

Acoustic Pressure Wound Therapy* for Complete Wound Healing in Complex, Chronic, Lower-Extremity Wounds: A Case Series

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Introduction

Closure of complex, chronic, painful, lower-extremity wounds with substantial slough is a persistent challenge in wound care. Acoustic pressure wound therapy is a low-intensity/frequency ultrasound (LIFU)* indicated for removal of yellow slough, fibrin, tissue exudates, and bacteria. LIFU has resulted in quicker granulation, volume reduction, and closure when added to conventional wound care.^{1,2}

Case Series

Five patients with complex, nonhealing, lower-extremity ulcers were treated with LIFU in addition conventional wound care (e.g. silvers, alginates, zinc, papain urea, hydrofiber, hydrogel) and multilayer compression wraps/bandages. Two patients also received high-voltage, pulsed-current electrical stimulation (HVPC-ES). 75-100% granulation was achieved in 8.5–20 weeks. Complete wound closure was achieved in 12–36 weeks.






Summary

In these complex, chronic, and painful lower-extremity ulcers with substantial slough, timely granulation, pain reduction, and complete closure were achieved with adjunctive use of LIFU.

References

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* Low-intensity/frequency ultrasound (MIST Therapy System, Celleration, Inc., Eden Prairie, Minnesota). **Disclosures: The authors received no financial support for this study. Funding for poster production was provided by Celleration. ML-66216 5/2009**

Patients and Wounds	Treatments	Pain (0-10)	Outcomes and Photos
<p>Patient 1: Traumatic/ Venous Leg Ulcer Failed to close with 6 mo advanced/compression dressings</p> <p>55-year-old man, venous insufficiency</p> <p>Chronicity: 14 mo Area: 80 cm² Volume: 24 cm³ Slough: 20%</p>	<p>Apr 9 – Dec 7</p> <p>LIFU: thrice weekly, 3–8 min</p> <p>ES: thrice weekly, 100–150 volts, 50–80 pps, alternating polarity, 60 min</p>	<p>Initial: 0 End LIFU: 0</p> <p>95% granulation: 8.5 wks</p> <p>Closure: 36 wks</p>  <p>Mar 30 Jul 5 Sep 14 Dec 7</p>	
<p>Patient 2: Full-Thickness Burn (Right Thigh)</p> <p>45-year-old man, current smoker</p> <p>Chronicity: 16 wks Area: 270 cm² Volume: 54 cm³ Slough: 100%</p>	<p>May 20 – Aug 1</p> <p>LIFU: thrice weekly, 20 min, gradually decreasing to 3 min</p>	<p>Initial: 10 End LIFU: 0</p> <p>90% granulation: 9 wks</p> <p>Closure: 12 wks</p>  <p>May 20 Jun 11 Jun 27 Jul 18</p>	
<p>Patient 3: Traumatic Wound (Left Shin)</p> <p>44-year-old man</p> <p>Chronicity: 21 wks Area: 7.6 cm² Volume: 5.3 cm³ Slough: 50%</p>	<p>Nov 14 – Feb 10</p> <p>LIFU: thrice weekly, 3 min</p>	<p>Initial: 4 End LIFU: 0</p> <p>100% granulation: 8.5 wks</p> <p>Closure: 15.5 wks</p>  <p>Nov 14 Dec 12 Jan 27 Mar 1</p>	
<p>Patient 4: Right Ankle Ulcer (Site of cancer lesion removal followed by radiation, chemo)</p> <p>74-year-old diabetic woman, venous insufficiency</p> <p>Chronicity: 26 mo Area: 17 cm² Slough: 100%</p>	<p>Jun 2 – Nov 9</p> <p>LIFU: thrice weekly, 3–5 min</p> <p>ES: thrice weekly, 150 volts, 50 pps, negative polarity, 60 min</p>	<p>Initial: 9 End LIFU: 6</p> <p>75% granulation: 20 wks</p> <p>Closure: 30.5 wks</p>  <p>May 5 Jul 7 Sep 25 Dec 12</p>	
<p>Patient 5: Traumatic Wound (Right Calf)</p> <p>87-year-old diabetic woman, COPD, CHF</p> <p>Chronicity: 38 wks Area: 42 cm² Volume: 4.2 cm³ Slough: 85%</p>	<p>Mar 24 – Aug 29</p> <p>LIFU: Thrice weekly, 7 min, gradually decreasing to 3 min</p>	<p>Initial: 5 End LIFU: 0</p> <p>100% granulation 18 wks</p> <p>Closure: 28 wks</p>  <p>Mar 8 Mar 24 Jun 9 Sep 22</p>	