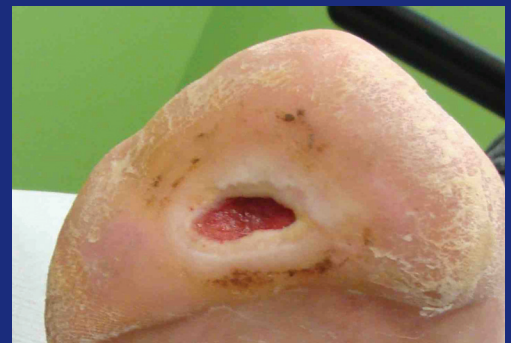


INTERNATIONAL
CASE STUDIES

USING SILVERCEL®
NON-ADHERENT: CASE STUDIES

CASE STUDIES SERIES 2012



This document has been jointly developed by Wounds International and Systagenix with financial support from Systagenix

For further information about Systagenix please visit: www.systagenix.com



Published by:

Wounds International
Enterprise House
1-2 Hatfields
London SE1 9PG, UK
Tel: + 44 (0)20 7627 1510
Fax: +44 (0)20 7627 1570
info@woundsinternational.com
www.woundsinternational.com



The case reports presented in this document are the work of the authors and do not necessarily reflect the opinions of Systagenix.

How to cite this document:

International case series: *Using SILVERCEL Non-Adherent: Case Studies*. London: Wounds International, 2012.

ABOUT THIS DOCUMENT

This document contains a series of case reports describing the use of SILVERCEL® NON-ADHERENT (Systagenix) in patients with a range of wound types. All patients were treated for a minimum of four weeks and the decision to continue with SILVERCEL® NON-ADHERENT was based on continual assessment. A formal assessment was performed weekly, although in some cases dressing changes were carried out more frequently.

All patients were assessed for:

- clinical signs of infection/critical colonisation
- pain prior to and during dressing changes using a visual analogue scale of 1-10, where 1 = no pain and 10 = worst possible pain (see below)
- signs of improvement, including granulation extent and reduction in wound size.



Photographs were taken weekly in the majority of cases to document wound progression. Relevant additional wound treatments, eg compression therapy, antibiotic therapy, analgesia, etc were reported.

The clinicians undertaking the study were also asked to rate the dressing (from highly satisfied to dissatisfied) and to record whether the dressing needed soaking prior to removal and/or the dressing left any debris in the wound.

In addition, clinicians were offered the opportunity to check the protease activity in the wound using WOUNDCEK™ Protease Status test (Systagenix).

The weekly assessment outcomes are cited for each case where:
 ↓ = reduction ↑ = increase — = no change or not present

SILVERCEL® NON-ADHERENT: case studies

Silver-containing antimicrobial dressings have been available for many years. SILVERCEL® NON-ADHERENT has been designed to eliminate the potential problems of adherence and fibre shed that are sometimes associated with some fibrous wound dressings. This document contains several case studies that describe how SILVERCEL® NON-ADHERENT has benefited patients with a range of wound types.

What is SILVERCEL® NON-ADHERENT?

SILVERCEL® NON-ADHERENT is a sterile absorbent antimicrobial dressing that is suitable for use in moderately to heavily exuding wounds that are infected or at increased risk of infection (Box 1).

SILVERCEL® NON-ADHERENT has an outer perforated film layer designed to prevent adherence of the dressing to the wound and the shedding of fibres. It also facilitates absorption of fluid. The central absorbent core of the dressing contains silver-coated X-Staticfibres®, which provide the antimicrobial action.

How does SILVERCEL® NON-ADHERENT work?

The outer layer of SILVERCEL® NON-ADHERENT comprises a non-adherent wound contact layer made from ethylene methyl acrylate (EMA) (EasyLIFT® Precision Film, Systagenix). The surface of the film has a low propensity for sticking to other surfaces¹.

The perforations in the film allow fluid to be absorbed by the central core. The core is made up of a combination of highly absorbent high G calcium alginate and carboxymethylcellulose (CMC) and silver-coated fibres. The dressing delivers antimicrobial action through the release of silver ions (Ag⁺) on contact with fluid.

Laboratory testing has indicated that the dressing is effective against many common wound pathogens, including meticillin-resistant *Staphylococcus aureus*, meticillin-resistant *Staphylococcus epidermidis* and vancomycin-resistant *Enterococcus*².

Evidence for SILVERCEL® NON-ADHERENT

SILVERCEL®, the absorbent antimicrobial core of SILVERCEL® NON-ADHERENT, has been assessed in a number of laboratory and clinical studies and has been shown to have:

- Good antimicrobial activity
- High absorbent capacity, even in the presence of blood
- Good tolerability
- Low adherence
- Suitability for a wide range of wounds³⁻⁶

The performance of SILVERCEL® NON-ADHERENT was evaluated in a case series of patients with locally infected wounds, complex medical problems and a history of recurrent wound infections⁷. The dressing was easy to apply and remove, did not cause trauma and no fibres were seen in the wound bed. Several patients experienced a reduction in wound pain during use of the dressing and, as a result, needed less analgesia.

BOX 1: INDICATIONS FOR SILVERCEL® NON-ADHERENT

Moderately to heavily exuding partial and full thickness acute and chronic wounds that are:

- infected
- at increased risk of infection

For example, pressure ulcers, venous leg ulcers, diabetic foot ulcers, donor sites, and traumatic and surgical wounds⁸

BOX 2: PRECAUTIONS AND CONTRAINDICATIONS TO THE USE OF SILVERCEL® NON-ADHERENT

- For patients having an MRI scan, remove dressing before scanning
- Do not use on patients with a known sensitivity to alginates, carboxymethylcellulose, ethylene methyl acrylate or silver⁸

Tips on using SILVERCEL® NON-ADHERENT

- Prior to application, prepare the wound bed according to local policies
- Cut or fold the dressing to the shape of the wound so that it does not overlap the wound edges
- If using on a wound with lower exudate levels, moisten the dressing with sterile saline
- Cover the dressing with an appropriate secondary dressing according to the wound type, wound position, exudate level and condition of surrounding skin
- Dressing change frequency is determined by exudate levels and condition of the wound and surrounding skin
- Dressing change is required when the absorbent capacity of the secondary dressing has been reached
- If the primary dressing appears to be dry at dressing change it may be saturated with sterile saline solution prior to removal

ABOUT SILVERCEL® NON-ADHERENT

- For further information about SILVERCEL® NON-ADHERENT please go to: www.systagenix.com/our-products/lets-protect

**INTERNATIONAL CONSENSUS
APPROPRIATE USE OF SILVER DRESSINGS
IN WOUNDS**

- To download a copy of the consensus document please go to: www.woundsinternational.com

Appropriate use of silver dressings

A recent consensus on the appropriate use of silver dressings described the main roles of silver dressings, such as SILVERCEL® NON-ADHERENT, in the management of wounds to be the reduction of bioburden and to act as an antimicrobial barrier⁹.

Whenever SILVERCEL® NON-ADHERENT is used for the treatment of increased bioburden or to prevent infection, the rationale should be fully documented in the patient's health records and a schedule for review should be specified.

Reducing bioburden

The consensus document recommends that silver dressings be used initially for a two week 'challenge' period. At the end of the two weeks, the wound, the patient and the management approach should be re-evaluated⁹.

If after two weeks, the wound has:

- improved, but there are continuing signs of infection, it may be clinically justifiable to continue use of silver dressings with regular review
- improved and there are no longer signs or symptoms of infection, the silver dressing should be discontinued
- not improved, the silver dressing should be discontinued and the patient reviewed and a dressing containing a different antimicrobial agent initiated, with or without systemic antibiotics⁹.

Prophylactic use

Silver dressings, such as SILVERCEL® NON-ADHERENT, may be used as an antimicrobial barrier in wounds at high risk of infection or re-infection. They may also be used to prevent entry of bacteria at medical device entry/exit sites, such as tracheostomy tubes (see *the consensus document for further information*⁹).

References

1. Clark R, Del Bono M, Stephens SA, et al. Development of an in-vitro model to evaluate the potential for adherence of wound healing dressings. Poster presented at: WUWHS, Texas, 2009.
2. Lansdown ABG. Silver I: Its antibacterial properties and mechanism of action. *J Wound Care* 2002; 11(4): 125-30.
3. Clark R, Del Bono M, Stephens S, et al. Simulated in-use tests to evaluate a non-adherent antimicrobial silver alginate wound dressing. Poster presented at: SAWC, Texas, 2009.
4. Teot L, Maggio G, Barrett S. The management of wounds using Silvercel hydroalginates. *Wounds UK* 2005; 1(2): 1-6.
5. Kammerlander G, Afarideh R, Baumgartner A, et al. Clinical experiences of using a silver hydroalginates dressing in Austria, Switzerland and Germany. *J Wound Care* 2008; 17(9): 384-88.
6. Di Lonardo A, Maggio G, Cupertino M, et al. The use of SILVERCEL to dress excision wounds following burns surgery. *Wounds UK* 2006; 2(4): 122-24.
7. Ivins N, Taylor AC, Harding KG. A series of case studies using a silver non adherent dressing. Poster presented at: CSSWC, Florida, 2010.
8. Clark R, Bradbury S. SILVERCEL® NON-ADHERENT Made Easy. *Wounds International* 2010; 1(5): Available from <http://www.woundsinternational.com>
9. International consensus. Appropriate use of silver dressings in wounds. An expert working group consensus. London: Wounds International, 2012.

Case 1

Background

In April 2012, Mrs S presented to the outpatient clinic with a venous ulcer of 7 months' duration on her right lower leg, resulting from a traumatic skin injury sustained when moving a chair.

Mrs S, an active and independent 90-year-old woman, underwent a left hip replacement and varicose vein surgery (7 and 40 years prior, respectively). In recent years she had reported problems with swelling in her right leg, but was not receiving medication for this. Prior to presentation, Mrs S' ulcer had been treated by community nurses with three-layer graduated compression bandaging and various antimicrobial treatments — most recently, silver sulfadiazine (Flamazine™, Smith & Nephew).

Treatment

The venous ulcer was located on the lateral gaiter aspect of the right leg with a surface area of approximately 8.5cm². On assessment, the wound appeared heavily colonised but uninfected, with localised erythema, exudate and pain. A WOUNDCHEK™ Protease Status test showed low protease activity. Clinical priorities for wound management were to reduce the wound bioburden and minimise pain at dressing change. SILVERCEL® NON-ADHERENT was chosen for use in conjunction with compression bandaging.

Week 1: Signs of local infection were reduced including no malodour and comparatively less exudate and erythema than seen on initial presentation. The wound bed showed evidence of 25-50% granulation tissue and a 5cm² reduction in wound size (from 8.5cm² to 3.5cm²). The dressing was removed easily from the wound bed although the patient reported moderate pain during the dressing change, recorded as 5 on a visual analogue scale (VAS) of 1-10. On dressing removal the wound bed was clean. Protease activity remained low.

Week 2: SILVERCEL® NON-ADHERENT was reapplied for a further week. On reassessment, Mrs S reported that her pain at dressing change was slightly reduced (from 5 to 4 using the VAS). Clinically, signs of infection were minimal with less exudate and erythema and no malodour was noted. Granulation tissue had increased to 50-75% of the wound bed and a further WOUNDCHEK™ Protease Status test showed no elevated protease activity (EPA).

Weeks 3-4: Improvements in the wound continued over the next 2 weeks of treatment with once weekly assessments showing further reductions in pain, exudate levels, erythema distribution and ulcer size. At week 4, the final case study assessment, Mrs S reported no pain on dressing change. The wound size was 1.5cm² (a decrease of 7.5cm² in total) and there were no signs of infection.

Outcome

SILVERCEL® NON-ADHERENT was found to be easy to use, with clinicians reporting a high level of satisfaction overall. A reduction in exudate, erythema and pain indicated that the wound bed bioburden had diminished. Granulation tissue had increased and there was a reduction in wound size. Most importantly from the patient's perspective, pain at dressing change was eliminated.

By: Jane Megson, Wound Care Research Nurse, Bradford Royal Infirmary, Bradford, UK



Baseline



Week 2



Week 4

Figures 1-3: The ulcer reduced in size over the four-week case study period with evidence of new granulation tissue and an overall improved colour.

Assessment	Week 1	Week 2	Week 3	Week 4
Signs and symptoms of infection	↓	↓	↓	none
Pain before dressing change (VAS 1-10)	1	3	1	1
Pain at dressing change (VAS 1-10)	5	4	3	1
Protease activity	Low	Low	Low	Low
Wound reduction	↓	↓	↓	83%

Case 2

Background

In May 2012, Mr M presented with a wound on his left foot following amputation of the second toe. Surgery had been required two weeks previously to remove bone fragments. The wound had been present since July 2011, when Mr M had been unaware of a screw in his shoe that had caused skin breakdown.

Mr M, a 54-year-old man, had insulin-dependent diabetes, hypertension and Barrett's oesophagus. The original wound had been treated with cadexomer iodine paste (Iodoflex®, Smith & Nephew), a Hydrofiber® dressing (Aquacel®, ConvaTec) and a silver Hydrofiber® dressing (Aquacel® Ag, ConvaTec). Mr M was not receiving systemic antibiotics.

Treatment

The wound on the left foot measured 30mm by 20mm and was 20mm deep. It appeared to be infected, was malodorous and exuding heavily. The edges of the wound were macerated. A WOUNDCHEK™ Protease Status test showed low protease activity. Because of the depth of the wound, SILVERCEL® NON-ADHERENT ribbon was chosen to treat the infection and manage the exudate.

Week 1: The wound was reassessed after three days. There was no pain on dressing removal, although the patient reported a pain score of 4 (on a VAS of 1-10) before the dressing change. The wound had reduced in size to 25mm x 15mm x 30mm with evidence of 50-75% granulation tissue. Malodour was still present but less noticeable and the wound continued to exude heavily. SILVERCEL® NON-ADHERENT ribbon was reapplied and reviewed three times per week.

Week 2: On reassessment after a further week, the wound was no longer odorous and other signs of infection were reduced. The wound was exuding less and there was no erythema. The wound had decreased in size and was now 23mm by 12mm, and 12mm deep. It was decided to continue with thrice weekly dressing changes and to reapply SILVERCEL® NON-ADHERENT ribbon.

Week 3: The patient reported less pain prior to dressing change and no pain on dressing removal. The wound had continued to improve with further reductions in the amount of exudate, no erythema and a clean wound bed. The wound measured 20mm by 10mm and was only 2mm deep. A flat SILVERCEL® NON-ADHERENT dressing was applied and the patient was reviewed in three days.

Week 4: The patient was now pain free before and during dressing removal, and the wound was considerably reduced in size to 12mm by 8mm and had no depth. There was some evidence of overgranulation and treatment was changed to a povidone iodine dressing (INADINE®, Systagenix) with silver nitrate pencil applied to the areas of overgranulation.

Outcome

Clinicians commented that the SILVERCEL® NON-ADHERENT ribbon and dressing were easy to use. Over the case study period, the size and depth of the wound decreased considerably in size and the reduction in malodour and exudate volume indicated that bioburden was much reduced.

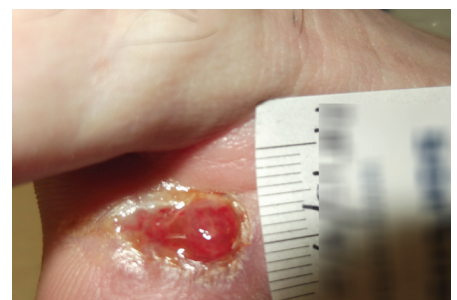
By: Helen Strapp, Tissue Viability Clinical Nurse Specialist, AMNCH Tallaght Hospital, Dublin, Ireland



Baseline



Week 1



Week 4

Figures 1-3: The size and depth of the ulcer reduced over the case study period with a reduction in odour and exudate.

Assessment	Week 1	Week 2	Week 3	Week 4
Signs and symptoms of infection	↓	↓	↓	none
Pain before dressing change (VAS 1-10)	4	3	2	1
Pain at dressing change (VAS 1-10)	1	1	2	1
Protease activity	n/a	n/a	n/a	n/a
Wound reduction	↓	↓	↓	84%

Case 3

Background

In May 2012, Mr N presented to the clinic with a diabetic foot ulcer of 3 years' duration, which had occurred spontaneously while walking.

Mr N, a 47-year-old man, had a 6-year history of type 2 diabetes. He had undergone transmetatarsal amputation of the right foot in 2006. The present ulcer was located on the third metatarsal of the right foot below the prior amputation and measured 2.6cm². Mr N had been treated previously with an alginate dressing (ALGOSTERIL®, Systagenix), a topical antimicrobial (ACTISORB® Silver 220, Systagenix) and protease modulating dressings, as well as a Walker-type offloading device. Mr N was receiving systemic antibiotics.

Treatment

The wound on the right foot did not appear to be infected, although it was thought to be heavily colonised. It was malodorous, highly exuding (exudate was green in colour) and the wound edges were macerated. A WOUNDCHEK™ Protease Status test showed low protease activity. SILVERCEL® NON-ADHERENT was initiated, with thrice weekly dressing changes to manage the exudate volume.

Week 1: The patient did not experience pain before or during dressing changes and did not require any analgesics. It was not necessary to soak the dressing prior to removal and debris did not remain on the wound bed after removal. Signs of infection were reduced with no malodour, no erythema and the disappearance of the greenish colour of the exudate. The wound bed showed evidence of 50-75% granulation tissue and the wound had reduced in size from 2.6cm² to 2.4cm². A further WOUNDCHEK™ Protease Status test showed no elevated protease activity (EPA).

Week 2: SILVERCEL® NON-ADHERENT was reapplied for a further week. Signs of infection were reduced, with a small reduction in the volume of exudate, no malodour and the wound reduced in size to 1.5cm² with 50-75% granulation tissue of the wound bed. Protease activity remained low.

Weeks 3-4: Signs of infection were reduced further with the wound bed showing evidence of 50-75% granulation at week 3 and increasing to 100% at week 4. The wound reduced to 1.3cm² at week 3 with no further improvement at week 4. The exudate levels remained moderate to high and there was maceration to the periwound skin, which was managed using barrier products. A WOUNDCHEK™ Protease Status test continued to show no EPA.

Outcome

SILVERCEL® NON-ADHERENT was found to be easy to use with clinicians reporting a high level of satisfaction with the dressing overall. Odour and erythema were quickly eliminated indicating a reduction in wound bioburden. The patient did not experience pain at dressing change. The patient continued to receive offloading throughout the study period.

By: Esther García Morales, Podiatrist, Diabetic Foot Unit, University Clinic of Podiatry, The Complutense University of Madrid, Madrid, Spain



Baseline



Week 2



Week 4

Figures 1-3: The ulcer reduced in size over the four-week case study period with elimination of malodour and erythema by week 1.

Assessment	Week 1	Week 2	Week 3	Week 4
Signs and symptoms of infection	↓	↓	↓	↓
Pain before dressing change (VAS 1-10)	1	1	1	1
Pain at dressing change (VAS 1-10)	1	1	1	1
Protease activity	Low	Low	Low	Low
Wound reduction	↓	↓	↓	50%

Case 4

Background

Mr G, a 59-year-old man with type 2 diabetes, presented at the podiatry clinic with ulceration to the right foot. The wound had been sustained when Mr G was walking without his orthotic device at a social event. Initially the area had blistered and subsequently the skin broke down. The wound had been present for 3 weeks and had been treated over that period with an absorbent foam dressing containing silver sulfadiazine (Allevyn™, Smith & Nephew). Mr G was also on oral antidiabetes medications.

Treatment

The wound was located on the fifth metatarsal head, measured 20mm x 15mm and extended to bone. The patient had had intravenous antibiotics for eight days which was then changed to oral antibiotics. On examination the wound appeared to be infected. Swab results indicated a Group B *Streptococcus* was the causative agent. SILVERCEL® NON-ADHERENT was applied to the wound and left in place for three days. Dressing change was carried out by the district nurse between clinic visits.

Week 1: Mr G returned to the clinic one week later. The dressing did not require soaking prior to removal and no debris was left on the wound bed. The patient did not complain of pain. Clinical examination indicated that the erythema was subsiding and the volume of exudate was reducing. There was evidence of 0-25% granulation tissue. There was slight malodour, but overall the wound was showing signs of improvement. The patient continued on antibiotic therapy and SILVERCEL® NON-ADHERENT as the primary dressing.

Week 2: The patient had some pain prior to dressing change and on dressing removal (3 on a VAS of 1-10), but did not wish to have any analgesia. The dressing was removed easily without soaking and did not leave debris on the wound bed. The wound had reduced in size (15mm x 14mm). Exudate levels were reduced and there was no malodour. The wound bed had 25-50% granulation tissue. SILVERCEL® NON-ADHERENT was reapplied.

Week 3: The patient continued to improve and there was no pain prior to or on dressing removal. There was a marked improvement in the wound bed with 25-50% granulation tissue present. A WOUNDCEK™ Protease Status test indicated low protease activity. SILVERCEL® NON-ADHERENT was reapplied.

Week 4: There was a marked improvement in the wound, with no malodour, a reduction in exudate volume and the wound had reduced in size (10mm x 10mm). The wound bed showed 100% granulation tissue coverage. Protease activity continued to be low.

Outcome

An inter-professional approach involving podiatry and nursing staff, good local wound care and antibiotic therapy were key in progressing the wound to healing in a timely fashion. Odour was quickly eliminated, exudate levels reduced and the wound bed improved. Throughout the treatment period the staff graded SILVERCEL® NON-ADHERENT as highly satisfactory in terms of ease of use. Mr G was happy with the outcome and assured staff he would wear his orthotic appliance at all times when weight bearing.

By: Samantha Haycocks, Advanced Podiatrist, Salford Royal (NHS) Foundation, Salford, UK



Week 1



Week 3



Week 4

Figures 1-3: The ulcer reduced in size over the four-week case study period with marked improvement in the wound bed with increased granulation tissue and reduction in exudate levels and malodour.

Assessment	Week 1	Week 2	Week 3	Week 4
Signs and symptoms of infection	↓	↓	↓	↓
Pain before dressing change (VAS 1-10)	1	3	1	1
Pain at dressing change (VAS 1-10)	1	3	1	1
Protease activity	Low	Low	Low	Low
Wound reduction	↓	↓	↓	34%

Case 5

Background

Mr A, a 73-year-old man, presented to the outpatient clinic in May 2012 with a venous leg ulcer of 4 years' duration. The ulcer was located over the pre-tibial aspect of the right lower leg and measured approximately 14.5cm². The patient's history suggested that the ulcer had originally developed following an episode of cellulitis and skin breakdown. Various treatments had been tried with limited success. Four-layer compression bandaging had been in use throughout. The patient was also receiving pregabalin (Lyrica®, Pfizer) for neuropathic pain.

Treatment

On examination the ulcer was assessed to be heavily colonised although not clinically infected. A WOUNDCHek™ Protease Status test revealed low protease activity. SILVERCEL® NON-ADHERENT was selected to reduce the wound bioburden and four-layer compression bandaging was applied to promote venous return.

Week 1: Initially, the patient reported a low level of pain (2 on a VAS of 1-10). However, this increased at dressing change to 8 and oral analgesia was required despite soaking the dressing prior to removal (this was done to help alleviate the pain, the dressing did not adhere to the wound bed). It was noted that a second wound on the leg may have also contributed to the patient's pain.

On assessment of the ulcer and surrounding area later that week, it was noted that signs of critical colonisation, including exudate levels, had diminished and the wound size had decreased from 14.5cm² to 12cm². Protease activity remained low and granulation tissue was evident in 0-25% of the wound bed. SILVERCEL® NON-ADHERENT was continued for a further week.

Week 2: The patient reported a pain score of 3 increasing to 9 on dressing removal, despite oral analgesia and soaking the dressing pre-removal. On inspection the ulcer was free of debris and signs of critical colonisation remained diminished with a reduction in exudate levels. The wound bed appeared healthy with approximately 50-75% granulation tissue coverage and the wound size had decreased again (10.5cm²). Protease activity remained low. Compression bandaging layers were reduced from four to three to reduce pain.

Week 3: Mr A's pain score reduced from 8 to 3 at dressing change, a considerable improvement on previous weeks. No analgesia was required and the dressing was removed easily without pre-soaking. The ulcer size was slightly reduced (10cm²) and the coverage of granulation tissue in the ulcer bed remained constant at 50-75%. No signs of infection were observed.

Week 4: Dressing change pain remained comparatively low (VAS of 2) and the wound dimensions had decreased to 9cm². Granulation tissue coverage was between 50-75% and protease activity remained low. No signs of infection or critical colonisation were noted.

Outcome

Quality of life can be significantly affected by chronic wounds. There was a good reduction in Mr A's pain levels at dressing change and the wound showed no signs of critical colonisation or infection by week 4.

By: Jane Megson, Wound Care Research Nurse, Bradford Royal Infirmary, Bradford, UK



Baseline



Week 2



Week 4

Figures 1-3: The ulcer reduced in size over the four-week case study period with a reduction in pain during dressing changes and an increase in granulation tissue.

Assessment	Week 1	Week 2	Week 3	Week 4
Signs and symptoms of infection	↓	↓	None	None
Pain before dressing change (VAS 1-10)	2	3	1	2
Pain at dressing change (VAS 1-10)	8	9	3	2
Protease activity	Low	Low	Low	Low
Wound reduction	↓	↓	↓	38%

Case 6

Background

In May 2012, Mr S presented with a foot ulcer. He had a pressure relieving device but it had become worn resulting in trauma to the right toe. The wound had been present for 10 months. Mr S, a 40-year-old man with type 2 diabetes, had peripheral neuropathy, hypertension and venous insufficiency. He was on antidiabetes medication and had been fitted with bespoke shoes with a rocker sole to relieve pressure from the toe.

Treatment

The ulcer was located on the plantar aspect of the first right toe and measured 16mm x 16mm. On examination there were signs of infection, localised cellulitis, malodour and moderate amounts of exudate. He also presented with cellulitis on the left foot extending to the lower leg. Mr S commenced oral antibiotic therapy for 10 days. The wound was dressed with SILVERCEL® NON-ADHERENT ribbon. The patient undertook dressing changes himself on alternate days.

Week 1: The patient reported a pain score of 3 (measured on a VAS of 1-10) prior to dressing change. A pain score of 4 was also recorded on dressing removal, but the patient indicated that he did not require analgesia to control the pain. The dressing was easy to remove and did not require soaking. On removal no debris remained in the wound bed. Although there was no decrease in wound size and some malodour was still present, signs of infection decreased and the wound bed contained 50-75% granulation tissue. There was an increased level of haemoserous exudate and it was decided to change the dressing daily. A WOUNDCEK™ Protease Status test showed low protease activity.

Week 2: There was no pain prior to or during dressing change. Wound debridement was carried out. There were reduced signs of infection and there was evidence of 50-75% granulation tissue, with slight maceration to the periwound skin. Slight malodour was still present, the wound had reduced in size (15mm x 15mm).

Week 3: Exudate levels had reduced and there was no malodour; there was slight localised erythema. Due to the general improvement, wound dressings were reduced to alternate days. Treatment with SILVERCEL® NON-ADHERENT was continued.

Week 4: Wound debridement was carried out resulting in an increase in wound size (20mm x 17mm). No erythema, heat or swelling were noted and the wound bed had 50-75% granulation tissue. The general improvement in the wound meant Mr S was able to be more mobile. This was important for general wellbeing but it did lead to an increase in exudate levels. The wound dressing was changed at this time to a superabsorbent dressing to manage the higher exudate levels. Protease activity remained low.

Outcome

During the course of treatment, the clinical staff rated the dressing as satisfactory or highly satisfactory in terms of ease of use. Debridement of non-viable tissue and topical antimicrobial therapy avoided a further course of antibiotics in this instance. The patient was fitted with new pressure relieving footwear and he was able to resume his normal activities.

By: Paul Chadwick, Principal Podiatrist, Salford Royal (NHS) Foundation, Salford, UK



Baseline



Week 2



Week 4

Figures 1-3: The general improvement in the wound over the four-week case study period meant that the patient was able to be more mobile.

Assessment	Week 1	Week 2	Week 3	Week 4
Signs and symptoms of infection	↓	↓	↓	↓
Pain before dressing change (VAS 1-10)	3	1	1	1
Pain at dressing change (VAS 1-10)	4	1	1	1
Protease activity	Low	Low	Low	Low
Wound reduction	—	↓	—	↑

Case 7

Background

Mr K, a 63-year-old man, presented to the Accident and Emergency Department with a post-surgical wound on his left foot of 5 months' duration. He gave a history of diabetes and peripheral vascular disease for which he was on a range of medications. The wound started as a blister to the third toe, due to poorly fitting shoes, which became infected then necrotic. Due to the poor circulation to his limb and the risk of spreading infection, amputation of the toe was undertaken, but the surgical wound had failed to heal.

Treatment

On referral to the clinic one week later, the wound at the site of amputation measured 30mm x 15mm x 2mm. It showed signs of clinical infection and maceration of the periwound skin. Previous treatments included Hydrofiber® dressings (Aquacel®/Aquacel® Ag, ConvaTec). The patient was not currently receiving antibiotics, although oral antibiotics had been prescribed previously. A WOUNDCHek™ Protease Status test indicated no EPA. SILVERCEL® NON-ADHERENT ribbon was applied to the wound and the patient was given an appointment to return to clinic four days later.

Week 1: On return to the clinic the wound dressing was removed. The dressing came off easily and Mr K reported no pain either prior to or on removal. The wound bed was clean and while the wound had not decreased in size, there was no malodour and clinical signs of infection had subsided. The wound bed was composed of 50-75% granulation tissue. SILVERCEL® NON-ADHERENT was applied with gauze dressings on top. Dressings were changed on alternate days. Protease activity remained low.

Week 2: Mr K reported slight pain (score of 2 on VAS) prior to dressing change and on dressing removal, but did not require analgesia. The wound dressing was easily removed. The wound bed was clean, there was no malodour and signs of infection were continuing to subside. There was a small amount of serous exudate and slight erythema, but the wound bed was in good condition with 50%-75% granulation tissue. The dressing regimen was maintained.

Week 3-4: The wound had reduced slightly in size; by the end of week 4 it measured 25mm x 15mm x 2mm. There was some maceration to the skin surrounding the wound and as the wound no longer appeared infected, the primary dressing was changed to Aquacel® to manage the exudate.

Outcome

The nurses who cared for Mr K found SILVERCEL® NON-ADHERENT to be easy to use and rated it highly satisfactory in terms of application, removal and a lack of debris remaining on the wound bed on dressing removal. Wounds in patients with peripheral vascular disease and diabetes are challenging to manage and this case was no exception. However, with good assessment and care based on the best available evidence, Mr K's wound infection subsided and there was a reduction in wound size. Properly fitted footwear supplied by orthotics departments is essential in such cases to avoid further trauma.

By: Helen Strapp, Tissue Viability Clinical Nurse Specialist, AMNCH Tallaght Hospital, Dublin, Ireland



Baseline



Week 2



Week 4

Figures 1-3: The ulcer reduced in size over the four-week case study period with evidence of new granulation tissue and an overall improved colour.

Assessment	Week 1	Week 2	Week 3	Week 4
Signs and symptoms of infection	↓	↓	None	None
Pain before dressing change (VAS 1-10)	1	2	2	2
Pain at dressing change (VAS 1-10)	1	2	2	2
Protease activity	Low	Low	Low	Low
Wound reduction	—	↓	↓	17%

Case 8

Background

Mr S, a 74-year-old man, presented in May 2012 with a venous leg ulcer located over the left medial malleolus that measured 4cm². The ulcer had started with a gradual breakdown of the skin 10 years previously; various treatments had been tried, including larval therapy and a topical silver dressing (Acticoat™ 7, Smith & Nephew). At presentation Mr S' ulcer was managed with a two-layer compression hosiery system.

Treatment

The ulcer was critically colonised, heavily exuding and malodorous with evidence of 25-50% granulation tissue at the wound bed. A WOUNDCHEK™ Protease Status test recorded low protease activity. SILVERCEL® NON-ADHERENT was selected to reduce bioburden. This was used in conjunction with two-layer compression hosiery to enhance venous return.

Week 1: Exudate levels remained high and some malodour was noted. Erythema had reduced and the ulcer area had decreased from 4cm² to 3.5cm². The ulcer bed comprised 25-50% granulation tissue. Prior to dressing removal Mr S reported a pain score of 4 (on a VAS of 1-10), but did not wish to receive analgesia to control the pain. The dressing was removed easily and the pain score fell to 1 (no pain).

Week 2: There was no malodour and erythema was further reduced. Protease activity remained low and granulation coverage remained at 25-50% of the wound bed. The wound size remained constant (3.5cm²) and pain levels were again recorded as 4 on the VAS reducing to 1 on dressing removal with no requirement for analgesia. The dressing was removed easily with no debris left in the wound. SILVERCEL® NON-ADHERENT was reapplied for a further week.

Week 3: The ulcer continued to improve, although exudate levels remained high. Granulation tissue remained at 25-50% of the wound bed. Protease activity continued to be low according to a WOUNDCHEK™ Protease Status test. The wound reduced in size from 3.5cm² to 3cm². The pre-dressing change VAS score was also slightly lower at 3; the VAS on dressing removal was consistent with other weeks at 1 (no pain). The dressing was removed easily and there was no debris left in the wound bed. SILVERCEL® NON-ADHERENT was reapplied.

Week 4: Ulcer size remained constant at 3cm² and Mr S reported no pain pre- and during dressing change. The wound bed appeared improved; while exudate levels remained high there were no other signs of local infection.

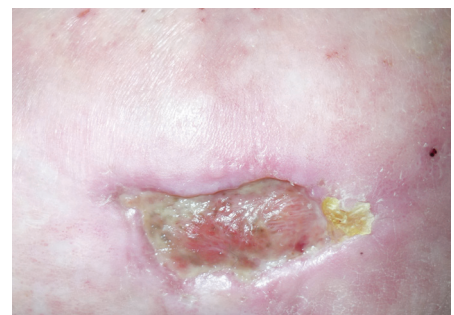
Outcome

SILVERCEL® NON-ADHERENT was found to be easy to use. There was a reduction in wound bioburden over the four weeks of treatment and the patient's pain score diminished considerably. Used in conjunction with two-layer compression hosiery, the dressing was effective in achieving a reduction of wound size, dressing change pain and erythema.

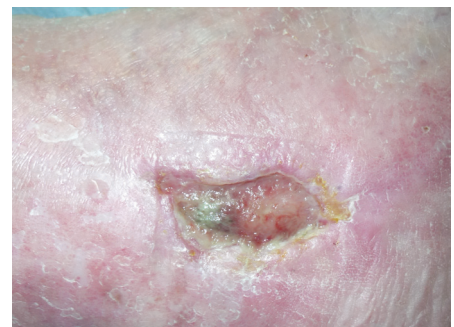
By: Jane Megson, Wound Care Research Nurse, Bradford Royal Infirmary, Bradford, UK



Baseline



Week 2



Week 4

Figures 1-3: The ulcer reduced in size over the four-week case study period with a reduction in erythema and pain.

Assessment	Week 1	Week 2	Week 3	Week 4
Signs and symptoms of infection	↓	↓	↓	↓
Pain before dressing change (VAS 1-10)	4	4	3	1
Pain at dressing change (VAS 1-10)	1	1	1	1
Protease activity	Low	Low	Low	Low
Wound reduction	↓	—	↓	25%

Case 9

Background:

In May 2012, Mrs G, a 42-year-old woman with type 1 diabetes of 35 years' duration, presented with a neuropathic foot ulcer of 24 months' duration located on the right plantar mid-foot. The ulcer probed to bone and surgical debridement to remove devitalised tissue and bone was undertaken.

Mrs G had a history of supracondylar traumatic amputation of the lower left limb, hypercholesterolemia, retinopathy and led a sedentary lifestyle. She was allergic to quinolone antibacterial agents and was taking a range of medications.

Treatment

The ulcer had a surface area of 4.2cm². The wound did not appear to be infected, although it was heavily colonised and had low levels of serous exudate. Mrs G had previously received topical negative pressure therapy to treat the ulcer (therapy duration, 7 days), oral antibiotics (oral co-amoxiclav, 2 weeks) and pressure offloading. A WOUNDCHEK™ Protease Status test showed no EPA. SILVERCEL® NON-ADHERENT was initiated with thrice weekly dressing changes.

Week 1: Signs of local infection were reduced, with no malodour, light exudate levels and evidence of 50-75% granulation coverage of the wound bed. There were areas of slough that were not fixed to the wound bed and were easily removed. There was also evidence of periwound hyperkeratosis. The wound size had reduced from 4.2cm² to 2.6cm².

The patient did not experience pain before or during dressing changes and did not require analgesia. It was not necessary to soak the dressing prior to removal and no debris remained in the wound bed after removal. A WOUNDCHEK™ Protease Status test showed low levels of protease activity.

Weeks 2-4: SILVERCEL® NON-ADHERENT was reapplied for a further 3 weeks and was changed three times a week. Signs of local infection continued to reduce, with no malodour, light exudate levels and evidence of 50-75% granulation tissue. As previously noted, there were areas of slough that were not fixed to the wound bed and periwound hyperkeratosis.

The wound size showed a further reduction to 1.8cm² at week 2, 0.9cm² at week 3 and 0.7cm² at week 4. Protease activity continued to be low following a further WOUNDCHEK™ Protease Status test.

Outcome

SILVERCEL® NON-ADHERENT was found to be easy to use, with clinicians reporting a high level of satisfaction with the dressing overall. The signs and symptoms of infection reduced and there was a reduction in wound size. The patient did not experience pain at dressing change.

By: Esther García Morales, Podiatrist, Diabetic Foot Unit, University Clinic of Podiatry, The Complutense University of Madrid, Madrid, Spain



Baseline



Week 2



Week 4

Figures 1-3: The ulcer reduced in size over the four-week case study period with a reduction in the signs and symptoms of infection.

Assessment	Week 1	Week 2	Week 3	Week 4
Signs and symptoms of infection	↓	↓	↓	↓
Pain before dressing change (VAS 1-10)	1	1	1	1
Pain at dressing change (VAS 1-10)	1	1	1	1
Protease activity	Low	Low	Low	Low
Wound reduction	↓	↓	↓	83%

Case 10

Background

Mr M, a 68-year-old man with a long-standing history of leg ulcers, presented with a wound on the lateral aspect of his lower right leg which had occurred spontaneously 8 months previously. During this time several advanced wound dressings had been applied along with toe to knee compression. The leg was eczematous, indicating venous hypertension. He had no significant past medical history and was not taking any medication.

Treatment

The wound measured 2.5cm x 1.8cm x 3mm (depth). The wound did not appear infected but was considered to have been critically colonised for 3 months based on clinical signs. The surrounding skin was hyperkeratotic further indicating venous incompetence. A WOUNDCHEK™ Protease Status test indicated elevated protease activity (EPA). The wound was dressed with a SILVERCEL® NON-ADHERENT 11cm x 11cm dressing. Emollient was applied to hydrate the hyperkeratotic areas of the leg and an inelastic two-layer compression bandage was applied toe to knee. The dressing was to be changed every 3 days in clinic.

Week 1: Mr M reported slight pain prior to dressing removal. The dressing was removed easily and did not cause the patient any pain. A small amount of debris remained on the wound. The wound length and breadth remained the same but the depth had decreased (2.5cm x 1.8cm x 2.5mm). Granulation tissue was evident (25-50%), exudate levels had decreased and there was no odour. The wound was tested using WOUNDCHEK™ Protease Status test and was shown to have elevated protease activity (EPA). The wound was re-dressed with a SILVERCEL® NON-ADHERENT 11cm x 11cm dressing. Emollient was reapplied and inelastic two-layer compression continued. The management plan remained unchanged.

Week 2: No pain was reported before or during dressing removal. Only a small amount of debris remained on the wound. The wound's size had decreased (2.0cm x 1.5cm x 2mm) and there was 50% to 75% granulation tissue. All other clinical signs indicated that the wound was improving and a WOUNDCHEK™ Protease Status test was not completed. Treatment remained the same.

Week 3: The wound edges showed good signs of epithelialisation. Wound size was 1.3cm x 0.9cm x 1.5mm. The patient reported no pain during the visit. Protease activity was low. Wound management remained the same.

Week 4: All clinical signs indicated the wound was healing. Healthy granulation tissue was seen on the wound bed and the surrounding skin had improved.

Outcome

The clinical staff rated the dressing as satisfactory or highly satisfactory in terms of ease of use. The wound had been critically colonised for a prolonged period of time, which led to the decision to renew the dressing every 3 days. This intensive treatment reduced bacteria and protease activity, and subsequently the wound progressed towards healing.

By: Professor Marco Romanelli, Consultant Dermatologist, University of Pisa, Italy



Baseline



Week 3



Week 4

Figures 1-3: The wound size decreased over the study period and the condition of the surrounding skin improved.

Assessment	Week 1	Week 2	Week 3	Week 4
Signs and symptoms of infection	↓	↓	↓	↓
Pain before dressing change (VAS 1-10)	2	None	None	None
Pain at dressing change (VAS 1-10)	1	None	None	None
Protease activity	EPA	n/a	Low	n/a
Wound reduction	↓	↓	↓	>77%



A Wounds International publication
www.woundsinternational.com