A Case Report: Utilizing Ovine Forestomach Matrix in the Subacute Treatment of Fascial Thermal Burn

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INTRODUCTION

Thermal burn injuries are common, devasting, and challenging medical emergencies. Timely and effective treatments are paramount to both the short-term and long-term outcomes for the patient. Contemporary medical providers and healthcare facilities across the globe are emphasizing cost-efficient and accessible treatments. OVM is a decellularized extracellulare matrix (ECM) bio scaffold that has been used extensively in a range of soft tissue reconstructions, including chronic lower extremity wounds to acute surgical wounds.15 OVM is composed of ≥ 95% bioactive secondary proteins16 which demonstrate anti-inflammatory properties13, stimulate blood vessel formation16, and is ultimately remodeled into functional soft tissue over time17. The OVM scaffold is additionally available in an antimicrobial variant, impregnated with 0.3% ionic silver.

While the use of OVM in the management of chronic wounds has been widely published, there are few reports describing its use in burns treatment. This case series documents the successful use of OVM for the treatment of challenging facial thermal burns in two patients.

METHODS

Use of images and data for research and publication purposes was obtained with informed consent from the patient, or the patient’s caregiver. All procedures were performed in accordance with the ethical standards of the respective institution and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. OVM® (Endoform® Natural Dermal Template) and OVM®-0.3% ionic silver (Endoform® Antimicrobial Dermal Template) was supplied by Ara Biosurgery (Auckland, New Zealand). The burn wound was managed with current best practice, including debridement during the initial consultation and maintenance of a moist wound environment. Prior to application, OVM was cut to size as needed and then refrigerated in sterile saline. The wound was dressed using a non-adherent petroleum dressing and secured using a gauze bandage. At follow-up visits (every 2-5 days), wounds were debrided and irrigated (aqueous hypochlorous solution) as required. Wound dimensions were obtained using a paper ruler and recorded and the wound photographed. Patient pain was subjectively assessed by the surgical team, patient and caregivers using a 0-10 grading system (0=“no pain or discomfort”; 10=“worst possible pain”). The wound was considered resolved when there was 100% re-epithelialization and no drainage.

RESULTS

OVM was easy to handle and cut to size as needed and conform well to the affected area. The conformance of the product was especially relevant given the contours of the facial injuries, as well as the pain and discomfort endured by the patients. Both cases responded well to treatment with robust granulation tissue forming in 1 to 2 weeks, leading ultimately to closure via secondary intention by 2 to 8 weeks. The surgical team noted minimal scarring in both patients with regrowth of hair follicles and good skin pliability.

CONCLUSION

OVM provided a cost-effective advanced therapy to provide coverage of the defect, modulate inflammation, and accelerate granulation tissue leading to full closure of the wound with minimal, long-term scar tissue. Treatment with OVM negated the need for a STSG, which was otherwise unavailable to these patients.

REFERENCES AND DISCLOSURES

Product was provided by Ara Biosurgery Limited (New Zealand); Endoform® Natural Dermal Template (Ara Biosurgery Limited, New Zealand; Endoform® Antimicrobial (Ara Biosurgery Limited, New Zealand).


CASE 1: 9-month-old Male Subacute Thermal Burn (Refugee Camp Fire), 9-Month-old male with no significant medical history sustained thermal burns from a cooking fire in refugee camp. Due to his circumstances, initial evaluation was conducted remotely and then in-person 8 days after the initial injury. The wound measured 16.7 cm² (10% Total Body Surface Area for an infant <1 year old) and the patient experienced significant discomfort, damaged hair follicles, and suspected wound infection.

Week 4: Greeen with OVM

Week 4: Pre-Decubitis, 75% Stable

Week 6: Final application of OVM

Week 8: 100% epithelialized, few hair growth noted

CASE 2: 38-year-old Male Partial-Thickness Thermal Burn (Gas Explosion), 38-year-old male with no significant past medical history sustained a partial-thickness thermal burn injury to the majority of the forehead and both cheeks of this face secondary to a gas explosion. In-person exam was performed 2 days after the injury. The wound measured 424.1 cm² (45% Total Body Surface Area) and the patient experienced significant discomfort (8/10) with notable drainage and suspected infection.

Week 5: Final application of OVM

Week 7: 2 Case: 2013

Week 8: 7.4 cm x 2.8 cm (16.3 cm²)

Week 6: (Day 6): 37.9 cm x 12.2 cm (441.5 cm²)