

Using a hydroactive gelling fibre dressing with silver nanoparticles as a single dressing strategy in diabetic foot ulcer care

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Introduction

Diabetic foot ulcers (DFUs) are complex, high-risk wounds associated with infection, hospitalisation and amputation. Effective management requires multidisciplinary care, including offloading, vascular assessment, infection control, debridement where indicated and wound-bed preparation. Dressing choice is usually adapted to wound presentation, exudate, tissue type, bioburden and periwound condition, often resulting in multiple dressing changes during healing.

Evidence supporting repeated dressing switching in routine DFU care is limited. A hydroactive gelling fibre dressing with silver nanoparticles (HGF-Ag; Liquacel Ag®) may simplify care by combining exudate management, conformability, support for autolytic debridement and antimicrobial activity. This evaluation explored whether HGF-Ag could be used as a consistent primary dressing while maintaining clinical outcomes.

Aim

To compare outcomes for a simplified HGF-Ag single-dressing strategy with standard care using guideline-directed dressing changes in DFU management.

Method

This retrospective service evaluation compared two DFU cohorts receiving multidisciplinary care. The intervention cohort included 30 patients treated with HGF-Ag as the primary dressing throughout the wound episode. The comparator cohort included 37 patients receiving standard care, with dressings adjusted according to wound condition, exudate, infection risk and clinician judgement.

Demographics, glycaemic control, wound characteristics, wound-bed composition and healing outcomes were analysed. Key endpoints were proportion healed and time to healing at 6, 12 and 26 weeks.

Results

Baseline demographics and glycaemic control were broadly comparable. The control group had higher rates of peripheral arterial disease and infection, indicating greater baseline complexity. At 6 weeks, healing was significantly higher with HGF-Ag than standard care (40.0% vs 5.4%, $p<0.001$).

Among healed ulcers, median time to healing was shorter with HGF-Ag (8 [6–13] weeks vs 12 [12–16] weeks, $p=0.017$). Healing rates were not significantly different at 12 weeks (50.0% vs 35.3%, $p=0.312$) or 26 weeks (70.0% vs 60.0%, $p=0.445$). Wound-bed changes followed similar trajectories between groups.

Outcome	HGF-Ag cohort	Standard care cohort	p value
Patients included	n=30	n=37	-
Healed at 6 weeks	40.0%	5.4%	<0.001
Median time to healing among healed ulcers	8 [6–13] weeks	12 [12–16] weeks	0.017
Healed at 12 weeks	50.0%	35.3%	0.312
Overall healing during follow-up at 26 weeks	70.0%	60.0%	0.445

Case study examples

Three clinical cases from the service evaluation illustrate the use of HGF-Ag within multidisciplinary diabetic foot ulcer care. In each case, treatment was delivered alongside wider DFU management, including infection management where indicated, offloading and follow-up through acute or community podiatry pathways.

Case	Patient and wound profile	Clinical course	Outcome
Patient 1	36-year-old female with type 1 diabetes and a left dorsal foot wound following dermatology skin biopsy for necrobiosis lipoidica. The wound became infected and non-healing.	Reviewed in acute clinic in September 2025.	Fully healed by November 2025, within approximately 8 weeks.
Patient 2	39-year-old male with obesity, poorly controlled diabetes and neuropathy, with ulceration at the left 5th metatarsophalangeal joint.	Managed with oral and intravenous antibiotics and referred to acute care via community podiatry. Treatment began in November 2025.	Fully healed by February 2026 and discharged with custom-made orthotics.
Patient 3	80-year-old male with type 2 diabetes and neuropathy, with left 1st plantar toe ulceration and suspected osteomyelitis.	Completed 6 weeks of antibiotics and was initially reviewed in June 2025.	Fully healed by August 2025, then discharged back to community care with bespoke insoles.

Clinical Images

Patient 1: Week 1



Patient 1: Week 4



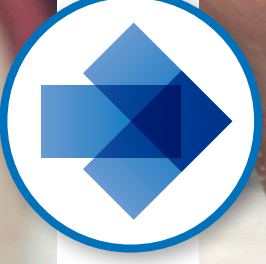
Patient 1: Week 8



Patient 2: Week 1



Patient 2: Week 6



Patient 2: Week 12



39-year-old male with obesity, poorly controlled diabetes and neuropathy; left 5th MTPJ ulceration.

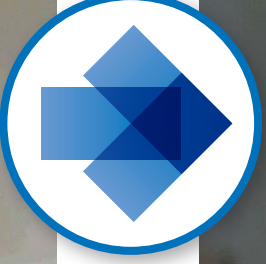
Progression following management through acute care with antibiotic therapy.

Fully healed by February 2026; discharged with custom-made orthotics.

Patient 3: Week 1



Patient 3: Week 4



Patient 3: Week 8



80-year-old male with type 2 diabetes and neuropathy; left 1st plantar toe ulceration with suspected osteomyelitis.

Mid-treatment progression following antibiotic management.

Fully healed by August 2025; discharged back to community care with bespoke insoles.

Interpretation

Using HGF-Ag as a consistent primary dressing was associated with faster early healing without compromising longer-term outcomes. The 6-week difference may be clinically important, as early wound closure can reduce treatment burden and support progression through the DFU pathway.

Clinical relevance

A single-dressing strategy may simplify DFU care, reduce dressing switches and support consistency across teams and care settings. It should be used within comprehensive multidisciplinary management, including offloading, vascular review and infection control.

Limitations

This was a retrospective service evaluation with modest sample size and non-matched cohorts. The standard care group had greater baseline complexity, which may have influenced outcomes. Cost-effectiveness, patient experience and resource use were not formally assessed.

Conclusion

HGF-Ag used as a single-dressing strategy achieved comparable overall healing to standard adaptive dressing regimens and significantly improved early healing. This simplified approach may support consistent, effective DFU care within multidisciplinary pathways. Prospective studies are needed to confirm clinical and economic impact.