The Use of Aseptically Processed Meshed Reticular Acellular Dermal Matrix* in Soft Tissue Necrotizing Infection Michael N. Desvigne, MD, FACS, CWS, FACCWS, Krista Bauer (Montgomery), RN, WCC, OMS, Kari Day, RN, BSN, WCC, Denise Gilmore, RN, Ashley L. Wardman, LPN Abrazo Arrowhead Hospital, Glendale, AZ

ABSTRACT

Soft tissue necrotizing infections are challenging for the wound care clinician and surgeon. Wound bed preparation, which is necessary for successful skin grafting and durable coverage, remains the goal of therapy. We suggest that while allografts have been used to assist with secondary healing or as an alternative to an autologous skin graft, perhaps an allograft that incorporates into the tissue may allow the benefit of both.

Aseptically processed meshed human reticular acellular dermal matrix (HR-ADM) is unique in that it comes from the reticular dermal layer that provides an open network structure to support tissue ingrowth and serve as a scaffolding.

MATERIALS AND METHODS

We present 2 cases of soft tissue necrotizing infection. One involving the lower extremity and the other involving the perineum, Forniers Gangrene. Both were managed as a staged approach to include debridement, placement of meshed HR-ADM, and autologous skin grafting. Following surgical debridement, negative pressure wound therapy with instillation and dwell time (NPWTi-d) was utilized for 2-7 days. The patients were then treated with meshed HR-ADM to serve as a scaffolding for an autologous graft. Following 1-6 weeks of NPWT, autologous grafting was performed. At the time of grafting, the meshed HR-ADM was completely incorporated into the host tissue in 1 patient. The other patient underwent autologous grafting at 1 week with partial autologous graft loss. However, the wound achieved a reduction in size and depth with complete secondary healing over a 3-month period, without the need for additional surgical intervention.

CONCLUSION

Meshed HR-ADM has properties that allow tissue integration and incorporation. Patients with soft tissue necrotizing infection require wound bed preparation with multiple debridements. Following wound bed optimization, these patients may benefit from aseptically processed meshed allograft to help create a scaffolding to help optimize successful autologous skin grafting and/or allow for secondary healing, even with as a primary or secondary option if autologous grafting is unsuccessful.

REFERENCES

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*SomaGen® (MTF Biologics, Edison, NJ) ****Salera® Mini Membrane (MTF Biologics, Edison, NJ)**

Patient Information: 66 year old male with history of deep vein thrombosis presented with left lower extremity complex wounds with full thickness necrosis after episode of "cellulitis". <u>Medical history</u>: Obesity, Deep vein thrombosis Treatment:

- Admitted for persistent infection with full thickness necrosis
- . V.A.C.[®] VeraFlo[™] Therapy initiated with Cleanse Choice dressing
- . Taken to OR for staged debridements and VeraFlo[™] therapy
- Meshed human reticular dermal matrix placed as tissue scaffolding to expedite healing.
- Dehydrated placental mini-membrane** placed to optimize healing.
- . V.A.C.® Therapy initiated and continued as outpatient.

Returned to OR for split thickness skin graft (STSG). V.A.C.® Therapy continued for 7 days. Outcome: Wound healed at 3 months.



Figure 1A. Day 1: Initial Wound



Figure 1C. Day 7: Placement of meshed HR-ADM



Figure 1D. 6 Weeks: Placement of STSG



Figure 1F. 3 months: Wound healed

CASE 1



Figure 1B. Day 7: Postdebridement



Figure 1E. 6 Weeks: Meshed HR-ADM completely incorporated into wound bed

tissue with testicular exposure. Medical History: Diabetes Mellitus, Hypertension

- Treatment:

- the need for further surgical intervention.



Figure 2C. Day 1: Placement of



Figure 2F. Day 4: Application of STSG graft



CASE 2

Patient Information: 59 year old male with necrotizing infection of the perineum. Underwent multiple debridements with loss of

• Taken to OR by urology for multiple debridement.

• Staged reconstruction performed with complex closure.

• Meshed human reticular dermis placed for soft tissue support.

• Dehydrated placental mini-membrane placed to optimize healing.

. Incisional V.A.C.[®] Therapy initiated with a PREVENA[™] CUSTOMIZABLE[™] Dressing immediately following closure.

Outcome: Despite loss of a skin graft, the meshed HR-ADM served as a scaffolding that allowed for secondary healing without



Figure 2A. Day 1: Post-debridement



Figure 2B. Day 1: Post debridement and coverage of testicles





Figure 2D. Day 1: Wound V.A.C.



Figure 2G. Day 14: Partial skin graft lost



Figure 2E. Day 4: Placement of dehydrated placental mini-membrane



Figure 2H. 4 Weeks: meshed HR-ADM with complete incorporation allowing for secondary healing

in size



Figure 2I. 12 Weeks: Wound reduced Figure 2J. 16 weeks: Wound healed