Case Presentations: Low-frequency Ultrasound Therapy for the Treatment of Painful and Difficult-to-Treat Leg Ulcers

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Introduction:
Low-frequency ultrasound therapy (in the range of 30-100kHz) has been known to have various positive effects in tissue restoration and wound healing. The therapeutic effects of ultrasound on wounds are mainly two-fold:

2. Stimulatory effect: “Fluid shear stress” that generates nitric oxide within the endothelium for vasodilatation, resulting in increased blood flow. Stimulation of fibroblasts, macrophages and endothelial cells to augment healing.

The Quostic wound therapy system is the latest low-frequency ultrasound system (35kHz) that combines the sharp “curetting” debridement with continuous saline irrigation, while delivering focused therapeutic ultrasound to the wound bed.

Presentations:
We present the three lower-extremity wound patients successfully treated in our clinic using the low-frequency ultrasound device (Quostic wound therapy system, Arobella Medical LLC). These patients had unique wounds that were particularly painful to conventional sharp debridement, and had odd-shapes and sizes to make the conventional method of debridement particularly exhaustive and time-consuming.

This modality has been proven to increase the rate of wound healing in several randomized controlled studies (Ennis et al, OWM. 2005, Kavros et al, Adv in Skin & Wound 2007), while minimizing the pain inflicted on the patient, even when compared to other high-intensity ultrasound debridement devices. (Niezgoda JA, SAWC 2006).

Case 1.
61 yo male with rheumatoid arthritis. Recurrent pyoderma gangrenosum of the lower leg.

Case 2.
60 yo female with acquired lymphedema with chronic circumferential ulceration of the ankle.

Case 3.
87 yo female with large leg hematoma and open wound, sustained from operating room restraint strap.