

## Results of autologous blood injections in patients with plantar fasciitis

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**Objective:** To determine results of autologous blood injection in plantar fasciitis.

**Methodology:** Our descriptive study was conducted in Department of Orthopedics, Peshawar Institute of Medical Sciences, Peshawar, Pakistan and private clinics on 150 patients from January 2012 to December 2014. Patients of either gender between ages 18 to 50 years with more than 12 weeks history of plantar fasciitis symptoms were included. Patients with symptoms for less than 3 months, history of surgery, steroid injection for plantar fasciitis, fracture dislocation, diabetes, and local infection/osteomyelitis were excluded from the study. Pain was used to measure the outcome and was measured by using Visual Analogue Scale (VAS). Patients were re-assessed after autologous blood injection at 6, 12 and 24 weeks and pain was scored using VAS.

**Results:** Out of 150 patients, males were 68 (45.33%) while females were 82 (54.67%). The mean age was  $33.61 \pm 13.53$ ; 110 (73.33%) were from 21-40 years. In 113 (75.33%) patients, right foot while in 37 (24.67%) left foot was involved. On VAS, 86(57.33%) had moderate and 64(42.67%) had severe pain. 11(7.33%) were lost during follow up. Pain score on VAS after autologous blood injection at 6 weeks, 12 weeks and 24 weeks during follow up improved significantly ( $P < 0.0001$ ). 88(63.32%) patients had no pain while 40(28.78%) had mild pain at 24 week follow up. No local or systemic complication noted.

**Conclusion:** Autologous blood injection showed favorable short term result although long term comparative study is recommended to confirm our results. (Rawal Med J 201;41:7-10).

**Key Words:** Plantar fasciitis, autologous blood injection, visual analogue Scale.

## INTRODUCTION

Plantar fasciitis (PF) is a common cause of heel pain in athletes and general population and causes mild-to-severe activity limitations.<sup>1</sup> It has a lifetime prevalence of 10% and commonly occurs in middle-aged individuals with an equal preponderance in both genders.<sup>2</sup> The exact cause of plantar fasciitis is unknown. The current consensus is that micro tears occurs in plantar fascia due to aging process which results in degeneration of plantar fascia.<sup>3</sup> Various risks factors for PF have been identified that include obesity, excessive foot pronation, running, decreased ankle dorsiflexion range, and prolonged standing.<sup>4-6</sup> It is usually diagnosed on clinical grounds including plantar heel pain classically on medial side of plantar heel mostly on weight bearing at start of walk after a period of rest especially with first few steps in morning, pain that decreases with initial activity, but then increases with further use as the day progresses, and tenderness to palpation.<sup>4,7</sup> Plantar fasciitis is treated by various modalities

including conservative and surgical means. Conservative methods includes analgesics, various stretching exercises, foot orthosis, local steroid injections, extra corporeal shockwave, laser therapy, autologous blood and blood product injections.<sup>8</sup> Conservative treatment is successful in 80-90% of cases and is considered mainstay of treatment.<sup>9</sup> Local steroid injections can provide good short-term relief of symptoms, but are associated with complications such as the rupture of plantar fascia and fat pad atrophy.<sup>10,11</sup> Autologous blood injections have been suggested as an alternative management strategy.<sup>12</sup> Treatment with autologous blood injections acts by providing various cellular and humoral mediators like growth factors which result in healing and relief of pain without any risk of plantar fascia rupture and fat pad atrophy.<sup>13</sup> The aim of this study was to ascertain it's efficacy in treatment of PF, as this modality of treatment is cheap and safe.

## METHODOLOGY

Our descriptive study was conducted in Department of Orthopedics, Peshawar Institute of Medical Sciences, Peshawar, Pakistan and private clinics in Peshawar on 150 patients from January 2012 to December 2014 i.e. for period of 3 years. All patients of either gender between ages 18 to 50 years presenting to us with more than 12 weeks history of PF symptoms i.e. pain on medial part of the heel with a point of maximum tenderness for a minimum period of 12 weeks (3 months) and pain becoming worse by pressure on the heel were included in this study. Patients with symptoms for less than 3 months, history of surgery on foot, use of steroid injection for plantar fasciitis, fracture dislocation, diabetes, and local skin infection/osteomyelitis were excluded from the study.

Pain was used to measure the outcome of the autologous blood injection for PF and it was measured by using VAS. The pain was graded as follows: Grade 0: no pain (VAS 0), Grade 1: Mild pain (VAS 1-3), Grade 2: Moderate pain (VAS 4-7), Grade 3: Severe pain (VAS 8-10). The patients were explained how to score the heel pain during the whole procedure using a visual analogue pain scale (VAPS) of 100 mm length by putting a mark on the ruler (between 0, for no pain to 100 for most severe pain). After being marked by the patient, the pain was scored from one to 10 with one decimal. Patients with pain score of 3 or less than 3 on Visual analogue score (mild pain) were also excluded from the study.

The purpose and benefit of the study were explained to the patient. Detailed clinical history followed by detailed physical and systemic examination was carried out. Then 2ml of venous blood taken from the cubital vein of the arm was mixed with 1ml of 1% lignocaine and was injected into heel from medial side of heel to avoid pain and injury to heel's fat pad using sterile techniques. After injection, the patients stayed in health facility for 30 minutes and then after checking hemodynamic stability the patients were allowed to leave. Patients were advised to have rest of 48 hours and also avoid any stretching exercises for 48 hours after injection. They were re-assessed at 6

weeks, 12 weeks and 24 weeks during follow-up and pain was scored using VAS and examined for any complication and active complaint. Data were analyzed by SPSS version 17.0.  $P < 0.5$  was considered significant.

## RESULTS

Out of 150 patients with plantar fasciitis meeting inclusion criteria, males were 68 (45.33%) while females were 82 (54.67%). The mean age was  $33.61 \pm 13.53$  (range 19-49) years. Six (4%) patients were aged up to 20 years, 110 (73.33%) were from 21-40 years and 34 (22.67%) were of age more than 40 years. In 113 (75.33%) patients, right foot was involved while in 37 (24.67%) patients left foot was involved. Commonest duration of symptoms was 12-15 weeks (Table 1). 86(57.33%) patients had moderate pain on VAS and 64(42.67%) had severe pain score on VAS. 11(7.33%) patients were lost during follow up.

**Table 1. Duration of symptoms (n=150).**

Weeks	Number	%
12 -15 weeks	73	48.67
15-20 weeks	42	28
>20 weeks	35	23.33
TOTAL	150	100

**Table 2. Pain score assessment and comparison on basis of visual analogue scoring (n=139).**

Pain assessment	Mean $\pm$ SD	p
Pain Score At Presentation	7.76 $\pm$ 1.83	< 0.0001
Pain Score After 6 Weeks Of ABI	5.69 $\pm$ 1.68	
Pain Score At Presentation	7.76 $\pm$ 1.83	< 0.0001
Pain Score After 12 Weeks Of ABI	3.11 $\pm$ 0.68	
Pain Score At Presentation	7.76 $\pm$ 1.83	< 0.0001
Pain Score After 24 Weeks Of ABI	1.32 $\pm$ 1.91	

\*ABI= Autologous Blood Injection

After autologous blood injection, during follow up, 88(63.32%) patients had no pain while 40(28.78%) patients had mild pain on VAS. 11(7.9%) patients had moderate to severe pain score. There is highly

statistically significant reduction in pain score at 6, 12 and 24 weeks after autologous blood injection (Table 2). None had any local or systemic complication including infection.

## DISCUSSION

Plantar fasciitis is common problem affecting millions of people annually and is characterized by sharp, stabbing sometime burning pain in heel usually on posteromedial side.<sup>9,14,15</sup> More than 70% of patients in our study belonged to 3<sup>rd</sup> and 4<sup>th</sup> decade of life and this goes in line with other studies.<sup>2</sup> Most of studies showed that males and females are equally affected by PF<sup>2</sup> but our study showed slight female dominance making 54% of our study population. Our findings were in line with another local study by Askar et al.<sup>9</sup>

Pain is most important limiting factor in day to day activity and it is true for PF. Any treatment modality that controls or eliminates the pain will bring improvement in day to day activity and hence will improve quality of life. We in our study also used the reduction in pain score on Visual Analogue Scale as tool to determine the effectiveness of autologous blood injection. At the end of 24 week follow up in our study, autologous blood injection seemed to be effective in 92.1% patients i.e. 63.32% having no pain and 28.78% having only mild pain not hindering the day to day activity. These findings were in line with a previous study.<sup>9</sup> Our results were similar or better than other conservative treating modalities used in PF.<sup>2,16</sup>

A comparative study done by Lee et al<sup>17</sup> showed that autologous blood injection was superior to corticosteroid injections in decreasing pain and tenderness in patient of PF. In our study, the autologous blood injection showed that it reduces pain and tenderness in PF as was shown by Lee et al. Long term results of autologous blood injection are not known because of short follow up as it was one of our short comings and we recommend study with longer follow up to know the long term results. Also preferably a comparative study is recommended, so as to compare this method of management with other established methods like corticosteroid injections.

## CONCLUSION

Autologous blood injection has shown excellent short term results and it can be used as alternative to corticosteroid injections although long term comparative study is recommended to confirm our results.

### Author contributions:

Conception and design: Sardar Sohail Afsar  
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Analysis and interpretation of the data: Sardar Sohail Afsar  
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