Acoustic Pressure Wound Therapy* to Prepare Wound Beds for Graft or Flap Closure Procedures: A Case Series

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Introduction

Expeditious wound closure reduces opportunity for infection and wound-related morbidity and mortality. Two published case series have reported accelerated time to either healing or surgical closure in infected postsurgery wounds treated with a combination of acoustic pressure wound therapy (low-intensity/frequency ultrasound, LIFU)* and negative pressure wound therapy (NPWT).** [1,2]

Case Series

Wounds of 3 Native Americans with multiple comorbidities known to negatively affect wound healing received adjunctive LIFU to prepare their wounds for surgical closure as quickly as possible.

Outcomes

Addition of LIFU to the wound care regimens of these 3 patients resulted in substantial progress toward closure as well as wound bed preparation for successful graft or flap procedures.

References

1. Howell-Taylor M, Hall MG, Brownlee WJ, Taylor, M. Negative pressure wound therapy combined with acoustic pressure wound therapy for infected post surgery wounds: a case series. *Ostomy Wound Management.* 2008;54(9):49-52.
2. Liguori PA, Peters KL, Bowers JL. Combination of negative pressure wound therapy and acoustic pressure wound therapy for treatment of infected surgical wounds: a case series. *Ostomy Wound Management.* 2008;54(5):62–65.

* MIST Therapy System, Celleration, Inc., Eden Prairie, Minnesota
**V.A.C., KCI, San Antonio, Texas

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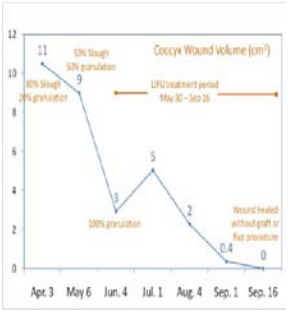
Pressure Ulcers of Coccyx, Hip, Scrotum

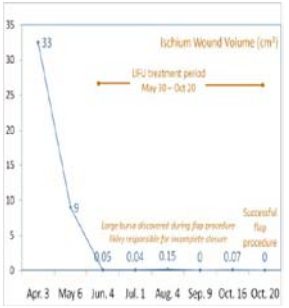
Patient: 64-year-old paraplegic man with diabetes, hypertension, anemia, neurogenic bladder, osteomyelitis, and history of failed flap procedures.

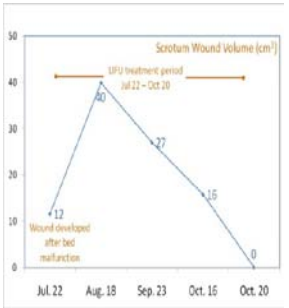
Wound: nonhealing ulcers of coccyx and left ischium, previously treated with NPWT and incision and drainage (Apr. 15). New scrotal ulcer developed due to malfunction of pressure-relieving mattress.

Treatment: Thrice weekly LIFU (7-10 min) and silver dressings for May 30–Oct. 20.

Outcome: Despite bed malfunction, coccyx wound healed (17 weeks) and ischium (22 weeks) and scrotum (13 weeks) wounds underwent flap procedures with 100% uptake. See graphs at right.







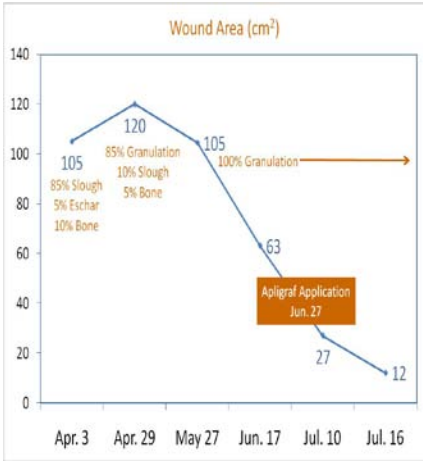
Wound Dehiscence at Toe Amputation Site

Patient: 83-year-old man with diabetes, coronary artery disease, peripheral vascular disease, osteomyelitis, prior right below-the-knee amputation.

Wound: Infected (*Staphylococcus aureus)* surgical wound dehiscence status post left transmetatarsal amputation. Wound bed 85% slough, 5% eschar, 10% exposed bone.

Treatment: LIFU (7-15 min) every other day Apr. 3–Jun.11; daily Jun. 11–27 to prepare for graft (Jun. 27). Dressing: silver alginate.

Outcome: 95% granulation in 4.5 weeks. At 12 weeks, area had decreased from 105 to 63 cm^2 and successful Apligraf application was performed.



Wound Dehiscence at Knee Amputation Site

Patient: 37-year-old man with alcoholism-induced liver damage, anemia, and hepatic encephalopathy.

Wound: Surgical dehiscence wound from left above-the-knee amputation (treated previously with NPWT). 100% granulation tissue.

Treatment: Thrice weekly LIFU (10 min) from Mar. 17–May 2 with NPWT dressing changes.

Outcome: Wound area was reduced from 289 to 132 cm^2 in 6.5 weeks. Wound prepared for an autologous skin graft with near-complete uptake.