

INTRODUCTION

Radiation is an integral treatment modality for various different types of malignancies. Although radiotherapy is extremely beneficial for combating cancer, collateral damage to the surrounding tissues may lead to severe complications, delayed wound healing, and wound dehiscence. In these instances, wound debridement and free tissue transfer are often necessary for definitive treatment of these complex wounds; however many patients may not be candidates for free flap reconstruction. With recent technological advances, the development of aseptically processed, without terminal sterilization, meshed human reticular acellular dermis (HR-ADM)* and dehydrated placental mini-membrane** offer alternative treatment options for patients suffering from these radiated wounds. These products have been demonstrated to facilitate soft tissue integration into chronic wounds and to provide native matrix proteins and antiinflammatory factors respectively to promote wound healing.

METHODS

A prospective review of a single surgeon experience of all patients undergoing surgical management of complicated wounds with prior radiation using meshed HR-ADM and dehydrated placental mini-membrane was performed. Patient demographics including age, cancer type, body mass index (BMI), and history of radiation treatment were recorded, as well as, postoperative outcomes.

RESULTS

Six patients are included in the current study with 3 patients undergoing treatment for breast cancer, 1 patient undergoing treatment for recurrent squamous cell carcinoma of the sacrum, 1 patient undergoing treatment for recurrent squamous cell carcinoma of the right foot, and 1 patient undergoing treatment for liposarcoma. There are 4 females and 2 males with an average age of 55.8 (range 44-79) and average BMI of 27.2 (range 19.7-44.3). All patients received radiotherapy and developed large complex wounds with exposure of bone, tendon, and/or vascular structures that were not amenable to treatment with autologous flap coverage. The six patients underwent radical debridement with placement HR-ADM and dehydrated placental mini-membrane with an average of 1.3 surgeries (range 1-3) and demonstrated complete healing of the wounds after a mean of 14.4 weeks (range 2-24 weeks).

Optimization Of Alternative Treatment Options For Complex Radiated Wounds

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CASE 1

Patient Information: 79-year old male presenting with recurrent squamous cell carcinoma of the left foot. The patient had previously underwent radiation treatment but developed a recurrence and underwent radical excision of the tumor with amputation of the medial foot and first digit by the Orthopedic Oncology service.

Treatment: The patient developed wound healing complications and underwent debridement and placement of dehydrated placental mini-membrane and meshed HR-ADM. The patient then underwent split thickness skin grafting with additional placement of dHACA at approximately 2 months.

Outcome: Complete closure of the wound.



Figure 1A: Initial wound after partial amputation



Figure 1B: Debridement and placement of dehydrated placental mini-membrane and meshed HR-ADM

CASE 2

Patient Information: 68-year old presenting with left breast cancer who underwent mastectomy and placement of a tissue expander. The patient was undergoing adjuvant radiation treatment and developed exposure of the tissue expander requiring debridement and removal of the expander.

Treatment: The patient underwent placement of dehydrated placental minimembrane and meshed HR-ADM at the time of the debridement.

Outcome: Complete closure of the wound.

ter placement of dehy- at 11 weeks drated placental membrane and STSG

Figure 1C: 2 weeks af- Figure 1D: Complete closure

Patient Information: 57-year old female undergoing radical resection of dedifferentiated myxoid liposarcoma of the spine and chest wall with reconstruction using a latissimus dorsi muscle flap and porcine acellular dermal matrix.

Treatment: The patient developed delayed wound healing due to neoadjuvant radiation treatment requiring debridement and placement of dehydrated placental minimembrane.

Outcome: Surgical wound closed.



Figure 3A: Initial wound after radical resection



Figure 2A: Initial wound during



Figure 2B: Complete closure at 2 weeks



Figure 2C: 8 months after closure

Cancer treatment often requires radiation especially in the setting of advanced stage disease, recurrence, or patient-specific reasons. Unfortunately radiation therapy portends a higher risk of complications that may result in chronic wounds. In those instances where microvascular free flap reconstruction is not possible, the use of HR-ADM and dHACA provides an excellent option for definitive treatment of these recalcitrant wounds.

DISCUSSION

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CASE 3

Figure 3B: 7 weeks after reconstruction



Figure 3C: Complete closure at 6 weeks

REFERENCES

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