School of Medicine Greenville

Total Contact Casting for Diabetic Foot Ulcerations in High-Risk Patients with Previous Partial Foot Amputation

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Introduction

Total contact casting (TCC) is recognized as the gold standard for offloading plantar diabetic foot ulcerations (DFU). Patients with Type 1 and 2 diabetes mellitus (DM) may have as high as a 34% risk for developing a DFU in their lifetime[1]. Recurrence of DFUs is common, approximately 40% of patients with DFUs will experience recurrence within 12 months, 60% within 3 years, and 65% within 5 years[1]. Approximately 85% of lower-extremity amputations in patients with DM are preceded by a DFU[2].

When recurrent DFUs occur in patients who have undergone partial foot amputation of either foot, it is imperative that clinicians are able to close the wound as quickly as possible to prevent infection or further amputation. Here, we present a case series of three patients who have had a partial foot amputation with recurrent DFUs who were successfully treated with a roll-on TCC* system.

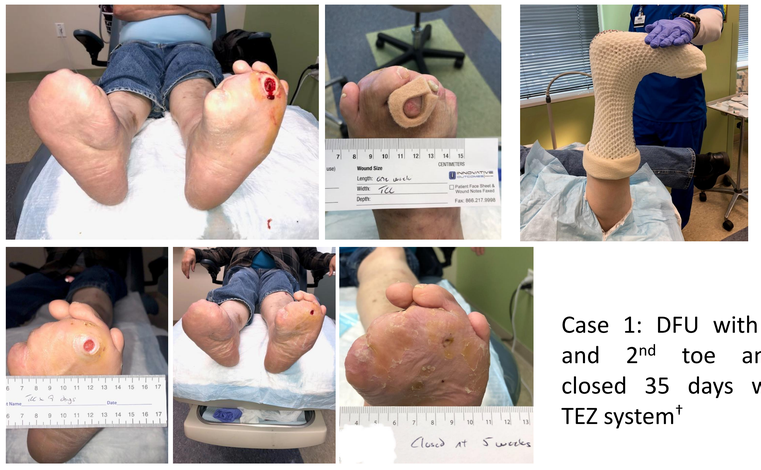
Methods

All wounds were cleansed, debrided, and dressed according to the protocol prescribed by the clinician. A roll-on TCC system was applied in the wound center per the manufacturer's directions of use. The first roll-on TCC was changed at 48 hours to ensure that the patient was tolerating TCC without complications. Patients returned weekly to have the cast removed, the wound evaluated, the wound was cleansed and dressed followed by application of a new roll-on TCC.

Results

All three patients in this case series were treated with a roll-on TCC system. At the time of submission of this abstract, two of the three patients in this case series went on to full closure averaging 35 days of TCC until closure. The third patient's wound in this case series demonstrated 95% improvement as compared to initial presentation after 42 days of TCC and went on to closure after 49 days of TCC. One patient developed pressure irritation from a bony prominence. Rather than discontinue TCC, the author chose to pad the area with adhesive felt and continue with TCC, the patient's pressure irritation resolved uneventfully and the patient's DFU went on to closure.

Cases



Case 1: DFU with 1st and 2nd toe amps closed 35 days with TEZ system†

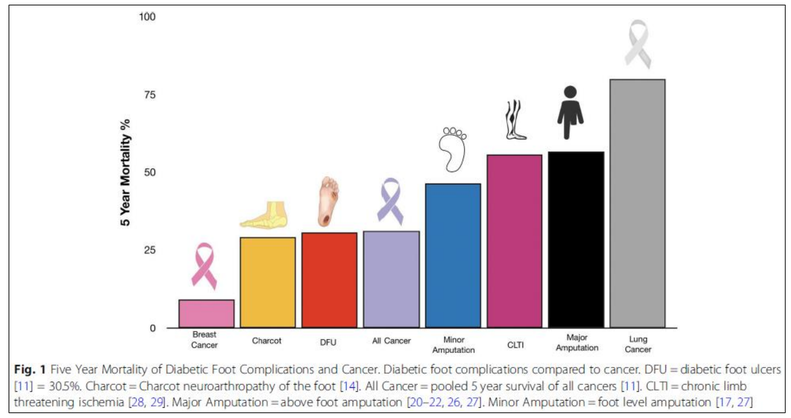
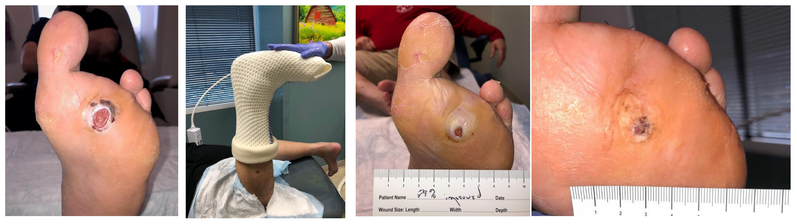


Fig. 1 Five Year Mortality of Diabetic Foot Complications and Cancer. Diabetic foot complications compared to cancer. DFU = diabetic foot ulcers [11] = 30.5%. Charcot = Charcot neuroarthropathy of the foot [14]. All Cancer = pooled 5 year survival of all cancers [11]. CLTI = chronic limb threatening ischemia [28, 29]. Major Amputation = above foot amputation [20–22, 26, 27]. Minor Amputation = foot level amputation [17, 27]

Figure 1**: Five-year mortality and direct costs of care for people with diabetic foot complications are comparable to cancer.[8]**

Cases



Case 2: DFU with 2nd and 3rd toe amputations closed with TEZ system† at 35 days

Cases

Case 3: DFU in patient with TMA left foot and right Charcot foot deformity closed after 49 days with TEZ system†

Trademarked items

† TEZ system= TCC-EZ ® Total Contact Cast System, Integra LifeSciences Corp., Princeton, NJ.

Discussion

In patients with recurrent DFUs who have undergone partial foot amputation, closure of the recurrent wound as quickly as possible is vital to prevent infection or further amputation. The use of a roll-on TCC system is an excellent solution for recurrent DFUs in patients who have had previous partial foot amputation and led to excellent outcomes in this case series.

Academic Affiliation

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8. Figure taken from Armstrong et al. Journal of Foot and Ankle Research. 2020;13:16. https://doi.org/10.1186/s13047-020-00383-2 To view a copy of this license, visit http://creativecommons.org/licenses/by/4.0/.