

Decreasing Bacterial Burden in Infected Wounds using a 3D Biomimetic Matrix

Mary Bridge, MD; Brian Leoce, MD; Garismar Ramirez, BS; John C. Lantis II, MD

Mount Sinai West, Department of Surgery, Division of Vascular Surgery, New York, NY

Icahn School of Medicine at Mount Sinai, Department of Surgery, New York, NY

INTRODUCTION

Gel4Derm Plus™ has a 3D matrix structure that provides a non-immunogenic, antibacterial barrier that emulates the extracellular matrix properties of human skin (1). This product overcomes the toxic effects of many common antimicrobial wound products while providing a matrix barrier that helps reduce infection and prevent biofilm reformation. Gel4Derm Plus™ also comes with a pre-filled syringe and flexible applicator tip, allowing for easy application in hard to reach places.

In this study, we aimed to evaluate if Gel4Derm Plus™ clinically improves bacterial burden in chronically infected wounds.

METHODS

We applied Gel4Derm Plus™ to three patients with chronically infected wounds after debridement in the operating room.

Our first patient has a history of paraplegia and chronic decubitus ulcers at the lateral and posterior right hip. He presented with a large infected hematoma of the right hip with multiple sinus tracts, which we debrided and thoroughly washed out in the OR. After debridement, we applied Gel4Derm Plus™ using the flexible applicator tip to ensure we were able to apply the product throughout the entire sinus tract.

Our second patient has a chronic diabetic foot ulcer of the left foot who went to the OR for debridement, completion of Chopart amputation, and application of Gel4Derm Plus™ to facilitate stump closure.

Our third patient had an application of Gel4Derm Plus™ within his tunneled diabetic foot ulcer after sharp debridement.

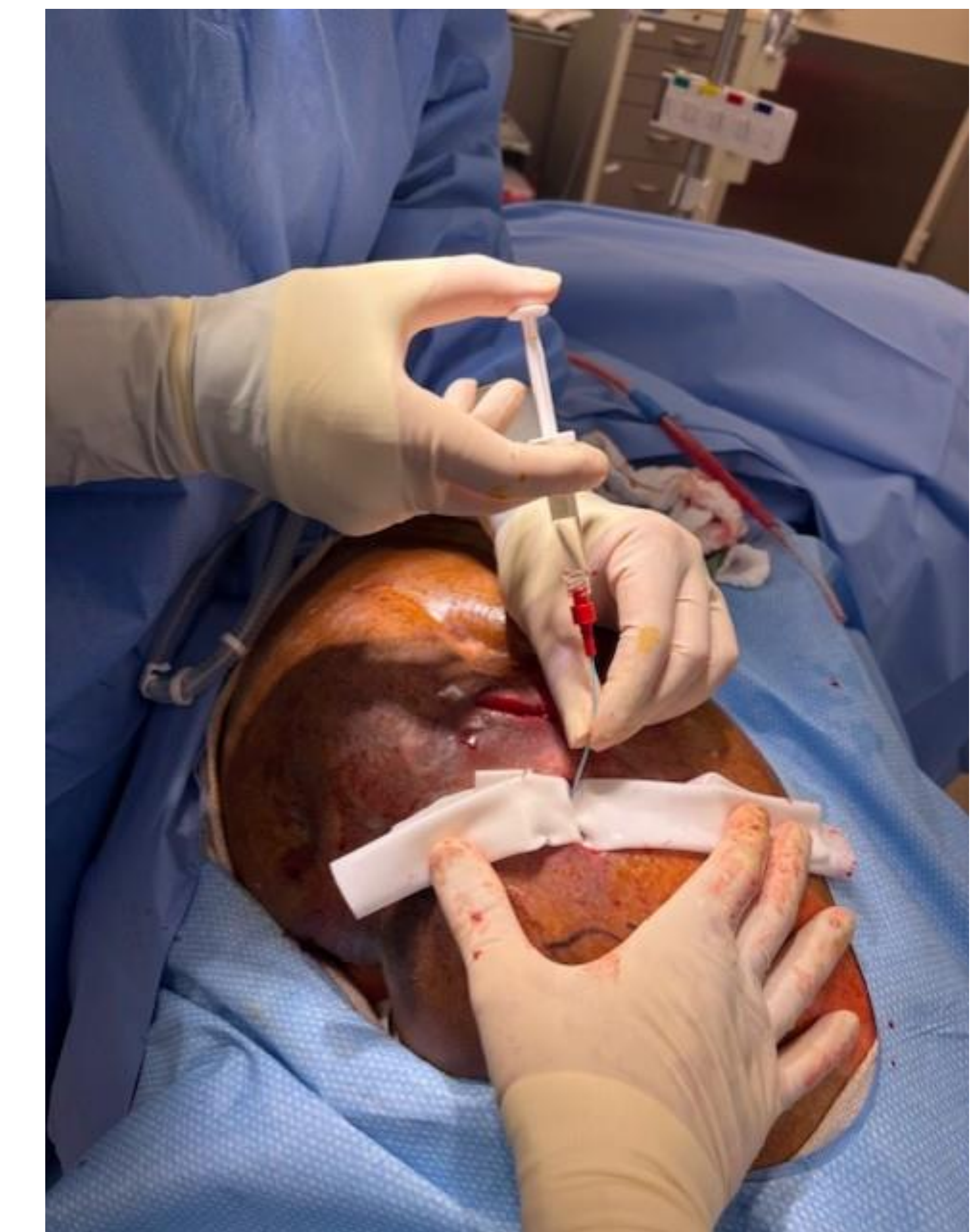
RESULTS

- Application of Gel4Derm Plus™ using the flexible applicator allowed us to apply product to each of the entire sinus tracts in our patient with a complicated right hip wound.
- The product was easy to apply and improved granulation tissue of each of the tracts by the first post op visit after surgery.
- In the patient with a chronically infected left foot diabetic foot ulcer, his wound bed also decreased in size and had full granulation after application of Gel4Derm Plus™, allowing for eventual closure of this amputation site.
- In addition, our third patient had an easy application using the flexible applicator tip and improvement in granulation at the wound site.

Image 1 displays a plantar tunnelling ulcer secondary to diabetes mellitus. This patient has had a prior bone resection for osteomyelitis. Image 2 displays easy application of Gel4Derm Plus™ using the flexible applicator tip. Image 3 shows application of Gel4Derm Plus™ in the operating room after debridement into deep connecting sinus tracts.

Patient 1: Application into Deep Sinus Tracts in the OR

Image 3

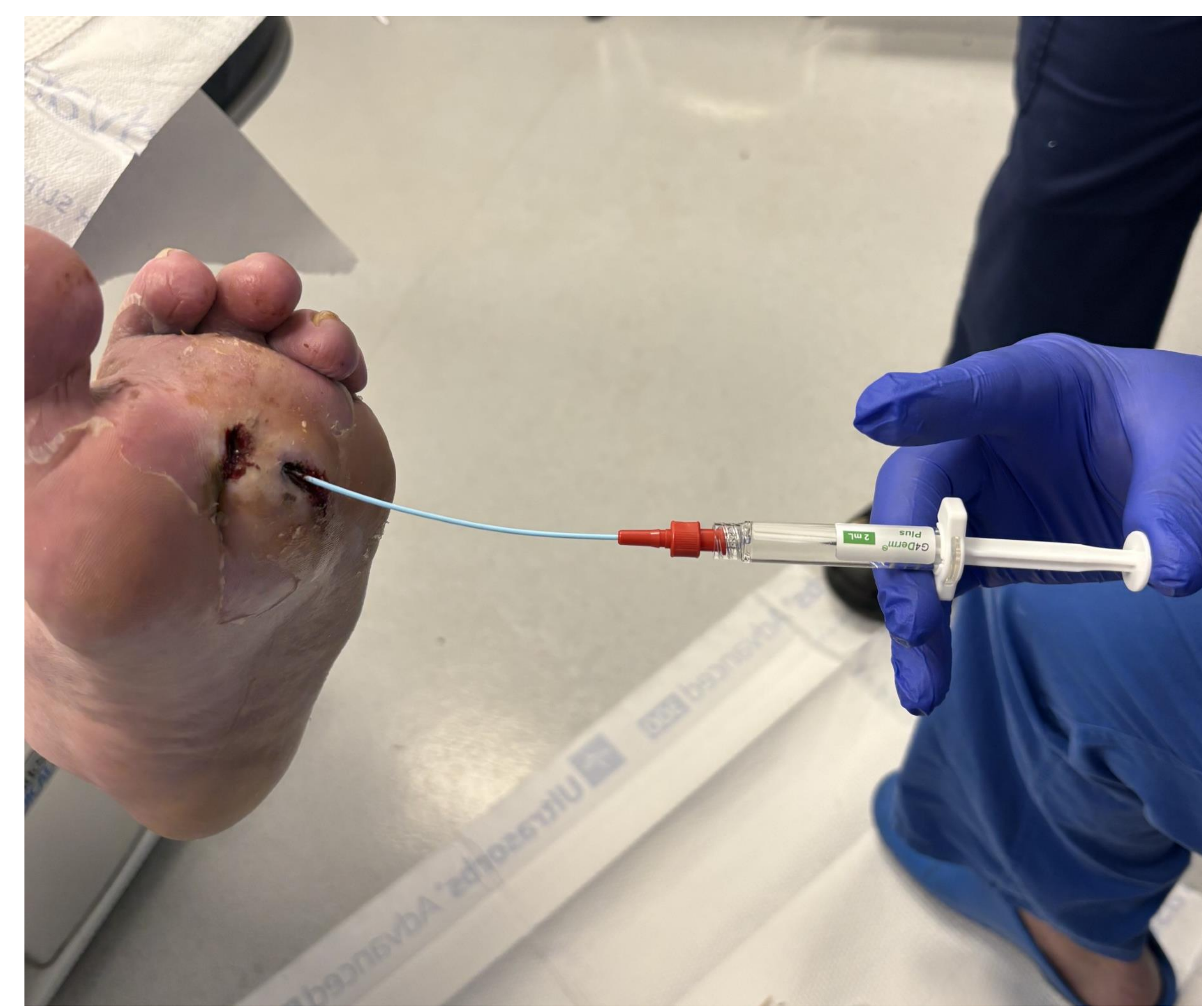


Patient 3: Easy Application in a Tunneled Diabetic Foot Ulcer

Image 1



Image 2



CONCLUSIONS

Gel4Derm Plus™ application after debridement in the operating room appears to promote granulation in chronically infected wounds. We found that the flexible applicator tip in combination with the smooth viscosity of the flowable matrix allowed for easy application of this product into deep sinus tracts. While these patients experienced improved granulation with Gel4Derm Plus™ application, we cannot determine whether or not the improved granulation necessarily facilitated closure and decreased bioburden.

REFERENCES

1. <https://www.gelformed.com/product.html>