

USG Guided Growth Factor Concentrate Injection for Chronic Plantar Fasciitis in a 42-Year-old Female: A Case Report

Dr Golla Manoj Kumar, Dr Kashinath Bangar, Dr Nivedita Page, Dr Kirti Kulkarni

The Painex Pain clinic, Pune, Maharashtra, India.

Abstract

Background: Plantar fasciitis is one of the most common causes of heel pain, resulting from inflammation and microtears of the plantar fascia—a thick fibrous band of connective tissue that supports the medial longitudinal arch of the foot and absorbs shock during ambulation. The condition predominantly affects individuals between the ages of 40 and 60 and is especially prevalent among runners, obese individuals, and those with occupations requiring prolonged standing or walking on hard surfaces [1,2]. The pathophysiology involves repetitive stress leading to collagen degeneration at the fascia's origin on the medial calcaneal tubercle. Histological studies reveal fibroblastic proliferation, vascular ingrowth, and disorganized collagen-features more consistent with a degenerative fasciosis rather than a pure inflammatory process [3]. Clinically, patients present with sharp heel pain that is most intense during the first steps in the morning or after periods of rest[4].

Case Presentation: A 42-year-old female presented with right-sided heel pain since 9 months. Pain increases on standing and walking. Rated 8/10 on Numerical Rating Scale(NRS),not responded to conventional pharmacological therapy, physiotherapy and to steroid injection. So decided to give USG guided GFC injection into right-sided plantar fascia.

Conclusion: USG guided GFC injection into plantar fascia is a promising treatment for chronic plantar fasciitis unresponsive to conventional modalities providing sustained pain relief and functional improvement.

Keywords: Plantar fasciitis, Heel pain, GFC injection, USG (Ultrasonography), NRS(Numerical Rating Scale)

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I.Introduction

Plantar fasciitis is a degenerative condition of the plantar fascia characterized by chronic heel pain, especially during the first steps in the morning. It affects approximately 10% of the population over their lifetime, and while many cases respond to conservative management - including stretching, NSAIDs, and orthotics - a subset becomes chronic and refractory.

Autologous blood-derived products such as Platelet-Rich Plasma (PRP) have been increasingly explored for musculoskeletal conditions due to their regenerative properties. Growth Factor Concentrate (GFC) is an advanced derivative of PRP, processed to enhance the concentration of bioactive growth factors such as PDGF, TGF- β , VEGF, and EGF. These factors are believed to modulate inflammation and promote tissue repair. This case report explores the clinical outcome of GFC therapy in a chronic plantar fasciitis patient.

II. Case Report

A 42-year-old female presented with a 9-month history of right-sided heel pain. The pain was sharp, maximal during the first steps in the morning, and rated 8/10 on the Visual Analogue Scale (VAS). Conservative treatments including oral NSAIDs, physiotherapy, night splints, and custom orthotics failed to provide sustained relief. She also received particulate steroid injection from orthopedic surgeon and got partial pain relief.

Clinical Examination:

- Point tenderness over the medial calcaneal tubercle
- No signs of infection, swelling, or neurologic deficit
- Ultrasound: Thickened plantar fascia (5.8 mm), hypoechoic changes
- Diagnosis: Chronic Plantar Fasciitis

Treatment Plan:

The patient was counseled and consented for a single GFC injection.

Procedure:

- 20 ml of the patient's peripheral blood was drawn under aseptic precautions
- Processed using commercial closed GFC preparation system
- Under ultrasound guidance right Tibial nerve block was done with 3ml of 2% lignocaine
- Under strict aseptic precautions and under ultrasound guidance, 4ml of GFC was injected into the point of maximal tenderness in the plantar fascia using a peppering technique
- Post-injection protocol: Relative rest for 3 days, gradual return to weight-bearing, and stretching exercises from day 5

Follow-Up:

- Week 4: VAS 4/10, FFI improved by 35%
- Week 8: VAS 2/10, resumed normal walking without orthotics
- Week 12: VAS 1/10, complete functional recovery No adverse events were reported.

III. Discussion

This case demonstrates the potential benefit of GFC in treating chronic plantar fasciitis. GFC enhances the delivery of platelet-derived bioactive molecules that modulate the local healing environment. Compared to traditional PRP, GFC involves the activation and concentration of growth factors ex vivo, potentially improving efficacy. (5,6)

The ultrasound-guided technique ensures precise delivery of GFC into the pathological tissue. The observed improvement in this patient aligns with the postulated mechanism of accelerated healing and modulation of chronic inflammation.

IV. Conclusion

Growth Factor Concentrate injection is a promising, minimally invasive treatment for chronic plantar fasciitis unresponsive to conservative therapy. This case highlights the effectiveness of a single GFC injection in providing sustained pain relief and functional improvement.

References

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