

Achieving Successful Closure of Necrotizing Soft Tissue Infection Wound with Autograft and Bioresorbable Antimicrobial Matrix: A Case Report

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Introduction

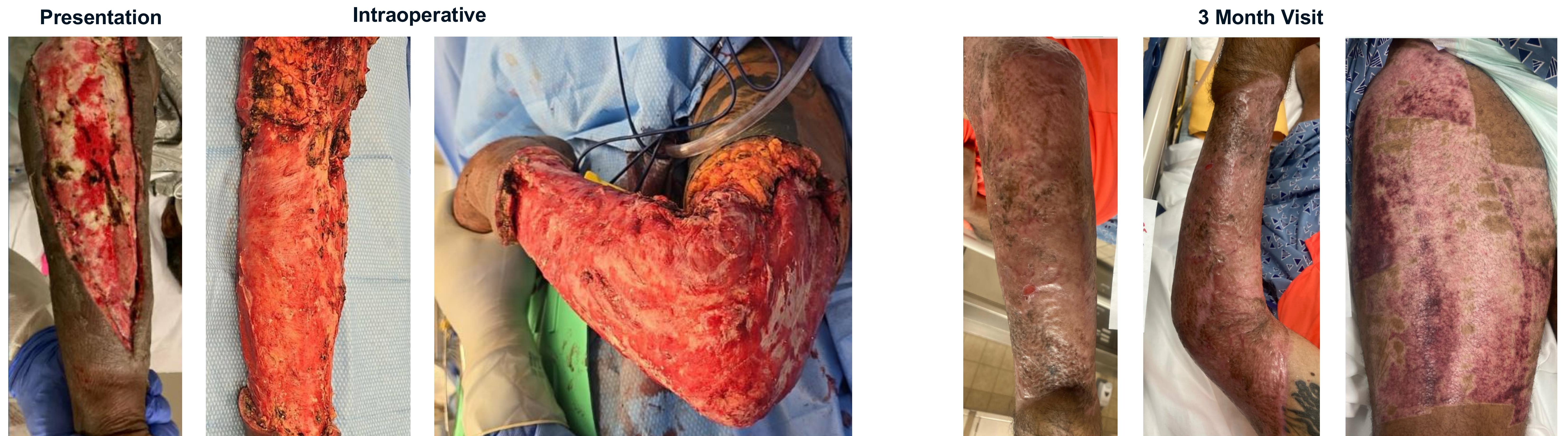
- NSTI wounds pose significant challenges due to rapid tissue necrosis, systemic toxicity, and frequent need for repeated surgical intervention.
- Use of a **fully synthetic, bioresorbable antimicrobial matrix** has demonstrated potential in **reducing infection risk** in challenging wound populations.
- This report describes the successful use of such a matrix to achieve definitive wound closure in a patient with extensive infection.

Methods

- Excision to bone, elbow joint space, tendon, and muscle followed by wound bed prep with NPWT, electrospun fiber matrix, nutritional support, and PT/OT
- Once deep structures no longer exposed, **split-thickness skin grafting and epidermal autograft spray performed on hospital day 46**
- **Antimicrobial matrix applied directly over autografts before NPWT**
- Matrix was also applied to the donor thigh site after epidermal autograft spray, followed by NPWT and additional coverage with a native collagen wound dressing on post-op day 4
- Secondary dressings: nonadherent contact layer and HOCl wet-to-moist dressing

Results

60-year-old paraplegic male with hx of stroke and HTN; transferred to our facility in septic shock 9 d post-injury



- Two prior excisions at an outside hospital for NSTI involving the upper extremity and right thigh before transfer to ICU
- **By post-op day 4, graft was 90% epithelialized; complete closure by post-op day 5, DSW closure by day 10**
- Wound demonstrated excellent functional outcomes without contracture
- No recurrent infection was observed beyond the initial presentation

Conclusions

- Use of a bioresorbable antimicrobial matrix contributed to **timely, uncomplicated closure of NSTI and donor site wounds** in a septic patient.
- The case demonstrates feasibility of incorporating the matrix into institutional standard of care, given its **compatibility with both traditional modalities (NPWT) and newer adjuncts (epidermal autograft spray)**.
- This highlights the potential role of bioresorbable antimicrobial matrices as a valuable adjunct for achieving closure of extensively infected wounds in complex patients.