Hydroconductive Debridement: A New Perspective in Reducing Slough and Necrotic Tissue

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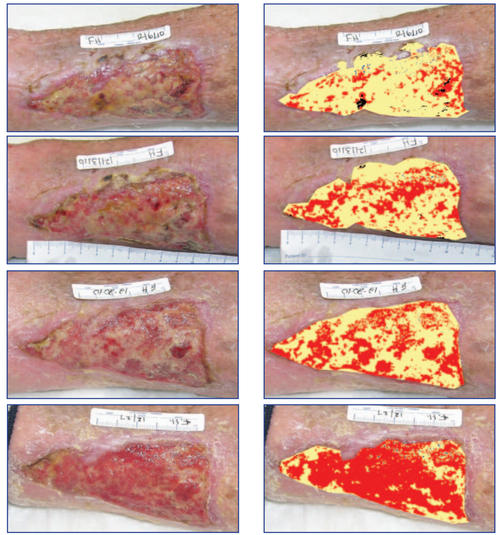
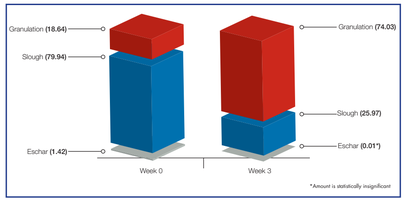
Case Study #3





Case Study 3							
FH A 97 year old female with a skin tear to the left lower leg.							
DrawTex	Week 0	12/6/10					
	Week 1	12/13/10					
	Week 2	12/20/10					
	Week 3	12/27/10					
	Slough	Eschar	Total SE	SERP	Area	WARP	AMV
Week 0	79.94	1.42	81.36		37.25		
Week 1	66.50	0.27	66.77	(17%)	36.87	(1%)	+5%
Week 2	58.08	0.00	58.08	(28%)	35.57	(5%)	+5%
Week 3	25.97	0.01	25.98	(68%)	24.12	(35%)	+5%

Total SE = Total percentage of slough and eschar on the wound bed SERP = Slough and eschar reduction percentage WARP = Wound area reduction percentage AMV = Area measurement variance

Introduction

Debridement is essential to optimally mangaging wounds with slough, necrotic tissue, and infection. Successful debridement prepares the wound bed for granulation tissue1 and reduces bioburden and other toxic factors that can make the wound bed susceptible to infection.[2] The purpose of this case study series was to evaluate a new category of dressing that works by selectively debriding wounds. The hydroconductive dressing (SteadMed, Fort Worth, TX) appears to debride undesirable tissue while leaving healthy tissue unchanged.

- Demonstrate that DrawTex by the rapid removal of wound exudate improves wound healing
- Demonstrate that rapidly removing wound exudate suppresses wound biofilm by reducing the activity and number of of bacteria

Methods

1. Patients with all wound types were included in this study if their wound beds consisted of adherent slough and necrotic tissue.
2. Dressings were applied with or without compression. The dressings were changed every 1 to 7 days.
3. Each case study lasted 3 weeks, with concurrent DrawTex applications.
4. The use of sharps debridement, non-contact ultrasound systems, contact ultrasound systems, contact hydrosurgery systems, and other forms of debridement were not employed while evaluating this dressing.

Dressing Placement

1. During application, the dressing was either cut to fit or overlapped the wound in one or two layers, ensuring that the dressing directly contacted the wound bed. A secondary dressing was employed as necessary.

Dressing Removal and Wound Bed Preperation

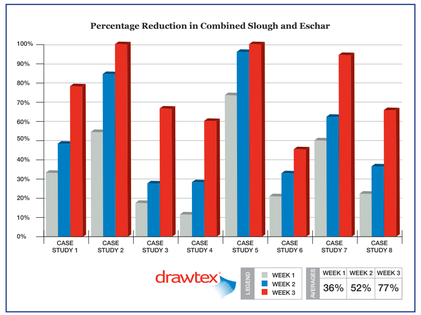
1. The wound bed and periwound area was cleaned with a wound cleanser or soap and water.
2. Lidocaine or EMLA cream was used on the wound bed for pain control as necessary.
3. Wound bed slough was wiped away with gauze and gentle pressure.
4. Bleeding was controlled prior to photo documentation

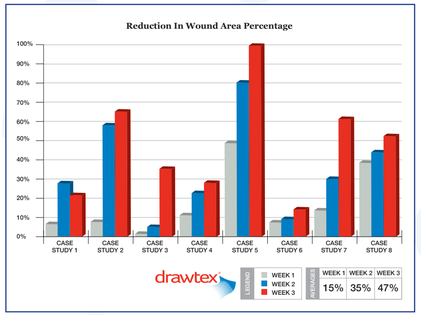
Documentation

1. The wound bed was photographed at dressing changes.
2. Photographs were taken with a centimeter measurement tool in the image.
3. No changes in image quality such as color enhancement, saturation, and contrast were allowed; however, cropping of the image was considered appropriate.
4. Images were taken at a high digital quality to ensure accurate wound bed-quality analysis

Submission of Documentation for Wound Bed Quality Analysis

The images from the case studies were submitted for independent wound bed analysis (Imago Care Ltd., London, UK). The EliXr™ photo recognition program provides accurate readings of the wound bed content (including granulation, slough, and eschar) reported as a percentage of the total wound. EliXr™ is a statistical pattern-recognition algorithm that classifies each wound color pixel in a wound image, providing a documented area measurement variance of only 1% (with flat wound images) to 5 % (with rounded wound images).[3]





Results

The results of this eight-case series indicates that the hydroconductive dressing was able to remove adherent slough and eschar at an average rate of 36% by Week 1, 52% by Week 2, and 77% by Week 3. Case study #3 (upper left) is an example of a wound with a 37.25 cm² surface area that showed a 68% reduction in slough over the 3 weeks.

Percentage Reduction in Total Slough and Eschar			
	Week 1	Week 2	Week 3
Case Study 1	34%	49%	78%
Case Study 2	56%	86%	100%
Case Study 3	17%	28%	68%
Case Study 4	12%	29%	60%
Case Study 5	74%	97%	100%
Case Study 6	21%	34%	45%
Case Study 7	50%	63%	97%
Case Study 8	23%	37%	68%
Average	36%	52%	77%

There was a corresponding reduction in the average percentage reduction in wound area of 15% by Week 1, 35% by Week 2, and 47% by Week 3. Case Study #7 (upper right) is an example of how hydroconductive debridement can occur with the hydroconductive dressing while reducing the area of the wound bed. In this case, the wound area was reduced from 27.03cm² at week 0 to 10.40cm² at week 3 (a 62% reduction).

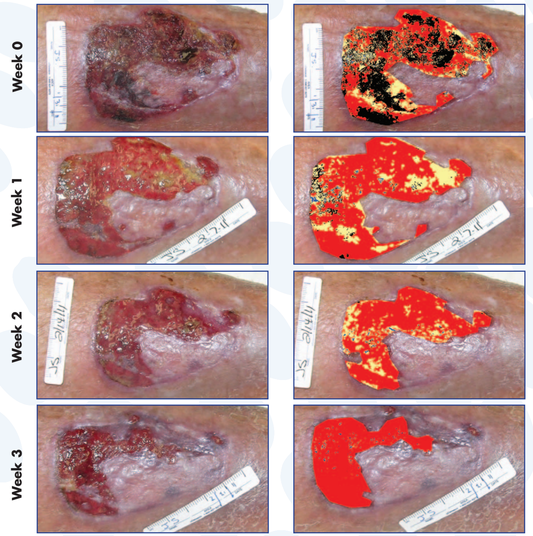
Percentage Reduction In Wound Area			
	Week 1	Week 2	Week 3
Case Study 1	6%	27%	21%
Case Study 2	7%	58%	65%
Case Study 3	1%	5%	35%
Case Study 4	12%	23%	28%
Case Study 5	49%	80%	99%
Case Study 6	+ 7%	9%	14%
Case Study 7	14%	30%	62%
Case Study 8	39%	44%	52%
Average	15%	35%	47%

Conclusions

Clinicians noted that the method of debridement of this hydroconductive dressing appears to differ from previously described classic methods (including autolytic, chemical, or mechanical debridement).4 This unique hydroconductive dressing is able to provide selective debridement with an average reduction in slough and eschar of 77% over 3 weeks while leaving viable tissue undamaged. This lets wound healing occur, as seen in an average wound-area reduction of 47% over 3 weeks.

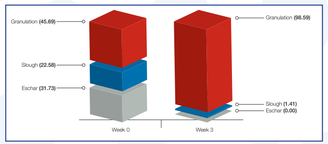
1. Brett, D. A Historic Review of Topical Enzymatic Debridement. New York, NY: The McMahon Publishing Group, 2003: 51.
2. Bryant R, Nix D. Acute & Chronic Wounds Current Management Concepts. Third Edition. St. Louis, MO: Mosby Elsevier, 2007: 176.
3. EliXr. White paper on file with Imago Care. 2010.
4. Livingston M, Wolvos T. Scottsdale Wound Management Guide. Malvern, PA: HMP Communications, 2009

Case Study #7



Case Study 7							
JS A 81 year old female with traumatic wound to the left lower leg. The patient is on Coumadin for atrial fibrillation.							
DrawTex	Week 0	1/31/11					
	Week 1	2/7/11					
	Week 2	2					
	Week 3	2/21/11					
	Slough	Eschar	Total SE	SERP	Area	WARP	AMV
Week 0	22.58	31.73	54.31		27.03		
Week 1	24.35	2.61	26.96	(50%)	23.32	(14%)	+-1%
Week 2	19.63	0.20	19.83	(63%)	18.89	(30%	+-1%
Week 3	1.41	0.00	1.41	(93%)	10.40	(62%)	+-1%

Total SE = Total percentage of slough and eschar on the wound bed SERP = Slough and eschar reduction percentage WARP = Wound area reduction percentage AMV = Area measurement variance



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