

# Pressure Ulcer with Exposed Tendon Heals After Five Applications of a Novel Biomimetic Matrix: A Case Study



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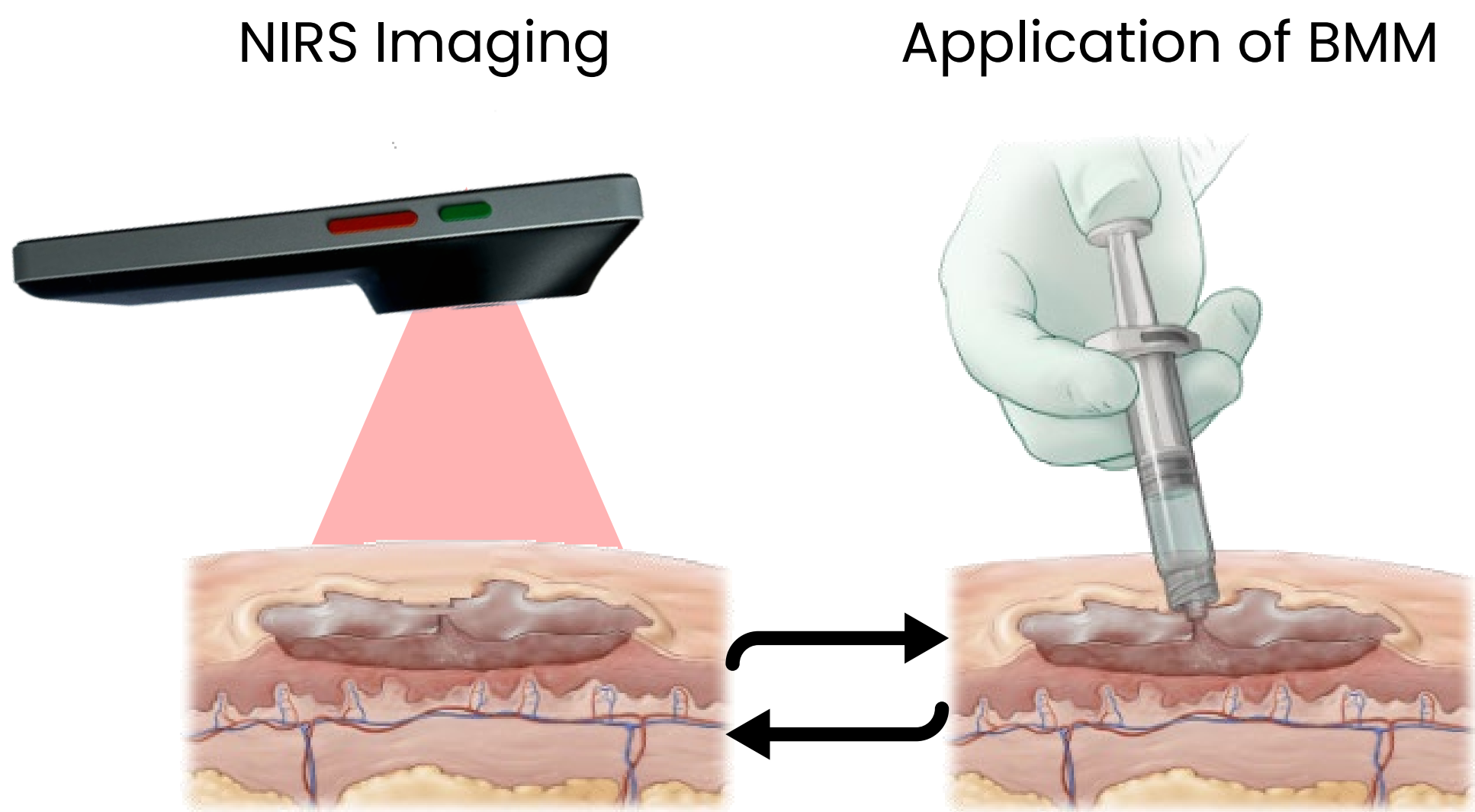
## Introduction

**Background** : Wounds with exposed structures pose significant challenges due to delayed healing, high infection risk, and associated complications. Effective treatment for complex lower-extremity wounds often requires a comprehensive approach incorporating aggressive debridement, moisture-balanced wound care, vascular optimization, and bioburden reduction, with flap reconstruction being a common option. However, flap reconstruction may not be viable for high-risk patients, necessitating alternative solutions that promote rapid granulation.

**Aim** : This case report evaluates the use of a novel **biomimetic matrix (BMM)** to treat a hard-to-heal pressure ulcer with exposed tendon in a high-risk patient with multiple comorbidities. The BMM is engineered to support healing of challenging wounds by providing an acellular 3D scaffold for tissue regeneration, with antibacterial properties, delivered via a syringe-based system for precise placement and dead-space elimination.

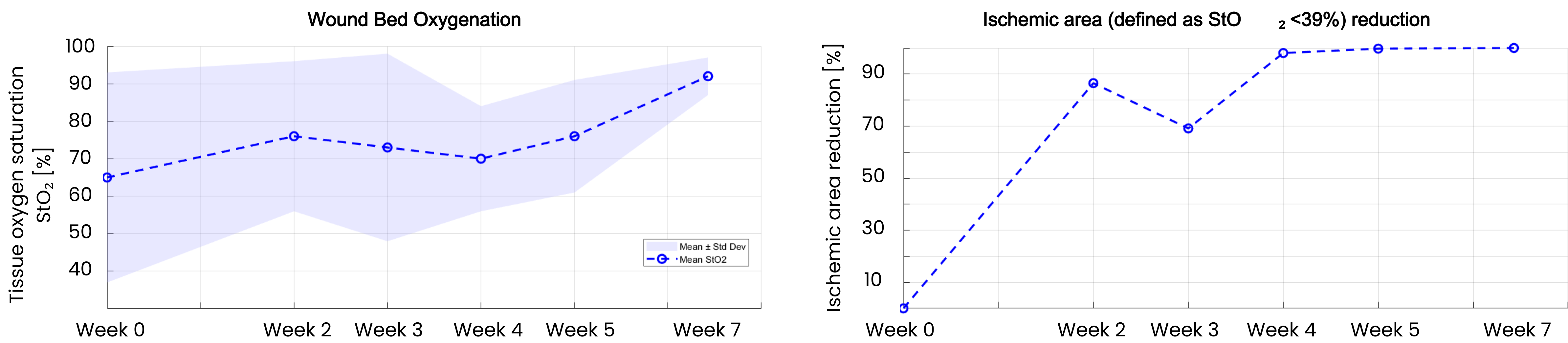
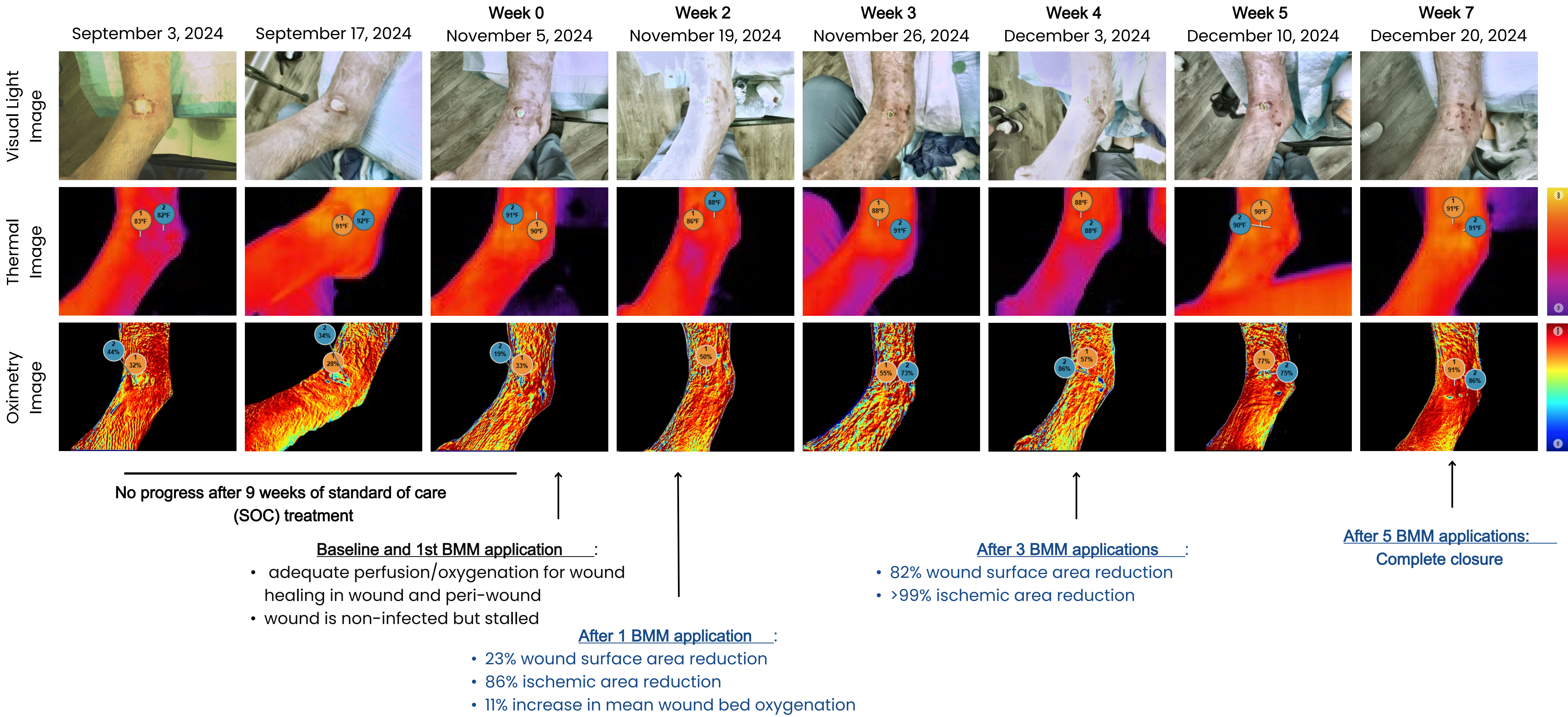
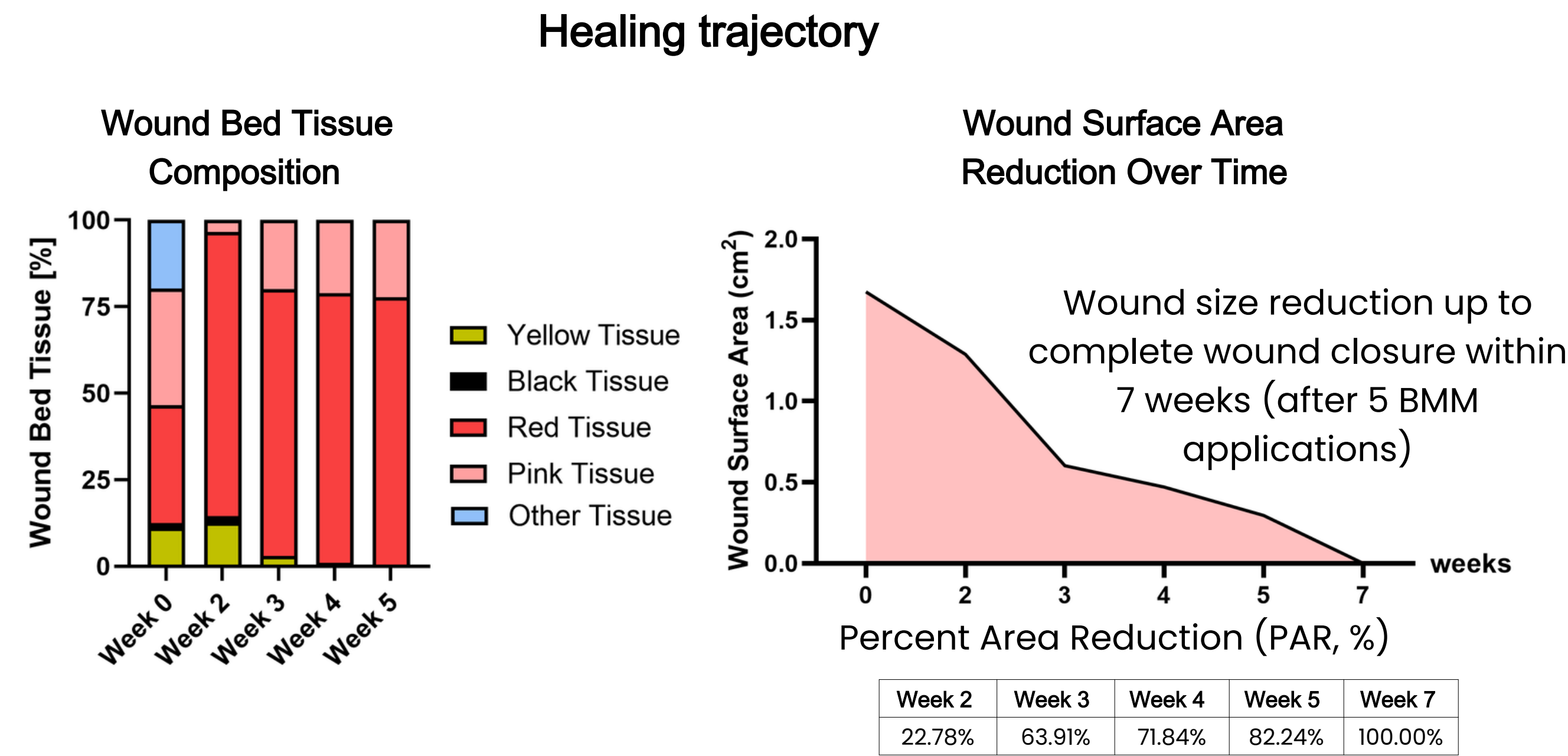
## Methods

An 82-year-old female patient with uncontrolled diabetes (HbA1c: 11%), vascular disease, severe rheumatoid arthritis, and limited mobility developed a deep pressure ulcer with an exposed tendon on the anterior ankle. **BMM (G4Derm™ Plus, Gel4Med)** was applied topically per the manufacturer's instructions. Wound dimensions and healing progress were assessed at each visit. Tissue oxygen saturation (StO<sub>2</sub>) was measured using a multispectral near-infrared spectroscopy (NIRS) device (MIMOSA Pro, MIMOSA Diagnostics). Adverse events were monitored throughout the treatment period.



## Results

BMM treatment led to rapid wound healing progression and significant reduction in ischemic area (defined as StO<sub>2</sub> <39%). After a single application, healthy granulation tissue covered the tendon, with a 23% wound area reduction and an 86% ischemic area reduction. By the third application, the wound surface area had reduced by 82%, and the ischemic area had decreased by over 99%. Complete wound closure was achieved after five applications (within 7 weeks). No adverse events were reported during the study.



## Conclusion

The novel BMM facilitated rapid healing and complete closure of a complex ulcer with exposed tendon in a high-risk patient within five applications. These results underscore BMM's potential as an advanced treatment modality for challenging wounds with exposed structures. Further research is warranted to validate these findings in larger patient cohorts.

## Reference

1. Flood MS, Weeks B, Anaeme KO, et al. Treatment of Deep Full-thickness Wounds Containing Exposed Muscle, Tendon, and/or Bone Using a Bioactive Human Skin Allograft: A Large Cohort Case Series. Wounds. 2020 Jun;32(6):164-173. PMID: 32804658.

