

Utilization of a Next Generation Decellularized Dermal Allograft to Augment the Repair of Lacerated Peroneal Tendons and Muscles of the Right Lower Leg

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Surgical Summary

Clinical Presentation:

- A 32-year-old male presented to the clinic, with a deep laceration (from a broken mirror) of his right mid-lateral leg, that had been sutured in the ER two days prior.
- Exam revealed: Absence of eversion strength with intact neurovascular status.
- Surgical plan: Exploration of the laceration site with wound repair, repair of the peroneal muscles with possible anastomosis of these muscles, with potential dermal allograft placement.

Intraoperative Findings:

- Surgical exploration revealed complete laceration through the peroneal muscles, peroneal brevis and longus tendons, and extensor retinaculum of the mid-lateral right lower leg (Figure 1 & 2)



Figure 1.



Figure 2.

Surgeon Perspective:

"DermaPure[®] is an excellent option for tendon augmentation in the foot and ankle. Its tensile strength allows for easy handling characteristics. Due to the decellularization process of this graft, I have seen a significant reduction in post-operative swelling, adhesions, and pain as early as the first post-operative visit."

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Surgical Procedure:

- After appropriate anesthesia, surgical prep and positioning in the lateral decubitus position, the wound was explored using blunt dissection. Complete lacerations were noted through the peroneal brevis and longus tendons, muscles, and extensor retinaculum.
- The ends of each of the peroneal tendons were reapproximated and repaired using #2 FiberWire[®] sutures in a modified Krackow fashion (Figure 3).
- DermaPure[®] decellularized dermal allograft was then placed on top of each of the reapproximated muscles and tendons and sutured in place using 4-0 Prolene[®] sutures (Figure 4). Vancomycin powder was placed in the surgical site.
- The extensor retinaculum was reapproximated using #0 Vicryl[®] sutures. The subcutaneous tissue was reapproximated with 2-0 Vicryl[®] sutures. The skin was sutured with minimal tension using 3-0 nylon.
- The patient's lower extremity was placed in a non-weightbearing (NWB) posterior and sugar-tong splint, holding the foot in eversion and neutral dorsiflexion.



Figure 3. Re-approximation of peroneal brevis and longus tendons.



Figure 4. DermaPure[®] 3 cm x 4 cm sutured over peroneal muscles and tendons.

Post-Operative Notes:

- The patient was kept strict NWB, immobilized for four weeks and had an uneventful post-operative course.
- He was transitioned into a tall fracture boot at four weeks and began weight bearing to tolerance along with passive range of motion exercises.
- Formal physical therapy began at eight weeks.
- At 12 weeks, discharged from the clinic with normal gait, excellent gliding, and range of motion in the peroneal muscles and excellent eversion strength noted.

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