The Management of Wounds with Exposed Tendon and Bone using Innovative and Complementary Technologies: Ovine Extracellular Matrix and Gentian Violet/Methylene Blue Antibacterial Foams

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INTRODUCTION

Wounds with exposed tendon and bone are a major challenge due to the degree of damaged or missing tissue, where the void requires reconstruction and re-epithelialization. As such, these wounds present a high risk of wound infection. The objective of this study was to describe the use of a treatment bundle that includes extracellular matrix (ECM) technology and Gentian Violet/Methylene Blue (GV/MB) antibacterial foam dressings. The ECM technology is protected from microbial contamination, prevents biofilm formation, as well as being able to modulate wound proteases and build tissue. GV/MB polyvinyl alcohol (PVA) foam dressing* is a complementary technology which is non-cytotoxic and does not inhibit growth factors. Its unique capillary action continuously pulls harmful bacteria-laden exudate, slough and debris away from the wound. It also helps to flatten rolled wound edges facilitating re-epithelization.

METHODS

Wounds (n=10), including VLU (3) DFU (1), PI (1), surgical (2) and traumatic (2) were included in the study. The average wound size was 5 cm^2, range 1 to 17.5 cm^2. The average wound age was 8 weeks (range 0 to 24 weeks). All wounds received debridement per institutional guidelines. Ovine ECM/Ag† was applied and covered with either GV/MB antibacterial polyvinyl alcohol (PVA) foam* or GV/MB polyurethane (PU) foam dressingΦ depending on the level of exudate. Following an initial lead in with ECM/Ag, wound management was switched to non-antimicrobial ECM#. Wounds were measured and imaged at each visit.

RESULTS

All wounds responded well to the treatment bundle. 60% of wounds were classified as 'responders', achieving a >50% reduction in wound area by 4 weeks. The average percentage wound area at 4 weeks was 35% of the starting wound size. While only 20% of wounds closed (n=2/10), the closure rate was masked by wounds either lost to follow-up or still undergoing management.

"Responders" at 4 weeks:

60%

>50% reduction in wound area at 4 weeks; n=6/10

Average % wound size at 4 weeks:

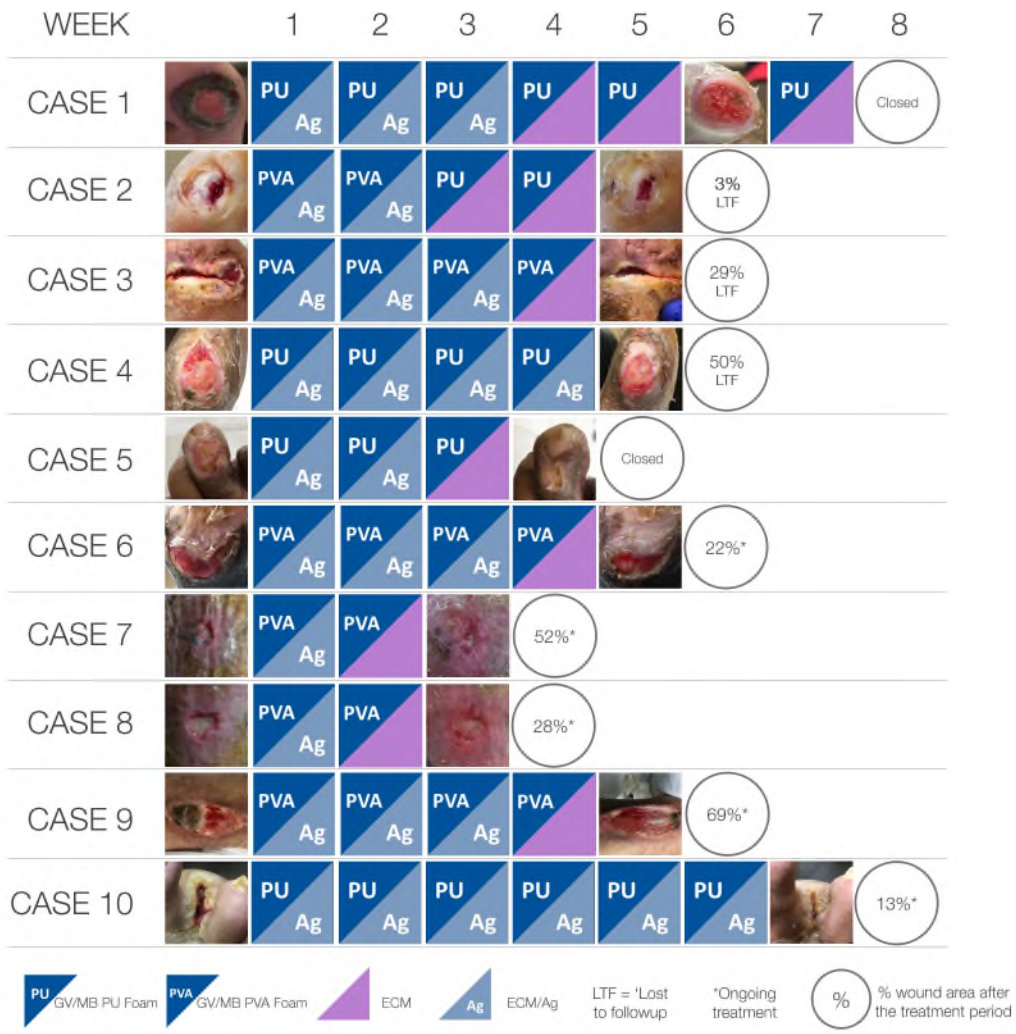
35%

SD=±23%; range 0% to 69%

Wounds closed:

20%

By week 8; n=2/10; includes LTF and ongoing treatment



CONCLUSIONS

The combination of GV/MB foams and ECM technology was effective in the management of wounds with exposed tendon and bone, and helped overcome the inflammatory phase. As the products can be used interchangeably, treatment can be tailored to a specific wound at any phase of healing.

REFERENCES AND DISCLOSURES

Financial support was provided by Appulse Medical (www.appulsemed.com). Product was provided by Hydrofera LLC (CT) and Aroa Biosurgery LTD (New Zealand). †Endoform Antimicrobial Dermal Template; #Endoform Natural Dermal Template; *Hydrofera Blue CLASSIC Foam dressing; ΦHydrofera Blue READY Foam dressing