Allograft Adipose Matrix Injection for the Treatment of Fat Pad Atrophy With Recalcitrant Ulceration- A Case Report

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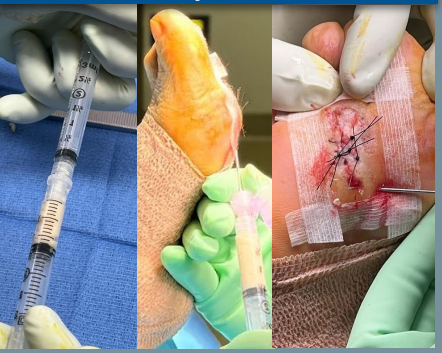
Introduction

Pedal fat pad grafting is a minimally invasive therapeutic option for treating pedal fat pad atrophy and plantar ulcerations. Diabetic neuropathic patients with foot ulcerations suffer repetitive microtrauma to an insensate limb which can lead to early deterioration of fat or fat pad migration. With the loss of tissue between the bone and the skin, this can lead to chronic non-healing ulcers. Metatarsalgia and heel pain are byproducts of this mechanism of stress that sensate patients can also suffer from. Allograft Adipose Matrix (AAM) fillers demonstrate results to decrease peak plantar pressures placed on neuropathic feet, therefore avoiding chronic ulcerations. The purpose of this study is to describe a novel technique to avoid chronic ulcerations due to fat pad deterioration that can ultimately lead to infection and loss of limb/life.

Intraop Method



Methods

A 68-year-old DM male with neuropathy presented with a right plantar forefoot chronic ulceration caused by bony prominence for 6+ years. Sharp wide excisional debridement of the chronic right foot ulceration with #15 blade was performed to the level of subcutaneous tissue to include dermis and epidermis. Pre-debridement ulceration measurement was measured to be 0.3 x 0.3 x 0.3cm and post debridement measurements of the full-thickness ulcerations were 0.4 x 0.5 x 0.4cm. Steri-strips were used to mark out the extent of the planned adipose allograft matrix injections. The full-thickness ulcer was closed with 2-0 nylon. 6cc of Leneva AAM was infiltrated into the subcutaneous tissue at the level of the submetatarsal 2 head ulcer using an 18g needle and 3cc syringe. Care was taken to crosshatch and distribute the injection diffusely across the bony prominence. The AAM was massaged into place. Two 3mm U-shaped cutouts with felt pad spanning the entire foot were stacked and placed under the 2nd metatarsal head over sterile dressings. Patient was to be non weight bearing with posterior splint.

Evolution of Ulcer

Results

The patient was noncompliant and removed his own dressings and walked on the foot after 2 days. X-rays at this time demonstrated increased fat pad thickness at the level of the metatarsal heads. 4 days post-op, patient returned after getting bandages wet. Sutures were removed due to maceration and deciscence. Although there were post-op complications, the wound was with complete closure at 3 week post-op. 3 months post-op, patient's wound remained with complete closure and x-rays continued to show increased fat pad thickness compared to pre-op x-rays.

Discussion

AAM is a novel treatment for fat pad atrophy causing chronic ulcerations. This treatment can be a viable and reproducible therapeutic option for patients that have fat pad atrophy to avoid chronic ulceration, especially in patients who cannot undergo aggressive open surgical management, such as but not limited to those who have PVD, multiple comorbidities with poor wound healing, or of geriatric age.

References