Case Report

Autologous Fat Grafting for Plantar Fasciitis

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Abstract

Plantar fasciitis is the most common cause of heel pain, accounting for up to 15% of medical foot inquiries. Autologous fat grafting (AFG) is a promising new treatment for plantar fasciitis, whereby the injection of fat may promote a cushioning effect on the heel and reduce plantar pressure, thereby reducing heel pain. We present the case of a patient with chronic plantar fasciitis treated with AFG with significant improvement in foot pain and functional scores.

Keywords: Autologous fat graft, minimally invasive surgery, liposuction, plantar fasciitis

Introduction

Plantar fasciitis is the most common cause of heel pain, accounting for up to 15% of medical foot inquiries.[1] The cause is multifactorial and includes overuse, abnormal gait, and foot biomechanics.[2] AFG is a promising new treatment for plantar fasciitis, whereby the injection of fat may promote a cushioning effect on the heel and reduce plantar pressure, thereby reducing heel pain.[3] We present the case of a patient with chronic plantar fasciitis treated with AFG with significant improvement in foot pain and functional scores.

Clinical Vignette

A 72-year-old man presented with a 5-year history of chronic right foot plantar fasciitis. He had previously been treated with non-steroidal anti-inflammatory drugs, ice, stretching, acupuncture, physical therapy, orthotic splinting, orthotic shoe inserts, intralesional corticosteroid injection, and platelet-rich plasma. Comorbidities included migraine, hypertension, peptic ulcer disease, and squamous cell carcinoma.

On examination he had painful gait and pain on palpation of the central plantar fascial band. Visual analogue pain score was 5 on gait and 8 on palpation. Manchester Foot Pain and Disability Index score[4] was 16 (range 0–34). Given refractory, chronic symptoms he elected to undergo AFG.

The patient was placed supine, and the abdomen was prepared with 4% chlorhexidine gluconate and draped. The abdomen was infiltrated with 250ml of Klein's tumescent anaesthetic mixture, which was allowed to sit for 20min. A single liposuction port was created with 2-mm punch biopsy. Fat was harvested with power-assisted liposuction via a 2 mm mercedes cannula. Fat was processed with soft centrifugation purification.

A foot block was performed with anesthesia of the posterior tibial nerve, saphenous nerve, sural nerve, and peroneal nerves. This was supplemented with local infiltration of anesthesia over the central plantar fascial band. Using an 18-gauge needle, depot injections of the purified fat were administered over the central plantar fascial band caudal to the insertion on the calcaneus. Two cubic centimeters of fat were administered.

The patient was provided with crutches and graduated compression stockings and instructed to avoid excessive weight bearing on the right foot for 7 days. Postoperative analgesia was provided in the form of an ice pack, paracetamol, and ibuprofen over the next 7 days.

The patient reported improvement in symptoms at the 6-week follow-up consultation. Visual analogue pain score was 2 on gait and 2 on palpation. Manchester Foot Pain and Disability Index score was 8.

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Access this article online

Quick Response Code:

Website: www.jcasonline.com

DOI: 10.4103/JCAS.JCAS_206_20

How to cite this article: Phan K, Lin MJ. Autologous fat grafting for plantar fasciitis. J Cutan Aesthet Surg 2022;15:97-8.

The patient reported improvement in symptoms 3 months postoperatively. Visual analogue pain score was 2 on gait and 2 on palpation. Manchester Foot Pain and Disability Index score was 6.

Discussion

Chronic plantar fasciitis has a significant debilitating effect on quality of life. This may lead to physical health sequelae such as weight gain and deterioration in psychosocial well-being.[3]

Our case report supports AFG as a promising procedure for treatment of chronic plantar fasciitis. The potential benefits of AFG include that it is a minimally invasive procedure with minimal risk of destabilizing or interruption of foot biomechanics. There is minimal risk of scar tissue formation and the fat graft may promote fascial remodeling[3] Limitations of this approach include variable resorption of fat, which may reduce fat retention and limit outcomes at long-term follow-up.[5]

Acknowledgment

No acknowledgments to disclose.

Financial support and sponsorship

No funding sources to disclose.

Conflicts of interest

All authors have completed and submitted the ICMJE form for disclosure of potential conflicts of interest with no conflicts to report.

Ethical approval

No institutional review board status to disclose.

Previous presentation

This article has not been published or submitted in this form for review to any other journal or publication.

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