A transformative wound management approach with BMG™ technology – A national 50 patient case study series, preliminary report.

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Introduction

Affecting approximately 3.8 million people in the UK, chronic wounds can heavily impact a person's life. Patients with a wound experience pain, discomfort and loss of mobility which can affect their quality of life and, in severe cases, be debilitating. Unhealed wounds can also have a notable effect on a person's mental health, with patients experiencing issues such as depression and anxiety (Fearns, N et al 2017).

A chronic wound should prompt the healthcare professional to begin a search for unresolved underlying causes. Healing requires care that is patient centred, holistic, interdisciplinary, cost effective and evidence based. Underlying causes and factors interfering with wound healing may be multifactorial.

It is well accepted that wounds heal in four phases: Haemostasis, Inflammation, Proliferation and Maturation, chronic wounds being no exception.

Advancing technologies can facilitate healing by providing solutions against barriers to healing, augmentation of wound healing factors, and optimization of the ultimate results of wound reconstruction. Wound healing is not linear and often wounds can progress both forwards and back through the phases depending upon intrinsic and extrinsic forces. (Shanker, M 2014)

Bioactive Microfibre Gelling (BMG™) technology in MaxioCel® utilizes chitosan to maintain a cohesive structure increasing fluid handling, antimicrobial and wound healing properties. Chitin and chitin derivatives have been reported to promote rapid dermal regeneration and accelerate wound healing. (CD Medical, Data on file)

Method

Following local guidelines and obtaining Trust and patient consent, the aim was to assess the performance of a BMG technology dressing across various wound types including pressure, venous and diabetic ulcers, burns, donor sites, fungating/malignant wounds, and surgically dehisced wounds in a variety of clinical settings.

Primary objective - to assess overall clinical acceptability for indications treated.

Secondary objectives - assessing dressing performance characteristics, determining changes in wound outcomes over the course of treatment, and clinicians' level of satisfaction with product characteristics.

Fifty adult patients were recruited from ten clinical settings. Patients were reviewed weekly for a period of 4 weeks which was sufficient to provide information on product and clinical performance. Dressing changes were made at the clinicians' discretion.

CD Medical provided clinical and training support and samples of dressings throughout the 4-week study duration per patient.

Results

- All Clinicians found the dressing suitable for the wound type treated. There was significant evidence of a reduction in wound area, depth, and devitalised tissue by the final assessment (week 4) alongside exudate levels reducing.
- Wound pain reduced and one-piece dressing removal noted.
- Increase in the percentage of patients with healthy periwound skin and consequently an observed reduction in the percentage of patients with inflamed, macerated, and dry, flaky skin surrounding the wound at the final assessment.
- Dressing mean wear time was 3.6 days for patients with reliable wear time data, lower for patients with moderate or heavily exuding wounds, compared with those with a lightly exuding wound.
- The dressing aids autolytic debridement with a direct correlation between reductions in slough and necrotic tissue and increases in granulation and epithelialization.
- Product performance characteristics – no reports of pain on removal, trauma to the wound or periwound. Clinicians rated the dressing as being easy to apply and remove and satisfactory or exceeding expectations for each product performance parameters assessed.
- The high level of acceptability reported by clinicians suggests that the inclusion of a BMG technology dressing may enhance patient comfort.

Discussion

Study data supports the use of BMG technology dressings across various wound types and clinical settings.

The high absorbency gelling fibres of MaxioCel decrease risk of periwound skin damage. Pathogens are sequestrated and trapped as BMG fibres are positively electrostatically charged and naturally attract the negatively charged pathogens. (CD Medical, Data on file)

Exudate reduction, even in chronic and malignant wounds of long duration, confirms the ability of the dressing to handle exudate well, hence reducing the bioburden means wounds are more likely to heal.

MaxioCel 100% Chitosan dressing helps to initiate haemostasis by attracting blood cells and other beneficial cells to the wound. It also aids autolytic debridement, helping to remove slough and nectroic tissue, and accelrating granulation and re-epithelialisation.

Conclusion

MaxioCel demonstrated effectiveness in conjunction with routine clinical practice in improving wound outcomes, reducing wound area and depth and level of exudate.

By sharing experiences from a national perspective, the authors can validate how this innovative dressing supports the wound healing process, enables provision of the right care the first time, and supports those patients who want to manage more of their wound care themselves.

This poster provides a brief insight into a 50-patient study to be published in 2023. Data collection is being finalised and current status is 43 Patients with 47 wounds.

Please scan here to be kept updated:

Case Study

53 year old male with category 3 sacral pressure ulcers that had been **static, non-healing for six months.**

Previous medical history: Deep vein thrombosis, osteomyelitis, pulmonary embolism, spinabifida, scoliosis of the spine, essential hypertension. BMI>35. Patient unable to feel pain as no sensation.

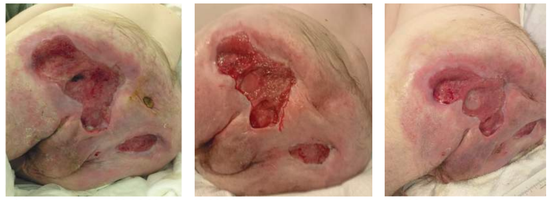
Previous dressing regime: Foam dressings due to patients sensitive skin and reactions to other adhesives. Dressings being changed daily.

Aim of MaxioCel treatment: Manage exudate and promote healing. Foam dressing continued as secondary dressing as per rationale above.

Clinical Comments:

- Patient happy with MaxioCel dressing and nursing home staff have stated they feel the improvement in his wound is "amazing".
- Tissue viability nurse stated in wound one MaxioCel **autolytically debrided** slough and wound bed necrosis to bony area, which facilitated more clearly **defined wound management objectives.** Wound two improved very well.
- MaxioCel was **easy to use** and apply. **Exudate management capabilities** of the dressing and one piece removal all noted to be "very good" and the tissue viability team would recommend to other patients and other healthcare professionals in the future.
- At all wound assessments when MaxioCel was removed there was no dressing residue left in the wound it did **not cause any disruption to the wound bed**. Patient had no complaints of discomfort at dressing change.
- Maintaing a **clean wound** for this patient was crucial to prevent wound infection.
- Patient continued to have MaxioCel applied past the four week evaluation end and continues to improve.

Wound One



Initial Assessment: 08.09.22 | 15.09.22 | 11.10.22

08.09.22: **L**15cm **W**7cms **D**1.5cm. Slough 10% Necrosis 5% Granulation 85%. Not infected. Periwound skin slight maceration. Moderate to high levels of exudate

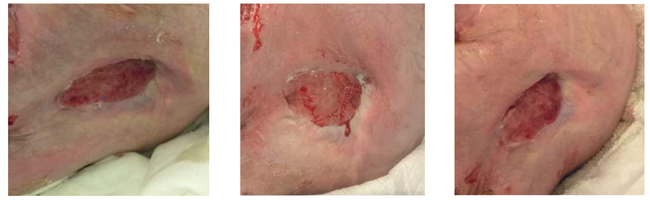
15.09.22: **L**15cm **W**7cms **D** 1.5cm. Slough 3% Necrosis removed. Granulation 97%. Exudate levels unchanged. Wound less sloughy, smaller and shallower.

25.09.22: Improving, **L**13cm **W**6cm **D**0.5cm. Granulation 100. Periwound skin slightly red. Low levels of exudate. Wounds much smaller and improving, good progress. No photo taken - nursing home staff did dressing.

30.09.22: Improving. **L**15cm **W**7cm **D**0.5cm. Thin slough present 3%, 97% granulation. Low exudate. Wound longer in length and width but depth shallower. No maceration at wound edges and reduced exudate levels. No Image taken. Nursing home staff did dressing.

11.10.22: Improvement continues. **L**6cm **W**3.5cm **D**0.5cm. 100% granulation. Healthy periwound skin. Low exudate levels wound shallower. Signs of wound edges advancing. Undermining has less depth. Necrotic area and slough lifted, bone exposed. Wound overall has changed shape and is improving.

Wound Two



Initial Assessment: 08.09.22 | 15.09.22 | 11.10.22

08.09.22: Initial assessment: **L**7cms **W**3.5cm **D**0.5cm. Slough 5% granulation 95% slight maceration, moderate to high exudate.

15.09.22: Improving. **L**7cms **W**3.5cm **D**0.5cm. Slough 5% Granulation 95%. Slight maceration to periwound skin. Mod- high exudate levels. Undermining area to edge of wound appears to be shallower.

25.09.22: Improving **L**7cm **W**4.5cm **D**0.5cm. Skin red but healthy. Low exudate levels. Wound shallower. No image taken as nursing home staff did dressing

30.09.22: Improving. **L**6cms **W**4cm **D**0.5cm. 100% granulation. Periwound skin healthy but red in colour. Wound shallower and smaller. No photo taken - nursing home staff did dressing.

11.10.22: Improving. **L**6cms **W**3.5cm **D**0.5cm. 100% granulation. Low exudate levels Wound granulating and pink. No slough or undermining. Superficial wound measurements smaller and signs of healing at wound edges.

References: (1) Fearns, N., Heller-Murphy, S., Kelly, J., Harbour, J. Placing the patient at the centre of chronic wound care: A qualitative evidence synthesis. Journal of Tissue Viability, Vol 26, Issue 4, Nov 2017 pp 254-259.
(2) WOUND HEALING AND IT'S IMPORTANCE- A REVIEW Shankar M. et al. / Der Pharmacologia Sinica. 2014;1(1):24-30.0 (3) Data on file, CD Medical, 2022.

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