

Utilization of a Next Generation Decellularized Dermal Allograft to Provide Coverage, Depth Fill, and Closure in a Lower Extremity Soft Tissue Defect after Aggressive Debridement for Necrotizing Fasciitis

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Surgical Summary

Clinical Presentation:

- A 32-year-old female, eight months pregnant, presented to the emergency room four days after a wound developed on her left ankle (Figure 1). A small left lateral ankle wound, consistent in appearance with a brown recluse spider bite, with ascending cellulitis up the calf and lymphangitis to the left thigh, was noted. Signs of sepsis and blistering of the skin indicative of necrotizing fasciitis were present.
- Obstetrics and Infectious Disease consultations were obtained, and the patient was taken to the OR for incision and drainage.
- Two days after the lateral incision and drainage, medial blistering of the skin was noted along with persistent leukocytosis necessitating a second incision and drainage (Figure 2).
- Seven days later, she was found to have persistent leukocytosis and further tissue necrosis. She was taken back to the operating room for debridement and extensive deep fasciotomy (Figures 3 & 4).
- Following this procedure, the leukocytosis resolved, and the soft tissue defect improved in appearance. A decision was made to proceed with DermaPure®, a decellularized dermal allograft to provide coverage and optimally depth fill and closure.

Intraoperative Findings (procedure to apply dermal allografts):

- Significant skin loss with exposure of fascia, muscles, tendons, and bone on the dorsal left foot, and medial and lateral lower left leg (Figures 5 & 6).

Figure 1.



Figure 2.



Figure 3.



Figure 4.



Figure 5.



Figure 6



Surgeon Perspective:

"DermaPure provided effective coverage to this challenging, extensive wound resulting from necrotizing fasciitis. This wound was fully closed in 5 months, with minimal scarring noted."

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Surgical Procedure:

- The left lower extremity was draped/prepped in the usual sterile fashion, and a tourniquet was applied. Soft tissue deficits to the left dorsal foot, medial and lateral left lower leg were debrided and irrigated with a pulsed lavage unit.
- Four 7 cm x 10 cm DermaPure® decellularized dermal allografts, meshed 1.5:1 were applied to all soft tissue deficits. The grafts were affixed with staples at the margins and absorbable sutures in the base of the deficit (Figures 7, 8 & 9). A non-adherent contact layer was placed over the allografts and bolstered with V.A.C.® Therapy.
- Discharged home on the V.A.C.® and IV antibiotics five days after the grafting procedure.



Post-Operative Notes:

- 12 days post-op, partial integration was noted with granulation tissue present in some areas.
- 5 weeks post-op, significant integration noted with robust granular tissue present (Figures 10 & 11). A few days after this visit she delivered a healthy baby girl.
- 11 weeks post-op, the medial deficit was healed. V.A.C.® was discontinued on the medial wound one week prior to this. The larger dorsal-lateral wound continued to reduce in size.
- Four months post-op, V.A.C.® was discontinued due to a slight stagnation in the healing progress. Collagen dressings were then applied three times a week.
- Five months post-op, the dorsal wound was almost fully closed. Minimal scarring was noted, with progression to consistent coloration of skin. (Figures 12 & 13).