

Bioactive Glass Effectively Heals Complex Lower Extremity Wounds: A Case Series

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INTRODUCTION

Lower extremity wounds often pose unique treatment challenges to both clinicians and patients. Because of such challenges, it is often necessary to utilize a combination of different techniques, modalities, and products to successfully treat lower extremity wounds. Skin substitutes belong to a family of advanced wound care products used in challenging wounds. Bioactive glass wound matrix (BGWM*) is a new category of skin substitutes that is composed of a water-soluble matrix of fibers and microspheres that readily adheres to wound surfaces. The porous BGWM absorbs wound exudate to maintain moisture balance and serves as a scaffold to support wound healing. The objective of this case series is to describe our experience with BGWM after application on six patients with complex lower extremity wounds.

METHODS

A total of six patients had foot, ankle or lower leg wounds and received BGWM applications as determined by medical necessity. Each patient received between one and three applications of BGWM during the course of wound therapy. The patients were four males and two females, aged 49 to 71 years old. Wound etiologies included delayed surgical wound healing, a crush injury, diabetic foot wounds, a decubitus ulceration, and a chronic venous leg ulceration. Wound debridement was performed as needed prior to each BGWM application. No additional dressings or therapies were utilized after initiation of BGWM other than basic cover dressings and debridement when warranted. Deidentified data was collected after obtaining informed patient consent and stored in accordance with federal regulations.

RESULTS

BGWM was utilized to effectively treat lower extremity wounds, resulting in positive healing outcomes in all six wounds. All patients healed or demonstrated marked improvement in wound size and disposition during the study period. None of the patients acquired an infection once the BGWM was applied.

DISCUSSION

Wounds from a variety of etiologies saw successful outcomes after the application of the BGWM. These complex wounds were consistent with chronic and refractory wounds treated with BGWM by other investigators ¹⁻⁴. BGWM has been shown effective in DFUs in a 40 patient RCT while other wounds that have been refractory for years were found to close after applications of BGWM¹⁻⁴. A common outcome reported in the literature has been a significant reduction in complications associated with wound infection once BGWM was applied to wounds¹⁻⁴. This outcome continues to hold true in this case series.

Diabetic Foot Infection



1/29/24



1/31/24



4/4/2024



BGWM Application



5/9/24



8/8/24

Delayed Surgical Healing, Lower Leg



4/10/2024



BGWM Application



4/25/2024



6/6/2024

Foot Crush Injury



4/10/2024



BGWM Application



5/3/2024



6/14/2024

References:

- Armstrong D, Orgill D, Galiano R, et al. A multi-centre, single-blinded randomized controlled clinical trial evaluating the effect of a resorbable glass fibre matrix in the treatment of diabetic foot ulcers; Int Wound J. 2021;1-11.
- Johnson M, Ortega E, Armstrong D; How can novel bioactive glass wound matrix optimize hard-to-heal venous leg ulcers in geriatric patients with multiple comorbidities? Wound Masterclass March 2024;3:1-7.
- Castillo-Garcia E, Thuy Nguyen P. Complex refractory wounds: How to overcome treatment recalcitrance and restore the healing trajectory using innovative bioactive glass; Wound Masterclass March 2024;3:1-12.
- Beckford J, Rathinasamy P. How to reduce treatment costs for hard-to-heal wounds: The bioactive glass wound matrix option; Wound Masterclass March 2024;3:1-5.

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