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Wound Center Autologous Micro Skin Grafting Under Local Anesthesia is Synergistic with Elastic Compression to Improve Venous Leg Ulcer Healing

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Problem

Split thickness skin grafting (STSG) was the go to solution to cover venous leg ulcers (VLUs) with epithelial cells. Recently bioengineered skin substitutes and growth arrested heterografts, largely replaced STSG because a trip to the operating room is not required.¹ We published that pinch grafts under local anesthesia speed VLU coverage, but the technique is cumbersome and challenging for staff.²

Micro-autografting for VLUs has three advantages for VLU coverage: (1) a handheld dermatome harvests a small STSG (~2 x 3 cm²) that is minced with sharp rotating disc parallel knives. The micrografts are spread over the wound with a spatula. The small skin surface area required makes the procedure quick to perform, painless under local anesthesia and easily mastered by wound care providers,^{2,3} (2) the dermatome harvests a STSG that is 0.014-0.016 inches thick and contains cuboidal epithelial cells from dermal rete pegs. Cuboidal cells have intact organelles with little keratin and are robust when transplanted, and (3) islands of minced skin may tolerate the elastic compression** required to reverse venous stasis pathophysiology

better than sheets of epithelial cells in STSG and bioengineered skin substitutes.⁵ This anecdotal case series asks the question: Is micro-autografting in our hands as effective as bioengineered skin substitute for VLU epithelial cell coverage?

Methods

Three patients with complex VLUs refractory to 4 weeks of therapy underwent micro-autografting*, in the wound clinic, at a time when wound bed preparation appeared adequate for a bioengineered skin substitute.⁴

Results

Photographs illustrate details of micro-autografting technique and chronicle the complete healing of all VLUs.

Conclusion

Wound clinic micro-autografting, in an initial small case series, appears to improve healing time in refractory VLUs, compared with our clinic's historical results from bioengineered skin substitute therapy.

References

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* Xpansion® Micro-autografting Kit, SteadMed Medical, Fort Worth, TX 76107

** EdemaWear® Stockinet, Compression Dynamics LLC, Omaha, NE 68102