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## Dilemmas in management of plantar fasciitis

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### Abstract

**Background:** Plantar fasciitis is a common condition that occurs in the heel, and approximately 11% to 15% of adult foot symptoms are plantar fasciitis. In terms of treatment, various methods have been used in the treatment of plantar fasciitis, both conservative and surgical methods. When these conservative treatments fail, injecting steroids and Platelet rich plasma injection is considered an option. Both methods have proven good results in different studies. The purpose of this study was to assess the role and efficacy of isolated corticosteroids injection versus platelet rich plasma injection versus combination of both in the treatment of plantar fasciitis.

**Materials and Methods:** A total of 95 patients were studied. Patients were divided into three groups. Group A had 35 patients of which 25 were females and 10 were males and they received only platelet rich plasma injection. The Group B had 30 patients 16 females and 14 males who received corticosteroid injection only and Group C had 40 patients of which 20 were males and 20 were females who received both corticosteroid injection and platelet rich plasma. The evaluation of pain was done using VAS score.

**Results:** Visual Analog Scores on 0 day, the day of injection for group A, B, C were 6.75, 4 and 5.85 respectively. The study showed a lower VAS scores with the combined and corticosteroid group till 3 months and no significant change at the end of 6 months.

**Conclusion:** Our study has shown that corticosteroid injection group is effective for immediate pain relief, group but in long term there is no significant change in all the three groups.

**Keywords:** Plantar fasciitis, corticosteroids, platelet rich plasma, visual analogue score

### Introduction

Plantar fasciitis is a common condition that occurs in the heel, and approximately 11% to 15% of adult foot symptoms are plantar fasciitis<sup>[1, 2]</sup>. Pain is intensified by prolonged weight bearing, obesity, and gradually increased activity<sup>[3, 4]</sup>. It is estimated that approximately 1 in 10 people experience heel pain at some point. Although plantar fasciitis occurs at all age groups, the highest risk of occurrence of plantar fasciitis is 40 to 60 years of age, with no significant sex bias<sup>[5]</sup>. The diagnosis of plantar fasciitis is mainly based on the patient's history and clinical examination, and further investigation is rarely needed. In terms of treatment, various methods have also been used in the treatment of PF, including non-steroidal anti-inflammatory drugs (NSAIDs), corticosteroid injections, and non-drug approaches, such as ice packs, shoe inserts, plantar fascia stretching exercises, extracorporeal shock wave therapy, and even surgical treatment<sup>[6-8]</sup>. It is reported that the symptoms will disappear after nonsurgical treatment in more than 80% of patients<sup>[9]</sup>. In 10% of patients, symptoms do not improve with conservative measures and further develop into chronic diseases<sup>[10]</sup>. In general, when these conservative treatments fail, injecting steroids is considered an option<sup>[11]</sup>. Corticosteroids injections have been used to treat plantar fasciitis and are an effective modality for pain relief. Literature has shown evidence of complications associated with corticosteroids injections such as fascial rupture<sup>[7, 8]</sup>. A local injection of platelet-rich plasma (PRP) is an emerging therapy for ligament pathologies and recalcitrant tendons, including plantar fasciitis. The purpose of this study was to assess the role and efficacy of isolated corticosteroids injection versus platelet rich plasma injection versus combination of both in the treatment of plantar fasciitis.

### Materials and methods

This is a prospective cohort study done in Sri Ramachandra Medical Centre, from October 2016 to October 2018. A total of 95 patients were studied.

The entire patient who took part in the study had plantar fasciitis that was diagnosed using ultrasound. The inclusion criteria was patient who had failed conservative treatment at least for six weeks for plantar fasciitis in form physiotherapy-ultrasound therapy and exclusion criteria was patient who had other foot pathologies like calcaneal spur, flat foot. All the patients were clearly explained about the study and consent was obtained before the procedure. The method of PRP preparation was based on a study by Augustus D. Mazzocca *et al.* [12] in 2012 (JBJS) who showed that PRP low spin method showed a higher growth factor levels and higher platelet counts in the sample. Hence this method was adopted. The technique of PRP injection (peppering) was based on the studies by Mark W. Scioli MD [3], Joost C Peerbooms *et al.* [6] which found this method to be very effective. Patients were divided into three groups based on the card technique. Group A had 35 patients of which 25 were females and 10 were males and they received only platelet rich plasma injection. The Group B had 30 patients 16 females and 14 males who received corticosteroid injection only and Group C had 40 patients of which 20 were males and 20 were females who received both corticosteroid injection and platelet rich plasma. All patient underwent injection in a same technique. Patient in

supine position, involved foot is identified. The site of maximal tenderness i.e medial aspect of the foot at the origin of plantar fascia usually is marked using a marker. All patients received 3ml of sensor Caine infiltrated into the skin and subcutaneous tissue over the injection site and then PRP or steroid was given. In Group A 3ml of PRP is injected using 22G wide bore needle in a fan shaped fashion, a technique called peppering. Post injection, patients are rested for 15min and then allowed to walk. For Group B patient injection of 40mg depomedrol and Group C both the 3ml PRP and 40 mg depomedrol was given. Patients were followed up at 0, 4, 8 and 12 weeks. VAS score outcomes were compared with previous visits at each follow-up.

## Results

Visual Analog Score son 0 day, the day of injection for group A, B, C were 6.75, 4 and 5.85 respectively. The follow up VAS score were tabulated as per table 1. We had 7 patients in PRP group (among 35 patients), 5 patients in Corticosteroid group (among 30 patients) and 2 patients in the combined group (among 40 patients) reportedly were in pain with some loss of function at 6 months follow-up were considered as relapse.

**Table 1:** Vas Score

Method	0 Day	4 Weeks	8 Weeks	12 Weeks
Group A (PRP Injection)	6.75	5.8	5.4	4.5
Group B (Corticosteroid injection)	4	4.1	4.2	4.4
Group C (Combination)	5.85	5.2	4.8	4.1

## Discussion

Chronic heel pain is a difficult condition to treat. Traditionally it has been treated by Physiotherapy, use of soft heel footwear and local Corticosteroid injections. It is well known that pain does not subside quickly, but can persist for several weeks and this result in significant disability. There are reports in literature that injection of PRP may be effective in this condition. Researchers like Lee *et al*, Barrett *et al*, Martin J.O' malley *et al.* have done studies using PRP in the treatment of plantar fasciitis and also comparing the effectiveness of PRP and Corticosteroid injections. Therefore we decided to do this study comparing local Corticosteroid with PRP injection along with combination of both. Earlier Lee *et al.* [16]. Conducted prospective randomized controlled study of 64 patients for a period of 6 months by comparing PRP with corticosteroid injection. The authors found that there is significant reduction in VAS for both the groups over a time. At 6 weeks and 3 months, the corticosteroid group had significantly lower VAS than the PRP group, but the difference was not significant at 6 months. In a similar study by Mukesh Tiwari *et al.* [1] the VAS score significantly reduced in both PRP and corticosteroid groups at one month, but at 3 months following treatment it increased in corticosteroid group and remained constant in PRP group till 6 months. In contrast, our study showed a lower VAS scores with the combined and corticosteroid group till 3 months and no significant change at the end of 6 months. We noticed that the group B corticosteroid group showed significant reduction in pain and the response was immediate which was followed by the group C Combined group. However by 6 months all three groups showed similar results.

## Conclusion

Plantar fasciitis is a difficult condition to treat and takes a long time to resolve. Our study has shown that corticosteroid

injection group is effective for immediate pain relief which may last upto 3 months. The effects of combined Corticosteroid and PRP injection for chronic heel pain shows initial immediate pain relief but lesser than the corticosteroid group but in long term there is no significant change in all the three groups.

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