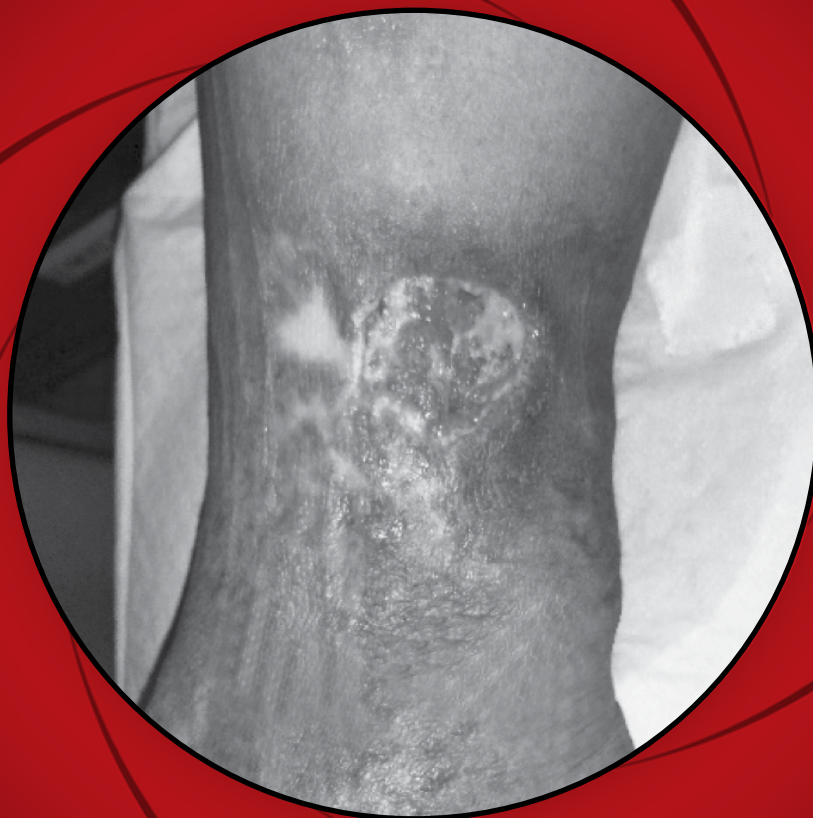


Combination of Graduated Compression Bandage and Silver Methylene Blue Polyurethane Foam Dressing for The Management of Chronic Venous Leg Ulcer: A Case Study

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Introduction

Venous leg ulceration (VLU) is one of the most predominate medical disorders worldwide and in the western hemisphere it affects around 1.5% of the general population and up to 5% of the elderly population¹. Compression therapy (CT) remains the cornerstone of standard care, and adjuvant care with topical or systemic agents is used for wounds that do not heal within 4 weeks². A topical dressing foam matrix of polyurethane (PU) bonded with gentian violet (GV), methylene blue (MB) and silver have been studied as a triple antimicrobial action against chronic wound pathogens³. Hence, the aim of this study is to evaluate the effect of PU-GV/MB silver foam combine with graduated CT in the treatment of VLU.

Case Study

We reported a 52-year-old obese female patient with diabetes and hypertension who suffered from a 4 years duration of left VLU. Initial assessment revealed an ulcer of 4.5 x 3.5 x 0.5 cm above left medial malleolus with signs of local infection. ABSI charted as 0.93 and there was no evidence of osteomyelitis on X-ray analysis. This ulcer has not responded well to the compression therapy in combination with various previous topical dressing.

Method

Wound progression was assessed using SM Wound Assessment Form. The protocol involved during wound dressing were cleansed with sterile water, apply the PU-GV/MB silver foam onto the wound bed and then secured with taping. A graduated compression bandage was applied. This protocol was repeated in every three days duration.

Result

A reduction of wound surface of 38% is seen from day twelve and the wound achieved complete re-epithelialization at six weeks duration. Local infection subsided at day six and onwards. Pain score had reduced from day nine and onwards.

Discussion

The results from this study revealed a significant reduction of wound surface area to complete healing in six weeks duration. Although the mechanistic action of the PU-GV/MB silver foam dressing is not fully known, it is understood that the mechanical properties of the foam facilitate the wicking of wound exudate away from the wound surface into the dressing itself. Inside the foam dressing, it has been posited that the two antibacterial bound to the foam creates a microenvironment that inhibits the metabolism of microorganisms by altering the oxidation / reduction potential inside the dressing to a state not conducive to bacterial growth or attachment^{4,5}. We believe that the combination of the antimicrobial properties in the PU-GV/MB silver foam and the compression therapy contributed to its successful wound healing in this case study.

Conclusion

Combination of graduated compression bandage with silver and gentian violet methylene blue polyurethane foam is a promising method and effective to the improve outcome of chronic venous leg ulcer.

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