

Results of an ovine extracellular matrix dressing in the management of a variety of burns and wounds

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Introduction:

Wound care affects 5.7 million people at an annual cost of \$20 billion.¹ A common dilemma for Burn Surgeons is balancing outcomes with cost of care. Frequently faced with deep partial thickness wounds post-surgical debridement, many utilize a dermal skin substitute or extracellular matrix. We recently discovered a collagen extracellular matrix (CECM) derived from ovine forestomach² and indicated for partial and full thickness wounds. CECM dressings may help modulate matrix metalloproteinases. An intact native extracellular matrix helps to promote tissue granulation² and epithelialization for final wound closure.³

In this 4-case series, CECM dressings were used in the management of wounds with deep dermal deficits due to surgical debridement. The applicability of this option was used for early aggressive wound management to treat acute wounds.

Methodology:

A convenience sampling of 4 wounds and burns were selected. Patients who would be a potential candidate for a dermal skin substitute or a skin graft were chosen. CECM dressings were applied in the OR post-surgical debridement according to manufacturer's instructions for use. Patients were followed through to wound closure.

Results:

All wounds proceeded to closure without complications. In 3 patients, wounds progressed to closure, not requiring surgical skin grafting. One patient required application of a skin graft for final wound closure.

Conclusion:

CECM is an intact, native extracellular matrix dressing which may facilitate tissue granulation and epithelialization for final wound closure. In this case series, three out of four patients did not require surgical skin grafting. The healed wounds were not hypertrophic and patients were satisfied by the cosmetic outcome.

Case Study 1:

Patient: 38 year-old female patient was undergoing a colposcopy; she sustained chemical burn to buttocks

Past medical history:

- Acute myeloid leukemia

Previous wound management:

- Silver sulfadiazine dressing QID

Current wound management:

- Day 18, post-injury, all wounds were debrided. CECM was applied to wounds post debridement per manufacturer's guidelines



Week 0
Wound description:
Pre-debridement, 100% slough tissues with rolled edges



Week 2
Wound description:
Wound bed with granulation tissues with continued epithelialization



Week 1
Wound description:
Epithelial buds noted on wound bed. CECM dressings noted on wound edge



Week 8
Wound description:
100% Re-epithelialized. Wound closed without further need for surgery

Case Study 2:

Patient: 21 year-old male with 3 full-thickness electrical wounds to left foot

Past medical history:

- Paraplegic secondary to spinal bifida

Previous wound management:

- Surgical debridement performed with placement of bilayer matrix. IV antibiotics in hospital

Current wound management:

- CECM covered with a non-adherent contact layer dressing changed weekly



Day 1
Wound description:
Post debridement. Wound clean. CECM dressing initiated



Day 6
Wound description:
Wound bed with granulating tissues. Periwound skin intact



Day 30
Wound description:
100% re-epithelialized

Case Study 3:

Patient: 26 year-old male sustained 2nd degree thermal burn to right hand

Previous wound history:

- Silver sulfadiazine and an oral antibiotic

Current wound management:

- Surgical debridement performed 10 days post-injury. CECM dressing applied post debridement in the OR and covered with a non-adherent dressing and gauze wrap



Day 0
Wound description:
Pre-debridement



Day 17
Wound description:
Wound closure



Day 10
Wound description:
CECM incorporating on right hand. CECM reapplied

Case Study 4:

Patient: 49 year-old male presented with cellulitis and a non-healing wound over right anterior tibia s/p fall

Previous wound management:

- Surgical debridement of wound; cellulitis treated with oral antibiotics

Current wound management:

- CECM dressings to tunnel and wound bed, covered with a non-adherent contact layer dressing. Dressings changed 3x a week



Day 0
Wound description:
Debridement in OR. CECM applied under NPWT



Day 38
Wound description:
NPWT discontinued; CECM continued with weekly application



Day 9
Wound description:
CECM, applied weekly under NPWT. NPWT dressing changed 3 times a week, per instructions for use



Day 45
Wound description:
CECM discontinued. Patient was scheduled for skin graft

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* Endoterm™ dermal template. Manufactured for Hollister Incorporated.
Financial Disclosure: The author received an honorarium from Hollister Incorporated.