Use of a Bioresorbable Antimicrobial Matrix in Conjunction with Epidermal Autograft to Support Graft Take and Burn Wound Closure

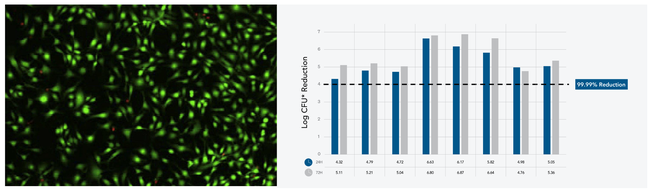
Michael J. Schurr, MD[1], Kevin Lee[1], Anu Chaparala[2]

1. Mission Hospital Burn Center, Mountain Area Health Education Center, Asheville, NC. 2. University of North Carolina School of Medicine, Chapel Hill, NC.

Introduction

- Conventional antimicrobial approaches can lower but rarely eliminate bacterial load, while silver-based agents are broadly antimicrobial but can hinder tissue repair.
- A fully synthetic, bioresorbable wound matrix integrates silver for antimicrobial activity while supporting keratinocyte viability and has been safely used across a range of wound types.

Healthy Fibroblast Growth Coupled with Antimicrobial Effectiveness



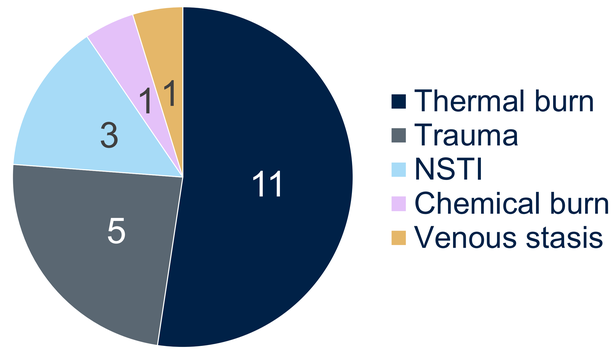
- Epidermal autografting also promotes closure and minimizes donor site morbidity, but its combined use with this matrix has been minimally described.

How can we optimize the known benefits of the antimicrobial matrix and epidermal autografting?

Results

- Patient demographics: 70% male with a mean age of 48.5 years (range, 7–83)

Wound Etiology



- Mean grafted area: 379 cm² (range, 24–2400 cm²)
- Mean follow-up duration: 74 days (range, 12–426).
- All patients had 100% graft take and accelerated donor site closure

Case Example

Methods

- Mesh autografts were applied to wounds at 2:1 or 3:1 expansion ratios, then sprayed with epidermal autografts and immediately covered by the bioresorbable antimicrobial matrix.
- Donor sites were treated similarly.
- Standard nonadherent and bismuth-impregnated dressings were used as outer layers and changed per previously published protocols.

Conclusions

- This initial experience suggests that combining epidermal autografts with a resorbable antimicrobial matrix is a safe, feasible, and effective method for managing complex burns and other challenging wounds.
- The matrix may serve as a valuable adjunct for surgeons seeking to optimize graft integration and donor site recovery in reconstructive burn care.
- Future directions:
  - Evaluate in a larger cohort vs. standard transparent breathable film
  - Assess outcomes at multiple post-operative time points (pain, infection, pigmentation, scarring, healing)
  - Expand inclusion to a broader range of complex wound types

Disclosures: MJS is the founder of and medical advisor for Imbed Biosciences, Inc.