AdventHealth

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Nonhealing Neuropathic Ulcer Heals with Novel Transforming Powder Dressing (TPD)

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INTRODUCTION

Chronic neuropathic diabetic foot ulcers (DFUs) often result from

- Neuropathy
- Peripheral vascular disease
- Unnoticed trauma

This case study explores the innovative use of a transforming powder dressing (TPD) for a 60-year-old diabetic male nurse with a recurrent and recalcitrant neuropathic ulcer over the medial malleolus.

Following a 2-year healing process for a previous DFU at the same site, the patient developed a new 3.7 x 3.1 x 0.4 cm wound caused by inadvertent thermal injury during a motorcycle ride. Initial treatment with antibiotics and conventional dressings for three weeks showed no improvement. Concerns for risk of amputation led to the consideration of TPD as an alternative approach.

METHODOLOGY AND MATERIALS

After the wound was debrided to remove slough, TPD was applied. TPD is an extended-wear, oxygen-permeable powder dressing made from polymers similar to those used in contact lenses. When moistened with saline, TPD transforms into a moist barrier that can remain in place for up to 30 days, providing wound coverage and protection.

The TPD dressing was applied initially and reapplied on day 27 with three additional "top offs" in the interim (additional powder applied over the existing TPD matrix).

REFERENCES & ACKNOWLEDGEMENTS

Rehman ZU, Khan J, Noordin S. Diabetic Foot Ulcers: Contemporary Assessment And Management. J Pak Med Assoc. 2023 Jul;73(7):1480-1487. doi: 10.47391/JPMA.6634. PMID: 37469062.

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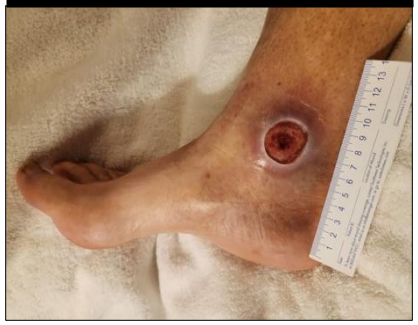
RESULTS: Complete closure in 90 days with five TPD applications and one initial debridement

By day 60, the TPD matrix had dried into a scab, indicating epithelialization. The scab detached by day 90, revealing complete wound closure without complications. The treatment required only one debridement, two primary dressing applications, and three top-offs, totaling five applications over 90 days (once every 18 days on average over treatment period).

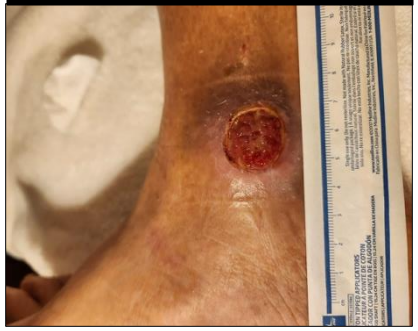
PRE-TPD



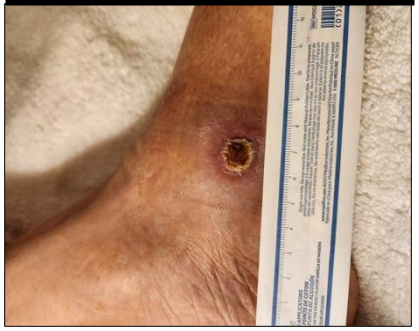
DAY 3: FIRST TOP-OFF AFTER APPLICATION

DAY 15: THIRD TOP-OFF

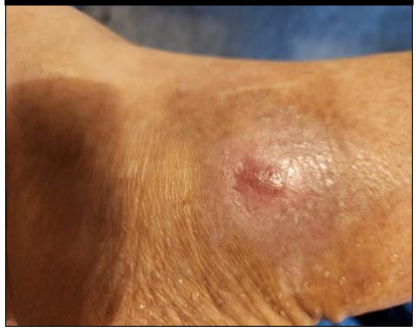
DAY 27: REAPPLICATION



DAY 60: TPD FORMS A SCAB



DAY 90: SCAB FLAKES OFF



DISCUSSION

The application of TPD for this recurrent neuropathic DFU enhanced healing, reduced dressing changes, and required fewer debridements compared to previous standard care. The patient experienced no adverse events, highlighting the potential of TPD as an effective treatment option for complex non-healing wounds.

**Altrazeal® Transforming Powder Dressing*