

Utilization of a Next Generation Decellularized Dermal Allograft for Soft Tissue Coverage and Facilitation of Healing in Complex Foot and Leg Wounds (After a Suspected Spider Bite)

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Surgical Summary

Clinical Presentation:

- A 24-year-old male sustained a bite, suspected to be a brown recluse spider bite, on the dorsal aspect of the base of his left great toe. He developed an abscess and bacteremia with MRSA.
- He was initiated on intravenous Vancomycin and was taken to the OR for incision and drainage.
- Significant skin loss with exposed tendon and bone on the dorsum of his left foot in the area associated with the spider bite toxin and MRSA infection.
- Post-op day one, he developed compartment syndrome of the left lower leg, suspected to be related to bleeding associated with a small area of myonecrosis of the left soleus muscle. He underwent a left lower leg fasciotomy; the wounds were left open with orders of daily wound dressing changes and continuation of IV antibiotics.
- The patient required a subsequent surgical intervention 11 days later for irrigation, debridement, and application of DermaPure[®], a decellularized dermal allograft, for replacement of tissue, coverage of all exposed structures, and to promote rapid wound healing.

Intraoperative Findings:

- Significant skin loss with bone and tendon exposure on his dorsal left foot (Figure 1) and exposed muscle and fascia of his left medial and lateral lower leg as a result of the fasciotomy previously performed Figures 2 & 3).



Figure 1. Dorsal left foot.



Figure 2. Left medial lower leg.



Figure 3. Left lateral lower leg.



Figures 4, 5 and 6. (3) DermaPure[®] grafts meshed 1.5:1 applied to left foot and medial and lateral lower leg.

DermaPure[®] Application
(3) 7 cm x 10 cm, Meshed 1.5:1
Basement Membrane Outer-Most

Surgeon Perspective:

"In this complex case with a significant soft tissue defect, DermaPure provided substantial coverage of the area needing replacement of tissue. In my experience with this type of soft tissue defect, this patient experienced a faster rate of healing."

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Surgical Procedure:

- Three 7 cm x 10 cm DermaPure[®] decellularized dermal allografts meshed 1.5:1 using a skin graft mesher were applied to the left foot and leg wounds (Figures 4, 5, and 6).
- The dermal allografts were secured with skin staples at the margins and absorbable sutures in the wound base. A non-adherent contact layer was placed over the allografts and bolstered with V.A.C.[®] Therapy for seven days.



Figures 7, 8 and 9. Week four, post-application of DermaPure[®].



Figures 10, 11, and 12. Week ten, post-application of DermaPure[®]. Almost complete healing noted except for two small 4 mm x 4 mm wounds open to deep dermis.

Post-Operative Notes:

- Week four, post-application of DermaPure[®]: Successful integration with substantial angiogenesis and depth fill (Figures 7, 8, and 9).
- Week ten, post-application of DermaPure[®]: Almost complete healing noted with only two areas (measuring 4 mm x 4 mm) not closed (Figures 10, 11, and 12). Patient was able to return to work as a heavy equipment operator.

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