflammation, proliferation and remodeling. In the PRP treatment, venous blood (up to 20–60 cc at one time) is taken out from the arm. It is then spun down over 14 minutes in a patented centrifuge that separates the blood into distinct layers. This centrifuge provides for a higher concentration of platelets (almost five times greater than that in normal blood).<sup>4</sup> This is withdrawn into a syringe, mixed with anticoagulants, and then injected into tissues that require healing. Multiple injections are usually given over the injured area and repeated as needed over a period of time—depending on the severity of injury and healing response.

## CASE REPORT

A 46-year-old office worker with c/o low back pain for 10 months (numerical rating scale—7/10). He had a history of fall 1 year back. He did not have any fracture or injury. His main complain was pain at lower back, sometimes radiating to gluteal region/difficult to turn sideways. On examination, there was no spinal tenderness, however paraspinal tenderness at L2/L3 and L3/L4 was noted. There was pain on extension, lateral rotation. No sensory or motor deficit was noted. All the lower limb reflexes were intact. Provisional diagnosis of facet arthropathy was made and was confirmed by diagnostic intra-articular block. Intra-articular PRP injection of 2 ml was given at right L2/L3 intra-articular facet joint. Patient was followed-up for 12 months.

## PROCEDURE

After attaching the monitors, the patient was placed in prone position keeping a cushion below the abdomen (for correction of the lordosis) an anteroposterior view of lumbar spine was obtained and all the vertebral structures

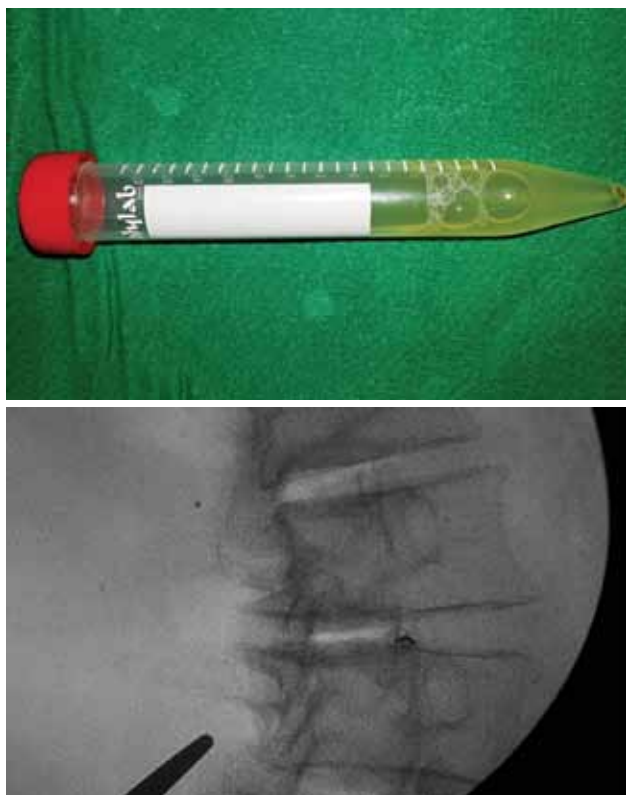
<sup>1</sup>Assistant Professor, <sup>2</sup>Professor and Head, <sup>3</sup>Senior Resident

<sup>1</sup>Department of Anesthesiology and Pain Clinic, MES Medical College and Hospital, Perinthalmanna, Malappuram, Kerala India

<sup>2,3</sup>Department of Anesthesiology, North Eastern Indira Gandhi Regional Institute of Health and Medical Science, Shillong Meghalaya, India

**Corresponding Author:** Samarjit Dey, Assistant Professor Department of Anesthesiology and Pain Clinic, MES Medical College and Hospital, Perinthalmanna, Malappuram, Kerala India, e-mail: drsamar0002@gmail.com





**Fig. 1:** Platelet rich plasma (Lt) and intra-articular facet injection under fluoroscopy (Rt)

were identified. Later, C-arm was rotated axially to square the endplates of the L3 and L4 vertebrae. Then the C-arm was rotated obliquely 15° to the ipsilateral side to get a traditional Scottie dog view. L2/L3 and L3/L4 facet joints are identified. After identifying the target facet joints 22G quincke was inserted after local infiltration. Needle tip was placed at the L2/L3 and L3/L4 facet joints intra-articularly. A loss of resistance was felt once the needle enters the facet joints. Each facet joint was injected with 1 to 2 ml, intra as well as periarticularly (Fig. 1). Postprocedure patient was monitored in recovery area and it was uneventful. Tablet paracetamol 1 gm thrice daily was prescribed for next 3 days and thereafter with as when required.

He had good pain relief on 12 months of follow-up. Mean NRS was 2.4/10, calculated from pain diary. He was advised to do physiotherapy, local moist heat therapy regularly. Quality of life of the improved for the patient.

## DISCUSSION

There is an extensive history in the use of PRP dating back to 1987 for cardiac surgery. Since then, PRP has also been used by other specialists in dentistry, ENT (maxillofacial

and periodontal), cosmetics and burn surgery. Platelet-rich plasma has been used over the past 10 years in the musculoskeletal field, with publications by orthopedic surgeons—including randomized clinical trials in repairing tennis elbow, Achilles tendon, plantar fasciitis, anterior cruciate ligament, rotator cuff.

Gordon KO et al<sup>5</sup> studied PRPP for five cases of low back pain caused by sacroiliac joint laxity and painful dysfunction. They have found that pain in these cases has decreased following PRPP integrated with other measures.

Sampson et al<sup>6</sup> evaluated injection of PRP in patients with primary and secondary knee osteoarthritis. There were no adverse events reported. The study demonstrated significant and almost linear improvements in knee injury and osteoarthritis outcome scores, including pain and symptom relief. Brittberg-Peterson visual analog scale (VAS) showed many improvements including reduced pain after knee movement and at rest. Cartilage assessment was limited because of the small sample size. The majority of the patients expressed a favorable outcome at 12 months after treatment.

Intra-articular PRP therapy in facet joints may be a useful alternative treatment in facet arthropathy. Repeat injection may be necessary depending on the pathology. Where radiofrequency is not available or steroids are contraindicated, it may prove beneficial. However, more research is needed to establish the fact.

## REFERENCES

1. Van Kleef M, Vanelderden P, Cohen SP, Lataster A, Van Zundert J, Mekhail N. Evidence-based interventional pain Medicine according to clinical diagnoses: pain originating from the lumbar facet joints. *Pain Practice* 2010;10(5):459-469.
2. Yang KH, King AI. Mechanism of facet load transmission as a hypothesis for low back pain. *Spine* 1984;9(6):557-565.
3. Igarashi A, Kikuchi S, Konno S. Correlation between inflammatory cytokines released from the lumbar facet joint tissue and symptoms in degenerative lumbar spinal disorders. *J Orthop Sci* 2007;12(2):154-160.
4. David Crane. Platelet-rich plasma matrix grafts. *Practical Pain Management* 2008;8(1):1-10.
5. Gordon KO. Platelet-rich plasma prolotherapy for low back pain caused by sacroiliac joint laxity. *Practical Pain Management*, September 2010;10(7):55-67.
6. Sampson S, Reed M, Silvers H, Meng M, Mandelbaum B. Injection of platelet-rich plasma in patients with primary and secondary knee osteoarthritis. *Am J Phys Med Rehabil* 2010 Dec;89(12):961-969.