



Acoustic Pressure Wound Therapy* for Treatment of Chronic Wounds in Medically Complex Patients in a Home Health Setting

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Background

Infection, vascular disease, and cutaneous disorders contribute to delayed wound healing. Acoustic pressure wound therapy is a low-intensity/frequency ultrasound (LIFU)* therapy that delivers acoustic pressure to the wound bed via a fine mist of sterile saline. LIFU has been shown to accelerate wound healing, particularly in chronic lower-extremity ulcers.¹⁻⁵

Case Reports

LIFU was administered in a home health setting to 3 patients with severe cutaneous or vascular disease and long-standing lower-extremity ulcers.

Conclusions

LIFU, an advanced wound healing modality, was effectively administered in the home health setting to treat long-standing lower-extremity ulcers despite the presence of infection and severe vascular and cutaneous pathology.

*Low-intensity/frequency ultrasound (MIST Therapy® System, Celleration Inc., Eden Prairie, Minnesota)

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Klippel-Trenaunay-Associated Ulcer

Patient: 17-year-old male with Klippel-Trenaunay syndrome, a vascular disorder characterized by hemangiomas, arteriovenous abscesses, and varicose veins.

Wound: Ulcer on the left midfoot present for > 7 months despite appropriate dressings, 2 surgical debridements, and 1 skin graft.

Treatment: Thrice weekly LIFU added to a regimen of papain-urea, cadexomer iodine, calcium alginates, nanocrystalline silvers, zinc, gauze and lymphedema wraps.

Outcome: Wound size (area 3.5 cm², volume 1.75 cm³) decreased to near closure (0.1 cm², 0.01cm³) in 5 weeks. See photos below.



MRSA-Infected Lower-Extremity Ulcers

Patient: 53-year-old woman with systemic lupus erythematosus and scleroderma.

Wound: History of MRSA-infected, bilateral, lower-extremity wounds present for > 12 years. Current wound on her right ankle (area 3.2 cm², volume 1.6 cm³) was 50% covered with slough.

Treatment: LIFU administered 2-3 times weekly with lymphedema wraps and silver dressing.

Outcome: 100% granulation and near closure (0.70 cm², 0.18 cm³) achieved in 7 weeks. See photos below.



MRSA- and VRE-Infected Lower-Extremity Ulcers

Patient: 72-year-old man with diabetes, coronary artery disease, peripheral artery disease, venous insufficiency, and congestive heart failure.

Wound: Bilateral lower-extremity ulcers (each measuring 21 cm² and 21cm³) infected with MRSA and VRE present for 5 and 7 months, respectively. Wound bed 80-100% exposed tendon with fibrin.

Treatment: LIFU in conjunction with hyperbaric oxygen therapy and zinc/foam dressing.

Outcome: 95-100% granulation and near closure in 8 weeks (1.5 cm², 0 cm³) and 17.5 weeks (4.0 cm², 1.0 cm³), respectively. See photos of left midfoot below.

