

# Restoring Momentum in Stalled Wounds: A Three-Case Evaluation of Borate-Based Bioactive Glass Fiber Matrix (BBGFM) Therapy

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## INTRODUCTION

Chronic lower-extremity wounds including diabetic foot ulcers (DFUs) and venous leg ulcers (VLUs) pose significant clinical and economic burdens due to their prolonged healing trajectories and high recurrence rates.<sup>1</sup> Impaired perfusion, bacterial burden, and chronic inflammation often inhibit progression through normal healing phases.<sup>2</sup> Bioactive glass technologies have emerged as promising adjuncts because they provide a scaffold which allows for infiltration and proliferation of native cells while maintaining sufficient space for native collagen deposition and the formation of new blood vessels.<sup>3</sup> This case series describes the clinical response of three lower-extremity wounds treated with standard wound care supplemented with a borate-based bioactive glass fiber matrix (BBGFM).

## METHODS

Three adult patients with chronic wounds refractory to standard therapy were treated with BBGFM applied directly to the wound bed. Case 1 involved a right plantar DFU, Case 2 a left lower-extremity VLU, and Case 3 a nonspecific chronic lower extremity wound. All patients continued to receive guideline-based care including proper moisture balance, offloading or compression as indicated, and routine wound care follow-up. Wound area was assessed at baseline and weekly until closure or substantial improvement.

## RESULTS

Across all three cases, wounds demonstrated visible improvement following the introduction of BBGFM. The appearance of healthier granulation tissue, reductions in slough and exudate, and improved wound-bed quality conducive to epithelialization was evident. Each wound transitioned toward progressive healing after having previously shown a limited or stalled response under standard care alone. No treatment-related adverse events or local reactions were reported, and BBGFM was well tolerated in all patients.

## DISCUSSION

Across diverse wound types, the addition of BBGFM to standard care was associated with quality granulation, reduced wound size, and eventual closure. These findings align with prior evidence demonstrating that borate-based bioactive glass facilitates a scaffold conducive to tissue regeneration.<sup>3</sup> Although limited by sample size, this case series highlights the potential clinical utility of BBGFM in managing refractory lower-extremity wounds.

## REFERENCES

1. Armstrong DG, Tan TW, Boulton AJM, Bus SA. Diabetic Foot Ulcers: A Review. *JAMA*. 2023;330(1):62-75.
2. Zhao R, Liang H, Clarke E, Jackson C, Xue M. Inflammation in Chronic Wounds. *Int J Mol Sci*. 2016;17(12):2085.
3. Armstrong DG, Orgill DP, Galiano RD, et al. A Borate-Based Bioactive Glass Advances Wound Healing in Non-Healing Wagner Grade 1 Diabetic Foot Ulcers: A Randomised Controlled Clinical Trial. *Int Wound J*. 2025;22(10):e70763.

## ACKNOWLEDGEMENTS

\*Mirragen Advanced Wound Matrix, ETS Wound Care, LLC. This poster was prepared in collaboration with ETS Wound Care, LLC. All protocols and clinical assessments were conducted and reported independently by WoundCentrics without any financial compensation from the manufacturer. For application instructions and risks of this device, please refer to the Mirragen Instructions for Use.

### CASE 1



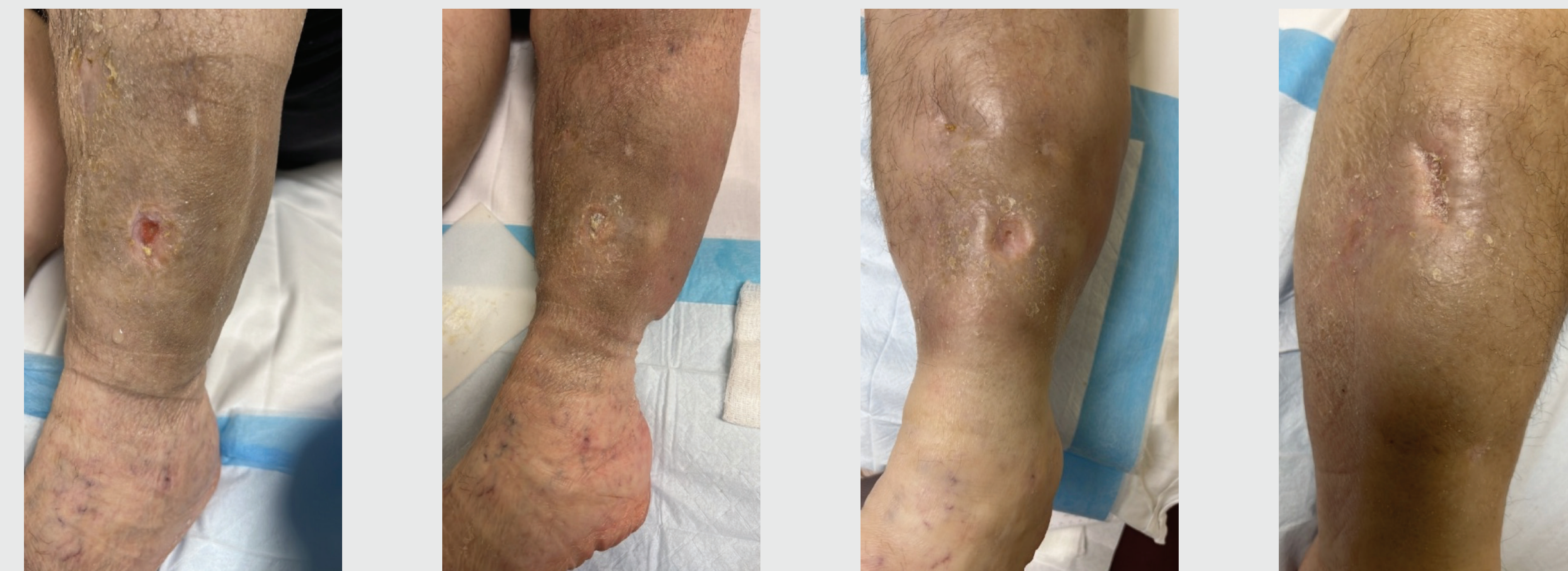
Case 1 depicting wound progression over the course of 4 applications of BBGFM over 3 months resulting in complete closure.

### CASE 2



Case 2 achieved full closure after serial debridement, podiatric felt for offloading and eight applications of BBGFM. The wound remained closed at 6-month follow-up.

### CASE 3



Case 3 achieved full wound closure with a combination of debridement, multilayer compression and eight applications of BBGFM and remained closed at six-month follow-up.