

The Role of Ultrasonic Debridement in a Physician-Run Wound Care Program

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Background

In this physician-run wound clinic, sharp debridement is routinely performed by physicians. Patients with pain issues are anesthetized with topical liquid or gel lidocaine or, if needed, 1% or 2% injectable lidocaine. This pain management approach is effective for the majority of patients needing sharp debridement. When presented with a low-intensity/frequency ultrasound (LIFU) device* that painlessly debrides, it was questioned whether the device would be of benefit in our clinic.

Case Series

We initiated a trial of LIFU on patients whose pain could not be controlled with the methods described above and whose wounds were covered with slough and fibrin. We present the clinical outcomes of three patients.

Outcomes

The LIFU device is simple to use and proved to be a pain-free alternative to sharp debridement. As wounds were debrided, healing times decreased, and wounds were prepared for the next step in their treatment plan.

Conclusions

This ultrasonic therapy is a valuable debridement alternative for patients with painful wounds unable to tolerate sharp debridement.

*MIST Therapy System, Celleration, Inc., Eden Prairie, Minnesota.

Right Dorsal Foot (Venous Ulcer)

Patient: 55-year-old man with venous insufficiency and lymphedema. History of CVA with right-sided weakness (wheelchair dependent), deep vein thrombosis, COPD, hepatitis C, and alcohol abuse. Current tobacco user.

Wound Chronicity: 3 years

Treatment: Thrice-weekly LIFU (20 min) Mar 28 – May 9 as adjunct to absorptive silver dressings and 4-layer compression bandages.

Pain Level

- During clinic visits: 6-10 out of 10
- Unable to tolerate sharp debridement with 5% topical lidocaine
- Pain with LIFU: 0

Wound Outcome

- During 6 weeks of LIFU:
- Initially covered with slough, copious foul-smelling drainage
 - Improved to 100% granulation with moderate serosanguineous drainage without odor
 - Islands of epithelialization noted



Mar. 28



Apr. 11



May 2



May 9

Right Shin (Venous Ulcer)

Patient: 66-year-old, obese woman with venous insufficiency and chronic lower-extremity edema. Refused recommended surgical intervention. Not consistently compliant with compression therapy.

Wound Chronicity: 4 years

Treatment: Thrice-weekly LIFU (5 min) Mar. 21 – Apr. 30 as adjunct to silver foam and compression bandages. Patient not able to return to clinic 3x/week (transportation issues). Custom compression stockings ordered; transitioned to home treatment with foam dressing and compression stockings.

Pain Level

- During clinic visits: 5 out of 10
- Very limited tolerance for sharp debridement with 5% topical lidocaine
- Pain with LIFU: 0

Wound Outcome

- During 5 weeks of LIFU:
- Initially stagnant with 40% fibrin slough and little drainage
 - Improved to 85% granulation with skin bridges and epithelialization
 - Wound area reduced 66%



Mar. 19



Mar. 31



Apr. 14



Apr. 21

Left-Lower Leg (Autoimmune Ulcer)

Patient: 79-year-old man with chronic postural edema to bilateral lower legs; refused surgical intervention; not consistently compliant with compression therapy and prescribed therapy; unable to tolerate full compression so limited compression applied.

Wound Chronicity: 9 years

Treatment: Thrice-weekly LIFU (20 min) Mar. 19 – May 5 as adjunct to silver foam and compression bandages

Pain Level

- During clinic visits: 4-6 out of 10 (was on oral pain medication)
- Very limited tolerance for sharp debridement with 5% topical lidocaine
- Pain with LIFU: 0

Wound Outcome

- During 6 weeks of LIFU:
- Initially 70% fibrin slough with copious drainage
 - Improved to 70% granulation, moderate drainage, skin bridges, and epithelialization.



Mar. 26



Apr. 2



Apr. 18



Apr. 30