

Skin Cell Suspension Autograft from Glabrous Donor for Plantar Foot Wounds: A Case Series

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Introduction:

- Plantar foot wounds are challenging to manage
- Traditional autografts, particularly meshed split-thickness skin grafts (mSTSGs) often face durability issues on the plantar surface
- This case series highlights the use of **skin cell suspension autograft (SCSA) from glabrous donor skin** with a mSTSG to achieve durable wound healing and limb preservation in complex plantar foot wounds

Objective:

To demonstrate the utility of SCSA combined with mSTSG for the management of challenging plantar foot wounds

Methods:

- Pre-treatment:** thorough debridement
- Wound bed preparation**
- Closure:** glabrous skin-derived SCSA (2 passes) and either 3:1 or 6:1 mSTSG

Case 1: Wet Gangrene



Case 2: Multi-Factorial Wound



Case 3: Wet Gangrene



100%
Re-epithelialization in
All 3 Cases

Results:

- Mean wound size: 23.6 cm²
- Mean percent graft take: 96.6%
- Mean percent re-epithelialization: 100%
- Median time to complete wound closure: 48 days
- Achievement at 1-year follow-up: baseline mobility, functional limb preservation, no durability issues

Conclusions:

- SCSA combined with mSTSG can provide a **durable, functional, and aesthetically acceptable reconstruction option** for complex plantar wounds in high-risk patients.
- This case series shows that SCSA can be prepared from glabrous donor skin which can **improve mSTSG durability on the plantar foot** while improving wound healing and minimizing donor site morbidity.