Aseptically Processed Meshed Reticular Dermal Matrix* For Soft Tissue Reconstruction for Necrotizing Fasciitis: Case Report 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

BACKGROUND

- Necrotizing infection carries a high mortality.¹ If the patient survives, they typically have undergone multiple surgical debridement to assist in clearing the infection and necrotic tissue.
- As a result of excision of non-viable tissue, the patient is typically left with a significant tissue deficit. Cellular tissue products have become increasingly popular to assist with wound healing in chronic diabetic foot ulcers.²
- Aseptically processed meshed human reticular acellular dermal matrix (HR-ADM)* is unique in that it is an acellular dermal matrix that comes from the reticular dermis.
- The reticular dermal layer allows for a more open network structure to better support cellular infiltration and tissue ingrowth.^{3,4}
- Patients who have wounds with a major tissue deficit may benefit from aseptically processed meshed allograft to help restore tissue and optimize the wound bed, prior to autologous skin grafting.

PURPOSE

We present a case of necrotizing infection of the lower extremity. Following serial surgical debridement and negative pressure wound therapy with instillation and dwell time (NPWTi-d), the patient underwent meshed HR-ADM placement. Following 6 weeks of continued NPWT, autologous grafting was performed. At the time of skin grafting, the meshed HR-ADM was completely incorporated into the host tissue with a reduction in wound depth with no bone or tendon exposed.



Figure 1A: Wound upon hospital

Figure 1B: Necrotic tissue (Day 1)



Figure 1D. Wound after NPWTi-d and second debridement (Day 3)



Figure 1E: Wound after NPWTi-d and third debridement (Day 7)



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• Patient presented with necrotizing infection with full thickness necrosis of left lower extremity.

- Intravenous antibiotics were given, followed by surgical debridement of non-viable tissue.
- Negative Pressure Wound Therapy with instillation and dwell time NPWTi-d was initiated to cleanse the wound bed using a hypochlorous topical wound solution with a 20-minute dwell time, followed by 2 hours of continuous NPWT at -125 mmHg. Dressings were changed every 3 days.
- surgical closure with split-thickness skin graft placement or placement of meshed HD-ADM.

CASE STUDY

66yo male with h/o DVT presented with left lower extremity complex wounds with full thickness necrosis after episode of "cellulitis". Findings were consistent with a deep tissue necrotizing infection. Past medical history included obesity and DVT. Admitted treatment included hospital admission with IV antibiotics for persistent infection with full thickness necrosis. NPWTi-d was initiated. Patient was taken to OR for staged debridement. On Day 7, meshed HR-ADM was placed to serve as a scaffolding to expedite healing. NPWT was continued as outpatient. 6 weeks later, meshed HR-ADM was completely incorporated into deep tissue. Patient returned to OR for split thickness skin graft and was closed at 3 months.

Figure 1C: Wound after debridement (Day 1)



Figure 1F: Wound after placement of meshed HR-ADM







METHODS

• After NPWTi-d, patients either underwent surgical closure or surgical debridement followed by 3 days of NPWT⁺ and

- Past medical history: Obesity, DVT.

- Wound J. 2018; 15: 950-957.
- tober 2016.

*SomaGen[®] (MTF Biologics, Edison, NJ)

Figure 1G: Meshed HR-ADM incorporated in the wound over the

RESULTS

• Patient presented with necrotizing infection with full thickness necrosis of left lower extremity (Figure 1A).

• Following 2 surgical debridements and NPWTi-d (Figures 1B-1E), meshed HR-ADM was placed (Figure 1F).

• After 6 weeks of continued NPWT, the meshed HR-ADM was completely incorporated (Figure 1G).

• Following autologous split thickness skin graft and NPWT (Figure 1H), the circumferential wound healed completely. At 3 months, the graft matured and the contour deficit was minimal (Figure 1I).

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Figure 1H: Placement of autologous split thickness skin graft (6 weeks)



Figure 1I: Wound healed at 3 months

