

Preparing a wound bed before application of cellular tissue based products using an Ovine collagen (CECM) dressing with an intact extracellular matrix.

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Introduction:

With increasing amounts of offerings in dressings for wound closure, the clinician must be careful to choose the best dressing for their patients. There are many clinical reasons for utilizing advanced cellular tissue based products (CTP), but one must weigh the outcomes versus costs. The cost for a standard 2x2 of any of the CTPs can range from the hundreds to thousands of dollars per piece. Healthcare institutions are becoming more cost conscious. Failure of these products can be both costly to the patient and the healthcare system. CECM* provides a broad spectrum MMP reduction¹ before and after CTP utilization. To set up for successful take of a CTP product, one can consider utilizing a CECM both before and after CTP application (“bookend”) to help reduce matrix metalloproteinases (MMPs) activity. In addition, CECM provides an intact, native extracellular matrix that helps promote tissue granulation² and epithelialization for final wound closure.³

Methods:

In this case, CECM was used before, during and after CTP utilization. Both the CECM and CTP were applied per product recommendations. Wounds were assessed weekly.

Conclusion:

CECM provides assistance with MMP reduction, while the CTP provides scaffolding for cellular growth.⁴ Because the exact mechanisms are not known, further research is needed. Early experience of the before and after utilization of CECM with CTP resulted in healing progression and showed positive results in wound closure in this case.

Case Study

Patient: 42 year-old female.

Past medical history:

- Osteosarcoma of the left lower extremity

Previous wound management:

- Tumor resection and free tissue transfer completed after post-operative radiation. Two non-healing wounds, one in the proximal portion of the flap and the other distally at the level of the Achilles tendon. After 14 months, with failed attempts at surgical closure and moist wound therapy. There was no progression toward healing. There was no evidence of recurrent tumor and cultures were negative. The patient then underwent excisional debridement followed by a single application of CTP. The area was covered with gentian violet and methylene blue (GV/MB) polyurethane (PU) antibacterial foam** dressing. The following week, CECM was added to the treatment and reapplied weekly. In 2 weeks, the distal wound had 100% epithelialization and the proximal wound decreased in size by 20% from initial wound size. At 4 weeks, the larger more proximal wound in the area of radiated tissue injury decreased in size by 50% from initial wound size. At 8 weeks, the proximal wound size decreased by 75% from initial wound size. There was notable granulation tissue and new epithelium around and underlying the CTP. The graft remained adherent.
- Despite improvement at 12 weeks, the proximal wound was not completely healed and the distal wound had a recurrent ulceration. The recurring stalled phase of the wounds became apparent although there was no evidence of infection or recurring trauma. At this time, it was elected to proceed with additional placement of CTP with plans to “bookend” the treatment immediately with additional CECM to assist with MMP reduction.



Initial wound
Pre-debridement



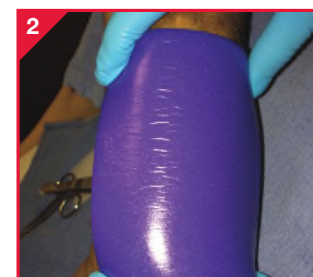
Initial wound
Post-debridement



Week 0

Wound management:

Patient initially seen and treated with debridement and placement CTP. Wound improved but stalled after 8 weeks. Bookending management was initiated with placement of CECM (Figure 1) covered MB/GV antibacterial foam dressing (Figure 2). CECM added and reapplied weekly.



Week 12

Wound management:

Despite improvement proximal wound not completely healed and distal wound with recurrent ulceration. CTP placed. CECM applied over CTP to “bookend” treatment to assist with MMP reduction.



Week 14

Wound management:

Wounds showed significant improvement with increased granulation tissue and epithelialization.



Week 15

Wound management:

(Figure 3) a reduction of 25% and 44 % in the proximal and distal wounds respectively from wound size in figure 1. (Figure 4) Application of CECM. (Figure 5) CECM covered with a non-adherent dressing and GV/MB PU antibacterial foam.



Week 16

Wound management:

A reduction of 55% and 75% reduction respectively from wound size in figure 1. Each week additional CECM was placed followed by GV/MB PU antibacterial foam. Wound treatment is ongoing.

REFERENCES

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* Endoform dermal template, Distributed by Hollister Incorporated.
** Hydrofera Blue Ready foam, Distributed by Hollister Incorporated.

Financial disclosure: M. Desvigne received an honorarium from Hollister Incorporated.