

# Successful Healing of a 4-Year-Old Refractory Wound Following Skin Cell Suspension Autograft and Meshed Split-Thickness Skin Graft: A Case Study

Sarah Sample-Eppinger, DPM, Kettering Health Network and Britney Lipps, DPM, Dayton VA Medical Center

## Introduction:

- Wounds lasting > 12 weeks can impact quality of life, often requiring multiple interventions
- When traditional wound healing modalities fail, alternative techniques should be considered
- When applied in conjunction with a meshed split-thickness skin graft (mSTSG), skin cell suspension autograft (SCSA) can support closure of chronic wounds by accelerating epithelial coverage

## Objective:

To evaluate SCSA combined with mSTSG for the management of refractory wounds

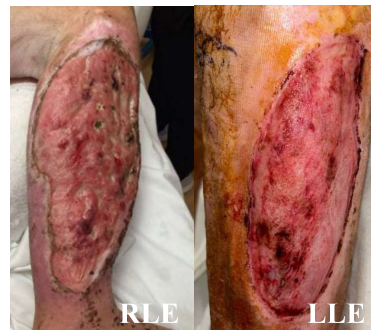
## Methods:

1. **Pre-treatment:** multiple debridements and IV antibiotics
2. **Wound bed prep:** thorough debridement and negative pressure wound therapy (NPWT)
3. **Closure:** 6:1 mSTSG + SCSA

## Case Description:

- **Patient:** 51 y/o male with bilateral lower extremity (BLE) wounds from polysubstance abuse and subsequent skin necrosis (right wound size = 225cm<sup>2</sup> and left wound size = 27.5 cm<sup>2</sup>)
- **Comorbidities:** methicillin-resistant Staphylococcus aureus, history of endocarditis, homelessness, and severe protein/calorie malnutrition

Initial Wound



Day of Autografting



Post-mSTSG + SCSA Week 2



Post-mSTSG + SCSA Week 4



Post-mSTSG + SCSA Week 24



## Results:

- **On POD 16:** 100% re-epithelialization of the LLE
- **On POD 93:** 100% re-epithelialization of the RLE
- **On POD 270:** graft and donor site were still healed. No wound recurrence, complications, or readmissions.

## Conclusions:

- This case demonstrates that combining mSTSG with SCSA can facilitate healing in difficult chronic wounds unresponsive to traditional treatments.
- SCSA provides effective re-epithelialization of mSTSG interstices and sustained closure when other modalities fail.
- This approach may offer a viable option for challenging wounds with compromised healing.