Case series of using collagen dressing in stalled wounds

• **Yvette Mier BSN, RN, CWON - Clinical Supervisor**
Wellstar Kennestone Regional Medical Center, Marietta, Ga

Introduction:

Moving a stagnant wound to closure is the challenge to all wound care clinicians. To address this problem, there is an increasing number of collagen dressings available in the market designed to help prevent and manage stalled wounds. A collagen dressing with an intact extracellular matrix (CECM) can help with closure by providing a natural substrate, or scaffold, for new tissue growth. In addition, published literature shows that a CECM can help reduce elevated activity of matrix metalloproteinases (MMPs) by redirecting the MMPs toward the dressing versus the collagen that the body is trying to lay down.[1] This key property can help propel a stagnant wound towards closure.[2]
A common problem in the outpatient setting occurs when the chronic wound fills its defect with viable pink tissue, but final wound closure is elusive. During this evaluation of two collagen dressings in an outpatient wound care setting, a difference in the wound was observed when looking at wound closure while directly comparing a dermal template derived from ovine collagen extracellular matrix with an equine Type I collagen. In these four cases, wound closure progressed only when therapy was changed from an equine collagen to an ovine collagen dermal template.

Methodology:

After 2 or more weeks of stalled therapy using equine collagen dressing, ovine CECM was applied and reapplied weekly. Compression therapy was used throughout wound management in cases 2 and 3.

Conclusion:

This series of 4 case studies resulted in wound closure within 4 weeks after starting ovine collagen extracelluar matrix dressings to wounds stalled after 2 weeks or more of equine collagen therapy. Further study is warranted to explain the differences in wound closure using the two different collagen dressings.

Case Study 1: Surgical wound on plantar surface

Patient: 53 year-old female
Past medical history:
- Diabetic. Abscess on the right foot. Incision and drainage of right foot with subsequent partial 5th ray amputation

Previous wound management:
- Equine collagen dressings

Current wound management:
- CECM to wound bed. Dressings changed weekly

Week 0
Wound measurement:
4.8 cm x 0.8 cm x .3 cm

Week 3
Wound measurement:
1.3 cm x 0.4 cm x 0.2 cm

Week 1
Wound measurement:
3.8 cm x 0.8 cm x 0.3 cm

Week 4
Wound measurement:
Wound closed

Week 2

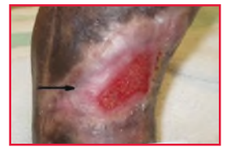
Case Study 2: Surgical wound- Left anterior malleolus

Patient: 32 year-old male
Past medical history:
- Paraplegic secondary to spinal bifida

Previous wound management:
- Surgical debridement performed with placement of bilayer matrix, equine collagen. IV antibiotics in hospital

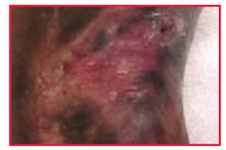
Current wound management:
- CECM covered with a non-adherent contact layer dressing changed weekly

Week 0
Wound measurement:
6.5 cm x 5.4 cm x 0.1 cm
Wound decription:
areas of adherent slough, unhealthy granulation tissue
Wound treatment:
CECM applied to areas with healthy granulation tissue



Week 3
Wound measurement:
3 cm x 1.2 cm x 0.1 cm
Wound decription:
Moist granulation tissues. Epithelialization noted on wound edges

Week 1
Wound measurement:
5.4 cm x 5.3 cm x 0.1cm
Wound decription:
moist, smooth healthy granulation tissues



Week 4
Wound measurement:
Wound closed

Week 2
Wound measurement:
4.8 cm x 4.6 cm x 0.1 cm
Wound decription:
hypergranulation tissues noted
Wound treatment:
Added GV/MB PU dressings to current treatment

Case Study 3: Venous ulcer- Left Lateral Malleolus

Patient: 64 year-old male
Past medical history:
- Diabetic. Open reduction internal fixation (ORIF) of left ankle, chronic deep vein thrombosis, venous reflux treated with ablation, hypertension

Previous wound history:
- Recalcitrant venous leg ulcer

Previous wound management:
- Equine collagen dressings for 4 weeks

Current wound management:
- CECM dressings to wound bed. Changed twice a week

Week 0
Wound decription:
Moist granulating tissues

Week 3
Wound decription:
Moist granulating tissues

Week 1
Wound decription:
Granular wound bed with epithelialization noted on wound edges

Week 4
Wound measurement:
Wound closed

Week 2
Wound decription:
Granular wound bed with epithelialization noted on wound edges

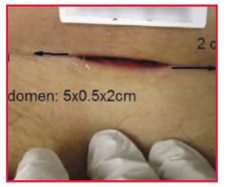
Case Study 4: Surgical wound – abdominal

Patient: 52 year-old female
Past medical history:
- Tobacco use and Hypertension

Previous wound history:
- Post total abdominal hysterectomy. Incision dehisced on post-op day 8 secondary to MRSA infection

Previous wound management:
- Equine collagen dressings for 2 weeks

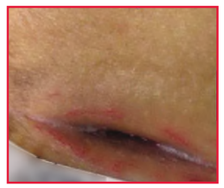
Current wound management:
- CECM dressings to tunnel and wound bed, covered with a non-adherent contact layer dressing. Dressings changed 3x a week



Week 0
Wound measurement:
5.0 cm x 0.5 cm x 2.0 cm
6 cm tunnel at 9 o'clock
2.0 cm tunnel at 3 o'clock

Week 3
Wound measurement:
0.7 cm tunnel at 9 o'clock
Tunnel at 3 o'clock closed

Week 1
Wound measurement:
2.5 cm x 0.5 cm x 1.3 cm
4.5 cm tunnel at 9 o'clock
1.5 cm tunnel at 3 o'clock



Week 4
Wound measurement:
Wound closed

REFERENCES
1. Negron L, Lun S, May BC. Ovine forestomach matrix biomaterial is a broad spectrum inhibitor of matrix metalloproteinases and neutrophilelastase. Int Wound J. 2012 Nov 1.
2. Bohn, Gregory et al. "Ovine-Based Collagen Matrix Dressing: Next-Generation Collagen Dressing for Wound Care." Advances in Wound Care 5.1 (2016): 1–10. PMC. Web. 21 Nov. 2017.

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