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Case Study

The Use of Platelet Rich Plasma in a Patient with Recalcitrant Elbow Pain and Contracture: A Case Study

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Received: April 28, 2022; **Published:** May 18, 2022

Abstract

Purpose: PRP has shown to be a very effective modality for inflammation reduction in many tissue types over the past twenty years. The purpose of this case study is to demonstrate the efficacy of PRP in a patient with chronic pain and joint contracture for whom surgery was not an option and conventional medicines were not helpful.

Methods: Physical Therapy treatment progression demonstrates the need for multiple interventions due to patient's physical deficits.

Results: The results are divided into three categories: AROM, pain, and grip strength with significant improvements in all three.

Conclusion: The patient's improvement was remarkable and this amount of improvement is typically not seen with just conventional Physical Therapy alone.

Keywords: *Platelet Rich Plasma; Recalcitrant Elbow Pain; Contracture*

Introduction

This case study involves a 75 year old, right hand dominant male with right elbow recalcitrant pain and flexion contracture of insidious nature, who had previously received an opinion from an orthopedic surgeon who did not feel surgery or Physical Therapy would be beneficial. The X-ray was unremarkable for joint damage. The patient used collagen powder daily and did not use any SAIDs, NSAIDS, or prescription pain relievers throughout the rehabilitation program. He then received PRP to his right elbow from another provider and Physical Therapy treatments commenced seven days following the PRP injection (treatment described in Methods).

Platelet-rich plasma (PRP) is a preparation of autologous human plasma with a high platelet concentration produced by centrifuging usually several milliliters to upwards of ten milliliters of the patient's own blood. Platelets contain a wide variety of growth factors and healing mediators, becoming highly concentrated through the centrifugation process. The plasma is then aspirated via hypodermic syringe and injected into the inflamed tissue which releases copious amounts of these growth factors and healing mediators to the inflamed tissue, thus beginning the natural healing process [1-5].

Methods

The patient underwent a Physical Therapy evaluation of his right elbow seven days after receiving PRP to his right joint and lateral epicondyle. Significant findings: Grade II instability of the right ulnar collateral ligament (at 90 degrees elbow flexion) along with those listed below.

The patient received sixty-one (61) Physical Therapy treatments over a contiguous period of nearly five and a half months with tapering weekly frequency, starting at three times per week, then twice per week, then once per week, then once a month to monitor the efficacy of the patient's independent, therapist instructed exercise program.

The Physical Therapy treatments consisted of mobilization and stretching of the surrounding soft tissues, Grade 3 and 4 radiohumeral and ulnohumeral joint mobilizations, uniplanar and multiplanar free weight exercises, functional lifting/gross motor skills (hand tool use) and functional resisted motion (golf swing- back and forward swing individually) activities. He also moved into a gradual independent, therapist created and monitored, exercise regimen performed at his local gym. Each Physical Therapy session concluded with a cold pack and electrical stimulation (anti-inflammatory settings) for inflammation relief. This concluding modality combination was eliminated the last few weeks of his regular Physical Therapy program, due to decreased symptoms. He also was advised to ice after his workouts at the gym.

Results

Active range of motion (AROM): His right elbow extension improved 86% from an initial minus 25.6 degrees to minus 3.9 degrees (measurements taken with a digital goniometer for higher precision). He was able return to his normal activities of daily living (ADL), including using the golf simulator at a local sporting goods store to improve his golf swing, using a driver, before the local golf courses opened!

Right hand grip strength: He appreciated a 69% improvement from 37.6 # to 54.2# in two and a half months. Mean for men of his age is 79.4# [6]. Initially, he was unable to move through full active range for forearm pronation and supination without using any free weight. Within nearly two and a half months, he was using 4# for full range, pain free supination and pronation. Notably in this same time frame, he was using arm machines at the gym without pain, dysfunction, or crepitus.

Right elbow pain: Using the Numeric Rating Scales (NRS), he had a 90% decrease in pain in just over four months. He went from a 2-10/10 (10/10 with use) to a 0-1/10 (1/10 with use). It is notable to mention that on his initial Physical Therapy evaluation that he exhibited an ulnar collateral ligament (at 90 degrees) Grade II instability, which usually is a painful condition at rest and worsens with certain movements, such as swinging a golf club.

Conclusion

In the author's experience with patients with similar symptoms and physical findings, the use of PRP in this case study made a significant difference in the rehabilitation outcome. The patient's nearly normal active elbow extension and rapid resumption of ADLs were remarkable and conventional Physical Therapy alone would not have offered similar results.

Further research is recommended on the use of PRP with non-neurological joint contractures, as this case study highlights the efficaciousness of this incredible modality/procedure. To experience regaining full use of a non-neurological, severely contractured joint in less than six months without surgery, is nothing short of miraculous and emotionally astounding for the patient.

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Volume 13 Issue 6 June 2022