Chronic Venous Ulcerations with Assistance by Home Care with Novel Use of a Silicone Contact Layer

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Introduction

Chronic venous ulcerations present challenges in wound care management due to their clinical presentation of excessive drainage, frequent dressing changes, and considerable patient discomfort. This study examines a silicone-based wound contact layer (WCL) that protects the wound, promotes healing, and allows fluid exchange to the secondary dressing without disturbing the underlying wound surface. Over a three-month period, we followed three cases of chronic venous ulcerations, in different settings, demonstrating WCL's potential to improve patient outcomes and wound healing in the home with assistance by home nursing.

Case Study

Case 1: 66M, PMHx significant for HTN, CAD, HLD, OSA, morbid obesity, anemia, gout, AKI, anxiety, hypothyroidism, and recurrent cellulitis to bilateral lower extremities, with chronic venous ulcerations. Wound cultures indicated pseudomonas aeruginosa, enterococcus faecalis, and corynebacterium species. Underwent wound debridements with skin substitute application with no improvement. Treatment with silicone WCL, without disturbing the wound base, showed improvement over the course of three months.

Case 2: 70F, PMHx significant for arthritis, Pulmonary Emboli, DVT, Obesity, and Venous Insufficiency, with chronic venous ulcerations. Underwent multiple wound debridements with skin substitute applications with limited progression. Treatment with silicone WCL, without disturbing the wound base, showed improvement over the course of three months.

Case 3: 68M, PMHx significant for schizophrenia, chronic bilateral lower extremity wounds, chronic venous stasis, and peripheral neuropathy, with chronic venous ulcerations. Medical management with skin substitute with stagnant progression. Treatment with silicone WCL, without disturbing the wound base, showed faster wound healing over the course of three months.

Dressing Algorithm

1- Every week, physician applied silicone-based WCL onto patient's chronic venous ulceration(s)

Followed by application of superabsorbent dressing, ABD pads, webril, and multi-layer compression dressing to lower extremity

2- Home visiting nurse changed secondary dressing every other day, without removing the WCL

Applied superabsorbent dressing, ABD pads, webril, and multi-layer compression dressing to lower extremity

3- Silicone WCL only removed by physician on visits to office weekly.

4- Pictures of wounds were taken every visit and the progression of these wounds were followed for a three month course.

Timeline

The clinical progression of the wound for each patient over the course of the three months follow up.

Case 1:

Csse 2:

Case 3:

Discussion

Chronic venous ulcers are a common yet challenging condition that significantly impacts patients' quality of life, involving extended periods of care, frequent dressing changes, and management of complications like infection or excessive drainage. The burden of frequent wound care, along with associated pain and discomfort, often leads to emotional and physical strain for patients. In this study, we explored the potential benefits of using an one-sided open mesh transparent non-adherent silicone WCL for patients with chronic venous ulcerations. The silicone WCL, applied once a week in conjunction with regular dressing changes by home care nurses, proved to be an effective method to facilitate faster healing and minimize the trauma often associated with wound care.

The inclusion of home nursing services allowed patients to receive consistent care while minimizing the need for frequent visits to the wound center, which can be a barrier due to transportation, cost, or other logistical issues. Home care nurses were able to manage secondary dressing changes every other day, ensuring the wound was kept clean and protected without disturbing the silicone WCL, which allows treatments to be carried out safely while enabling wound healing. The ability to leave the silicone layer undisturbed for a week at a time helped avoid unnecessary pain, irritation, and disruption to the wound bed, which are common challenges in treating chronic venous ulcers.

Our results indicated that all three patients, despite having different underlying causes for their venous ulcers (surgery, trauma, and medical management), showed notable improvement in wound size over the three-month period. This suggests that the silicone WCL may offer a unique advantage in improving wound healing by reducing friction, protecting the wound from contaminants, and facilitating an optimal environment for healing. Moreover, by minimizing the frequency of dressing changes and reducing pain, the WCL helped enhance patient comfort and adherence to the treatment regimen.

Conclusion

Our research illustrates that the use of silicone WCL weekly, along with assistance with visiting nurses performing secondary dressing changes every other day, allows treatments to be carried out safely and promotes wound healing with less trauma to the wound surface and allowing wound healing without needing multiple visits to the wound center.

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