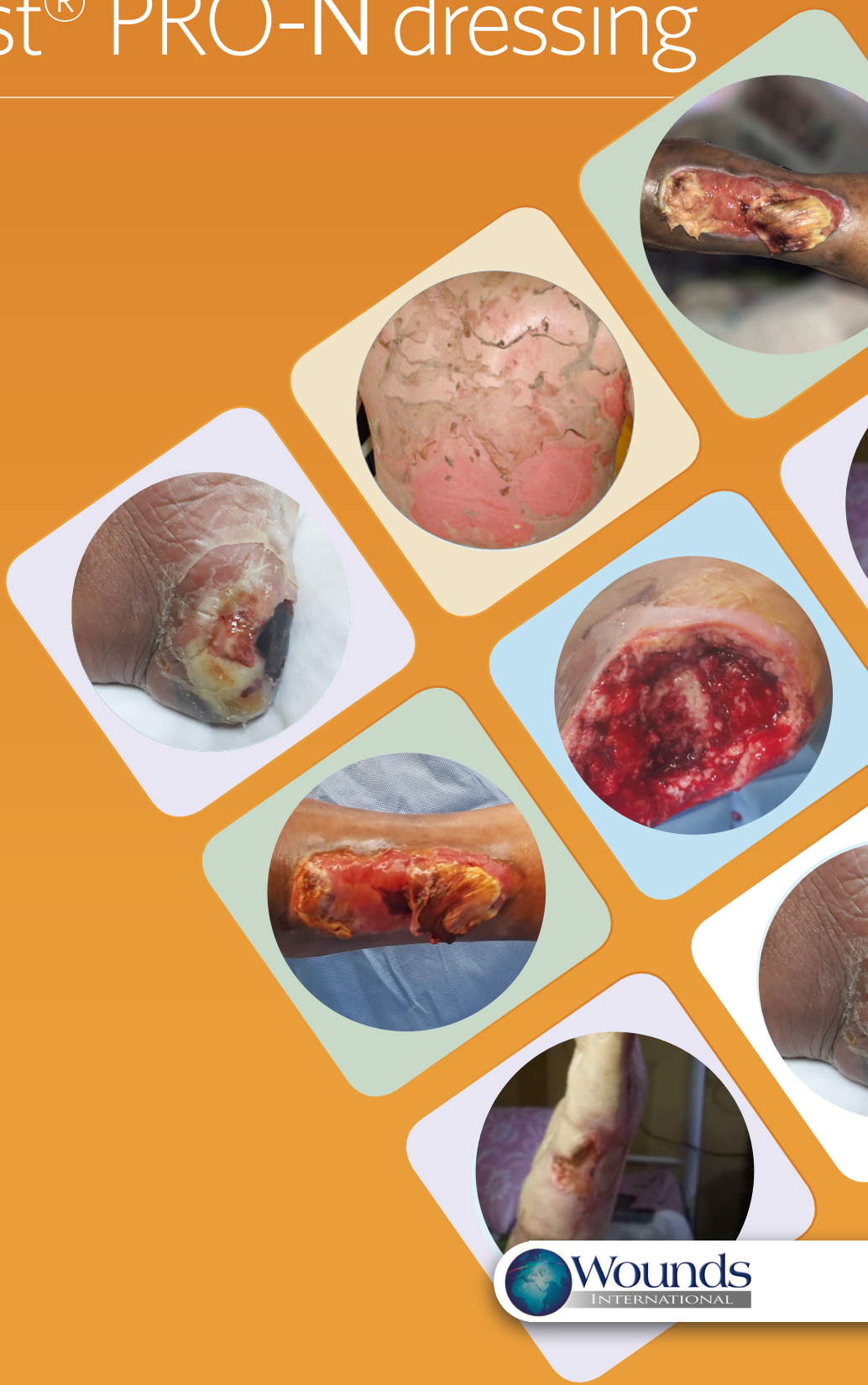
INTERNATIONAL
CASE STUDIES

Retrospective case studies evaluation:

BETAplast® PRO-N dressing

CASE STUDIES SERIES 2019



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BETAplast® PRO-N is marketed as BETAFOAM® in Korea.

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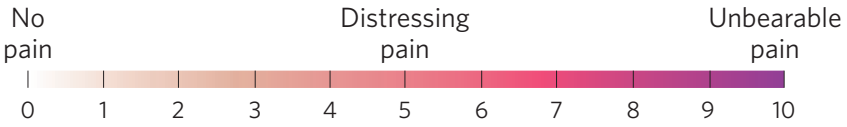
ABOUT THIS CASE SERIES EVALUATION

This document contains a series of case reports describing the use of BETAplast® PRO-N Dressing in patients with a range of chronic and acute wounds of varying aetiology and severity.

Each case study was carried out for a period of 1 month, or longer, with regular assessments. A photographic record of the wound was also taken at each review to document progress.

All patients were assessed for:

- improvement or deterioration to the wound
- change in wound size
- condition of the wound bed and surrounding skin
- signs and symptoms of infection
- wound exudate levels
- pain.



Wound pain was assessed between dressing changes and during dressing removal using a visual analogue scale (VAS) where 0 = no pain and 10 = unbearable pain.
The clinicians undertaking the study were asked to rate how satisfied they were with the use of BETAplast® PRO-N (from highly satisfied, satisfied, neutral or not satisfied), and to comment on its ease of use, conformability and adherent properties.

INTRODUCTION

Preventing and reducing the risk of infection remains one of the most challenging aspects of wound management. Infection gives rise to many complications, with a knock-on effect on patient outcomes and quality of life, as well as on healthcare resources and economics. Wounds that are infected are more painful and slower to heal, greatly impacting on patient comfort and slowing return to normal, daily activities. (International Wound Infection Institute [IWII], 2016)

Signs of localised infection include pain, heat, swelling, erythema, and loss of function. In surgical wounds, pyrexia may appear 5 to 7 days following surgery. There may be evidence of delayed or stalled healing, abscess or malodour (World Union of Wound Healing Societies [WUWHS], 2008). A spreading or systemic infection will display the same characteristics as local infection, but may also show extension of erythema, lymphangitis, crepitus in the soft tissues, or wound dehiscence (WUWHS, 2008).

Failure to achieve wound healing is associated with profound morbidity, impaired quality of life, and significant economic costs; infection leads to prolonged hospital-based treatment and requires costly interventions to move wounds towards healing (Fillius and Gyssens, 2002). Reducing risk of infection is therefore a primary aim in the treatment of many complex wounds.

Polyurethane foam dressings utilise a moist wound-healing approach and can be impregnated with antiseptic substances for use in complicated, infected, or anticipated infected wounds. For example, silver nitrate and silver sulfadiazine are commonly used as a topical antimicrobial agent for controlling colonisation. However, there are concerns around side effects and in some cases, silver has been linked with bacterial resistance to antibiotics (Lee and Song, 2017) so other substances are being explored as alternatives.

Iodine is an effective antimicrobial that has been used clinically in the treatment of wounds for more than 170 years. Iodine for wound care is available in two main forms: povidone iodine (PVP-I) and cadexomer iodine. PVP-I has long-been used as an antimicrobial and is available in different formulations, including solution, cream, ointment, dry powder spray and wound dressings (Sibbald et al, 2011).

WHAT IS BETAplast® PRO-N DRESSING?

BETAplast® PRO-N dressing is a polyurethane foam dressing impregnated with 3% PVP-I, which has powerful antimicrobial properties.

As well as containing this broad-spectrum antiseptic, BETAplast® PRO-N has a protective outer layer to further help to prevent infection. SMARTPORE Technology® used in the non-adherent wound contact layer reduce pain at dressing changes and faster healing time (Lee et al, 2016) (Figure 1).

Early *in vitro* studies assessing the physical properties, antimicrobial activity, and cytotoxicity of BETAplast® PRO-N has shown that the dressing may result not only in desirable rapid regulation of exudation but also antimicrobial activity with minimal cytotoxicity to host cells that are key requirements for wound healing (Jung et al, 2017).

Animal model tests compared BETAplast® PRO-N to several silver-containing foam dressings plus gauze (as a control) to evaluate its efficacy in terms of wound healing and safety on full-thickness skin wounds. BETAplast® PRO-N was shown to be effective in wound healing and significantly better in terms of reducing wound size, re-epithelialisation, angiogenesis and collagen deposition (Lee and Song, 2018).

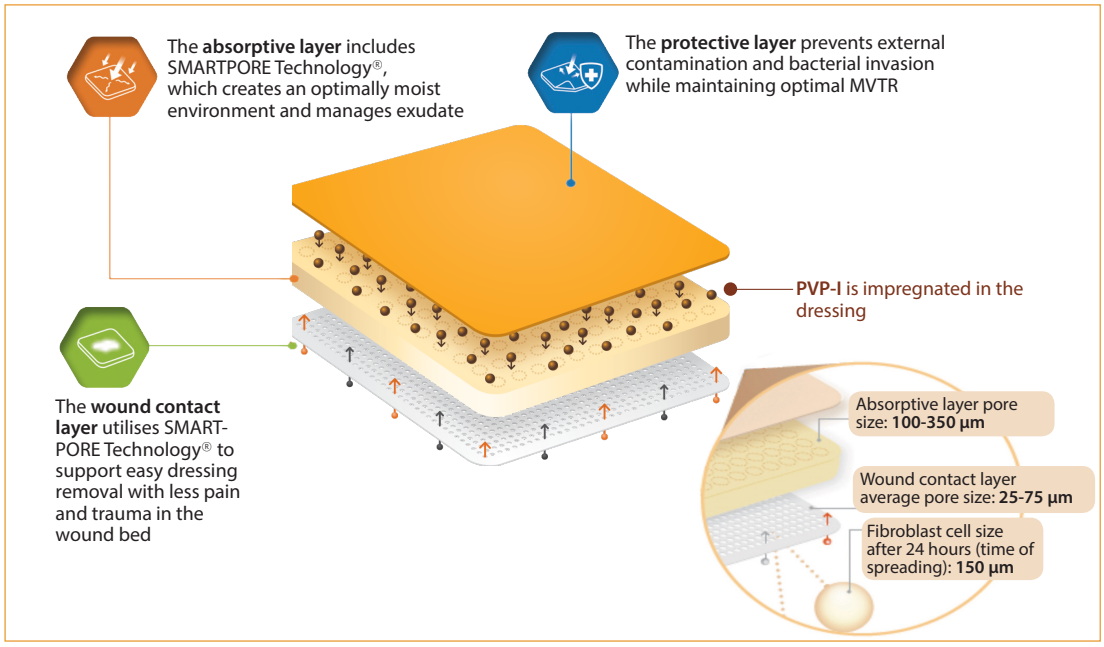


Figure 1. Schematic diagram of BETAplast® PRO-N Dressing.

INDICATION FOR USE

BETAplast® PRO-N is indicated for the disinfection and protection of wound sites, e.g. pressure ulcers/injuries, diabetic ulcers, leg ulcers, traumatic wounds, lacerations, burns, donor and graft sites, post-operative wounds and venous stasis ulcers. A secondary dressing is required to secure BETAplast® PRO-N.

OVERVIEW OF CASES

- Case 1 reports on a patient with an infected diabetic foot ulcer for 4 months
- Case 2 reports on a patient with an infected venous ulcer to the Achilles tendon
- Case 3 details a patient who developed a soft tissue infection following surgical excision for cellulitis and required treatment for a large granulating leg wound
- Case 4 describes the use of BETAplast® PRO-N for a patient with toxic epidermal necrosis
- Case 5 describes a mixed arterial and venous ulcer to the dorsal aspect of the left foot
- Case 6 reports on a patient who required a skin graft to their calf after a road traffic collision
- Case 7 describes a patient who has diabetes and cellulitis surrounding a trauma wound to the hand
- Case 8 details the treatment and management of burns as a result of radiotherapy for breast cancer.

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CASE 1: USING BETAplast® PRO-N DRESSING IN A PATIENT WITH AN INFECTED CHRONIC DIABETIC FOOT ULCER ON THE LEFT HEEL

Nathaniel S Orillaza Jr., Associate Professor of Orthopedics and Hand Specialist,
University of the Philippines, Manila, Philippines

INTRODUCTION

A 62-year-old female with diabetes was referred with a chronic grade 3b diabetic foot ulcer, according to the Texas foot classification (Lavery et al, 1996) to the left heel. Two months prior to admission the heel had been swollen and gradually a blackish blister had formed. One week prior to admission, the blister ruptured. The wound had been left open.

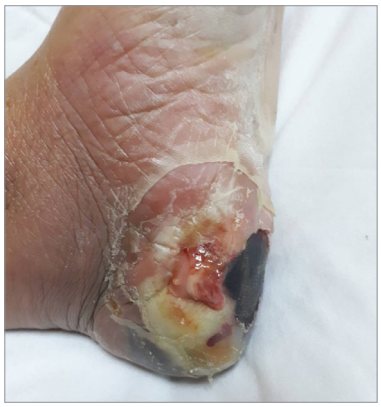


Figure 1: Baseline: pre-debridement

Baseline: The wound bed contained 30% granulation, 50% slough and 10% necrotic tissue (Figure 1). The local area was inflamed and oedematous and there was moderate purulent exudate from the wound that was of low viscosity and cloudy/milky in colour. Following debridement, the wound measured 9.41 cm (length) x 6.57 cm (width) x 1.30 cm (depth)* (Figure 2).

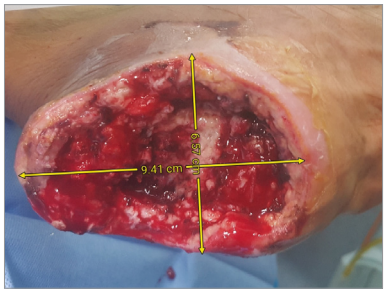


Figure 2: Baseline: post-debridement. Measurement using ImageMeter Pro app (Dirk Farin, Germany)

Diagnostics: The wound was showing signs of infection, including purulent material and abundant necrotic tissue. X-ray showed osteomyelitis of calcaneus, and wound culture/gram stain detected *Staphylococcus aureus*.

Management plan: A week-long course of systemic antibiotics (Clindamycin) was prescribed. Following surgical debridement with irrigation and saline cleansing of the wound, a 10 x 10 cm BETAplast® PRO-N dressing was selected to help reduce bacterial burden and control infection. The patient was instructed to keep the dressing dry, elevate her foot, and avoid weight bearing. The dressing was changed every 3 days.

Review 1: 7 days from baseline:

After a week of treatment the wound had reduced in size by 48%, measuring 7.70 cm (length) x 4.19 cm (width), with some improvement in depth (1.1 cm compared with 1.3 cm at baseline) (Figure 3). The infection had resolved and the skin in the periwound area was looking healthy.

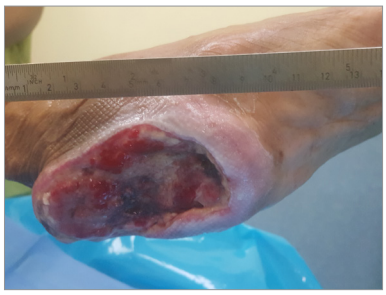


Figure 3: Review 1: 7 days from baseline

There was an increase in granulation tissue (from 30% to 50%) and a reduction in slough tissue (from 50% to 20%). Necrosis remained consistent. Exudate was now low level and non-purulent and serosanguinous with typically clear/amber colour.

The clinician rated the dressing performance as very effective at managing exudate, and observed no strikethrough or leakage from the dressing. It was noted to conform very well to the wound bed and was considered very easy to remove and apply.

The wound was irrigated and cleansed with saline, before a 10 x 10 cm BETAplast® PRO-N was applied. A secondary gauze dressing, with a sterile wadding sheet and elastic bandage, was also used. The next dressing change was scheduled for 5 days' time.

Review 2: 30 days from baseline:

The wound continued to gradually decrease in size (52% since baseline; 7.18 cm [length] x 3.75 cm [width] x 1.00 cm [depth]*). The wound bed exhibited better-quality tissue, with signs of healthy granulation (Figure 4) and no necrotic tissue remaining. Tissue composition was 70% granulation, 20% epithelisation, and 10% slough tissue. The surrounding skin condition had improved and serous exudate levels remained low.

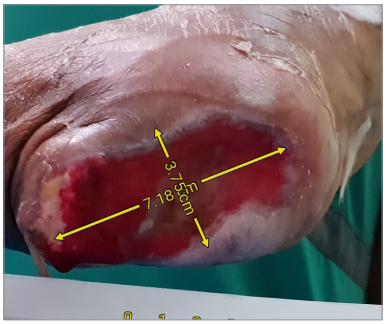


Figure 4: 30 days from baseline: Measurement using ImageMeter Pro app (Dirk Farin, Germany)

The same cleaning and dressing protocol with BETAplast® PRO-N was followed, yet the sterile wadding was no longer required and dressing change frequency was reduced to 7 days. The patient was given ankle exercises to perform as tolerated and was advised to wear a night-time splint. The clinician continued to rate dressing performance as very effective and reported being highly satisfied with the treatment.

FINAL COMMENTS

Four months after commencing treatment with BETAplast® PRO-N, the patient experienced total wound closure (Figure 5). The dressing had been very effective at managing exudate with no strikethrough or leakage observed. It conformed well to the body contours of this often difficult to dress area, and was considered very easy to remove and apply.

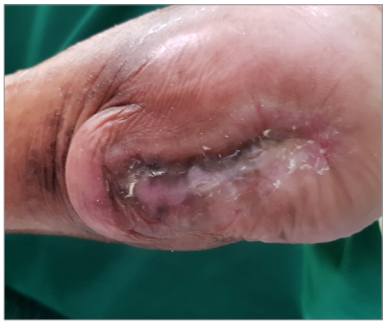


Figure 5: Final follow-up: 4 months from baseline

REFERENCES

Lavery LA, Armstrong DG, Harkless LB (1996) Classification of diabetic foot wounds. *J Foot Ankle Surg* 35:528-31

* Measurement provided by the author using the ImageMeter Pro app (Dirk Farin, Germany).

CASE 2: USING BETAplast® PRO-N DRESSING ON A PATIENT WITH INFECTED VENOUS ULCER WITH EXPOSED ACHILLES TENDON

Nathaniel S Orillaza Jr., Associate Professor of Orthopedics and Hand Specialist,
University of the Philippines, Manila, Philippines

INTRODUCTION

A 65-year-old male presented with a chronic venous ulcer, present for more than 3 months, that had started as a small ulcer on his right heel. The large venous ulcer exposed his Achilles tendon. The previous dressing was not coping with the high level of thick exudate and strikethrough was an issue. Following surgical debridement, BETAplast® PRO-N dressing was chosen to manage pain and bacterial burden for this wound at high risk of infection.

Baseline: The wound measured 8.1 cm (length) x 2.8 cm (width) and was not deep (Figure 1). Prior to sharp debridement, the wound bed contained 10% necrotic, 50% slough, 40% granulation tissue.

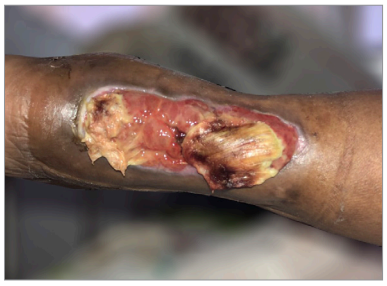


Figure 1: Baseline: pre-debridement

Diagnostics: The local area was inflamed/edematous and there were several signs of infection including purulent exudate, pain/tenderness and surrounding erythema/cellulitis (Figure 1). Wound culture/gram stain detected *Staphylococcus aureus* and systemic antibiotics (Ciprofloxacin) were prescribed. Following surgical debridement with irrigation and saline cleansing of the wound (Figure 2), a 20 x 20 cm BETAplast® PRO-N was selected to help reduce bacterial burden, control infection and reduce pain. A gauze dressing, with sterile wadding sheet and elastic bandage was used to secure BETAplast® PRO-N in place. Planned dressing change frequency was every 3 days. The patient was instructed to keep his limbs elevated and the dressing dry.

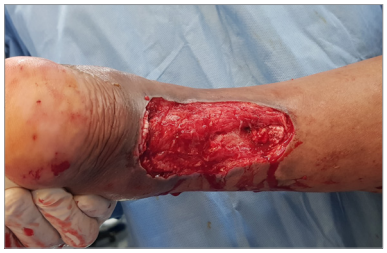


Figure 2: Baseline: post-debridement

Review 1: 4 days from baseline:

There was little improvement in the size of the wound or the condition of the surrounding skin, though some changes were observed (Figure 3). Exudate had reduced to a moderate level and had gone from being cloudy/milky and purulent to yellow/brown and serosanguinous. It had also changed from high to low viscosity. The dressing was found to cope very well with exudate, with no strikethrough, leakage, or soiling of bedding even with movement. Dressing changes were adjusted to every 4 days.

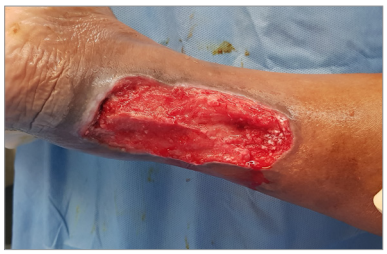


Figure 3: 4 days from baseline

Review 2: 8 days from baseline:
The wound bed contained 100% granulation tissue with all signs of infection completely resolved, with low level serous exudate and healthy-looking skin in the periwound area. Despite general improvements, the wound had not reduced in size and therefore it was decided a skin graft would be necessary to encourage healing (Figure 4).

Use of BETAplast® PRO-N was continued post-skin graft to encourage faster wound closure, and a secondary gauze dressing was used. Planned dressing changes were every 7 days. The patient was also given a splint. The clinician reported being highly satisfied with the treatment and rated the dressing very highly in all areas of performance.

FINAL COMMENTS
The condition of the wound continued to improve post-skin graft (Figure 5), and the clinician remained highly satisfied with performance of BETAplast® PRO-N.

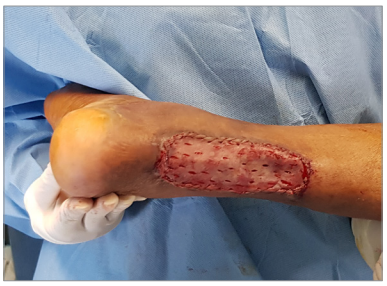


Figure 4: post-skin graft

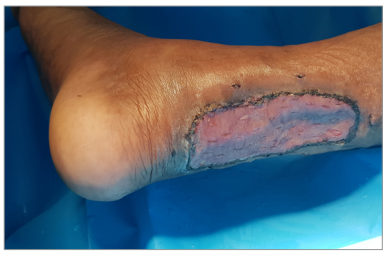


Figure 5: One week post-skin graft (shadow across wound)

CASE 3: BETAplast® PRO-N DRESSING IN THE TREATMENT OF A PATIENT WITH A LARGE GRANULATING WOUND TO THE LEFT LEG ANTERIOR ASPECT FOLLOWING SURGICAL EXCISION

Jose Joven V Cruz, Clinical Associate Professor and Attending Plastic Surgeon Division of Plastic Surgery, University of the Philippines – College of Medicine and Philippine General Hospital, Manila, Philippines

INTRODUCTION

A 52-year-old male with type 2 diabetes presented with cellulitis and an abscess to the left leg anterior aspect. He was prescribed antibiotics, and then referred to an orthopaedic surgeon, who performed debridement, incision and drainage. The patient was then referred to wound care with an acute large granulating wound, which had been present for 2 weeks. Surgical excision resulted in a soft tissue infection in this patient requiring further treatment.

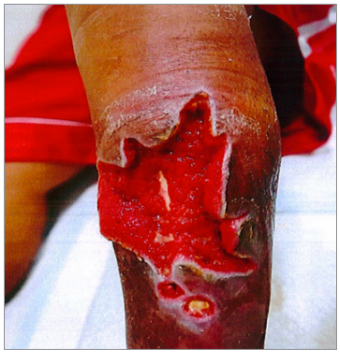


Figure 1: Baseline

Baseline: On presentation to wound care, the wound measured 10 cm (length) x 12 cm (width) (Figure 1) and contained 95% granulation and 5% necrotic tissue. The surrounding skin was dry, flaky and scaly but overall looked reasonably healthy. High levels of cloudy/milky coloured viscous exudate were present, with some signs of infection, including warmth and some purulent exudate. The wound was omitting an unpleasant odour.

Diagnostics: Wound culture/gram stain detected *Staphylococcus aureus*. A course of systemic antibiotics (Ceftriaxone) was prescribed by the referring physician. Leg X-rays showed no bone involvement.

Management plan: Following mechanical debridement using debriding gauze and irrigation/cleansing with 10% PVP-I solution, a 20 x 20 cm BETAplast® PRO-N dressing was selected to applied over the wound to manage infection, exudate and odour. A secondary dressing of gauze and elastic bandage was used with the next planned dressing change in 4 days' time.

Review 1: 4 days from baseline:

The size of the wound had reduced by 46% to 8 cm (length) x 8 cm (width). Granulation tissue had increased to 99% granulation and there was 1% necrotic tissue. The wound was still showing signs of infection at day 4, in terms of unpleasant odour, warmth and purulence; however, exudate had reduced from a high to moderate level.

Mild strike through was noted but there was no leaking or soiling of bed linen. Overall, the clinician rated the dressing as very effective in managing exudate. The clinician viewed the treatment as beneficial to patient quality of life as providing less frequent dressing changes and less odour.

The same wound cleaning and dressing protocol with BETAplast® PRO-N was followed, with the addition of saline irrigation to PVP-I. Additional interventions were also introduced, including offloading and emollient therapy to offer periwound skin protection. The patient was also instructed to keep the leg elevated.

Review 2: 14 days from baseline:

Further improvements were observed. The wound size had reduced by 44% over the last 10 days to 6 cm (length) x 6 cm (width) with 99% granulation and no malodour (Figure 2). Exudate continued to be moderate but was serous and non-purulent. In general, the wound and surrounding skin was considered improved. At this interval the patient reported no pain, where previously this had been present (but minimal, 1 out of 10 on a scale of 0–10, with 10 signifying unbearable pain). The wound continued to improve with the same treatment and the clinician continued to be very satisfied with the performance of the BETAplast® PRO-N (10 cm x 10 cm).

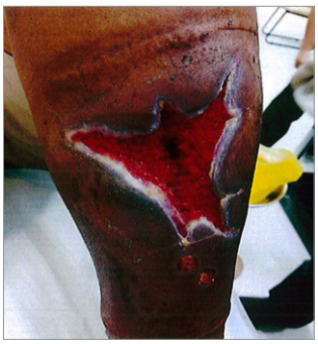


Figure 2: 14 days from baseline

FINAL COMMENTS

After approximately a month of treatment, the wound measured 1 cm (length) x 1 cm (width) demonstrating rapid healing from the baseline measurement of 12 cm (length) x 10 cm (width). Improvements were noticed in all areas of wound healing, including size, exudate, odour, composition of wound bed tissue and the appearance of periwound skin (Figure 3).

The clinician rated the BETAplast® PRO-N as being very easy to use, causing minimal pain at dressing changes with good conformability to the wound bed. Both patient and clinician were highly satisfied with the treatment and outcome and the reduced frequency of dressing change had a positive impact on patient quality of life.

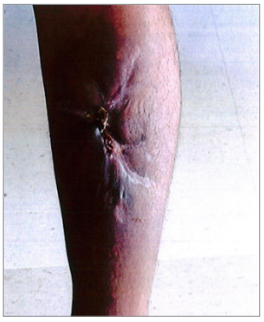


Figure 3: 35 days from baseline

CASE 4: USE OF BETAFOAM® DRESSING IN A PATIENT WITH TOXIC EPIDERMAL NECROSIS

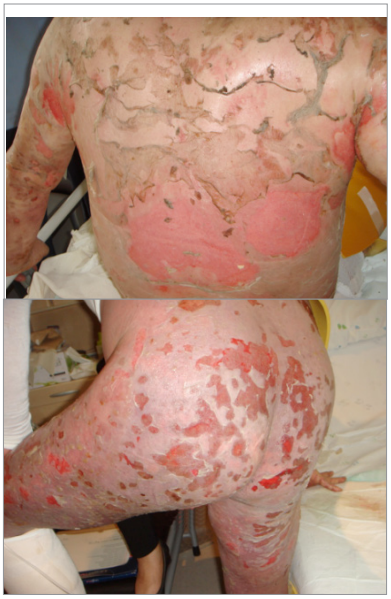
Jung Yoon Kim, Wound, Ostomy and Continence Nurse, Seoul National University, Bundang Hospital, South Korea

BETAplast® PRO-N is marketed as BETAFOAM® in South Korea

INTRODUCTION

A 60-year-old male developed toxic epidermal necrosis over his body and face after taking medicine for a cold. The patient was a smoker of 20 years (1.5 pack/day), and was taking immunoglobulin, corticosteroids and medication for hypophosphatemia.

Baseline: The affected areas included the face, both dorsal and ventral torso, the left and right anterior and posterior upper and lower arms, left and right buttocks, left and right anterior and posterior thighs, and left and right lateral and medial legs. The skin was macerated, with erythema and blanching (Figures 1 & 2), and was very painful. Moderate levels of low viscosity pink/red serosanguinous exudate was present.



Figures 1 & 2: Baseline

Diagnostics: The Rule of Nines method (Wallace, 1951), a tool used to estimate the total body surface area (TBSA) affected by a burn, was used to assess the extent of rash, which covered 54% of the patient's body. Renal function and liver function tests were performed and lymphocyte, eosinophil and white blood cell counts were taken (3.2%, 0.1% and $18.2^{x}10^{3}$, respectively*). Because of the whole-body epidermal detachment, the patient was at high risk of infection, though no signs of infection were visible on clinical examination.

Management plan: Following cleansing with saline solution, BETAFOAM® dressing was chosen to help prevent infection, provide protection and insulate the whole body with the intention of promoting healing. An elasticated tubular bandage was used as a secondary dressing, with dressing changes scheduled for every 2 days.

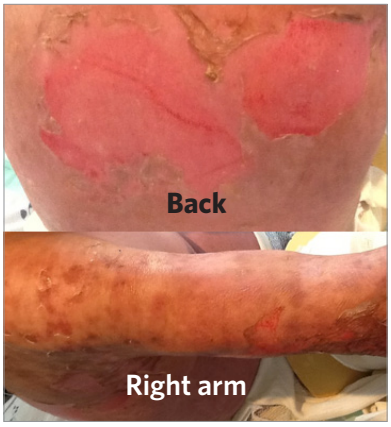


Figure 3: 11 days from baseline

Review 1: 11 days from baseline:

The extent of rash had reduced from 54% to 30% of the patient's body area (Figure 3). The affected areas were producing a moderate level of exudate. The dressing was considered very effective at managing exudate, but moderate strikethrough was observed. Overall, the condition of the affected areas and surrounding skin had improved; there was no maceration, but erythema and blanching were still present. The patient was experiencing high levels of pain in between and during dressing changes (8.0–8.5 on a scale of 0–10, with 10 signifying unbearable pain). The clinician rated the dressing as "very easy" to remove, with no bleeding on dressing change. The patient was given a periwound skin care regimen and nutritional advice. Planned dressing change frequency was reduced to every 4 days.

Review 2: 6 weeks from baseline:

The affected areas were considered to be healing, with 100% epithelialising tissue (Figure 4). The overall condition of the wound had improved, and importantly, pain had reduced to 0 (on a scale of 0–10) in between and during dressing changes.

Figure 4: 6 weeks from baseline

FINAL COMMENTS

For this very painful condition, the clinician was highly satisfied with the treatment, rating conformability as very good and stating that the dressing had reduced pain, provided insulation to the wound and protected against infection. Furthermore, BETAFOAM® 35 x 50 cm was rated highly for ease of use and its ability to control infection. The patient was advised to use a barrier cream to provide protection and to be careful not to damage the healing skin.

REFERENCES

Wallace AB (1951) The exposure treatment of burns. *Lancet* 1: 501

*Normal range for gender:
Lymphocyte: 20–40%
Eosinophil: 1–5%
White blood count: 4.0–10.0$^{x}10^{3}$

CASE 5: USE OF BETAFOAM® DRESSING IN A PATIENT WITH A STAGE IV MIXED ARTERIAL AND VENOUS ULCER

Jeong Tae Kim, Professor for Department of Plastic and Reconstructive Surgery, Hanyang University Medical Center and the Hanyang University, College of Medicine, South Korea

BETAplast® PRO-N is marketed as BETAFOAM® in South Korea

INTRODUCTION

A 66-year-old male was referred to Hanyang University Medical Center, South Korea, with an highly infected mixed arterial and venous ulcer. The patient had a history of liver cirrhosis for 10 years, and was a smoker (30 years, 1 pack/day). He had symptoms of fever and jaundice 3 days before being admitted to the emergency room for medical treatment.

Baseline: The patient had an ulcer to the dorsal aspect of the left foot measuring 17 cm (length) x 11 cm (width) x 2 cm (depth) with undermining and tunnelling. The wound composed of 80% necrotic (areas of wet and dry gangrene), 10% slough, 8% granulation and 2% epithelisation tissue (Figure 1). The wound contained areas of high level purulent and serous exudate that was yellow/brown in colour with a cloudy appearance and high viscosity. Severe and heavy exudate strikethrough with previous dressing had been an issue.

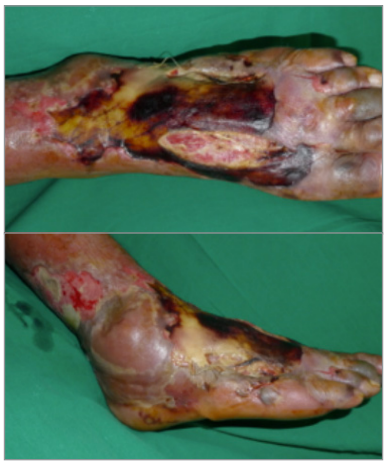


Figure 1: Baseline

Diagnostics: The patient was diagnosed with necrotising fasciitis caused by *Vibrio vulnificus* infection (linked to eating raw seafood). The wound was clearly infected, with signs of cellulitis, erythema, pain, tenderness, and warmth. The patient also had high fever. The surrounding skin was macerated, inflamed and oedematous, with visible blanching. A foul odour was present. Wound gram stain and culture detected Staphylococcus aureus for which broad-spectrum systemic antibiotics were prescribed. Follow-up gram stain and culture revealed *methicillin resistant Staphylococcus aureus* (MRSA) leading to vancomycin prescription.

Management plan: Even though the whole ulcer was infected, it showed different stage of wound healing. Following sharp/surgical and mechanical debridement, plus irrigation and cleansing of the wound with saline, BETAFOAM® dressing was selected to control infection, exudate, pain and odour on the areas of less exudate. The areas of high exudate were treated with negative pressure wound therapy (NPWT) (Figure 2). The patient reported no pain at application of BETAFOAM®.

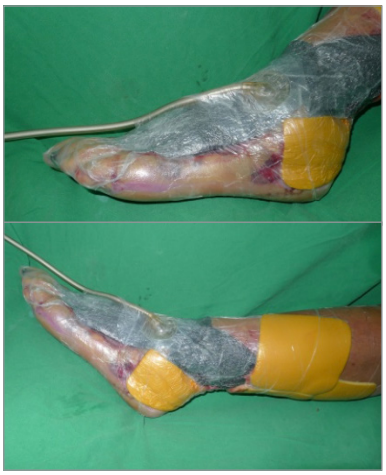


Figure 2: NPWT was applied to high-exuding areas. BETAFOAM® dressing was applied to the less-exuding areas

Other interventions included periwound skin care with a hydrocolloid dressing, prohibition of elevation to prevent the ascending spread of infection, and nutritional advice. Dressing changes were scheduled for every 2 days.

The clinician was initially highly satisfied with BETAFOAM®, and the patient reported no pain at dressing application or removal.

Review 1: 18 days from baseline:

The wound has slightly increased in size and measured 20 cm (length) x 16 cm (width) x 1 cm (depth) with undermining and tunnelling. Post-surgical complications included muscle and bone exposure (Figure 3). Wound composition was 2% necrotic, 5% slough, 2% epithelisation and 91%

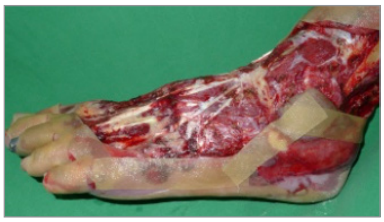


Figure 3: Review 1

granulation tissue, showing an improvement from baseline. Exudate had reduced to a moderate level and was serous/serosanguinous. There was no strikethrough with BETAFOAM® and the clinician rated the dressing as very effective in managing exudate.

Surrounding skin was considered healthy and non-blanching. Some signs of infection were still present, including limited erythema and cellulitis but malodour had ceased. The patient's pain was rated as 1 (on a scale of 0–10, with 10 signifying unbearable pain) between dressing changes and was rated as 2 out of 10 during dressing change.

Review 2: 25 days from baseline:

The wound had reduced in size, measuring 17 cm (length) x 14 cm (width) x 1 cm (depth) with no undermining or tunnelling. There was no necrotic tissue, with wound bed now composed 2% slough, 5% epitheliasation and 93% granulation tissue (Figure 4). Low level, low viscosity serous exudate remained. The surrounding skin was considered healthy.

A flap coverage operation was performed 3 days later (Figure 5). BETAFOAM® was used to cover the peripheral wound skin flap to prevent infection and to dress the donor site along with NPWT (Figure 6).

FINAL COMMENTS

The flap operation was successful and the patient was transferred to the infectious medicine department 2 weeks later. Three months post-surgery, both the flap and donor site were fully healed (Figures 7 & 8). BETAFOAM® had been used on both sites and had been easy to use and provided a moist wound environment conducive to healing.

Both clinician and patient were highly satisfied with the treatment, rating it very easy to use and offering very good conformability to the wound bed. BETAFOAM® effectively controlled infection and exudate levels, improved the condition of surrounding skin and did so with an overall low level of pain (0.5/10).

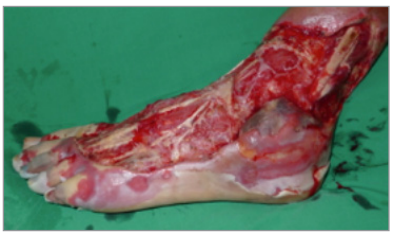


Figure 4: Second review

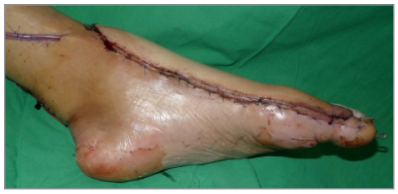
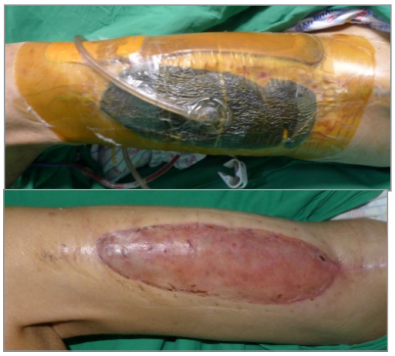
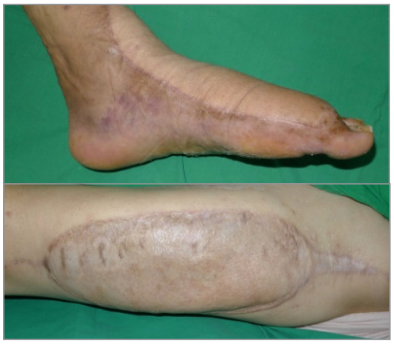


Figure 5: flap coverage surgical procedure



Figures 6a & 6b:
a) skin flap donor site – skin grafted, and treated with NPWT and BETAFOAM® dressing; b) approximately 1 month later – complete healing of donor site



Figures 7 & 8: Healed flap site and donor site (3 months post-surgery)

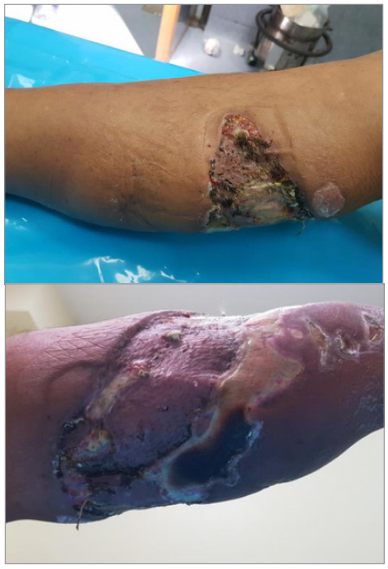
CASE 6: USE OF BETAplast® PRO-N DRESSING IN A PATIENT WITH A GROSSLY INFECTED SKIN AVULSION INJURY TO THE RIGHT CALF

Nathaniel S Orillaza Jr., Associate Professor of Orthopedics and Hand Specialist
University of the Philippines, Manila, Philippines

INTRODUCTION

A 60-year-old male had received treatment in a local day surgery centre for an avulsion injury to his right calf following a motorcycle accident. The patient underwent debridement and skin grafting. A week later, and 3 weeks from the initial injury, the wound showed clear signs of infection, including seropurulent discharge and necrosis of skin margins around the grafted area.

Baseline: The wound measured 13.5 cm (length) x 3.4 cm (width) and was grossly infected comprising 5% epithelisation 10% granulation, 5% slough and 80% necrotic tissue (Figure 1). A high level of high viscosity, purulent exudate was present, with a milky/cloudy appearance accompanied by an unpleasant odour. The surrounding skin was inflamed and oedematous with signs of cellulitis. Considerable strikethrough was noted with the current dressing and the patient was in significant pain.



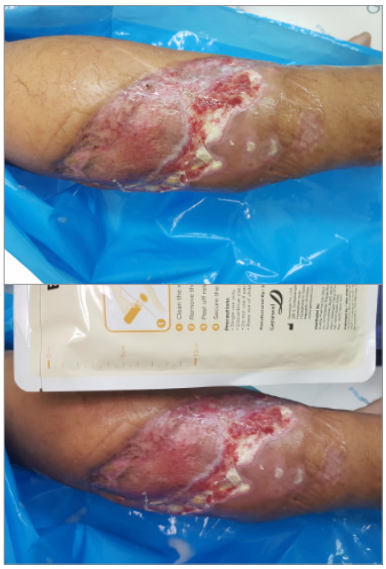
Figures 1 & 2: Baseline

Diagnostics: Wound culture/gram stain tests were negative but systemic antibiotics were prescribed (Clindamycin) to treat clear signs of infection.

Management plan: Following sharp surgical debridement and irrigation/cleansing of the wound bed with saline and 10% PVP-I solution (Figure 2), a 20 x 20 cm BETAplast® PRO-N dressing was selected (size based on availability). Rationale for selecting BETAplast® Pro-N was primarily to help control the infection, reduce bacterial burden and manage exudate. The dressing was secured with gauze, sterile wadding and elastic bandage. Dressing change was scheduled for every 3 days. The clinician reported finding the dressing very easy to apply and both he and the patient were highly satisfied. Other interventions included elevation, offloading and compression therapy. The patient was advised to keep the dressing dry.

Review 1: 7 days from baseline:

The patient had adhered well to the advice given. Following debridement, the wound bed comprised 15% epithelisation, 70% granulation, 10% slough and 5% necrotic tissue (Figure 3). The overall condition of the wound had improved and showed no signs of infection. Malodour had disappeared and exudate was low viscosity, serosanguinous, and yellow/brown in colour pus had reduced to a moderate level. Strikethrough was observed but overall the clinician considered BETAplast® Pro-N to be very effective in managing exudate, with no leakage or soiling of bed linen. The condition of the surrounding skin had not yet improved and was still inflamed/oedematous.



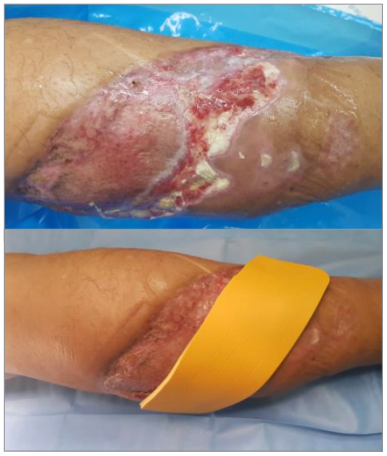
Figures 3 & 4: Review 1: 7 days from baseline

The dressing change took 20 minutes (from removal, cleansing and application) and was reported as very easy to perform, with no adherence to the wound bed and only mild levels of bleeding. In general, the patient had reported low-to-moderate levels of pain (3 on a scale of 1–10, with 10 being unbearable pain) however, pain during dressing change was rated very low (1 on a scale of 0–10). The use of BETAplast® PRO-N was considered to have improved the patient's quality of life because of the lack of soiling, even with movement.

The same cleansing and dressing protocol was followed, with the next dressing change scheduled for 5 days' time. The patient was given the same advice to keep the dressing dry and the leg elevated. Compression therapy was continued.

Review 2: 12 days from baseline:

The patient continued to adhere to the advice given and the wound continued to improve, reducing in size to 12.6 cm (length) x 3.0 cm (width) (Figures 5 & 6). Necrotic tissue had completely disappeared, with the wound bed comprising 20% epithelisation, 70% granulation, and 10% slough tissue. Exudate had reduced to low level serous, low viscosity, and yellow/brown in colour. There was no strikethrough or odour and the surrounding skin was considered healthy. The clinician continued to be very satisfied with the ease of use of the dressing – rating it very easy to remove. A low level of pain (1/10) was reported by the patient during dressing change. The patient's general level of pain had reduced from 3 to 2 (out of 10).



Figures 5 & 6: Review 2: 12 days from baseline

The wound was cleansed with normal saline before a second skin graft was performed. BETAplast® PRO-N 20 x 20 cm was applied prior to a secondary gauze dressing. The next dressing change was scheduled for 7 days' time. The same advice was given with regard to offloading and elevation, and compression therapy continued.

Review 3: 19 days from baseline:

The wound continued to improve, shrinking to 11.8 cm (length) x 2.3 cm (width) with unchanging wound bed composition (Figure 7). Exudate remained low level, low viscosity, serous, but was clear/amber in colour representing further improvement. The surrounding skin had also improved further and the clinician and patient were both satisfied with the performance of the dressing in supporting wound healing.

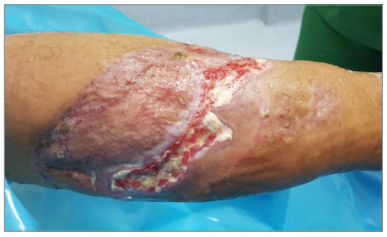


Figure 7: Review 3: 19 days from baseline

Following a saline cleanse, two smaller BETAplast® PRO-N dressings were used (10 x 10 cm) with no need for a secondary dressing. Compression therapy ceased and a splint was fitted. The patient was advised to alternate between elevation and light weight-bearing.

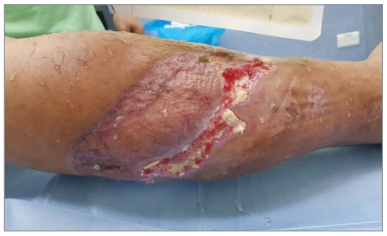


Figure 8: 34 days from baseline

FINAL COMMENTS

Approximately one month after commencing treatment with BETAplast® PRO-N the patient's wound had decreased in size from 13.5 cm (length) x 3.4 cm (width) to 10.5 cm (length) x 1.7 cm (width) representing an approximate 63% reduction (34 days from baseline; Figure 8). Over the next few weeks, the wound had completely epithelialised (57 days from baseline; Figure 9). The dressing performed well against every measure, and the clinician and patient were highly satisfied.

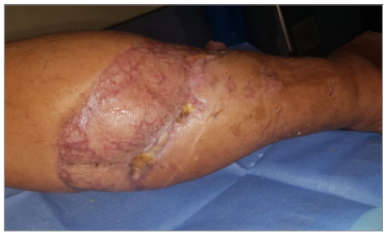


Figure 9: 57 days from baseline

CASE 7: USE OF BETAplast® PRO-N DRESSING IN A PATIENT WITH DIABETES WITH CELLULITIS SURROUNDING A HAND TRAUMA WOUND

Gene Gerald Tiongco, Plastic Surgeon and Head at Complex Wound Care Center,
St. Luke's Medical Center, Global City, Philippines

INTRODUCTION

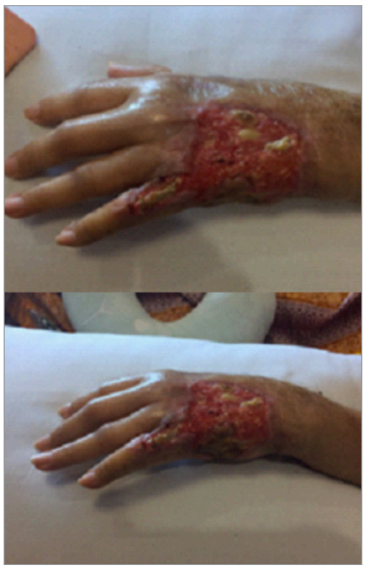
A 59-year-old female with diabetes presented with a necrotic and ulcerating wound to her left hand. Approximately 7 days prior to the consultation the patient reported swelling in the area of the wound indicating cellulitis.

Baseline: The wound measured 17.8 cm (length) x 12.7 cm (width), was non-healing with signs of infection including purulent discharge, malodour and erythema. The wound bed was composed of 75% necrotic and 25% slough tissue. Severe/heavy exudate was causing significant dressing strikethrough and maceration to the surrounding skin, which was also inflamed and oedematous. The patient described the wound as tender and painful.

Diagnostics: Wound culture/gram stain tests were performed and systemic antibiotics (Piperacillin/Tazocin 2.25 mg IV q 8h) to treat the *Acinetobacter baumani* infection.

Management plan: Following sharp surgical debridement and irrigation/cleansing of the wound bed with saline, a BETAplast® PRO-N dressing and a secondary elastic bandage were used. BETAplast® PRO-N was selected to manage the infection, exudate, odour and pain.

The clinician considered patient acceptability and ease of use and fewer dressing changes as additional benefits. Dressing changes were planned for every 2–3 days as needed, and elevation was advised. The clinician reported finding the dressing very easy to apply.



Figures 1 & 2: Baseline

Review 1: 7 days from baseline:

The dressing had been changed twice in the time between first presentation (baseline) and first review to manage strikethrough, soiling and to secure the dressing. The wound had significantly reduced in size over the week measuring 10.0 cm (length) x 7.6 cm (width).

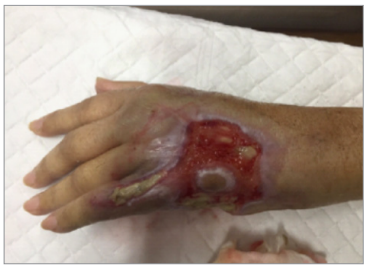


Figure 3: Review 1: 7 days from baseline

Following debridement, the wound bed comprised 20% epithelisation, 80% granulation tissue (Figure 3). The overall condition of the wound had improved and showed no signs of infection. Malodour had disappeared and exudate was much improved to a low-level serous, low viscosity fluid that was clear/amber in colour. Only mild strikethrough was observed but overall the clinician considered BETAplast® PRO-N to be effective in managing exudate, with no leakage or soiling of bed linen. The condition of the surrounding skin was considered improved and healthy.

The dressing change took 10 minutes and BETAplast® PRO-N was rated by the clinician as very easy to remove and use, with very good conformability to the wound bed. In general the patient had reported low-to-moderate levels of pain (3 on a scale of 0–10, with 10 being unbearable pain). However,

during dressing change the pain was rated lower (2 on a scale of 0–10). The use of BETAplast® PRO-N was considered to have improved the patient's quality of life because of improved mobility and exudate absorption.

The same cleansing and dressing protocols were followed, with the next dressing change scheduled for 2 or 3 days' time as required. Compression therapy was initiated and the patient was advised to continue with elevation and to change the dressing at home if required (soaked through). Other interventions included supplementation with zinc and vitamin C.

Review 2: 11 days from baseline:

The patient followed the advice given and the wound continued to improve, especially in terms of exudate which was now at a low level. The patient did not need to change the dressing herself at home because there was no strikethrough. Wound bed composition was now 20% epithelisation, 70% granulation, and 10% slough tissue. Surrounding skin was also further improved and considered healthy. The patient's pain had decreased to 0/10 during dressing change, and were low between dressing change. The clinician remained very satisfied with the ease of use of the dressing and. Overall the clinician was highly satisfied with the treatment, which he considered had significantly improved the patient's mobility.

The same cleansing and dressing protocol was followed, with the next dressing change scheduled for 4 or 5 days' time as required. Compression therapy was continued and the patient was given periwound skin care advice to use a moisturiser and skin shield cream.

Review 3: 16 days from baseline:

The wound was showing good healing progress, made up of 50% epithelisation and 50% granulation tissue and almost complete wound closure (Figure 5). Exudate was almost non-existent (rated 'dry') and the clinician rated the dressing most highly against all measures (overall satisfaction, ability to conform, general ease of use).

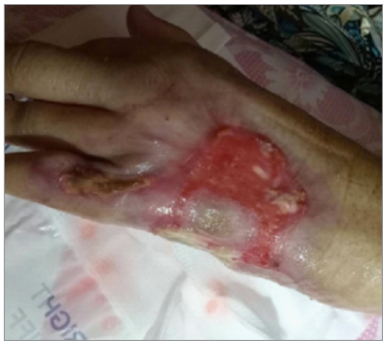


Figure 4: Review 2: 11 days from baseline

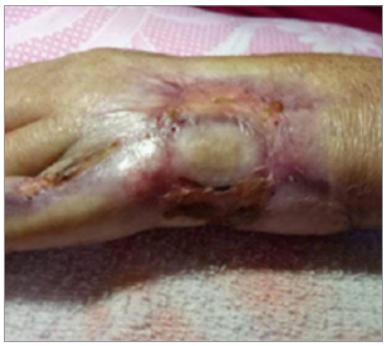


Figure 5: Review 3: 16 days from baseline

FINAL COMMENTS

Approximately 1 month (24 days) from baseline the wound had reached total closure. The use of BETAplast® PRO-N was considered to greatly advance the patient's quality of life during the wound healing process, improving her mobility considerably and allowing her return to work as early as one week into treatment.

CASE 8: USE OF BETAplast® PRO-N DRESSING IN A PATIENT WITH A FUNGATING CANCER LESION AND RADIOTHERAPY BURNS

Jose Joven V Cruz, Clinical Associate Professor and Attending Plastic Surgeon,
Division of Plastic Surgery, University of the Philippines – College of Medicine and Philippine General Hospital, Manila, Philippines

INTRODUCTION

A 74-year-old female patient with breast cancer and a fungating lesion underwent several cycles of radiation therapy resulting in radiation burns to her left chest area.

Baseline: The patient had a partial thickness radiation burn approximately 20 cm (length) x 20 cm (width) with 4-5% total body surface area (TBSA) (Figure 1). An open wound was present above the nipple (wound bed composition: 20% granulation tissue, 80% slough). There was a moderate level of low viscosity, pink/red serous exudate, with strikethrough and an unpleasant odour. The affected area was painful and tender and considered infected.

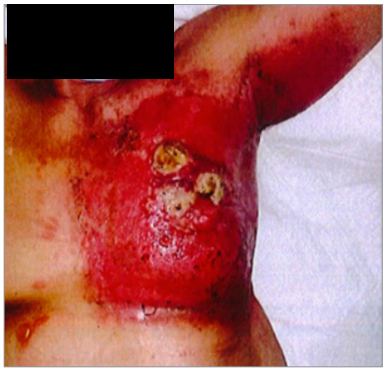


Figure 1: Baseline

Management plan: The patient was prescribed systemic antibiotics due to the infection risk posed by burns and ulcerating cancer (amoxicillin/clavulanic acid [625mg/tablet]; 1 tablet twice daily). At each dressing change, the wound bed was irrigated as per local protocol, a 20 x 20 cm BETAplast® PRO-N dressing was used. A secondary dressing with fine mesh gauze was applied and an elastic bandage was used to secure the dressing. The properties of BETAplast® PRO-N were considered to be supportive of the wound healing requirements, including infection control. Dressing changes were scheduled for every 3 days.

The clinician reported finding the dressing very easy to apply and both he and the patient were highly satisfied with the treatment. The patient was especially satisfied with the reduction in required dressing changes. Other interventions included the use of emollients on the periwound skin and in the peri-elastic bandage area.

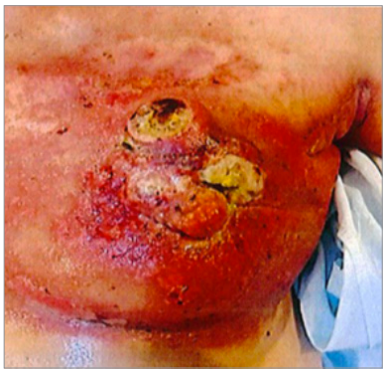


Figure 2: Review 1: 4 days from baseline

Review 1: 4 days from baseline:

At first review the size of the affected area had considerably decreased, measuring 15 cm (length) x 15 cm (width). Increased epithelisation was also noted (wound bed composition: 30% epithelisation, 70% granulation tissue). The overall condition of the wound had improved as had the surrounding skin (Figure 2). Exudate remained at a moderate level but had changed in appearance slightly – it was now clear/amber in colour. Mild strikethrough and leakage remained an issue, yet the clinician felt the dressing dealt with exudate very effectively. Signs of infection, including warmth and tenderness were present, and the malodour had improved somewhat.

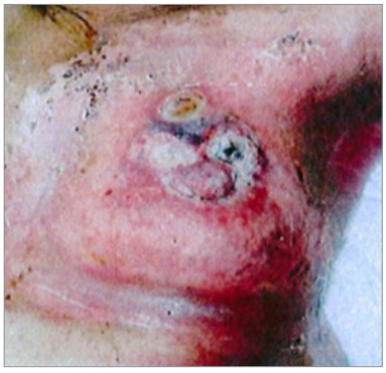


Figure 3: Review 2: 8 days from baseline

Dressing change took 5–10 minutes and was rated at a low-to-moderate pain level (3 on a scale of 0–10, with 10 being unbearable pain). The clinician considered the dressing change very easy to perform, with no adherence and was highly satisfied with the treatment.

The wound was cleansed and irrigated before application of BETAplast® PRO-N 20 x 20 cm. The same secondary dressing was used. Dressing changes were planned for every 4 days and the use of emollients continued.

Review 2: 8 days from baseline:

The wound area continued to reduce in size, measuring 10 cm (length) x 10 cm (width) (Figure 3). Wound bed composition remained unchanged. Exudate had improved further and was now at a low level, yet mild strikethrough was still an issue. An unpleasant odour was still present, but improving. Surrounding skin condition had improved and was considered healthy and other signs of infection had resolved. The patient and clinician continued to be satisfied with the treatment. The patient's level of pain during dressing change remained consistent (3 out of 10).

Cleansing and irrigation were performed and a 10 x 10 cm BETAplast® PRO-N applied and secured as before. Dressing change frequency and emollient use remained unchanged. The patient was also advised not to get the area wet.

Review 3: 12 days from baseline:

Improvements continued (Figure 4), including reduced wound size (5 cm x 5 cm) and increased epithelisation tissue (90%, with 10% granulation tissue). Exudate continued to be low level and no strikethrough was observed. The patient's reported pain reduced to 2 out of 10. All other measures and protocols remained consistent.

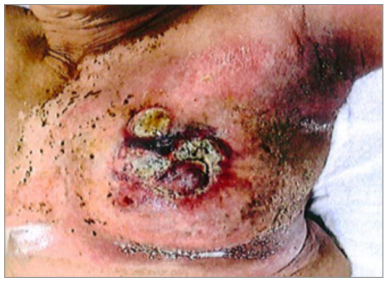


Figure 4: Review 3: 12 days from baseline

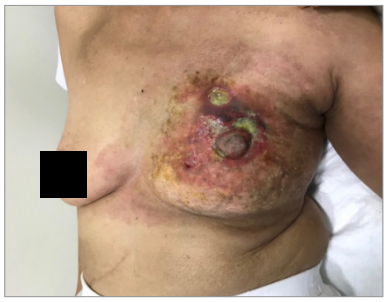


Figure 5: Final review

FINAL COMMENTS

At final review, the wound had reduced in size by 75% (Figure 5) with marked improvements in the wound bed tissue, surrounding skin, exudate, odour and clearance of infection. Overall, the dressing was rated as very good in its ability to conform to the wound bed and manage exudate and was considered very easy to use. The reduced frequency of dressing changes required was considered to have enhanced the patient's quality of life.

NOTES

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