

# Treatment of plantar foot ulcers using Cutimed® Off-Loader Select, a new multi-layer, fiberglass total contact casting kit

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## Introduction

Plantar pedal ulcers are a frustrating clinical challenge for wound care providers. Reducing pressure (offloading) at the wound site is the primary healing focus, and total contact casting is considered the “gold standard”. Despite healing rates approaching 90% and evidence supporting the practice, total contact casting remains underutilized. The labor-intensive procedure and specialized training are the main obstacles.

The aim of this study was to evaluate the effectiveness of a Cutimed® Off-Loader Select, a new total contact casting kit (TCC), in eliminating the barriers to incorporating this procedure into daily practice to improve results. Cutimed® Off-Loader Select is pre-packaged with traditional application items, plus a 4x4 foam wound dressing for exudate control. Instructions are included, video and hands-on training tutorials are available.

## Methods and Materials

Three patients presented with difficult to heal wounds ranging in

duration from six months to several years. All patients were given an outpatient course of treatment combining hyperbaric oxygen therapy and Cutimed® Off-Loader Select.

## Results

All wounds healed or nearly healed in under 17 weeks, specifically 28 days (healed), eleven weeks (healed) and 17 weeks (nearly healed with expectation of total healing).

## Conclusion

The combination of HBOT and Cutimed® Off-Loader Select TCC proved successful in treating long-standing plantar foot ulcers. Application of this TCC kit is under 30 minutes, requiring only basic instruction and casting experience. Healing rates of plantar foot ulcerations are significantly improved with this treatment plan, which translates to a lower incidence of potential complications, and as an easy total casting kit, Cutimed® Off-Loader Select helps eliminate barriers to incorporating this procedure into daily practice and improving outcomes.

## PATIENT 1

Female, 64 years old, Type II diabetic, presented with a right foot plantar ulceration of six months duration beneath the second metatarsal head that extended to the joint capsule. It is believed her first metatarsal head resection two years earlier led to the ulcer formation. A forefoot wedge shoe was being utilized to offload the ulcer. Patient was given the option of pan metatarsal head resection or HBOT with total contact casting. She chose the latter.

At the start of treatment, the patient's wound measured 1.7 cm x 1.4 cm x 0.2 cm with a central tunnel extending 1.0 cm to the joint capsule. The TCC was applied over the supplied

foam dressing for exudate control, and changed weekly. Treatment tolerated without difficulty and examination after removal showed no pressure points or excessive maceration. After the initial cast change, wound had reduced by 2.0 mm reduction in length and width and 50% in tunnel depth. By the second cast change, the central tunnel was completely eliminated and the wound measured 1.0 cm x 0.5 cm x 0.1 cm and was rapidly re-epithelializing. The wound was completely healed by the fourth cast; just 28 days and 19 hyperbaric oxygen treatments after presentation.



Week 1



Week 3



Week 4

## PATIENT 2

Male, 42 years old, neuropathic diabetic with ESRD on hemodialysis, presented with a large, full thickness plantar lateral ulcer of the left mid-foot, three years duration, developing after I&D of deep infection and partial resection of the fifth metatarsal. The wound bed consisted of a dull, spongy granulation tissue ringed by thick, peri-wound hyperkeratosis and extended through the subcutaneous tissue layer with no exposed bone. Vascular studies showed adequate limb perfusion, and an MRI of the left foot was negative for osteomyelitis. The treatment plan was serial TCC for proper wound offloading with adjunctive HBOT.

Wound measurement prior to initial TCC was 2.3 cm x 4.0 cm x 0.3 cm. Casts were applied weekly, initially over a silver alginate wound contact dressing with the Cutimed® foam cover. The patient tolerated the initial cast without difficulty and skin examination after removal showed no pressure points or lesions. After the third cast, the wound had significantly reduced, measuring 1.3 cm x 3 cm x 0.3 cm. The thickness of peri-wound callus had also noticeably reduced. The treatment resulted in complete healing. After the eighth cast, the wound measured 0.2 cm x 1.0 cm x 0.2 cm, with complete healing achieved with eleven casts and 50 HBOTs.



Week 1



Week 7



Week 16

## PATIENT 3

Female, 73 years old, diabetic with a history of previous right BKA, lymphedema and recurrent plantar left heel ulceration of several years duration. The patient had been unable to tolerate removable offloading devices due to limited mobility and long periods of weight-bearing movement, caring for a disabled spouse. She eventually committed to a strict offloading and wound care regimen, using TCC with a reduction in weight bearing activity.

At the first use of the TCC, the heel ulcer measured 8.0 cm x 3.7 cm x 0.2 cm with a dull granulating base and well defined, hyperkeratotic wound edges. When the cast was removed one week later, the wound had reduced to 6.3 cm x 3.0 cm x 0.1 cm with a more shallow, healthier wound bed and re-epithelialization

visible at the periphery. The patient quickly adapted to ambulating and tolerated weekly changes without complication.

Managing wound exudate and bioburden was difficult when TCC began, requiring two layers of highly absorptive, antibacterial dressings. Bioengineered tissue and living cell therapy was added to the TCC regimen to speed wound healing. By the seventh cast, the wound measured 4.2 cm x 1.5 cm x 0.1 cm with reduced exudate levels and virtually no depth. After removing the 17th cast, the wound measured 2.9 cm x 1.0 cm with no depth, continued wound epithelialization and manageable exudates. The treatment resulted in complete healing.



Week 1



Week 7



Week 20