

A Successful Approach in the Management of a Diabetic Foot Ulcer and Prevention of Amputation using an Enzyme Alginogel -Flaminal®

Fiona Maguire, Advanced Podiatrist in Diabetes & High Risk, Western Health and Social Care Trust, N. Ireland

Introduction

Diabetic foot ulcers (DFU) are a major source of preventable morbidity in adults with diabetes. Consequences of foot ulcers include decline in functional status, infection, hospitalisation, lower-extremity amputation, and death⁽¹⁾. The lifetime risk of developing a diabetic foot ulcer is between 19% and 34%. Recurrence is common after initial healing; approximately 40% of patient have recurrence within 1 year after healing, almost 60% within 3 years, and 65% within 5 years⁽²⁾.

The cost of health care for ulceration and amputation in diabetes in 2014-2015 was estimated at between £837 - £962 million, approximately 1% of the National Health Service budget for England⁽³⁾.

The Patient

This case study involves a 43-year-old male with a medical history of type 2 diabetes, retinopathy, depression, smoking and previous substance abuse. He had been reluctant to engage with primary care services and was known to be non-concordant with medication resulting in poorly controlled diabetes.

The patient presented to the emergency department with a blister to the dorsum of his foot and progressing cellulitis and was subsequently admitted for intravenous antibiotic therapy. He was assessed by the vascular consultant and podiatry during admission. On discharge, he was referred onto his local Podiatry team for 3 x weekly wound reviews, with planned visits to the multidisciplinary foot team clinic (MDFT) which included continued input from the vascular consultant.

Method

On initial assessment the wound measured 6cmx6cm and was 100% soft necrotic plaque, with significant oedema and resolving cellulitis; an antimicrobial silver hydrofibre primary dressing was commenced

with a secondary absorbent dressing, secured with bandages. The following day a call was received from the patient alerting the podiatrist of excessive exudate and bandage soaking. An urgent MDFT appointment was sought, and the patient was subsequently reviewed by the vascular Consultant when sharp debridement was undertaken, revealing sloughy tissue and exposed tendons. Podiatry input continued thereafter with the primary dressing choice of hydrogel sheets.

The wound remained static for approximately 4 weeks with no evidence of any further autolytic debridement occurring so the decision to introduce Flaminal® Forte primary dressing was initiated. The Podiatrists' aim was to reduce the risk of infection, facilitate a moist wound healing environment to promote debridement and healing, preservation of the tendons, whilst minimising pain.

Flaminal® Forte provides antimicrobial protection, aids autolytic debridement and supports exudate management whilst facilitating the ideal moist wound healing conditions. Flaminal® Forte has a higher alginate concentration, indicated for moderate to high levels of exudate, than its sister product Flaminal® Hydro. Both products are often alternated in accordance with exudate management demands during the healing journey and have been notably recognised for their soothing ability.

Result

After approximately 4 weeks, due to reduced exudate levels, Flaminal® Forte was changed to Flaminal® Hydro, and a secondary silicone dressing was applied. Dressing changes continued 3 times weekly and although there was evidence of wound debridement and improvement, the vascular consultant expressed concerns regarding the functionality of the 4th and 5th toes, and amputation was considered. However, the patient declined amputation and requested to continue with conservative management.

Over the next two months, the highlighted treatment plan

continued with a significant reduction in wound size and an increase in granulation tissue growth. The wound continues to be infection free and at the time of writing, is almost healed.

Discussion

The mortality at 5 years for an individual with a diabetic foot ulcer is 2.5 times as high as the risk for an individual with diabetes who does not have a foot ulcer. The economic burden exacted on health care systems is considerable and includes direct and indirect costs, with loss of personal earnings and burden to carers. The diabetic foot is a significant contributor to the global burden of disability and reduces the quality of life. It remains a considerable public health problem⁽²⁾.

Conclusion

The Podiatrist advocated that all wound management aims were achieved and that the use of Flaminal® created optimum wound healing conditions, by managing exudate appropriately, facilitating autolytic debridement and protecting the wound from infection. The patient did not experience any pain at dressing changes, and surgical intervention which had previously been indicated, was no longer required. This has significant cost savings and more importantly prevents potential detriment to the patients quality of life.

This case study validates the efficacy of Flaminal® as a debridement agent and effective antimicrobial protective dressing. It also highlights the significance of a multidisciplinary approach to care in achieving appropriate wound management in order to accomplish the best patient outcomes.

References

1. McDermott K, Fang M, Boulton AJM, Selvin E, Hicks CW. (2023) Etiology, Epidemiology, and Disparities in the Burden of Diabetic Foot Ulcers. *Diabetes Care*. 2023 Jan 1;46(1):209-221. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9797649/> (accessed May 2024).
2. Edmonds M, Manu C, & Vas P. (2021) The current burden of diabetic foot disease. *Journal of Clinical Orthopaedics and Trauma*. (17): 88-93. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7919962/pdf/main.pdf> (accessed May 2024).
3. Kerr M, Barron E, Chadwick P, Evans T, Kong M, Rayman G, Sutton-Smith M, Todd G, Young B, Jeffcoate W.J. (2019). The cost of diabetic foot ulcers and amputations to the National Health Service in England. *Diabetic Medicine*. *Diabetes UK*. <https://onlinelibrary.wiley.com/doi/10.1111/dme.13973> (accessed May 2024).



9th Nov 23
On Presentation



15th Dec 23
After sharp debridement,
Flaminal® Forte commenced



12th Jan 24
Flaminal® Hydro
Commenced



29th Apr 24



10th May 24