

Salvage of a Stalled Full-Thickness Burn Wound Using a Biocompatible Antimicrobial Matrix to Prepare for Autografting: A Case Report

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63-year-old male | 7.4% TBSA full-thickness flame burn and Gr II Inhalation Injury | ESRD on HD, HTN, CHF, COPD, TIA, T2D, and severe PCM

Introduction

- Timely closure in complex burn patients is often hindered by comorbidities.
- Polymeric antimicrobial matrices may enhance granulation and moisture balance.



Case

A 63-year-old man sustained a full-thickness flame burn of the lower extremity. He underwent excision with cadaveric allograft (PBD 9) given questionable wound bed quality and concern for infection, followed by a polyurethane skin substitute (PBD 14) due to wound depth/exposed tendons. The substitute remained well-adherent and began to delaminate spontaneously, suggesting an acceptable underlying bed. Planned grafting at operative delamination (PBD 52) was deferred — the bed was not graft-ready though no infection was found — and NPWT was begun. Serial NPWT, systemic antibiotics, and topical antimicrobials produced no improvement; cultures showed chronic colonization rather than infection. Two applications of the antimicrobial wound matrix (from PBD 92) **converted a non-graftable bed to a graftable one within one week**, enabling closure with split-thickness skin graft and autologous skin cell suspension (PBD 99). Coverage was complete and the patient was discharged.

PBD 0
Initial burn injury



PBD 52
Delamination



PBD 92
s/p NPWT; Matrix Application



PBD 95
Matrix application 2



PBD 99
Pre-op wound bed



POD 10
Epithelialization



POD 30
Durable closure



Conclusions

In this medically complex burn patient with stalled wound healing, the polymeric biocompatible antimicrobial matrix **facilitated rapid granulation and successful graft take**. The case highlights its potential utility as a bridge therapy for compromised burn wounds, particularly in patients with significant comorbidities, and suggests adjunctive matrices may expand reconstructive options in challenging wound environments.