

Managing Burn Autograft Donor Site Pain Using Antimicrobial Bioresorbable Lidocaine-HCl Matrix: A Five-Patient Case Series

Siva Paladugu, MS¹, Jonathan E. Schoen, MD, MPH, FACS, FAB^{2,3}, Jeffrey E. Carter, MD, FACS, FAB^{2,3}, M. Victoria P. Miles, MD, EMT-P^{1,2,3}

1. Tulane University School of Medicine; 2. Louisiana State University Health Sciences Center; 3. University Medical Center New Orleans

INTRODUCTION

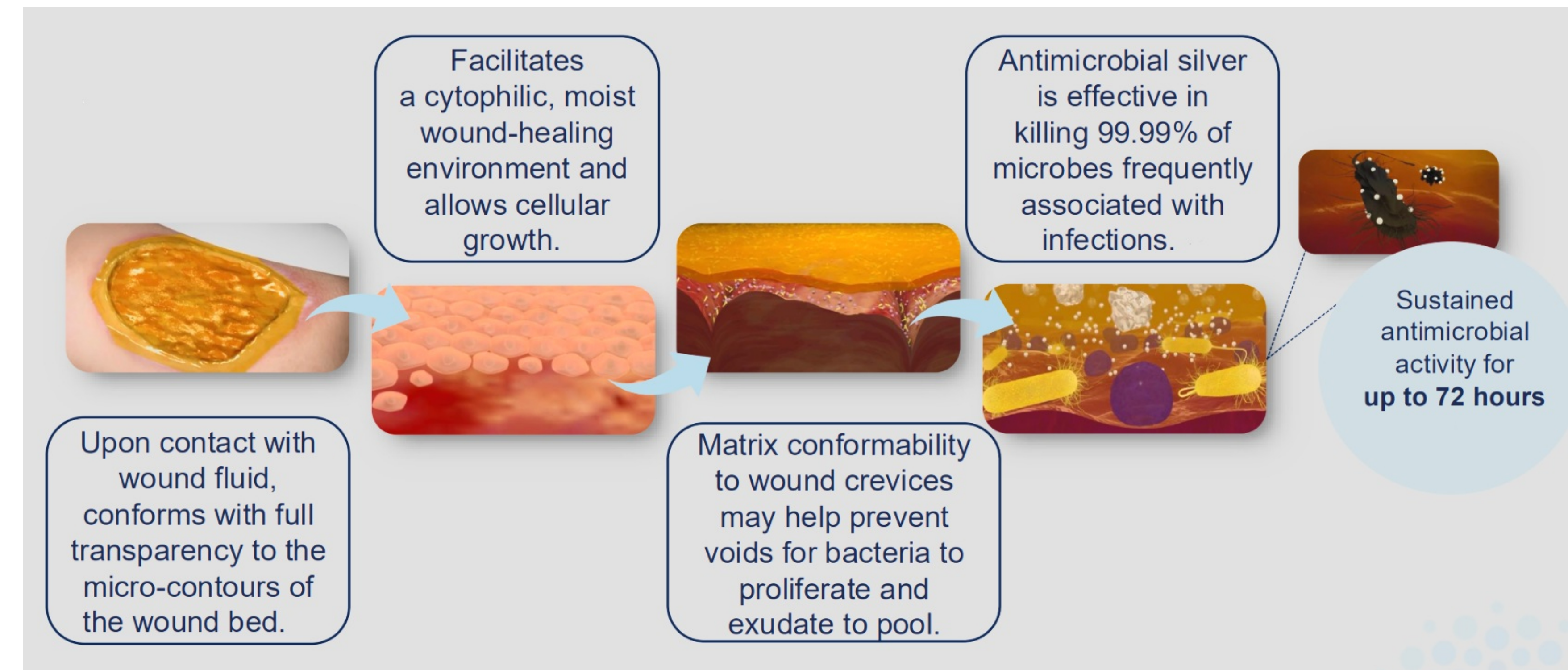
- Autograft donor sites in burn patients cause significant pain and carry a small risk of infection, contributing to delayed recovery, increased costs, and reliance on systemic analgesics.
- A bioresorbable polymer matrix with lidocaine HCl and metallic/ionic silver was developed to address these challenges.
- The matrix conforms to the wound bed to maintain a moist environment, and provides controlled lidocaine release.

OBJECTIVE

Evaluate the feasibility, pain outcomes, and preliminary efficacy of this matrix in donor site management.

METHODS

- Patients undergoing donor site harvesting at a single ABA-verified burn center from July to September 2025 received matrix application per manufacturer instructions.
- Matrix was applied in 4x6 cm sheets to donor sites
- Ease of use was graded on a 5-point Likert scale, and pain scores (10-point scale) were recorded at baseline, 45 minutes, and 3 hours post-operatively.
- Data on application, infection, systemic analgesic use, and wound management were collected.



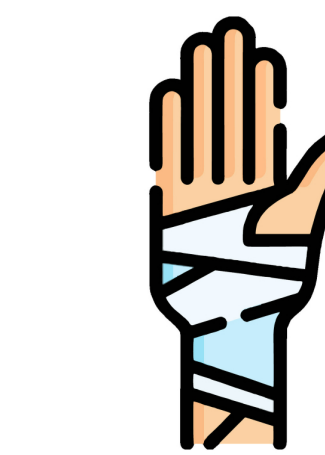
RESULTS

- Five patients (4 adults, 1 pediatric) were treated with one to five sheets depending on donor wound size; all adult patients had <5% TBSA burns.
- Product usability was rated as good to excellent across all cases, with factors such as application, adherence, and conformability each consistently receiving a score of 3-5 out of 5.
- Additional wound management techniques included skin cell suspension autograft and secondary dressings.
- Systemic pain management varied between the patients.
- Average reported pain scores were 0 at baseline, 2.0 at 45 minutes, and 2.6 at three hours post-operatively.
- No cases of infection were documented, and the matrix was considered well-suited by treating physicians.



Before, during, and immediately after matrix application to burn donor site

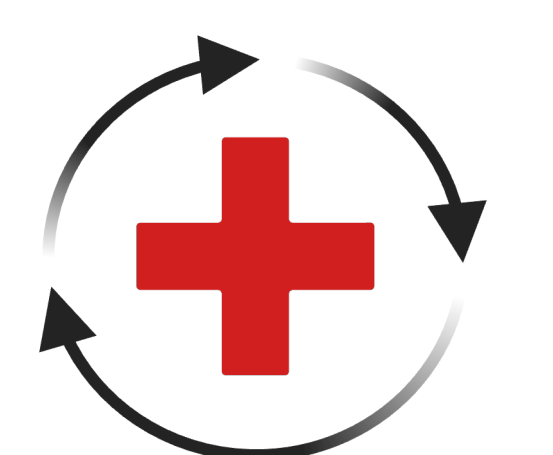
APPLICABILITY OF RESEARCH



Simplify Wound Care



Lower Opioid Usage



Support Faster Recovery

CONCLUSION

- This five-patient case series demonstrates that the bioresorbable antimicrobial matrix with lidocaine HCl is a feasible adjunct for burn donor site management.
- The matrix was easy to handle for the physician, conformable for the patient, and deemed appropriate for donor site wounds.
- Pain scores were generally mild supporting its potential to limit opioid use.
- The absence of infections further supports its antimicrobial efficacy.
- Larger studies are needed to confirm benefits and optimize use.

DISCLOSURES

- Siva Paladugu:** None.
- Jonathan Schoen:** Consultant: PolyNovo, Avita Medical, LifeScience Plus, Vericel, and Imbed - in lieu of compensation all proceeds are donated to local burn charities to support outreach, education, and survivor burn programs.
- Jeffrey Carter:** Former Consultant: Avita Medical, PolyNovo, SpectralMD- in lieu of compensation all proceeds are donated to local burn charities to support outreach, education, and survivor burn programs. Stock Options: Spectral MD.
- Victoria Miles:** Consultant: PolyNovo, Avita Medical, Vericel, and Imbed- in lieu of compensation all proceeds are donated to local burn charities to support outreach, education, and survivor burn programs.