Effective Closure of Refractory Wounds Utilizing Bioactive Glass Fiber Matrix: A Case Series

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INTRODUCTION

Refractory wounds, characterized by resistance to standard therapies, lead to increased morbidity, diminished quality of life, and limb loss. Bioactive glass fiber matrices (BBGFM) have emerged as innovative solutions, supporting angiogenesis, granulation tissue formation, and epithelialization[1,2]. This case series evaluates the effectiveness of BBGFM in treating three refractory wounds across three patients.

METHODS

Three patients (average age 68) presented with three refractory wounds: one post surgical wound, one trauma wound, and one venous leg ulcer. The average wound size was 9.0 cm x 2.5 cm x 0.2 cm. All wounds had failed standard treatments, moist wound healing, debridement, negative pressure wound therapy (NPWT), and compression therapy. BBGFM was applied as the primary dressing, secured with a non-adherent dressing, fixated and covered with a secondary dressing to manage wound exudate. Weekly assessments measured wound dimensions, tissue quality, and exudate levels[3].

RESULTS

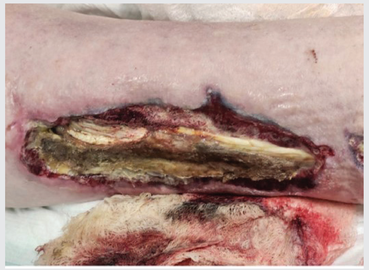
All three wounds achieved complete closure. Slough reduction and granulation tissue formation were evident early in treatment. Wound size decreased significantly over the course of treatment, with vascular granulation tissue and re-epithelization noted in all cases. No adverse effects or infections occurred[4].

DISCUSSION

BBGFM effectively treated and closed wounds of diverse etiologies, including surgical wounds, trauma wounds, and venous leg ulcers. It facilitated angiogenesis, well vascularized granulation tissue, and epithelial migration, creating an optimal healing environment[1,5].

These results align with existing evidence supporting the efficacy of bioactive glass in refractory wound management, offering a versatile and effective solution for challenging wound care cases[2,4].

Trauma Wou



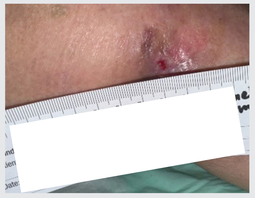
3/18/2024

12/10/2024
Closed with 9 Applications

Post Surgical Wound

8/2/2024
Before Debridement

8/20/2024
1st Application



10/15/2024
3rd Application

11/11/2024
Closed with 3 Applications

Patient Testimonial

VLU

2/28/2024 Before

3/6/2024 After 1st Application

3/27/2024 - After 2nd Application

5/1/2024 - Closed

Patient Testimonial

References:
1. Liu X, Rahaman MN, Day DE. "Bioactive Glasses for Tissue Regeneration."Journal of Biomaterials Science. 2020;31(5):654-672.
2. Piipponen M, Li D, Xu N. "The Role of Bioactive Glass in Promoting Angiogenesis." International Journal of Molecular Sciences. 2019;20(3):879.
3. Armstrong DG, Orgill DP, Galiano RD. "Resorbable Glass Fiber Matrix in the Treatment of Diabetic Foot Ulcers: A Multi-center Study." International Wound Journal. 2021;18(6):1-11.
4. Gonzalez SR, Yuen JC. "Advancing Wound Healing with Bioactive Scaffolds." Journal of Clinical Advances. 2022;35(4):245-250.

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