Off-Loading Neuropathic Plantar Metatarsal Ulcers with Total Contact Casting

Author
Anita Robinson, R.N./B.S./W.C.C & Kristina Wagner, R.N./B.S.N.
Hamilton Wound & Hyperbaric Center
Dalton, GA, 30720, USA

Introduction
Diabetes is increasing in our population with an anticipated increase globally from 246 million, or 5.9% in 2007, to 380 million or 7.1% by 2025 (1). As diabetes increases, the complications associated with the disease multiply.

Studies reveal 50% of patients with diabetes will develop neuropathy (2). The lifetime risk of acquiring a foot ulcer is as high as 25% for the diabetic patient and 84% of diabetic amputations are preceded by ulceration. 61% of amputations are preceded by neuropathy.

Our goal as clinicians is to find the most efficient treatment to heal these neuropathic wounds, prevent infection, and/or avoid amputation.

The purpose of this study was to assess the rate of healing of neuropathic plantar metatarsal ulcers using total contact casting.

Methods and Materials
When treating neuropathic plantar metatarsal ulcers, off-loading is a key component. Removable cast walkers are not the first choice because compliance is often difficult to enforce as they can be removed and cause dressings to shift with ambulation. For these reasons, we chose a total contact cast system* that cannot be removed, to be applied to the patients in this study.

Three patients were chosen with Neuropathic Plantar Metatarsal Ulcers classified as Wagner II diabetic ulcers. All wounds were free of infection and had adequate blood supply. In addition to diabetes, the patients further complicated their wound healing by smoking.

Patient #1 is a 56 year old female with ulceration to right great toe for more than one year. Patient #2 is a 52 year old male with a history of diabetes, smoking, and delayed wound healing presented to the Wound Care Center with a two week old diabetic ulcer to his right great toe.

Patient #3 is a 56 year old female presenting with ulceration to left plantar hallux present for three months.

Results
After 40 days in a total contact casting*, Patient #1 was healed. Patient #2 was healed in 31 days, using total contact casting*. Lastly, patient #3 was healed after 32 days of treatment with total contact casting*.

Conclusion
A key component to healing neuropathic plantar metatarsal ulcers is offloading. When using Cutimed® Off-Loader Select in conjunction with various dressings and advanced modalities, healing is expedited. Overall, Cutimed® Off-Loader Select is a cost effective modality that forces off-loading compliance and allows tissue to repair without constant trauma to the ulceration while decreasing risk of infection or further insult. Cutimed® Off-Loader Select proves to be superior to other off-loading methods used to treat neuropathic plantar metatarsal ulcers.

References

* Cutimed® Off-Loader® Select by BSN medical Inc.