

EVALUATION OF POLYABSORBENT FIBRE DRESSINGS WITH TECHNOLOGY LIPIDOCOLLOID MATRIX WITH SILVER (TLC-AG) OR NANO-OLIGOSACCHARIDE FACTOR (TLC-NOSF): A CASE SERIES FROM THE UNITED ARAB EMIRATES

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INTRODUCTION

For wound management to be successful, clinicians need to not only address systemic factors but also select suitable wound care products to address local wound factors that significantly influence wound healing, including wound infection, devitalised tissue¹. Moreover, chronic wounds exhibit a chronic pro-inflammatory environment with high levels of extracellular matrix-degrading matrix metalloproteases (MMPs)². Evidence-based dressings play a crucial role in wound care because they can significantly impact healing outcomes, reduce infection rates, and improve patient comfort³. Negatively charged polyabsorbent fibre dressings (Magnet Fibres™ Technology, Laboratoires Urgo, France) enable the continuous debridement of slough, as the negatively charged fibres in the dressing bond to positively charged regions in slough, trapping bacteria¹⁻⁷ and other non-adherent or devitalised material in the dressing, which is then removed when it is changed⁴⁻⁷. The evidence behind these dressings is quite extensive and includes clinical trials^{8,9}, and large observational studies involving > 4000 patients¹⁰⁻¹².

CASE 1

64-year-old man, with a history of type 2 diabetes (T2D) with right foot metatarsal amputation.

- Referred on 16/01/2024 [Fig 1A]
- Wound management included cleaning with a (HOCl/NaOCl) solution, followed by application of the TLC-Ag polyabsorbent fibre pad dressing. With dressing every 2 days. The patient was advised against any weight bearing on the affected foot.
- Wound improvement shown within 4 weeks [Fig 1B]
- Dressing changed to TLC-NOSF with dressing changes were again performed every 2–3 days.
- Within two dressing changes with TLC-NOSF (4 days), the size of the wound had considerably decreased and there were no signs of local infection [Fig 1C]. Wound was completely healed within 9 weeks of TLC-NOSF [Fig 1D] – 13 weeks in total.



CASE 2

44-year-old woman with uncontrolled T2D for 15 years and a history of metastasised cervical cancer (still receiving treatment from the oncology department).

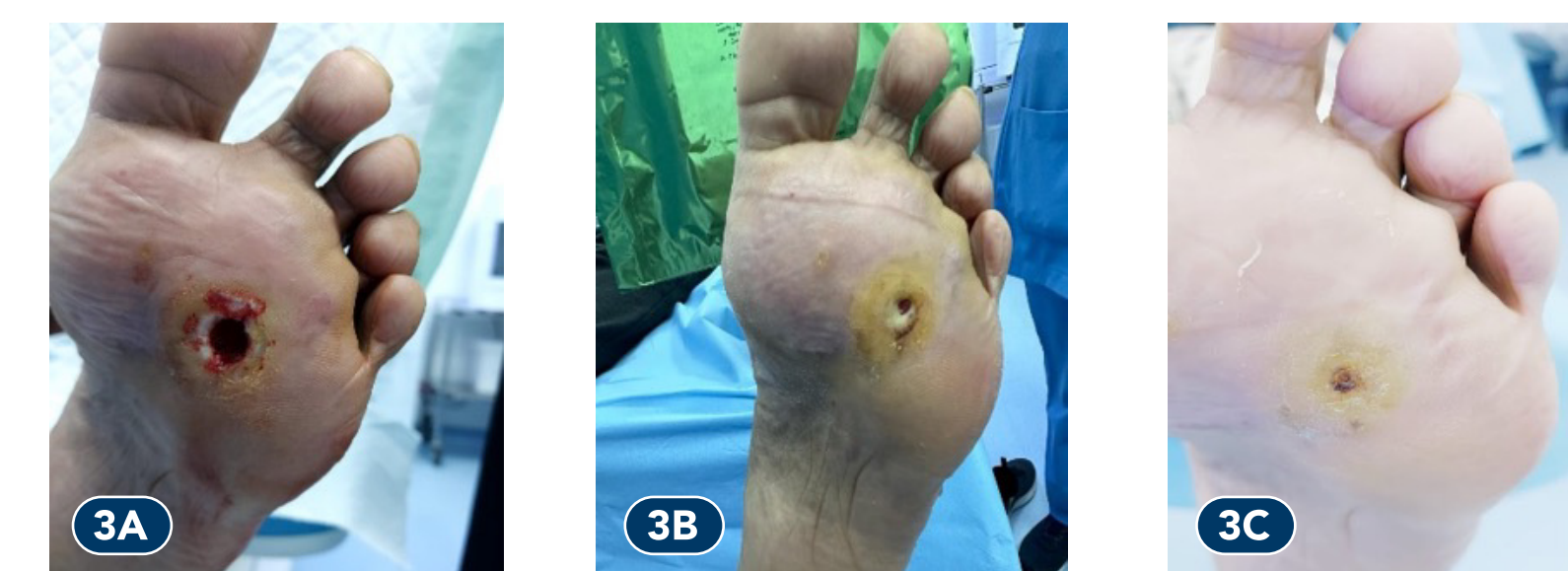
- Admitted for amputation of the right hallux on 14 May 2024, which was followed by several debridement sessions. She had consistent pain and oedema, induration of the peri-wound skin and malodorous exudates
- Referred to the wound care team on 28/5 - topical management was initiated with TLC-Ag polyabsorbent fibre pad dressing [Figure 2A].
- She was discharged from the hospital on 28 /05[Figure 2B] and continued with the TLC-Ag polyabsorbent fibre pad dressing, with dressing changes every 2 to 3 days.
- Within 5 weeks, the wound showed remarkable progress with healthy granulation tissue, and reduction of pain and exudate [Figure 2C].
- As all signs of infection had subsided, the dressing was changed to the TLC-NOSF polyabsorbent fibre pad dressing on 14 August 2024 [Figure 2D] every 3-4 days
- Full closure was achieved by 15/01/2025 [Figure 2G].



CASE 3

54-year-old man, with a history of hypertension, coronary angioplasty, class 1 obesity (BMI 31), and T2D for 10 years with peripheral sensory neuropathy. Referred for 7-month-old plantar ulcer of unknown origin on the left foot.

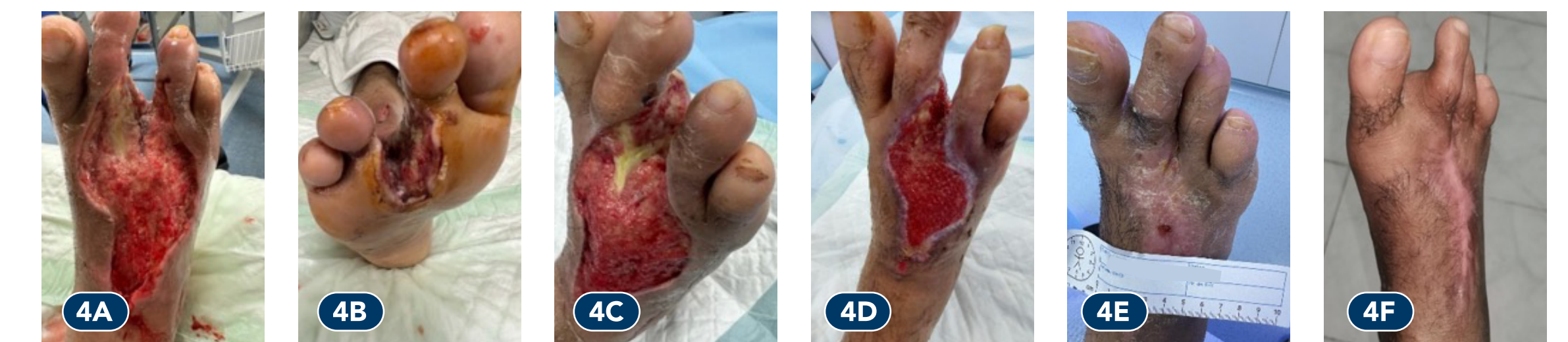
- Hyperkeratinised tissue was debrided [Fig 3A]. The wound was cleaned by irrigation with a HOCl/ NaOCl solution and dressed with the TLC-Ag polyabsorbent fibre pad dressing. No antibiotics were administered. The primary dressing was kept in situ with traditional dressings.
- Patient was referred to the community nursing services with weekly follow up at the wound management clinic. The dressing was changed every 2 days.
- Within 1 week, the wound size was greatly decreased [Fig 3B], and the wound was considered as healed by 28 March 2024 [Fig 3C].
- It should be noted that no specific offloading was implemented throughout the treatment, due to the patient's financial reasons and his refusal.



CASE 4

42-year-old man with a history of hypertension, T2D for 13 years and peripheral sensory neuropathy post toe amputation. Referred on 5 March 2024 [Figures 4A and 4B].

- wound was cleaned with an irrigation solution of sea salt and sodium hypochlorite NaOCl (0.2%) and dressed with the TLC-Ag polyabsorbent fibre pad IV antibiotics were administered during the hospital stay followed by antibiotics orally for 1 week post discharge. The dressing was changed three times a week. Within 1 week, the wound bed looked healthier [Figure 4C]. Dressing changes with the TLC-Ag polyabsorbent fibre pad dressing continued for 6 weeks, when all the signs and symptoms of local infection, including pain and exudate were eliminated [Figure 4D]. treatment was changed to the TLC-NOSF polyabsorbent fibre pad dressing, with dressing changes three times a week. Improvement was seen after 7 weeks [Figure 4E] and the wound was completely healed by 15 June 2024, after 8 weeks of TLC NOSF and 14 weeks in total [Figure 4F].



CASE 5

84-year-old man with a history of T2D for 25 years and comorbidities, including hypertension, ischemic heart disease, chronic kidney disease, hypothyroidism, chronic obstructive pulmonary disease (ex-smoker), paroxysmal atrial fibrillation and diverticular disease, managed on multiple medications.

- Underwent left hallux surgical amputation and debridement on 27 August 2024, followed by partial surgical amputation of the left metatarsal head on 13 September.
- Patient was referred to the wound care team on 30 September for wound management [Figure 5A]. He was started on oral antibiotics for 2 weeks, and local treatment with wound cleansing with HOCl/NaOCl followed by the TLC-Ag polyabsorbent fibre pad dressing. (During the treatment of the diabetic foot ulcer, patient was admitted three times for congestive cardiac failure with associated hypoxia.)
- Dressing was changed three times weekly at home by the family, with regular wound care clinic follow-up due to his compromised medical status. Consultations were done through telemedicine.
- Within 3 weeks the wound bed appeared healthier, and the wound surface area was reduced [Figure 5B]. The dressing changes continued with the antimicrobial dressing due to the high risk of non-healing and complications, including infection, due to the patient's multiple complex comorbidities.
- Wound completely healed after 14 weeks of TLC Ag polyabsorbent fibre dressing [Figure 5C].



DISCUSSION

The evaluated dressings assessed in these complex cases have robust evidence behind them, including a randomised control trial (Meume et al, 2014), a prospective noncomparative clinical trial (Dalac et al, 2016), three observational studies involving 4370 patients¹⁰⁻¹², and other case series (including but not limited to¹²⁻¹⁴. Furthermore, the fibres are mentioned in recent best practice recommendations⁵.

The TLC-Ag polyabsorbent fibre pad dressing has been shown to provide debridement and to be effective in continuous wound cleaning by physically binding onto debris, such as slough¹⁵. The combined debridement and antimicrobial action of the dressing support the management of a localised wound infection and facilitates the progression of a stagnated wound to a healing trajectory¹⁷. TLC-NOSF polyabsorbent fibre pad dressings have been demonstrated to reduce healing times, improve patients' quality of life and offer a cost-effective approach⁶.

In this evaluation, the authors' choice was based on the positive results portrayed in previous clinical trials and case series. The TLC-Ag polyabsorbent fibre pad dressing was used to resolve local infection, while the TLC-NOSF polyabsorbent fibre pad dressing was thereafter adapted to promote healing, thus reducing healing times.

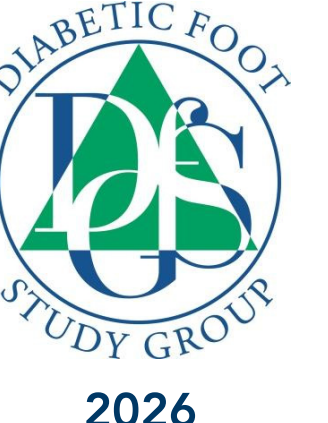
CONCLUSION

Managing stagnated, complex wounds in patients that have multiple comorbidities is always a challenge. The wound care team at Al Qassimi Hospital have managed these types of complex wounds for many years. However, the introduction of the polyabsorbent fibre pad dressing with TLC-Ag or TLC-NOSF healing matrix has provided an evidence-based solution for continuous debridement, management of local infection and rapid wound closure. The dressings in the cases portrayed in this article have shown positive results, resonating with the published evidence and clinical studies assessing their performance, with a noticeable rapid resolution of local infection, reduction in slough and level of exudate and faster healing. Most of the wounds had been managed with other dressings without any real positive outcomes and the application of the TLC-Ag polyabsorbent fibre pad dressings and the TLC-NOSF polyabsorbent fibre pad dressings achieved the desired results, with resolution of signs and symptoms of infection, and, considering the complexity of the wounds, resolution to healing in a appreciably short period, which encourages the wound care team to implement this regimen as part of their holistic management of patients living with wounds.

TLC-Ag, TLC-NOSF dressings: CE-marked Medical Devices (2797). Read the patient leaflet before use.

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