

Preparing the Wound Bed for Apligraf: Use of Acoustic Pressure Wound Therapy* in Two Patients with Large Venous Ulcers

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Background

Published research suggests that only 50-60% of venous leg ulcers will heal within 6 months when treated with standard compression therapy alone.¹⁻⁴ In two randomized studies, the addition of bilayered living-skin substitute (Apligraf) significantly improved rates of complete healing compared with compression therapy alone.¹⁻² Clinical experience suggests that optimal wound bed preparation via debridement is a key determinant of healing after graft application.⁵

Wound bed preparation via surgical debridement or cadexomer iodine has been reported to improve results following Apligraf application. In longstanding venous ulcers (mean area 25-39 cm²), >70% healed in 55 to 60 days with a mean two applications.⁶ Acoustic pressure wound therapy (APWT)* is reported to promote healing via cleansing and maintenance debridement.⁶

Case Reports

APWT was administered to prepare two large venous leg ulcers for Apligraf application.

Conclusions

APWT in the week prior to Apligraf application may further optimize the wound bed for successful graft take and hasten wound closure in large venous leg ulcers.

Patient 1

Age/Gender: 82-year-old woman, ambulates with front-wheeled walker

Wound: venous ulcer on left lower leg; Area: 154 cm²; Volume: 46.2 cm³; Onset: Sept. 1, 2007

Comorbidities: hypertension, type 2 diabetes, osteoarthritis, psoriasis, spinal stenosis, macular degeneration, venous insufficiency, cellulitis (bilateral lower extremities)

Medications: losartan potassium-hydrochlorothiazide, gabapentin, tramadol, celecoxib, sertraline, glimepiride

Treatment: Treatment included maintenance debridement (sharp for Patient 1, enzymatic for Patient 2), compression, and moist wound dressings including collagen, silver, alginates, gauze and foam. Each wound received one APWT treatment during the week prior to Apligraf application to cleanse the wound bed.

Outcomes: A single Apligraf application resulted in complete closure in 35 days.



Patient 2

Age/Gender: 91-year-old man, ambulates with front-wheeled walker

Wound: venous ulcers on the medial (area: 86.4 cm², volume: 34.5 cm³) and lateral (area: 93.4 cm², volume: 37.4 cm³) right ankle; Onset: July 1, 2006

Comorbidities: congestive heart failure, type 2 diabetes, prostate cancer, atrial fibrillation, venous insufficiency, giant cell arteritis, cellulitis and MRSA infection (bilateral lower extremities)

Medications: alprazolam, digoxin, losartan, potassium chloride, prednisone

Outcomes: Wounds were nearly closed (area: 0.12 and 0.06 cm², volume: 0.01 cm³) in 50 days with two Apligraf applications.



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

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References

1. Falanga V, Margolis D, Alvarez O, et al. Rapid healing of venous ulcers and lack of clinical rejection with an allogeneic cultured human skin equivalent. *Arch Dermatol.* 1998;134(3):293-300.
2. Falanga V and Sabolinski M. A bilayered living skin construct (Apligraf) accelerates complete closure of hard-to-heal venous ulcers. *Wound Rep Reg.* 1999;7(4):201-207.
3. Phillips TJ, Machado F, Trout R, et al. Prognostic indicators in venous ulcers. *J Am Acad Dermatol.* 2000;43:627-630.
4. Phillips TJ. Successful methods of treating leg ulcers: the tried and true plus the novel and new. *Postgrad Med.* 1999;105:159-179.
5. Brem H, Baledoux J, Sukkarieh T, Carson P, Falanga V. Healing of venous ulcers of long duration with a bilayered living skin substitute: results from a general surgery and dermatology department. *Dermatol Surg.* 2001;27(11):915-919.
6. Unger P. Low-frequency, noncontact, nonthermal ultrasound therapy: A review of the literature. *OstomyWound Manage.* 2008;54(1):57-60.