

ABSTRACT: Presented at The Symposium on Advanced Wound Care (SAWC), Las Vegas, NV November 2018

Necrotic Heel Ulcer Management: eschar preservation, sub-eschar irrigation, and compression enhance healing

Martin J Winkler MD FACS

Creighton University Bergan Mercy Hospital Advanced Wound Care Center
Omaha, Nebraska

Problem

The wound care prime directive: "Wounds heal faster if debrided each visit."¹ has notable exceptions--pyoderma gangrenosum with inflammatory pathergy, and heel necrotic ulcers (HNUs), with physiology unique to the heel should rarely be debrided.^{2,3}

The calcaneus

- is a prominence with skin tension from the gastrocnemius that decreases perfusion pressure, that creates a 'mechanical pathergy' --debriding necrotic heel eschar predictably stretches wound edges.
- exposed in base of a wound is vulnerable to desiccation and osteomyelitis, leading the list of reasons why eschar should not be debrided.
- like the calvarium, has specialized blood supply which can support robust tissue growth, allowing HNUs to heal when eschar is left undisturbed.

- is covered by specialized fat that:
 1. tolerates long periods of weight bearing with no arterial flow, thus vascular dictum “...comorbid arterial occlusive disease is **always** present when heel necrosis occurs.”
 2. protects pedal bones from ambulatory compression, think pneumatic tires.
 3. supports regenerative healing evidenced by the return of “finger prints” in healed full thickness HNU.

Methods

Photos document presentation, details of treatment, minimal eschar debridement, elastic compression,^{3,4} sub-eschar hypochlorous acid, HOCl irrigation,⁵ and HNU outcomes.

Results

Treatment principals of eschar preservation, sub-eschar hypochlorous acid HOCl irrigation, and elastic compression⁵ are documented.

Conclusion

Selective eschar debridement, HOCl irrigation^{*,**,***} and elastic compression^{***} appear, in four anecdotal cases, to improve heel ulcer closure.

References

1. R Wilcox, S Covington, *Frequency of Debridements and Time to Heal, A Retrospective Cohort Study of 312,744 Wounds*, JAMA Dermatol. 203, 149(9):1050-1058.

2. R Weenig, WP Su, *Skin Ulcers Misdiagnosed as Pyoderma Gangrenosum*, N Engl J Med 2002; 347:1412-1418, October 2002
3. Afsaneh, Alavi MD MSc. *All lower extremity wounds should be treated with compression*. Podium Presentation, expert opinion, *Treatment of Wound Due to Vasculitis*, Canadian Wound Meeting November 2017.
4. M Winkler, *Elastic Compression Textile Controls Comorbid Wound Edema to Improve Wound Healing*. Accessed 6/1/18, <http://compressiondynamics.com/wp-content/uploads/2016/01/PosterLongitudinal-Wale-Elastic-Compression-Textile-Controls-Comorbid-Wound-Edema-to-Improve-Wound-Healing.pdf>
5. M Winkler, *Hypochlorous Acid Enabled Soft Debridement Speeds Healing of Refractory Venous Leg Ulcers - simplicity, low cost and patient comfort are advantages*. Accessed 6/1/18, http://compressiondynamics.com/wp-content/uploads/2015/03/Poster_Hypochlorous_Acid_Enabled_Soft_Debridement_Speeds_Healing_of_Refractory_VLU_04_2011.pdf

*Vasche® hypochlorous acid solution, SteadMed Medical, Fort Worth, TX 76017

**Neutrophase® hypochlorous acid solution, NovaBay Pharmaceuticals, Inc., Emeryville, CA 94608

***Anasept® Antimicrobial Wound Irrigation Solution, Anacapa Technologies Inc., San Dimas, CA 91733

****EdemaWear® fuzzy wale elastic compression stockinet, Compression Dynamics LLC, Omaha, NE 60102