

Effectiveness of Necrotic Tissue Removal with Dynamic Gel Dressing[†] and Monofilament Debridement*

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Aim

Barriers to wound healing are explored every day by wound care providers. One of the most important barriers to wound healing is the removal of devitalized or necrotic tissue from the wound bed.

This study reviews the removal of necrotic tissue with two debridement methods; a monofilament debridement (MFD) pad* and a dynamic gel dressing[†]. The debridement results are compared with products often used to accomplish the same goal. The other products used in this study are collagenase[‡] with daily dressing change, and medical grade honey[§] with 3 times weekly dressing change.

The aim of this study is to review the effectiveness of a combined approach using MFD and a dynamic gel dressing compared to other common products by way of necrotic tissue removal and healthcare costs.

Method

Sample size of 5 patients in each arm which includes dynamic gel dressing with MFD, collagenase, and medical grade honey. The necrosis percentage was documented, along with the size of the wound. Appropriate treatment was performed based upon the corresponding arm. Afterward, the wound was evaluated by the same clinician, in order to avoid inter-rater reliability conflicts. The size of the wound and percentage of necrotic tissue were then recorded.

The cost analysis section was comprised of product cost and nursing time, taking into account the number of dressing changes per one week period of time that the study was conducted.

Results

This study has proven that there is a statistically significant reduction in necrotic tissue when compared to other treatments included in the study. The employment of a dynamic gel dressing in conjunction with monofilament debridement, when necessary, has also proven to be surprisingly cost effective when compared to common treatments. The results of this study should be shared given the significance, and wound

Table 1. Collagenase

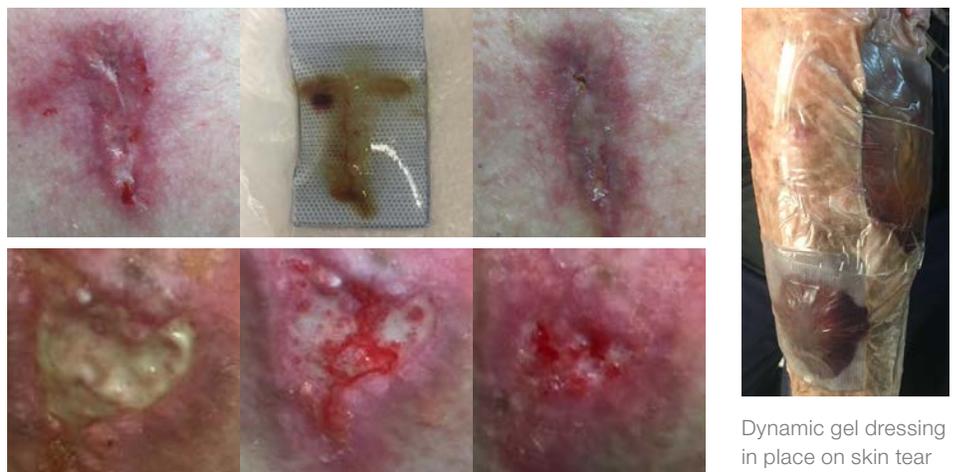
Initial Size (cm)	Size reduction	Necrotic Tissue Reduction
3.0 x 4.8	39%	15%
9.0 x 6.2	+4%	0%
3.3 x 3.0	27%	20%
3.5 x 2.5	16%	50%
6.2 x 2.0	4%	28%
Supply/Nursing cost: \$1926	Average Size Reduction: 21%	Dressing changes in trial period: SEVEN

Table 2. Medical honey

Initial Size (cm)	Size reduction	Necrotic Tissue Reduction
4.6 x 3.0	3%	28%
2.5 x 2.5	52%	52%
3.0 x 3.0	17%	48%
11.0 x 4.5	20%	100% (2.5cm ²)
5.0 x 3.0	0%	20%
Supply/Nursing cost: \$448	Average Size Reduction: 18%	Dressing changes in trial period: THREE

Table 3. Dynamic gel with MFD

Initial Size (cm)	Size reduction	Necrotic Tissue Reduction
3.5 x 2.0	83%	66%
3.7 x 1.0	100%	100% (1.85cm ²)
3.0 x 3.0	79%	100% (4.5cm ²)
22 x 5.0	43%	N/A
2.0 x 1.5	82%	100% (1.5cm ²)
Supply/Nursing cost: \$181	Average Size Reduction: 77%	Dressing changes in trial period: ONE



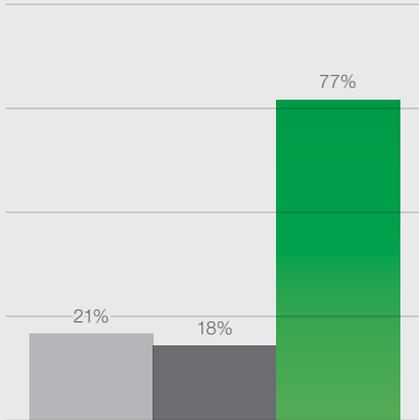
Post-operative BCC removal shoulder **TOP**
Back wound with full-thickness skin loss **ABOVE**

Dynamic gel dressing in place on skin tear

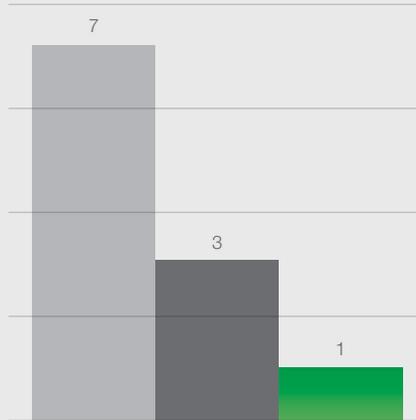
Summary of findings

■ Collagenase ■ Medical-grade honey ■ Dynamic gel dressing with MFD

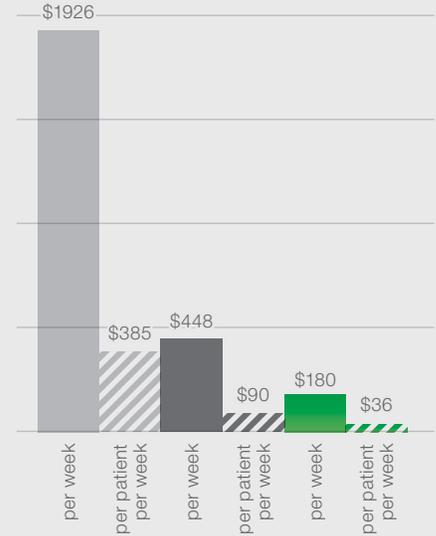
Average wound size reduction



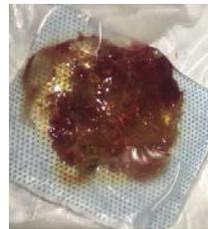
Dressing changes in trial period



Average cost (Total/Each)



Complicated skin tear right arm



Dynamic gel dressing after removal

care providers should consider altering their practices for rapid, cost effective, and gentle removal of necrotic tissue.

Rapid necrotic tissue removal was very likely attributed to appropriate wound bed preparation with the utilization of MFD. It is also important to note the reduction in dressing changes could directly affect the temperature and pH of the wound bed, reducing the risk of infection. ■