

# ROLE OF ULTRASOUND GUIDED LOCAL CORTICOSTEROID INJECTION FOR MANAGEMENT OF PLANTAR FASCIITIS

**Khaled Ibrahim El Noueam ,Hassan Abdelsalam Fathy ,Khaled Abdelhamed Abdelkhalek Mohamed**

**Department of Radiodiagnosis and Intervention , Faculty of medicine, Alexandria university**

## Introduction

Plantar fasciitis is inflammation of the plantar fascia which is a thick, pearly-white layer of connective tissue attached to calcaneal tuberosity. It is the most common cause of heel pain in adults. It is a clinical diagnosis based upon a history of pain in the inferior heel that is worse when initiating walking plus the finding of local point tenderness. The utilization of ultrasound not only allows confirmation of diagnosis but also its ability to guide the injection under real time visualization offers a higher safety profile. The main sonographic signs include plantar fascial thickening, hypo echogenicity at the insertion upon the calcaneus, blurring of the boundary between fascia and surrounding tissues. Management is usually conservative with rest, modification of activity, pain control by analgesics and steroid injection. After failure of these measures, surgical treatment may be offered. Ultrasound guided steroid injection technique proved to alleviate related pain and improve functional status.

## Aim of the work

The aim of this work is to assess the role of ultrasound guided local corticosteroid injection in management of plantar fasciitis.

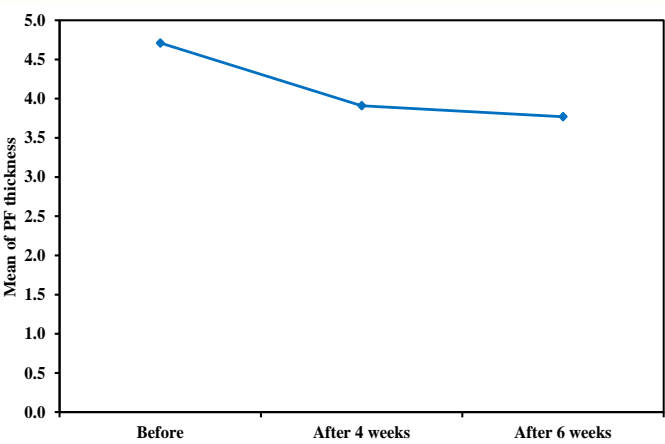
## Patients and methods

**PATIENTS:** This study was conducted on 30 patients with plantar fasciitis referred to the to Radiology Department.

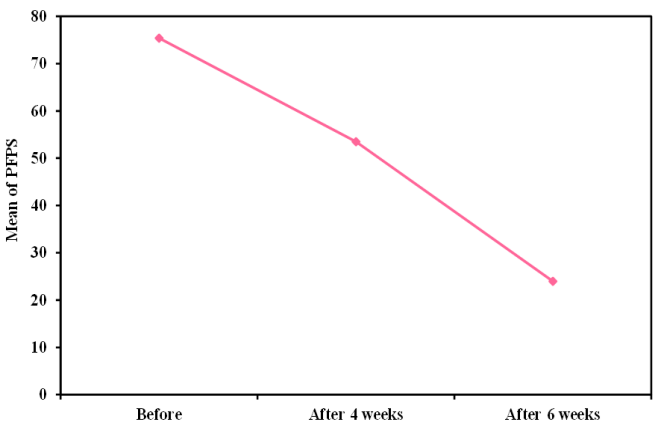
**METHODS:** Patients were subjected to meticulous ultrasound assessment to confirm the diagnosis. A 12 MHz high frequency linear probe was used. The key ultrasound findings were recorded including plantar facial thickness and presence of calcaneal spur. Baseline heel pain intensity assessment using plantar fasciitis pain/disability scale was recorded. Ultrasound guided injection of a mixture of 1 ml (40 mg) methylprednisolone and 1 ml of lignocaine 1% into the inflamed proximal plantar fascia after ultrasound guided posterior tibial nerve block using 5 ml of bupivacaine without epinephrine. Follow up was performed after 4 and 6 weeks clinically by plantar fasciitis pain/disability scale and radiologically by ultrasound to reassess the previous parameters.

## Results

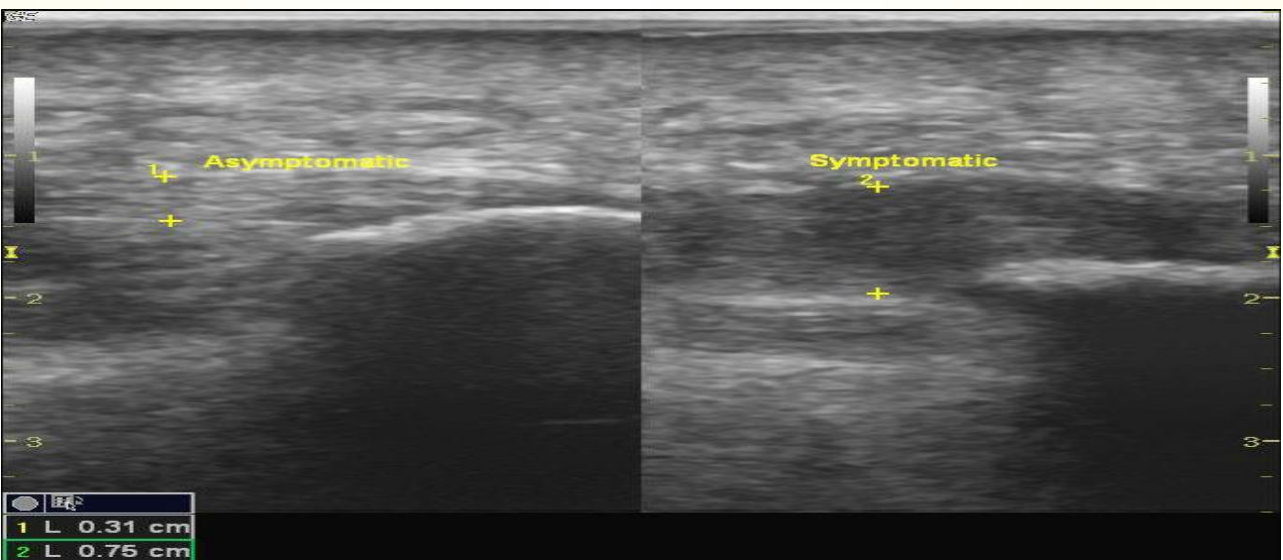
The average plantar fascial thickness in baseline ultrasound was  $4.71 \pm 0.59$  mm, 4 weeks after corticosteroid injection, the average thickness was reduced to  $3.91 \pm 0.33$  mm, 6 weeks after injection was reduced to  $3.77 \pm 0.33$  mm. Baseline mean PFPS was  $75.40 \pm 14.76$ , after 4 weeks it decreased to  $53.50 \pm 20.67$ , and after 6 weeks decreased to  $23.97 \pm 18.96$ .



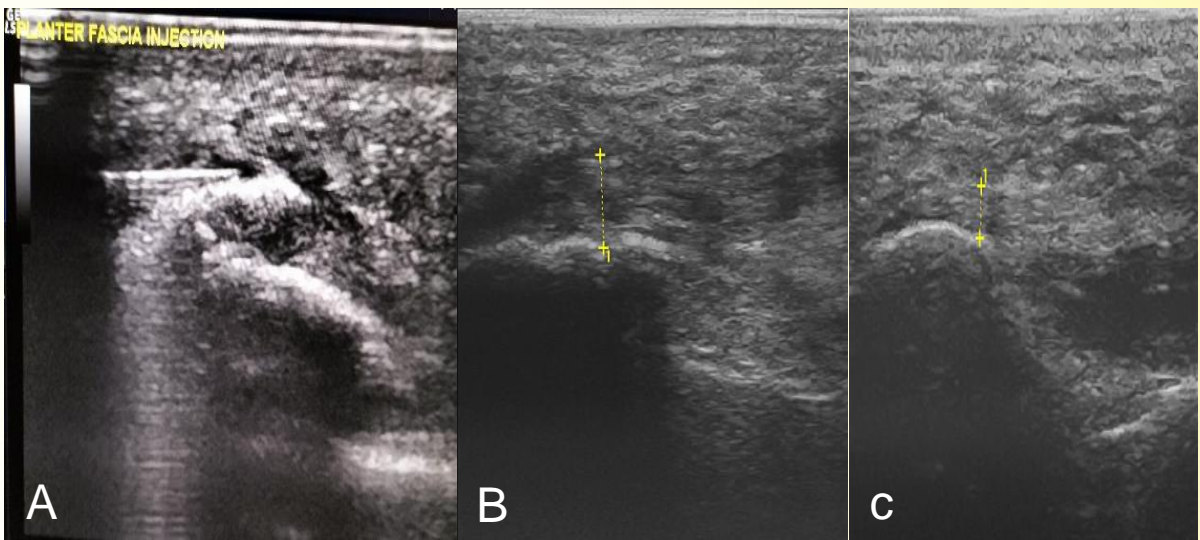
**Figure (1):**Comparison between the three studied periods according to PF thickness



**Figure (2):**Comparison between the three studied periods according to PFPS



**Figure (3):** Ultrasound sagittal view of the plantar fascia. (A) Ultrasound of the normal right heel showing the normal thickness of fascia. (B) Baseline ultrasound of diseased heel (left) showing increased plantar thickness.



**Figure (4):** (A) Needle noted in plane between the fascia and the heel pad of fat. (B,C) Follow up of left heel after 4 and 6 weeks showing reduced thickness.

## Conclusion

Measurement of the plantar facial thickness is a potential quantitative parameter for diagnosis, the decreased thickness and disappearance of hypo echogenicity in the plantar fascia offers objective measurements of the therapeutic effect. Real time needle visualization in ultrasound guided injections aids accurate needle placement and improves patient's outcome. Plantar fasciitis-related heel pain can be significantly improved by single local injection of steroid with prior posterior tibial nerve block under ultrasound guidance with no identifiable complications.