Effectiveness of Platelet-Rich Plasma Treatment in Chondromalacia Patellae

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ABSTRACT

Chondromalacia patellae is characterized by anterior knee pain and softening of the cartilage behind the patella, which may further lead to cartilage ulceration. Conventional physical therapy and rehabilitation treatment, pain medications, and patient education are the current management options. Platelet-rich plasma (PRP) preparations have been more commonly used in the management of cartilage lesions for regenerating tissues in the recent years. We aimed to present a patient with chondromalacia patellae who was successfully treated with PRP at our clinic.

Keywords: Chondromalacia patellae, Platelet-Rich Plasma, knee pain

INTRODUCTION

Chondromalacia patella is a common disease in the community, which is characterized by anterior knee pain in a histopathological picture that can progress from the softening of patellar cartilage and its minimal degeneration to the formation of large ulcerated areas (1, 2). This disease that manifests itself with symptoms such as pain, swelling, and retropatellar crepitation is relatively more common in the younger populations and female sex (3).

In addition to systemic and topical pharmacological agents, physiotherapy and rehabilitation methods such as superficial and deep heaters, analgesic electrical currents, manipulative treatment, and exercise are used in treating chondromalacia patella (4-6).

Platelet-rich plasma (PRP) therapy has been used for dental conditions, dermocosmetology, and musculoskeletal system diseases in recent years and has been attracting attention as a method that is increasingly more investigated (7, 8). We present a case of a patient diagnosed with chondromalacia patella and in whom successful results were obtained with PRP therapy at our clinic.

CASE REPORT

A 48-year-old female patient with pain in both knees, which persisted for 3 years, visited our Physical Medicine and Rehabilitation polyclinic. In her history, she stated that her knee pain increased with bending and while walking down a stair, she sometimes had nocturnal pains, she irregularly used various painkillers and muscle relaxant medications, and she underwent 15 sessions of physical therapy 2 years ago, which had little benefits. There were no features in her anamnesis and genealogy. On physical examination, the range of motion of both knee joints was complete and painless. Grinding and compression tests for both knees were positive. McMurray and Lachman's test was negative. Static pain severity was assessed using a visual analog scale (VAS: 0, no pain; 10, unbearable pain), and her VAS score was 6. Functional status was assessed using the WOMAC index. The total WOMAC score before PRP therapy was 52. Upper and lower extremity muscle strength, reflex examinations, and other systemic examinations were normal.

No abnormalities were detected regarding the whole blood count, serum electrolyte levels, and other routine biochemical test results. Knee MRI performed at an external center revealed grade 2 chondromalacia changes in both knees.

With 1-month intervals, three doses of PRP therapy were administered to the patient with chondromalacia patella. The prepared PRP fluid was injected into the patellofemoral joint space, as described in the literature by Im et al. (Figure 1) (9). Home exercise program was also given. During the treatment, only paracetamol was recommended as a pain reliever. The patient was re-evaluated 1 month after the third injection. At the end of the therapy, significant regression (VAS score, 2) in pain complaints and significant improvement in the functional status (total WOMAC score, 29) were observed for the patient. Written informed consent was obtained from patient who participated in this study.

DISCUSSION

Chondromalacia patella is a common disease, especially in the young population. In autopsy studies, >50% of cartilage changes have been reported after 20 years of age and nearly 94% in those aged >50 years (10).

Conservative methods and particularly physical therapy methods are used for treating the disease. The most common methods are patient education, rest, cold application, bandaging, therapeutic ultrasound, analgesic currents, shoe modification, and exercises (3, 11, 12). For our case,

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Received Date: 16.02.2016 Accepted Date: 15.03.2016

Available on-line at www.jarem.org
DOI: 10.5152/jarem.2017.1099

Figure 1. PRP injection
PRP: platelet-rich plasma

stretching and strengthening exercises were administered for the knee region muscles as a home exercise program. We also advised avoidance of movements such as sitting with flexed knees and climbing stairs, which exacerbate the disease.

PRP therapy has recently become a widely used method for treating musculoskeletal disorders. In our literature review, we did not find a study that investigated the efficacy of PRP therapy for chondromalacia patella; however, we found many studies regarding PRP applications in cartilage, ligament, and tendon lesions. In one of these studies, antiinflammatory effects were detected after adding PRP to the culture medium, which contained the human osteoarthritic cartilage and synovial tissue (13). Most studies conducted with intraarticular PRP injections in knee osteoarthritis focused on pain reduction and function recovery, and the positive effects of PRP therapy have been demonstrated (14-17). In another study, six injections were administered every 2 weeks in 50 knees of patients who were diagnosed with tibiofemoral chondromalacia by arthroscopy; then, three injections were administered every 3 months, and after PRP therapy for the suprapatellar region, tibiofemoral cartilage thicknesses were compared with a control group. According to the Outerbridge classification, stage 2 and 3 patients were included in the study. In the evaluation that was performed after 12 months, while an increase in cartilage thickness was observed in three patients using MRI, loss of cartilage was found in the other patients (18).

Marmotti et al. (19) reported that young age, low-grade cartilage damage, low BMI, and recurrent injection protocols were associated with better outcomes in their compilation about the efficacy of PRP therapy on the joint cartilage in chondropathy and osteoarthritis. Our patient had a moderate cartilage lesion, she was middle aged, and three doses of injection were administered; we believe that these factors contributed to the successful outcome in a positive manner.

CONCLUSION

We believe that intraarticular PRP therapy may have positive effects on pain, functional status, and quality of life in patients with chondromalacia patella and that this treatment modality with a low adverse effect profile can be used for musculoskeletal diseases.

Informed Consent: Written informed consent was obtained from patient who participated in this study.

Peer-review: Externally peer-reviewed.

Conflict of Interest: No conflict of interest was declared by the author.

Financial Disclosure: The authors declared that this study has received no financial support.

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