Case Study: The Use of an Acellular Dermal Matrix for Limb Salvage Related to a Traumatic Degloving

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INTRODUCTION

and bone exposure as well an avulsion of nail nails Soft tissue degloving can be a debilitating and serious condition. The degloved area could involve one through four. White blood count was 17.0 varying levels of depth. Due to the trauma sustained, x 10⁹/L but afebrile. The patients wound was the skin that was degloved and the soft tissue below debrided in the operating room to remove debris, including foreign bodies, and measured 5.4 cm it becomes devitalized.¹ A prompt and accurate assessment of the damage and treatment choice is x 7.8 cm x 0.5 cm with exposed structures. A single necessary. In some instances, the degree of damage application of a human ADM was placed (DermACELL[®] ; LifeNet Health, Virginia Beach, VA), can be delayed, ultimately delaying treatment and ensuring full contact of the wound bed with the placing the area at risk for infection and at times, amputation. Treatment of significant degloving matrix in hopes of saving the limb. The ADM is injuries varies by provider as there is no prescribed intended to encourage vascular ingrowth, and stimulate proliferation and contraction, while standard of care. A multiplicity of factors can affect the injury site outcome, including the force offering structural integrity with the sustained during the degloving that caused the extracellular matrix. Caution was taken to place and injury. The extent of the injury, especially on a foot, suture the graft with Monocryl such that the graft can require a full thickness skin graft as not to appeared as a glove on the foot and toes. The wound challenge the patient with functional deficits and aid was dressed with Xeroform[®] and a bolster to maintain in the proliferation and contraction of the soft a moist wound environment for encouraging collagen synthesis and angiogenesis. The patient was also tissue deficit. placed on a 10-day course of preventative cephalexin due to the contamination of foreign debris. The same dressing type was placed 3x/week starting Week 2 post ADM application, while maintaining the moist wound environment.

A degloving injury involves soft tissue damage and can include osseus damage and risk for limb loss. Caring for this type of injury can be challenging due to early coverage diminishing the secondary unwanted adverse infections like osteomyelitis. Multiple options for repair are available including an autograft, a flap or an allograft. The autograft or flap requires creating a second wound site that will also need to be healed. Using a human acellular dermal matrix (ADM) can facilitate healing to improve wound bed quality and vascularity with no donor site needed.

METHODS

A 28-year-old African American male, with no comorbidities, presented to the emergency room with a left foot degloving injury. The foot was degloved due to shear on the asphalt in a motor vehicle accident. The patients foot was x-rayed and was found to have a 3rd digit fracture and soft tissue fragmentations. The area degloved included tendon

RESULTS

The patient presented at 10 weeks postoperative with complete epithelialization of the degloving area with similar skin tone. Shockingly, at the 10-week post op mark, initial keratinizing of the avulsed toenails was observed. The only deficit that the patient sustained was persistent numbness from the initial injury.

REFERENCES

1. Kaufman, R., Nguyen, J., Williams, B., Lopez, R., & Boc, S. F. (2019). Treatment of Traumatic Degloving Injury of the Foot Using a Biologic Dressing in a Pediatric Patient. Wounds : a compendium of clinical research and practice, 31(12), E77–E81.

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CONCLUSIONS

Given the results of this extensive degloving case, utilizing a single application of human ADM proved to be a successful treatment for a challenging soft tissue injury with standard dressings. The ADM should be considered as a viable plan of care for degloving injuries with nail avulsions.



Presenting photograph showing left foot degloving injury with 3rd digit fracture, soft tissue fragmentations, tendon and bone exposure, and avulsion of Toenails 1-4.



DermACELL ADM application ensuring full contact with the wound bed. Caution was taken to place and suture the graft with Monocryl such that the graft appeared as a glove on the foot and toes.





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