

Utilization of a Next Generation Decellularized Dermal Allograft to Facilitate Closure of a Traumatic Wound, Status Post Open Fracture and Degloving

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Surgical Summary

Clinical Presentation:

- 25-year-old female who actively smokes, sustained a grade 2 open distal tibia fracture, with degloving and a wide zone of soft tissue injury. (Figures 1 & 2)
- Incision and drainage done initially with placement of external fixator and negative pressure wound therapy (NPWT). (Figure 3)
- Doppler exam revealed no suitable perforators for a local muscle or fasciocutaneous flap.
 - o Patient counseled on need for free flap. Patient refused free flap and a skin graft.
- External fixator was removed after four days and an ORIF was performed with continued NPWT. (Figure 4)
- Due to need for coverage and closure, DermaPure[®] decellularized dermal allograft was placed 14 days post ORIF.



Figure 1. Open distal tibia fracture with degloving of soft tissue.



Figure 2. Radiograph of open distal tibia fracture.



Figure 3. Placement of external fixator.



Figure 4. After removal of external fixator and ORIF performed.

Intraoperative Findings (Operative Procedure to place DermaPure[®], 14 days post ORIF):

- Large granulating wound with no evidence of infection.

Surgeon Perspective:

"In this setting of traumatic soft tissue injury, DermaPure[®] was vital to establish the integrity of the soft tissue envelope."

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Surgical Procedure:

- DermaPure[®] decellularized dermal allograft was fenestrated and applied to the skin defect for definitive closure. Secured with staples. (Figure 5)
- A bolster dressing of a non-adherent contact layer and NPWT was then applied.



Figure 5. DermaPure[®] application.



Figure 6. Two weeks after DermaPure[®] application.

DermaPure[®] Application
7 cm X 10 cm
Basement Membrane Outer-Most



Figure 7. Complete closure in eight weeks.

Post-Operative Notes:

- Two weeks post application of DermaPure[®], substantial integration and reduction in surface area was noted. (Figure 6)
- Complete closure of wound in eight weeks. (Figure 7)
- Stable and durable wound coverage achieved.

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