

Use of Negative Pressure Wound Therapy Over Matrix Regeneration Grafts

Estelle A. Zanotti, RN, MSN, APN-CNS, CWOCN, CRRN and Robert D. Rosenbloom, MD, FACS,
St. Alexius Medical Center, Hoffman Estates, IL.

Introduction

Negative Pressure Wound Therapy (NPWT) is the choice for healing open abdominal wounds with matrix regeneration grafts. Until recently, there were limited NPWT options. Providing cost effective, high-quality care – including reduced pain and rapid healing – is the responsibility of all healthcare providers.

Rationale

Matrix regeneration grafts support rapid revascularization, remodeling and transition to functional host tissue. NPWT supports and speeds this process as it stimulates granulation by increasing vascular perfusion. Several choices of NPWT exist, all of which use sub-atmospheric pressure to assist in granulation tissue formation.

Methodology

Two patients with matrix regeneration grafts were selected: The first patient's graft was an acellular dermal matrix derived from donated human skin**. The second patient's graft was a sterile reconstructed tissue matrix that is derived from porcine dermis***. On both patients, the Chariker-Jeter method of NPWT* was used.

* EZCARE – Smith & Nephew Wound Management Inc., St Petersburg, FL

** Aloderm - Lifecell, Inc.

*** Stratattice - Lifecell, Inc.

References

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Patient 1 is a 63 year old female who initially required a diverting colostomy for perineal gangrene. She subsequently had colostomy closure and peristomal hernia repair with an acellular dermal matrix**. This failed and then Composix mesh was placed. The mesh became infected, and she was then returned to operating room for removal of Pseudomonas infected mesh. The abdomen was packed and she was returned to the operating room five days later for placement of a sterile matrix regeneration graft derived from porcine dermis***.

Patient 2 is a 74 year old female who was presented with necrosis of the cecum and Stercoral's ulceration of the sigmoid colon. LT has had chronic constipation all her life. Patient underwent a two step surgical procedure. The first operation was to resect the bowel perforations and then stabilize the ventilated patient with abdominal packing. She was returned to the operating room five days later for peritoneal lavage and placement of an acellular dermal matrix regeneration graft derived from donated human skin**.

Challenge: Abdominal wall closure in critically ill patients that works acutely to cover abdominal viscera and will heal primarily in the long term.

Results

In both cases successful movement toward wound closure was demonstrated without complications. Revascularization through the grafts was noted with rapid granulation tissue growth. Wound size decreased by 85% in 13 weeks. Patients also reported no pain during dressing changes or wear time.



Patient 1: 07-14-08



Patient 1: 09-03-08



Patient 1: 09-17-08



Patient 2: 01-21-08



Patient 2: 04-02-08



Patient 2: 07-24-08

Conclusion

The Chariker-Jeter Method of NPWT* can be used to assist with granulation formation over matrix regeneration grafts resulting in rapid wound closure as well as reduced pain.