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Original Research Article

OUTCOMES FOLLOWING CORTICOSTEROID INJECTIONS IN PATIENTS WITH PLANTAR FASCIITIS

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ABSTRACT

Background: *Plantar fasciitis is one of the most common causes of heel pain, often leading to significant functional impairment. Corticosteroid injections are frequently used to provide symptomatic relief, but their clinical effectiveness and safety profile continue to be evaluated.* ***Objective:*** *To assess the outcomes of corticosteroid injection in managing patients with plantar fasciitis.* ***Study Design:*** *Descriptive study.* ***Setting:*** *the department of Orthopedics, Hayatabad Medical Complex, Peshawar, Pakistan.* ***Duration of Study:*** *From January 2025 to August 2025.* ***Methods:*** *Sixty patients diagnosed with chronic plantar fasciitis were enrolled. All participants received a single injection consisting of 40 mg methylprednisolone acetate combined with a local anesthetic. Pain intensity was assessed using the Visual Analogue Scale (VAS) at baseline and at one-month follow-up. Plantar fascia thickness was measured using ultrasonography at the same time points. Data were analyzed using SPSS version 26, applying descriptive and comparative statistics.* ***Results:*** *The mean age of participants was 48.50 ± 7.50 years, with 55% males and 45% females. A marked reduction in pain intensity was seen after one month, with mean VAS scores decreasing from 8.27 ± 1.20 at baseline to 2.52 ± 1.06. Plantar fascia thickness also showed a significant reduction from 6.65 ± 0.80 mm to 5.74 ± 0.54 mm. The treatment exhibited a favorable safety profile, with 90% of patients reporting no complications.* ***Conclusion:*** *Corticosteroid injection is an effective and safe treatment option for plantar fasciitis, providing substantial pain relief, reduced plantar fascia thickness, and minimal adverse effects.*

Keywords: Plantar Fasciitis, Corticosteroid Injection, Ultrasound Guidance, Visual Analogue Scale, Fascia Thickness

INTRODUCTION

Plantar fasciitis arises from degenerative irritation at the origin of the plantar fascia, positioned at the medial calcaneal tuberosity of the heel, along with adjacent perifascial structures. The plantar fascia is essential for normal foot biomechanics, as it consists of three segments that stem from the calcaneus (1, 2). Despite the Diagnosis involving the suffix -itis, this condition is distinctive for a lack of inflammatory cells. Plantar fasciitis is a prevalent disorder affecting millions who struggle with heel pain each year. Plantar fasciitis develops from multiple underlying causes, with a great deal of instances related to overuse stress. The typical presentation consists of acute discomfort in the heel region (3-5).

Plantar fasciitis is frequently categorized as an overuse injury, caused mainly by repetitive strain that results in micro-tears in the plantar fascia. This condition can happen as a result of trauma or multiple multifactorial factors. Several predisposing factors include pes planus, restricted ankle dorsiflexion, prolonged standing, and excessive pronation (6-8). The discomfort becomes greatest in the morning, immediately upon rising from bed after a long time of inactivity. A clinical Diagnosis is usually established; however, to eliminate other potential diagnoses, imaging procedures are required. With appropriate therapy, most patients achieve recovery within 1 year. Plantar fasciitis may be addressed through various methods; however, there is currently no clinical evidence endorsing any particular approach. Conservative approaches to managing plantar fasciitis pain involve nonsteroidal anti-inflammatory medications, stretching exercises, and calcaneal taping techniques. It has been observed that each of these approaches alleviates pain comparably. In a limited number of refractory cases, an operation may be required (9, 10).

Steroid injections have been used for many years to manage tendinopathy, including conditions such as plantar fasciitis and tennis elbow. One of the advantages of steroid injection is that it's an affordable treatment that offers faster pain relief. However, patients may have concerns regarding the side effects of steroids (11, 12).

Corticosteroid injections are frequently used for pain relief by reducing inflammation at the plantar fascia insertion; however, their impact on long-term functional outcomes remains a subject of debate. Therefore, evaluating outcomes following corticosteroid injections in patients with plantar fasciitis is crucial to understand their therapeutic value better, guide clinical decision-making, and optimize patient recovery.

METHODOLOGY

This descriptive study was conducted in the Department of Orthopedics at Hayatabad Medical Complex, Peshawar, from January 2025 to August 2025. Sixty patients presenting with chronic heel pain were enrolled in the study cohort. The diagnosis of plantar fasciitis was made clinically based on a history of sharp, localised pain at the medial calcaneal tuberosity, typically worst with the first steps in the morning or after periods of inactivity. Physical examination confirmed maximal tenderness to palpation over the proximal plantar fascia. Patients with bilateral heel pain, history of previous surgery or trauma to the heel, systemic inflammatory and localised infection at the injection site were excluded.

Upon taking consent from the patients. Pain was evaluated using the Visual Analogue Scale at baseline. Patients were given a corticosteroid injection in the heel (40mg of methylprednisolone acetate). Patients were assessed for pain reduction using the scale above after 1 month of injection administration. The thickness of the fascia was also measured by ultrasonography at baseline and 1 month later. Data was analysed with SPSS 26. To assess the pain score and fascia thickness at baseline and after 1 month, T paired t-test was used. P-value was deemed notable at ≤ 0.05.

RESULTS

This study analysed a cohort consisting of 60 patients with plantar fasciitis. The mean age of the cohort was 48.50 ± 7.50 years. Regarding gender distribution, 33 (55%) patients were male and 27 (45%) were female. The right foot was more frequently affected, involved in 41 (68.3%) cases, compared to the left foot in 19 (31.7%) patients (Table 1).

A substantial improvement in pain was observed following the steroid intervention. The mean visual analogue scale (VAS) pain score was 8.27 ± 1.21 at baseline. This score decreased significantly to 2.52 ± 1.07 at the one-month follow-up assessment ($P < 0.001$) (Table 2). The mean thickness of the fascia was 6.65 ± 0.80 mm at the start of the study. After one month, a notable reduction in thickness was recorded, with 5.74 ± 0.54 mm ($P < 0.001$) (Table 3).

The treatment demonstrated a favourable safety profile. The majority of patients (54, 90%) had no complications. Heel fat pad atrophy occurred in 3 (5.0%) patients, changes in skin pigmentation in 2 (3.3%) patients, and a single case of plantar fascia rupture was observed 1.7% (Table 4).

Table 1: Baseline profile

Baseline profile			
Mean			Std. Deviation
Age (years)		48.50	7.503
BMI (Kg/m2)		27.0957	2.17804
Duration of disease (Months)		6.40	2.806
n			%
Gender	Male	33	55.0%
	Female	27	45.0%
Affected foot	Right	41	68.3%
	Left	19	31.7%

Table 2: Comparison of pain at baseline and after one month

Mean		**N**	**Std. Deviation**	**Std. Error Mean**
Pain at baseline (VAS)	8.27	60	1.205	.156
Pain after one month (VAS)	2.52	60	1.066	.138

Table 3: Comparison of the thickness of plantar fasciitis at baseline and after one month

Mean		**N**	**Std. Deviation**	**Std. Error Mean**
Mean thickness of fascia at baseline (mm)	6.6548	60	.80345	.10373
Mean thickness of fascia after one month (mm)	5.7487	60	.54739	.07067

Table 4: Post-procedure Complications

Complications	**n**	**%**
Rupture	1	1.7%
Heel fat pad atrophy	3	5.0%
Changes in skin pigmentation	2	3.3%
No complication	54	90.0%

DISCUSSION

The demographic profile of the present cohort aligns with those described in the wider literature. The mean age of 48.50 years is consistent with the typical presentation of plantar fasciitis, which most commonly affects middle-aged individuals. Tariq et al. reported a mean age of 42.29 years, and Khan et al. reported a mean age of 41.6 years (13, 14). The condition appears to peak in the fourth to sixth decades of life, a pattern affirmed by Binesh et al., whose patients had a mean age of 44.34 years (15). The gender distribution in this study, with 55% male and 45% female patients, presents a slight male predominance. This differs from some studies, such as Khan et al., which had a 60% female cohort, and Sawan et al., which also reported a higher proportion of females (14, 16). However, it is consistent with the findings of Tariq et al., who reported 58.29% males (13).

The mean Body Mass Index (BMI) of 27.10 kg/m² in this study firmly places the cohort in the overweight category. Binesh et al. reported a similar mean BMI of 26.23 kg/m². At the same time, Sawan et al. specifically included patients with a BMI below 35 kg/m², validating the link between increased weight and plantar fascia stress. Obesity is a well-known risk factor, as noted in Ang's review, due to the repetitive mechanical load it places on the plantar fascia's enthesis.[17]

The mean symptom duration of 6.40 months indicates a cohort with chronic plantar fasciitis, similar to patients enrolled in other studies. Khan et al. and Sawan et al. reported similar duration (14, 16). The laterality of the condition, with the right foot being affected in 68.3% of cases, is similar to the results of Binesh et al (15).

The clinical outcomes of this study affirm the efficacy of corticosteroid injections for short-term pain relief. The reduction in the Visual Analogue Scale (VAS) score from a baseline of 8.27 to 2.52 after one month represents a notable improvement. This finding is consistent with Tariq et al., who reported that 86.18% of their injection group had an "excellent" outcome on VAS at 4 weeks (13). Similarly, Binesh et al. documented a drop in mean VAS from 8.74 to 1.13 by the 12-week mark (15). The measurement of plantar fascia thickness provided further evidence of the corticosteroid's efficacy. The reduction from 6.65 mm to 5.74 mm after one month demonstrates an effective response to treatment. This finding aligns with the results of Binesh et al., who reported a decrease from 5.60 mm to 3.75 mm over 6 months, and with those of Sawan et al., who also used ultrasound to track fascial thinning (15, 16). The safety profile observed in this study was favorable. Rupture (1.7%), heel fat pad atrophy (5.0%), and skin pigmentation changes (3.3%). The review by Ang cites rupture rates of 2.4% to 6.7%, often associated with multiple injections and higher BMI (17). Binesh et al. also reported similarly low rates of heel pad atrophy and skin changes (15).

CONCLUSION

In conclusion, corticosteroids are highly effective for plantar fasciitis, with reductions in pain and fasciitis thickness, and a favorable safety profile.

DECLARATIONS

Data Availability Statement

All data generated or analysed during the study are included in the manuscript.

Ethics approval and consent to participate

Approved by the department Concerned. (IRB)

Consent for publication

Approved

Funding

Not applicable

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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AUTHOR CONTRIBUTION

FAZAL AMIN (Training Medical Officer)
Conceived the study, collected data, performed initial analysis, and contributed to the first draft of the manuscript
ZARAR AHMED (Training Medical Officer)
Assisted in data collection, literature review, and manuscript editing
FAIZAN SHAH ROGHANI (Training Medical Officer)
Contributed to methodology development, statistical analysis, and interpretation of results
HAMZA RAFI (Post Graduate Resident)
Helped in patient recruitment, data entry, and organization of findings
MUHAMMAD DAYAN KHAN (TMO)
Contributed to referencing, proofreading, and final revision of the manuscript
WASIM ANWAR (Associate Professor)
Supervised the research, provided expert guidance, critically reviewed the manuscript, and approved the final version

All authors read and approved the final version of the manuscript.

REFERENCES

1. Tseng WC, Chen YC, Lee TM, Chen WS. Plantar fasciitis: an updated review. J Med Ultrasound. 2023;31(4):268-74. https://doi.org/10.4103/jmu.jmu_2_23
2. Motley T. Plantar fasciitis/fasciosis. Clin Podiatr Med Surg. 2021;38(2):193-200. https://doi.org/10.1016/j.cpm.2020.12.005
3. Rhim HC, Kwon J, Park J, Borg-Stein J, Tenforde AS. A systematic review of systematic reviews on the epidemiology, evaluation, and treatment of plantar fasciitis. Life (Basel). 2021;11(12):1287. https://doi.org/10.3390/life11121287
4. Hamstra-Wright KL, Huxel Bliven KC, Bay RC, Aydemir B. Risk factors for plantar fasciitis in physically active individuals: a systematic review and meta-analysis. Sports Health. 2021;13(3):296-303. https://doi.org/10.1177/1941738120970976
5. Bm SA, Tiwari V, Bakde AM, Dwidmuthe S, Roy M. Ultrasonographic assessment of Indian patients with plantar fasciitis and its clinical correlation: a prospective observational study. Cureus. 2023;15(3):e35764. https://doi.org/10.7759/cureus.35764
6. Koc TA Jr, Bise CG, Neville C, Carreira D, Martin RL, McDonough CM. Heel pain plantar fasciitis: revision 2023: clinical practice guidelines linked to the International Classification of Functioning, Disability and Health from the Academy of Orthopaedic Physical Therapy and American Academy of Sports Physical Therapy of the American Physical Therapy Association. J Orthop Sports Phys Ther. 2023;53(12):1-39. https://doi.org/10.2519/jospt.2023.12123
7. Lim ST, Kelly M, O'Neill S, D'Souza L. Assessing the quality and readability of online resources for plantar fasciitis. J Foot Ankle Surg. 2021;60(6):1175-8. https://doi.org/10.1053/j.jfas.2021.02.014
8. Jha DK, Wongkaewpotong J, Chuckpaiwong B. Effect of age and BMI on sonographic findings of plantar fascia. J Foot Ankle Surg. 2023;62(1):125-8. https://doi.org/10.1053/j.jfas.2022.05.010
9. Latt LD, Jaffe DE, Tang Y, Taljanovic MS. Evaluation and treatment of chronic plantar fasciitis. Foot Ankle Orthop. 2020;5. https://doi.org/10.1177/2473011420935565
10. Slivin AV, Karmazin VV, Shlykov KA, Parastaev SA. Effectiveness of conservative methods for plantar fasciitis treatment in athletes. Extreme Med. 2025;27(1):115-23. (DOI not available.)
11. Seth I, Bulloch G, Seth N, Lower K, Rodwell A, Rastogi A, et al. The role of corticosteroid injections in treating plantar fasciitis: a systematic review and meta-analysis. Foot. 2023;54:101970. https://doi.org/10.1016/j.foot.2022.101970
12. Tseng WC, Uy J, Chiu YH, Chen WS, Vora A. Comparative effectiveness of autologous blood derived products versus steroid injections in plantar fasciitis: a systematic review and meta analysis of randomized controlled trials. PM R. 2021;13(1):87-96. https://doi.org/10.1002/pmrj.12431
13. Tariq H, Ahmad RD, Tariq H, Mahmood T, Hassan AR, Mushtaq Z. Comparison between steroid injections versus conservative therapy in the treatment of plantar fasciitis. Int J Biomed Res. 2025;3(4):522-7. https://doi.org/10.70749/ijbr.v3i4.1090
14. Khan UZ, Muhammad W, Ali MA, Shah FA. Functional outcome of plantar fascia specific exercise versus corticosteroid injection in chronic plantar fasciitis. J Surg Pak (Int). 2018;23(1):30-4. https://doi.org/10.21699/jsp.23.1.8
15. Binesh SL, Sukaash AJ, Uvarajan T, Mathew KC. Functional outcome of steroid injection in plantar fasciitis: a prospective study. Res J Med Sci. 2024;18(7):459-63. https://doi.org/10.36478/makrjms.2024.7.459.463
16. Sawan ZH, El-Tohamy SA, Elhossieny KM, Basha OHA, Hafez AS. Analgesic efficacy and functional outcome in refractory cases of plantar fasciitis treated with platelet rich plasma: randomized comparative study with corticosteroids injection. Egypt J Anaesth. 2023;39(1):477-87. https://doi.org/10.1080/11101849.2023.2224651
17. Ang TWA. The effectiveness of corticosteroid injection in the treatment of plantar fasciitis. Singapore Med J. 2015;56(8):423-32. https://doi.org/10.11622/smedj.2015136

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