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Research Article

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PRP (Platelets Rich Plasma) for Plantar Fasciitis – Does it work?

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ABSTRACT

Introduction: Plantar fasciitis (PF) is the most prevalent cause of heel pain. Among those affected up to 5-10% endure symptoms lasting longer than 6 to 12 months, necessitating more aggressive treatment strategies. Platelet-rich plasma (PRP) is an autologous blood-derived product that has demonstrated promising results in recent years for various musculoskeletal conditions, including PF. However, data regarding the efficacy of PRP in treating PF remains limited. This study aims to present a single surgeon's experience with PRP in the management of recalcitrant PF.

Methods: This investigation is a case series conducted by a single surgeon, involving 50 feet from 48 patients diagnosed with PF between January 2022 and December 2023, all of whom received PRP treatment. The study involved a retrospective review of prospectively collected data as part of standard clinical care and was classified as a service evaluation by the local ethics committee. All patients had undergone at least three months of conservative treatment prior to receiving PRP.

Data collected included age, co-morbidities, body mass index (BMI), plantar fascia thickness prior to PRP treatment, and visual analogue scale (VAS) scores before and after PRP treatment. Additionally, the American Orthopaedic Foot and Ankle Society (AOFAS) hindfoot scores were recorded before and after treatment. Complications following PRP injections and the number of patients requiring surgical intervention for PF during the study period were also documented.

Results: The study comprised 50 feet in 48 patients, with an average age of 48.3 years (range: 31-76) and an average BMI of 27.3 (range: 22-39). The average plantar fascia thickness prior to PRP treatment was 6.3 mm (range: 4.3-7 mm). The average VAS score before PRP treatment was 7.6 (range: 6-9), which improved to 2.3 (range: 1-4, $P < 0.05$) at the six-month follow-up.

AOFAS hindfoot scores also demonstrated improvement following PRP treatment. The average AOFAS score prior to treatment was 45.3 (range: 29-69), increasing to 71.7 (range: 55-91, $P = 0.052$) at three months post-treatment, and further improving to 89.3 (range: 79-97, $P < 0.05$) at six months. Notably, 83% of patients returned to their sporting activities without limitations by six months post-treatment. Only 6% of patients required surgical intervention for persistent symptoms within the six-month follow-up period, and no complications were reported during the study.

Conclusion: This study demonstrates that PRP infiltration for recalcitrant plantar fasciitis is both safe and effective. The treatment resulted in significant improvements in functional, clinical, and pain outcome scores. Only 6% of patients in this study progressed to surgical intervention within the study period.

Keywords: PRP, Plantar Fasciitis, Heel Pain, Orth Biologics.

Introduction

Plantar fasciitis (PF) is one of the most prevalent causes of plantar heel pain, affecting up to 10% of the U.S. population [1]. It is estimated that approximately 2 million patients seek medical treatment for PF annually, accounting for 11% to 15% of professional visits related to foot pain [2-4]. PF is generally a self-limiting condition, with conservative management proving effective in 90% to 95% of cases [5,6]. However, in the remaining 5% to 10% of patients, symptoms persist for more than 6 to 12 months, at which point surgical intervention may be considered [7]. Treatment strategies vary due to the lack of consensus on the most effective modalities. Common treatment options include

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insoles, nonsteroidal anti-inflammatory medications, weight reduction, stretching exercises, and physical therapy [8]. In cases of refractory symptoms, more aggressive treatments may include corticosteroid injections (CSI), extracorporeal shock wave therapy (ESWT), platelet-rich plasma (PRP) injections, or surgical release of the plantar fascia.

PRP is an autologous blood product that has gained popularity in orthopaedic surgery for various musculoskeletal pathologies, including PF. Similar to CSI, PRP possesses significant anti-inflammatory properties without known adverse effects on the plantar fascial structure. As an autologous product, PRP contains a high concentration of platelets, growth factors, and cytokines that initiate the healing response and promote bone fusion, fracture repair, and the acceleration of soft tissue repair in both acute and chronic tendon injuries [9,10]. Previous studies have reported the safety and efficacy of PRP in treating recalcitrant PF, demonstrating its superiority compared to placebo and corticosteroids [11-13]. However, some studies have shown minimal or no benefit from PRP treatment for PF. A systematic review by Masiello et al. indicated a trend toward pain reduction and functional improvement in patients with tendinopathies following ultrasound-guided PRP injection, although effect sizes were often comparable to control groups [14].

Given the limited evidence on the effectiveness of PRP for PF treatment, this study aims to describe a single surgeon's experience with PRP in managing recalcitrant PF.

Methods

This study represents a case series conducted by a single surgeon, involving 50 feet from 48 patients diagnosed with PF who received PRP treatment. A retrospective review of prospectively collected data as part of standard clinical care was performed, with the study classified as a service evaluation by the local ethics committee. Patients were prospectively recruited between January 2022 and December 2023, comprising 20 males and 28 females. All patients had undergone at least three months of physical therapy and insole treatment prior to PRP administration.

Before the PRP treatment, all patients underwent ultrasound assessment. A thickened plantar fascia was defined as greater than 4 mm in thickness. Data collected included age, co-morbidities, body mass index (BMI), plantar fascia thickness prior to PRP treatment, and visual analogue scale (VAS) scores before, three months after, and six months after PRP treatment. The American Orthopaedic Foot and Ankle Society (AOFAS) hindfoot scores were also recorded before treatment and at three- and six-months post-treatment. Additionally, complications following PRP injections and the number of patients requiring surgical intervention for PF during the study period were documented.

PRP Treatment

For PRP administration, the Autologous conditioned plasma (ACPTM) double syringe system (Arthrex, Naples, FL) was utilized. This leukocyte-poor system requires a venous blood sample (10-15 mL) that is centrifuged at 1500 rpm for 5 minutes in a Drucker/Hettich centrifuge. The supernatant (autologous conditioned plasma [ACPTM]) is transferred from the larger outer syringe to the smaller inner syringe and injected around the plantar fascia insertion using an 18G needle, advancing from proximal to distal. The procedure was conducted by the treating orthopaedic surgeon without the use of local anaesthetic. The treatment protocol included three consecutive PRP injections administered weekly. In the event of complications (infection at the injection site, local reactions, or exacerbation of pain), further treatment followed standard care protocols independent of the study.

Statistical Analysis

Descriptive statistics were reported for all measures and outcomes, using mean, range, and percentage. A paired T-test was employed to compare pre- and post-treatment AOFAS and VAS scores. Statistical significance was established at an alpha level of less than 0.05. Analyses were conducted using SPSS IBM version 29.

Results

The study included 50 feet from 48 patients diagnosed with PF, with an average age of 48.3 years (range: 31-76). The average BMI was 27.3 (range: 22-39). All patients underwent ultrasound assessment prior to PRP treatment, revealing an average plantar fascia thickness of 6.3 mm (range: 4.3-7 mm). (Table 1).

4% of the patients (Two patients) had well-controlled Diabetes Mellitus, 6% (three patients) had Rheumatoid Arthritis, and 2% (one patient) had Psoriatic Arthritis. The Visual Analog Scale (VAS) score showed significant improvement six months after Platelet-Rich Plasma (PRP) treatment. The average VAS score before treatment was 7.6 (Range: 6-9). Three months after treatment, the average VAS score decreased to 6.3 (Range: 3-8, P value = 0.78). By six months post-treatment, the average VAS score significantly improved to 2.3 (Range: 1-4, P value < 0.05). (Table 1).

Table 1: Patient's characteristics and study outcomes

Characteristics		Measurement	Paired T test
Age		48.3 (Range:31-76)	-
BMI		27.3 (Range: 22-39)	-
Plantar fascia thickness (before treatment)		6.3mm (Range:4.3-7mm)	-
VAS (Visual Analogue Score) Score	Before treatment	7.6 (Range: 6-9)	-
	3 months post	6.3 (Range:3-8)	P value=0.78 (Critical T =2, CI=95%)
	6 months post	2.3 (Range:1-4)	P value<0.05 (Critical T =2, CI=95%)

AOFAS (American Orthopaedic Foot and Ankle Society score) score	Before treatment	45.3 (Range:29-69)	
	3 months post	71.7 (Range:55-91)	P value=0.052 (Critical T =2, CI=95%)
	6 months post	89.3. (Range: 79-97)	P value<0.05 (Critical T =2, CI=95%)
Return to sport activities without restrictions		40/48 (83%)	-
Conversion to surgery within study period		3/50 (6%)	-
Other complications		0	-

The table describes the patient's demographics and study endpoints. Descriptive statistics were reported for all measures and outcomes, using mean, range, and percentage. A paired T-test was employed to compare pre- and post-treatment AOFAS and VAS scores. Critical T was calculated for 95% confidence interval and 49 degrees of freedom and was equal to 2.

The American Orthopaedic Foot and Ankle Society (AOFAS) hindfoot scores also improved at both three and six months following PRP treatment. The average AOFAS score before treatment was 45.3 (Range: 29-69). Three months after treatment, the average AOFAS score increased to 71.7 (Range: 55-91, P value = 0.052). By six months, the AOFAS score further improved to 89.3 (Range: 79-97, P value < 0.05). (Image 1).

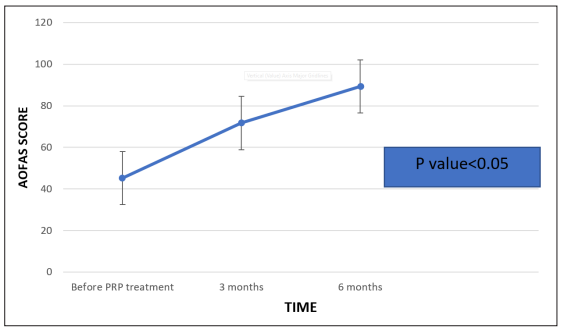

Image 1: AOFAS Hind Foot Scores

The study results highlighted PRP for the treatment of recalcitrant PF. This study shows that treating patients who suffer from PF with PRP injections is both effective and safe. Patients reported improved function and decreased pain following PRP treatment. Only minority of patients (6%) failed PRP treatment and were treated surgically.

Discussion

Recently, Orth biologics such as PRP have gained popularity in treating tendinopathies. Multiple systematic reviews have provided evidence supporting the use of PRP for managing foot and ankle pathologies, particularly plantar fasciitis and Achilles tendinitis, over short- and mid-term follow-ups [15-17].

PRP is rich in platelets that contain various growth factors, including transforming growth factor and platelet-derived growth factor, as well as inflammatory mediators typically absent in the plantar fascia due to its low vascularity and cellularity. These components promote fibroblast proliferation and migration, enhance vascularization, increase collagen deposition, and facilitate soft tissue healing [13,14].

A recent meta-analysis by Daher et al. indicated that PRP treatment for plantar fasciitis significantly lowers postoperative pain scores [18]. Khurana et al. demonstrated in their study that PRP outperformed local steroid injections for plantar fasciitis, concluding that PRP offers better pain relief and functional outcomes compared to steroids [13].

Our study aligns with existing literature on the efficacy of PRP for treating plantar fasciitis. It demonstrates that PRP infiltration is both safe and effective for recalcitrant cases, leading to significant improvements in functional, clinical, and pain outcome scores. Notably, only 6% of patients required surgical intervention within the study period.

However, this study has limitations. It represents a single surgeon's experience with patients treated for recalcitrant plantar fasciitis using leukocyte-poor PRP. The treatment protocol involved three consecutive PRP infiltrations, and we cannot ascertain whether alternative protocols or leukocyte-rich PRP would yield different results. Additionally, the study period was relatively short, and we do not know if these outcomes will persist over a longer follow-up or how many patients may eventually need surgery due to PRP failure. We did not compare other treatment modalities, such as steroid injections or extracorporeal shockwave therapy (ESWT), to PRP, as seen in other studies. A recent meta-analysis by Daher et al. suggested that PRP is superior to ESWT in reducing average pain scores [20]. Furthermore, a systematic review by Hurley et al. found significant differences in AOFAS scores favouring PRP over corticosteroids at six- and twelve-month follow-ups, along with statistically significant differences in VAS pain scores.

Some studies have explored ultrasound-guided PRP injections for plantar fasciitis. However, we believe that the anatomical location of the plantar fascia allows for accessible treatment without needing ultrasound guidance. To our knowledge, no comparative studies demonstrate advantages of ultrasound-guided PRP injections for plantar fasciitis.

This study should encourage foot and ankle surgeons to consider PRP treatment as a viable option for patients with plantar fasciitis. A comprehensive discussion with patients about the available data on PRP for this condition is essential. Additionally, treating physicians should be aware that some insurance companies may not cover PRP treatment for plantar fasciitis in certain countries.

Conclusion

The study results demonstrate that PRP infiltration for recalcitrant plantar fasciitis is both safe and effective. The treatment improves functional, clinical, and pain outcome scores. Only minority from the patients in this study had to be treated surgically for recalcitrant PF within the study period.

Ethical approval for this study was obtained from Assuta Medical Centre, Tel Aviv, Israel (Approval No. 0046-24-AMSC). The level of evidence is classified as 4.

Conflict of Interest: None declared by any of the authors.

Author Contributions: GG was responsible for patient treatment, data collection, and manuscript writing. LI and NM contributed to editing the manuscript.

References

1. Rompe JD. Plantar fasciopathy. Sports Med Arthrosc. 2009. 17: 100-104.
2. Li S, Wang K, Sun H, Luo X, Wang P, et al. Clinical effects of extracorporeal shock-wave therapy and ultrasound-guided local corticosteroid injections for plantar fasciitis in adults: a metaanalysis of randomized controlled trials. Medicine (Baltimore). 2018. 97: 13687.
3. Luffy L, Grosel J, Thomas R, So E. Plantar fasciitis: a review of treatments. JAAPA. 2018. 31: 20-24.
4. Dyck DD, Boyajian-O'Neill LA. Plantar fasciitis. Clin J Sport Med. 2004. 14: 305-309.
5. Gill L. Plantar fasciitis: diagnosis and conservative management. J Am Acad Orthop Surg. 1997. 5: 109-117.
6. Thomas JL, Christensen JC, Kravitz SR, Mendicino RW, Schuberth JM, et al. The diagnosis and treatment of heel pain: a clinical practice guidelinerevision. J Foot Ankle Surg. 2010. 49: 1-19.
7. Neufeld SK, Cerrato R. Plantar fasciitis: evaluation and treatment. J Am Acad Orthop Surg. 2008. 16: 338-346.
8. Arthur Vithran DT, He M, Xie W, Essien AE, Opoku M, et al. Advances in the clinical application of platelet-rich plasma in the foot and ankle: a review. J Clin Med. 2023. 12: 1002.
9. Zhang JY, Fabricant PD, Ishmael CR, Wang JC, Petrigliano FA, et al. Utilization of plateletrich plasma for musculoskeletal injuries: an analysis of current treatment trends in the United States. Orthop J Sport Med. 2016. 4: 2325967116676241.
10. Shekhar C, Jhan A, Singh G, Singh P, Bhandhari SS. Role of leukocyte free platelet rich plasma in planter fasciitis: a prospective study. Int J Res Med Sci. 2017. 5: 5432.
11. Shetty SH, Dhond A, Arora M, Deore S. Platelet-rich plasma has better long-term results than corticosteroids or placebo for chronic plantar fasciitis: randomized control trial. J Foot Ankle Surg. 2019. 58: 42-46.
12. Ankit Khurana , Vaneet Dhankhar , Navneet Goel. Comparison of midterm results of Platelet Rich Plasma (PRP) versus Steroid for plantar fasciitis: A randomized control trial of 118 patients. J Clin Orthop Trauma. 2020. 6: 9-14.
13. Francesca Masiello , Ilaria Pati , Eva Veropalumbo. Ultrasound-guided injection of platelet-rich plasma for tendinopathies: a systematic review and meta-analysis. Blood Transfus. 2023. 21: 119-136.
14. Alkhatib N, Salameh M, Ahmed FA, Alkaramany E, Ahmed G, et al. Platelet-rich plasma versus corticosteroids in the treatment of chronic plantar fasciitis: a systematic review and meta-analysis of prospective comparative studies. J Foot Ankle Surg. 2020. 59: 546-552.
15. Bagheri K, Krez A, Anastasio AT, Adams SB. The use of platelet-rich plasma in pathologies of the foot and ankle: a comprehensive review of the recent literature. Foot Ankle Surg. 2023.
16. Hohmann E, Tetsworth K, Glatt V. Platelet-rich plasma versus corticosteroids for the treatment of plantar fasciitis: a systematic review and meta-analysis. Am J Sports Med. 2021. 49: 1381-1393.
17. Yang WY, Han YH, Cao XW, Pan JK, Zeng LF, et al. Platelet-rich plasma as a treatment for plantar fasciitis. Medicine (Baltimore). 2017. 96: 8475.
18. Hsu RWW, Hsu WH, Tai CL, Lee KF. Effect of shockwave therapy on patellar tendinopathy in a rabbit model. J Orthop Res. 2004. 22: 221-227.
19. Mohamad Daher, Oscar Cuvarrubias. Platelet-Rich Plasma vs Extracorporeal Shock Wave Therapy in the Treatment of Plantar Fasciitis at 3-6 Months: A Systematic Review and Meta-analysis of Randomized Controlled Trials, Foot & Ankle International. 2024. 45: 796-803.
20. Hurley ET, Shimozono Y, Hannon CP, Smyth NA, Murawski CD, et al. Platelet-rich plasma versus corticosteroids for plantar fasciitis: a systematic review of randomized controlled trials. Orthop J Sports Med. 2020.