

NOVEL USE OF EXTRACELLULAR MATRIX GRAFT IN THE SURGICAL MANAGEMENT OF AN OPEN ABDOMEN

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INTRODUCTION

Open abdominal soft tissue defects can result directly or indirectly due to acute trauma or surgical complication from previous abdominal surgery. Suboptimal outcomes are encountered chiefly due to the large surface volume of these defects, scarred tissue from multiple procedures of exposed viscera, and systemic concerns for the patient [1]. Ovine Forestomach Matrix (OFM) has demonstrated clinical success in the surgical management of acute and chronic soft tissue defects, especially in contaminated fields providing a clinically effective option for surgeons to provide immediate coverage of exposed vital structures and rapidly build viable granulation tissue to shortened the time to definitive closure whether by skin graft, flap, or secondary intention [2].

METHODS

This retrospective, pilot case series (n=3) evaluated the clinical effectiveness of OFM (graft* and/or particulate^) in the surgical management of open abdomens (OA). Primary endpoints included time to 100% granulation tissue coverage of exposed vital structures, complications, and time to definitive closure. Secondary endpoints included the total time to closure and final cosmesis and integrity of the healed skin and soft tissue.

RESULTS

All three cases resulted in full closure of the traumatic soft tissue injuries whether by split thickness skin graft (STSG), or secondary intention. 2 of 3 cases required only one application of OFM prior to development of adequate granular neodermis sufficient for definitive closure, the third case (defect of 512 cm²) required two applications. Time to 100% granulation was 21, 19, and 18 days respectively. Time to full epithelialization was 6 weeks, 10 weeks, and 6 weeks. There were no complications or post-operative infections following the use of OFM.

CONCLUSION

The promising results of this case series highlights the use of OFM as a clinically effective tool in the surgical management of open abdomens by reducing the number of surgical debridements, reducing the length of stay, providing coverage of exposed vital structures, and shortening the time to definitive closure.

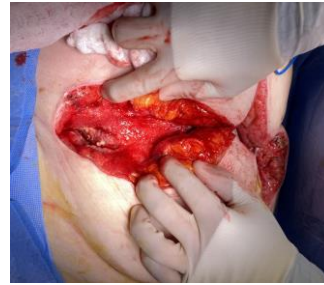
REFERENCES AND DISCLOSURES

[1]Anastasiu M, Şurlin V, Beuran M. The Management of the Open Abdomen - A Literature Review. Chirurgia (Bucur). 2021 Dec;116(6):645-656. doi: 10.21614/chirurgia.116.6.645. PMID: 34967709. [2]Bohn, G. A. and A. E. Chaffin (2020). "Extracellular matrix graft for reconstruction over exposed structures: a pilot case series." J Wound Care 29(12): 742-749. RT and CC have received honoraria from Aroa Biosurgery Limited. *Myriad Matrix, Aroa Biosurgery Limited, New Zealand, ^Myriad Morcells, Aroa Biosurgery Limited, New Zealand

CASE 1:

67-Year-old female, full thickness abdominal wound due to MVA and Morel-Lavallee lesion (MLL).

Week 0: Incision communicating with MLL



Week 5: Significant depth fill



Week 6: Significant epithelialization noted



Week 13: Healed by secondary intent, two applications of OFM



CASE 2:

51-Year-old male, abdominal trauma from motor vehicle accident. Exposed viscera, unable to close.

Week 0: Initial Defect 25cm x 4cm



Week 0: OFM particulate^ plus graft-



Week 3: Depth filled, covered exposed viscera



Week 6: Ready for STSG, one application of OFM



CASE 3:

49-year-old male, abdominal trauma from motor vehicle accident. Due to multiple procedures, unable to close primarily.

Week 0: Initial defect



Week 0: application of OFM particulate^



Week 3: Significant depth fill



Week 6: Healed by secondary intent, one application of OFM

