

Treatment of a mildly infected diabetic foot ulcer on the heel with Biatain Silicone Ag

Dr. José Luis Lázaro-Martínez. Professor. Diabetic Foot Unit.
Universidad Complutense de Madrid. Madrid. Spain



Introduction

The patient developed a necrotic ulcer one year ago due to critical limb ischaemia of the left limb. He underwent an endovascular revascularisation eleven months ago for treating an occlusion of the three arteries below the knee, and finally an angioplasty was done at both anterior and posterior tibial artery and a stent was inserted into the posterior tibial artery.

After revascularisation, the necrotic scar was removed and the the nurse began the treatment applying a hydrogel and a foam dressing as a secondary dressing. The patient continued with the same treatment at Primary Care by his nurse, but the ulcer did not improve. After 48 weeks of no healing the patient was referred to our centre for a second opinion.

Patient



- 75-year-old, mobile, male patient living at home, cared for by his wife
- Diabetes Type 2 for 27 years, with a good metabolic control (HbA1c:7.4%), managed by oral antidiabetics (metformin) and insulin
- Hypertension treated with beta-blocker. Dyslipidemia treated with statins. No retinopathy. No renal failure
- No history of alcohol abuse. Stopped smoking 5 years ago
- Distal polyneuropathy. Both distal pulses absent
- Ankle Brachial Index (ABI): 1.50 and Toe Brachial Index (TBI): 0.60

Initial wound assessment



Size of wound	Length:	25mm
	Width:	22mm
	Depth:	10mm

- Neuroischaemic foot ulcer (Texas type IID)
- Signs of mild infection at start of treatment
- Bacterial load: 4.60 log₁₀ CFU/g

For tissue type and exudate, write findings.

For others, mark "x" for positive findings from assessment, and mark "0" if not present.

Wound Assessment

- Tissue type
- Exudate
- Infection

Wound Assessment

- Maceration
- Dehydration
- Undermining
- Thickened/rolled edges

Wound Assessment

- Maceration
- Excoriation
- Dry skin
- Hyperkeratosis
- Callus
- Eczema

Management goals

Mark "x" for all appropriate management goals

Wound Assessment

Management goals

- Remove non-viable tissue
- Manage exudate
- Manage bacterial burden
- Rehydrate wound bed
- Protect granulation/epithelial tissue

Wound Assessment

Management goals

- Manage exudate
- Rehydrate wound edge
- Remove non-viable tissue
- Protect granulation/epithelial tissue

Wound Assessment

Management goals

- Manage exudate
- Protect skin
- Rehydrate skin
- Remove non-viable tissue

Treatment

We decided to begin the management of the ulcer because TBI was adequate, systolic ankle pressure was 75 mmHg and Transcutaneous Oximetry Test (TcPO₂) was 40mmHg, allowing for healing of the ulcer. The wound was diagnosed with mild infection, confirmed by quantitative and qualitative soft tissue culture. Microbiological analyses showed an isolation of *Klebsiella pneumoniae* and *Corynebacterium*. Sharp debridement was performed to remove detached non-viable tissue and hyperkeratosis on wound edge. A removable walking cast was worn by the patient during all the treatment, allowing the heel to be free of pressure.

The patient was followed during 6 weeks in a clinical cases series for assessment of clinical and microbiological outcomes. Biatain Silicone Ag was applied twice a week. No antibiotics were prescribed.

Results

At week 3, the wound bed had improved significantly showing 80% of granulation tissue at the wound bed. Size of the ulcer decreased 60% (19x18x1mm). Bacterial load at week 3 was 3.87 log₁₀ CFU/g.

At week 6 the wound area surface had decreased 72% (15x10x0 mm) and 100% of the wound bed had good granulation tissue. Bacterial load decreased significantly to 2.30 log₁₀ CFU/g (p=0.02) compared with the bacterial load of 4.60 log₁₀ CFU/g at start of treatment.

There were no clinical signs of infection, ulcer exudation had decreased and the wound edge was healthy and hydrated. Wound edges were not undermined and hyperkeratosis was not present.



2 weeks



3 weeks



6 weeks

Reassessment of the wound at the end of case period

For tissue type and exudate, write findings.

For others, mark "x" for positive findings from assessment, and mark "0" if not present.

Wound bed Assessment:

- Tissue type: Granulated
- Exudate: Low
- Infection: 0

Wound edge Assessment:

- Maceration: 0
- Dehydration: 0
- Undermining: 0
- Thickened/rolled edges: 0

Periwound skin Assessment:

- Maceration: 0
- Excoriation: 0
- Dry skin: 0
- Hyperkeratosis: 0
- Callus: 0
- Eczema: 0

Conclusion

After 6 weeks of treatment, the ulcer improved significantly in terms of quality of wound bed and with a decrease of ulcer area of 72%. Status of the wound edge and periwound skin improved and the local infection was controlled using Biatain Silicone Ag without use of systemic antibiotics.

Bacteria load of the ulcer decreased significantly at the end of the treatment (week 6) and all clinical signs of infection disappeared. The antimicrobial dressing had a good action against pathogenic bacteria, that were eradicated at the end of the treatment.

Improvement of clinical features of the ulcer was associated with a bacteria load reduction and the absence of clinical sign of infection.

Diabetic foot ulcers with mild infection can be managed with Biatain Silicone Ag, adding to the standard of care of diabetic foot ulcer.