Unique Treatment for Painful Brown Recluse Spider Bite Injuries: Transforming Powder Dressing

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BACKGROUND

Brown recluse spider envenomation can result in dermonecrotic arachnidism, a local tissue injury causing necrosis in approximately 40% of cases.[1,2] However, published data to guide proper therapy is limited.[2] Treatment goals include minimization of tissue necrosis, prevention of superinfection, pain management[4] and local wound care and debridement.[3] This case demonstrates how a novel wound management strategy can positively impact patient quality of life (QoL) and wound healing, while reducing the burden of care related to dressing changes.

CASE OVERVIEW

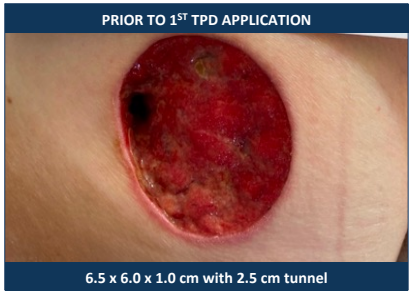
Fifty-two-year-old female with common variable immunodeficiency was bitten by a brown recluse spider on her buttock, necessitating hospitalization and surgical debridement. Post-operatively, the wound was managed with negative pressure wound therapy (NPWT). Patient pain scores were 4-5/10, increasing to 10/10 during dressing changes which were repeated 3x/week. Narcotics were required to manage pain.

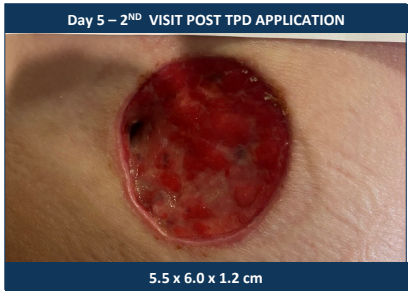
CURRENT CLINICAL APPROACH

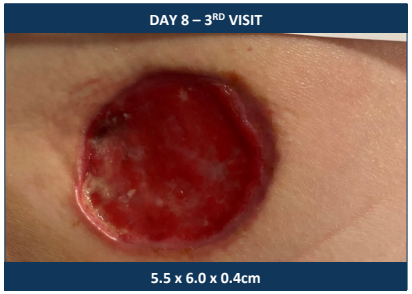
As the wound was refractory to treatment and pain continued to persist, NPWT was discontinued after 1-month, and wound care was converted to a weekly application of a novel transforming powder dressing (TPD), an extended wear dressing made of polymers similar to those in contact lenses. TPD covers and protects the wound while releasing excess exudate through vapor transpiration.

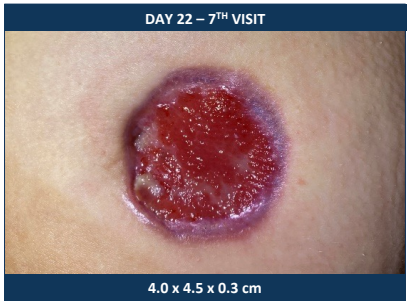
PATIENT OUTCOMES

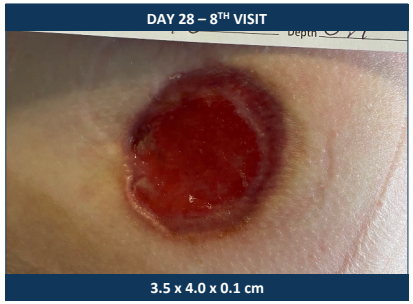
Wound measured 34.1 cm^3 (6.5 x 6.0 x 1.0cm with a 2.5cm tunnel) when TPD was initiated. Patient reported a 90% reduction in pain (1/10) immediately post application and narcotics were discontinued. By Day 22, some epithelialization was observed. Patient resumed ADLs, returned to work and was able to resume care for her family. Home health visits were reduced from 3x/week to 1x/week during the treatment and no complications were identified. She was discharged from home health, TPD was discontinued, and the wound healed 38 days after discharge from home health (healing slowed down after transition from TPD).

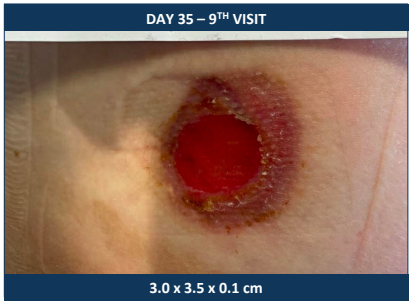












CONCLUSION

The implementation of a novel wound management approach resulted in improved wound healing and QoL. Pain reduction and narcotic discontinuation were recorded. Nursing visits were reduced by 66% per week. We conclude that TPD should be considered as a potential alternative to current SOC in treatment of recluse spider bites.

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Clinical Observations on the Use of a Novel Powder Dressing in the Treatment of Sickle Cell Associated Lower Extremity Wounds

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Symposium of Advanced Wound Care | April 26 – 30 | National Harbor, MD

INTRODUCTION

Sickle cell related wounds are notoriously difficult to heal. Challenges involved in treating these wounds typically involve managing pain, addressing vascular insufficiency and reducing inflammation in both the wound and periwound.

We describe the application of a novel, extended wear transforming powder dressing (TPD)* with unique properties to treat sickle cell anemia related wounds.

METHODS

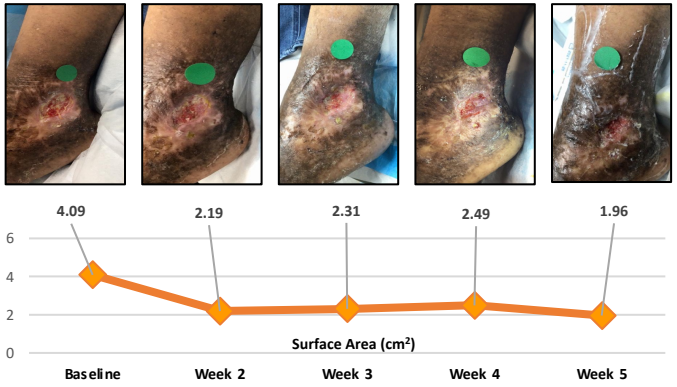
The clinical evidence of TPD has been demonstrated previously for chronic wounds such as venous ulcers and diabetic foot ulcers. In this case series, the treatment regimen of two sickle cell ulcers is reviewed. The wounds were treated with TPD once weekly for four to eight weeks.

For each wound, the powder was applied according to manufacturer's instructions where it transformed upon hydration with saline from a white powder into a translucent, flexible film on the wound bed. The dressing did not overlap onto tissue surrounding the wound. Wound dimensions and patient reported pain was recorded.

RESULTS

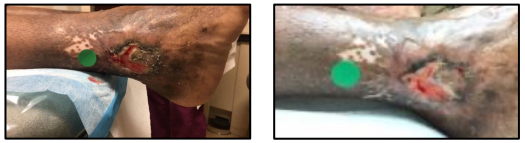
Case 1 (Pictures on Right):

- 30-month-old sickle cell ulcer
- Wound tenure: 30 months
- Prior therapy: Three skin substitute applications (minimal effect)
- Initial wound dimensions: 4.99cm^2
- TPD Baseline (December 2022): 4.09cm^2
- Week 3 post TPD: 2.19cm^2 / 46% reduction
- Significant reduction in pain sensation was reported by the patient throughout TPD treatment



Case 2 (Pictures Below):

- Chronic sickle cell ulcer on right leg
- Baseline Dimensions: 5.18cm^2
- Week 8 post TPD: 3.08cm^2 / 32% reduction with sporadic compliance
- Patient reported significant pain reduction



Baseline: 5.18cm^2 **8 Weeks:** 3.08cm^2

DISCUSSION

The implementation of TPD in treatment of sickle cell wounds showed significant improvement in the healing trajectory in both cases. Pain was also significantly reduced. An extended evaluation would have been helpful to assess final healing outcomes. The potential ability of TPD therapy to make a drastic impact in a short time period on wounds that have remained stagnant for years is groundbreaking.

***Altrazeal® Transforming Powder Dressing.** Acknowledgements: This poster was developed in collaboration with Altrazeal Life Sciences Inc. All clinical assessments were performed independently, and no compensation was paid to the authors.* For application instructions and risks of this device please refer to Altrazeal Instructions for Use.

EDU-0065, REV 01

Steroids, Bioengineered Skin Substitute and Transforming Powder Dressing: Combination Therapy for Pyoderma Gangrenosum

Sawyer Cimaroli, MD; Avi Hatami, MD; Brian Gillette, PhD; Scott Gorenstein, MD | NYU Langone Long Island Hospital, Department of General Surgery

SAWC Fall 2022 Meeting, Las Vegas, NV | October 13-16

INTRODUCTION:

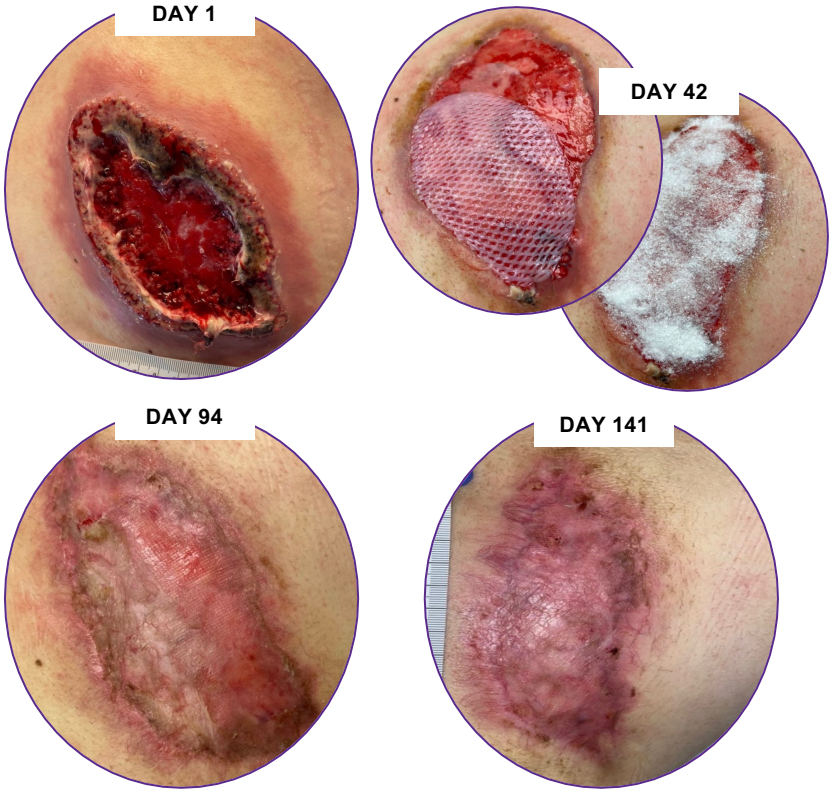
- Pyoderma Gangrenosum (PG) is neutrophilic dermatosis, often associated with malignancy and inflammatory/autoimmune conditions
- PG is characterized by pathergy-exaggerated response to or worsening of even a minor skin injury
- Treatment varies from systemic topical steroids to systemic immunosuppression
- Here we describe a case of PG treated with Prednisone, bioengineered skin substitute (Apligraf) and transforming powder dressing (TPD*)

CASE DISCUSSION:

- 63-year-old male with a past medical history significant for Hepatitis B who presented to clinic for evaluation of a non-healing wound of the back which had been increasing in size following an excision of an epidermal inclusion cyst two months prior
- A biopsy was suggestive of PG

TREATMENT:

- Patient was started on a prednisone taper and local wound care with weekly application of bioengineered skin substitute and a transforming powder dressing



CONCLUSION:

- Wound has decreased in size from 88.3 cm^2 to 25.2 cm^2 (72%) and treatment is ongoing
- Since PG is diagnosed by exclusion of other possible ailments, the diagnosis of PG is often delayed or missed altogether
- Prompt recognition and initiation of treatment is essential

This case supports the use of bioengineered skin substitute and transforming powder dressing as adjuncts to systemic steroids in the treatment of Pyoderma Gangrenosum.

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- **Acknowledgements:** This case study was conducted independently by the authors and no compensation was paid to the authors. This poster was presented in collaboration with ULURU Inc. For application instructions and risks of this device refer to Altrazeal Instructions for Use.

Altrazeal® Transforming Powder Dressing

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OPTIMIZING CARE OF PERI-STOMAL SKIN COMPLICATIONS WITH A NOVEL TRANSFORMING POWDER

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Symposium on Advanced Wound Care (SAWC) Spring Meeting, April 2022

BACKGROUND | RATIONALE

Patients with Crohn's Disease and stomas frequently develop peri-stomal skin complications such as wounds and Pyoderma Gangrenosum (PG) that are challenging to manage. These patients often experience excruciating pain in the wounds. Enterostomal leakages also exacerbate existing skin damage making it difficult to secure stomal appliances.

The resulting increase in the frequency of appliance and wound dressing changes aggravates pain and frustration, decreases quality of life, and increases overall costs of care. Traditional dressings used to manage such wounds often require daily dressing changes multiplying the time, materials and labor needed to provide adequate care.

The purpose of this poster is to introduce ostomy and wound care clinicians to a new technique for managing peristomal skin and wound complications using Altrazeal® Transforming Powder Dressing (TPD).

A methacrylate-based novel wound modality, TPD is available in the form of sterile white granules. Upon hydration, TPD granules aggregate over the wound bed to form a moist, oxygen permeable barrier that conforms to and seals the wound surface while allowing fluid and gaseous exchange and preventing bacterial penetration. TPD may be left on the wound for up to 4 weeks.

OBJECTIVE

The objective was to test the feasibility of TPD in simplifying care of complicated peri-stomal wounds.

METHOD

TPD's performance was tested in a challenging case involving a patient with significant systemic and peri-stomal wound complications including:

- **Crohn's disease**
- **Pyoderma Gangrenosum (PG)**
- **Moisture associated dermatitis (MAD)**
- **Chemical (irritant) dermatitis**

THE CHALLENGE: A CASE STUDY[1]

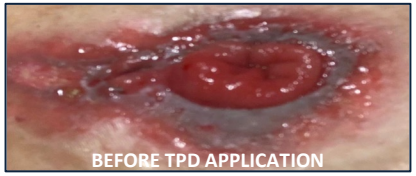
Female, 60 years old with:

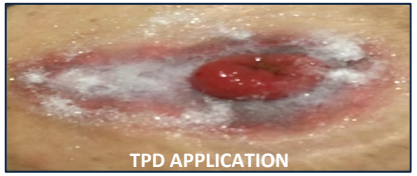
- **Crohn's Disease for 26 years with 27 hospitalizations**
- **Ileum resection, colostomy, loop colostomy revision secondary to hernia complication**
- Diagnosed with **peri-stomal PG 3** years ago
- **18%+ unintentional recent weight loss**
- **Excruciating pain (10/10 based on VAS score)** secondary to PG and irritant dermatitis requiring
  - Narcotics
  - Hospital admissions for pain management
  - Frequent appliance changes due to severe burning pain around the stoma
- **Poorly fitting ostomy appliance and irritant dermatitis** from leaking stool

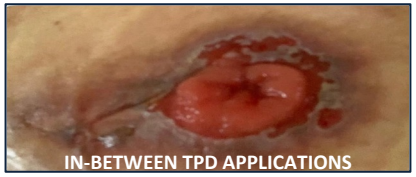
Failed Treatments: Tested **several devices and dressings.** In addition, injectable and topical steroids were tried without improvement. **Opioids** were taken every six hours to control pain.
Onerous Care Regime: Daily or **twice daily appliance changes** performed by the patient with **homecare nurse visits every other day** for ostomy evaluation and wound care.

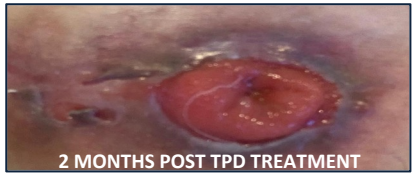
TREATMENT WITH TPD

TPD was used as a **"last resort"** after consultation with the patient's gastroenterologist to manage moisture and exudate of peristomal wounds, protect the skin with MAD and irritant dermatitis, and cover PG wounds. TPD was applied after wound cleansing and covered with the appliance. The appliance remained in place over TPD without further leakage of stool.









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1. Real life case study, self-reported, photographed, and provided to authors with patient permission and encouragement to share her success story with other patients with similar issues.
2. Manufactured in USA by ULURU Inc. Please see Altrazeal Instructions for Use for a complete listing of indications for use, warnings and precautions.
3. This work was supported by ULURU Inc.

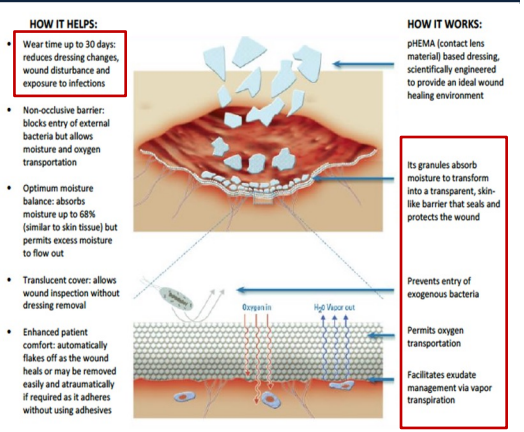
OUTCOMES | CONCLUSION

All peri-stomal skin complications, pain, and wounds were resolved while using TPD. Within 1 week, pain reduced from severe to minimal and wound quality improved markedly. Skin complications were resolved within days and the appliance was worn comfortably for 4 days continuously, without pain or leakage. All oral pain medications were discontinued.

- **Pain scores dropped from 10/10 to 0/10** within minutes of TPD application
- All **wounds healed within two months**
- Significantly **improved patient's quality of life**
- TPD application also resulted in several **cost savings:**
  - **Reduced home nursing visits**
  - **Eliminated pain medications**
  - **Reduced appliance changes, supplies and labor costs**
  - **Avoided readmission for permanent ileostomy**

Conclusion: Challenging ostomy complications can be successfully managed and resolved. Involving specialists and adoption of new technologies like TPD are key to delivering successful interventions and outcomes.

ABOUT TPD[2]



Novel Treatment of Necrotizing Fasciitis with Transforming Powder Dressing

Ron Sotomayor, RN, CWOCN; Reagan Taylor, PA; Jeffrey Chiu, MD; Allan Allicock, MSN, RN, CWON | AdventHealth System; Orlando, FL

WOCNext 2022 Meeting, Fort Worth, TX | June 5-8, 2022

Background

Necrotizing Fasciitis (NF) is a rare but life-threatening soft tissue infection caused by bacteria that target the skin, subcutaneous tissue, and fascia, resulting in progressive necrosis.1 Associated mortality is 12-46% as infection can spread quickly causing severe systemic toxicity and sepsis.2 Proper management requires aggressive surgical debridement and appropriate adjuvant therapies. Early amputation of impacted tissues and maximum intensive care treatment are often required.3 Routine wound care includes utilizing conventional antimicrobial dressings or negative pressure wound therapy (NPWT) to facilitate adequate wound granulation prior to grafting. Repeated dressing changes drain medical resources, increase patient pain and exposure to infection, presenting a significant clinical challenge.

Material

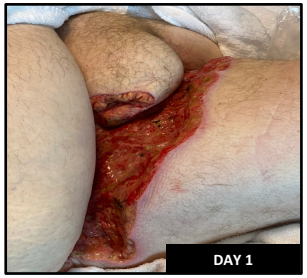
Three case studies incorporating treatment using a novel Transforming Powder Dressing (TPD) in patients with NF and other comorbidities were reviewed. In all cases, patients had extensive wounds with high pain scores, using Visual Analogue Scale (VAS), making NPWT or conventional dressing changes intolerable. In two of three cases, TPD was applied directly to the wound with secondary dressings. In one case, TPD was applied over a meshed split thickness skin graft (STSG) in the penile and scrotal area.

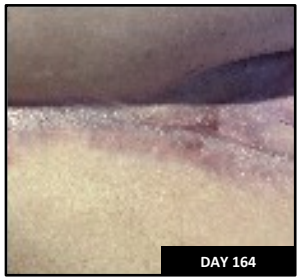
TPD is comprised primarily of biocompatible polymers (used in contact lenses). Upon hydration with saline, TPD granules aggregate to form a moist, oxygen-permeable matrix that protects the wound from contamination while helping to manage excess exudate through vapor transpiration. Once applied, TPD may be left in place for up to 30 days and more powder may be added as needed without requiring full dressing changes. Simple secondary dressings may be used in areas of high exudation or friction. TPD dries and flakes off as the wound heals.

Results

PATIENT 1: 44 y/o male with DM, obesity, HTN, HCL
Wound Dimension: 50cm x 18cm x 22cm
Challenge: Extreme pain during NPWT
Treatment: Conversion to TPD
Outcomes Post-TPD Treatment:

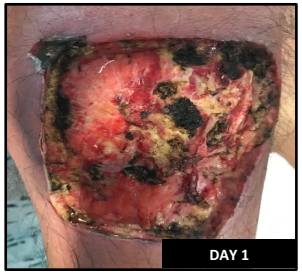
- VAS pain score reduced from 10/10 to 0/10
- Discontinued all pain and opioid medications
- Reduced home health visits (3x to 1x weekly)
- Reduced dressing encounters (<20 versus > 66 estimated with SOC)
- Avoided grafting, amputation & readmission

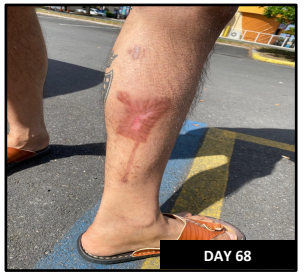




PATIENT 2: 51 y/o male with HIV
Wound Dimension: 72cm^2
Challenge: Painful daily gauze dressing changes
Treatment: Conversion to TPD
Outcomes Post-TPD Treatment:

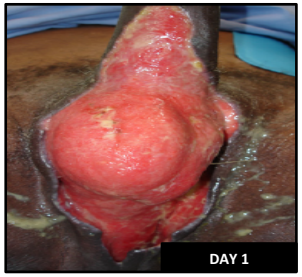
- VAS pain score reduction from 10/10 to 0/10
- Discontinued all pain and opioid medications
- Reduced dressing changes
- (11 vs. 60 estimated with SOC)
- and required visits from 3x to 1x weekly
- Avoided readmission for grafting

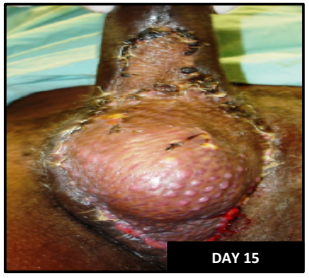




PATIENT 3: 71 y/o male with diabetes, Fournier's gangrene, penile implant malfunction4
Challenge: Painful, challenging location to conduct frequent dressing changes
Treatment: Wound was surgically debrided. Two meshed split-thickness skin grafts were applied, anchored using peripheral sutures covered with TPD and net underwear
Outcomes Post-TPD Treatment:

- Graft took by day 15 as TPD flaked off
- Reduced pain from use of fewer stitches





Conclusion

TPD presents a safe and effective modality for treatment of NF wounds with the potential to reduce healing times, pain and frequency of dressing changes.

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2009 CSAWC
San Antonio, TExas

Gleaves, Jim, MD. Surgeon, Rush Hospital, Meridian, Mississisppi

Eldridge, Kim, RN, Rush Hospital, Merrdian, Mississippi

Treatment of a severe Fournier's necrotizing fasciitis involving the scrotum and volar penile skin associated with a malfunctioning penile prosthesis affixed in the erect position with a delicate split thickness skin graft anchored with a powder dressing

Objectives

Understand the significant complications following a Fournier's necrotizing fasciitis of a male perineum and its treatment with a meshed split thickness skin graft on the scrotum and volar surface of a penis which was incidentally associated with a damaged penile implant.

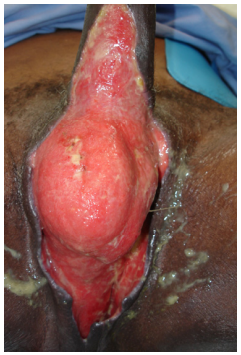
Be exposed to the delicate nature of graft suturing and affixation when attempting to apply a meshed split thickness skin graft in one setting to the penile and scrotal skin.

Introduction

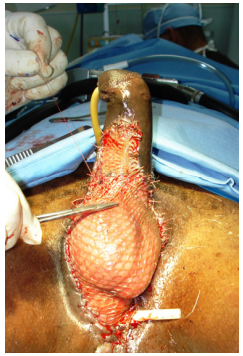
Simple geometry reveals that any one singular infintesimal point on the scrotal surfaces of two spheroidal masses can be assoiciated with only one plane. A spheroid surface has a multiplicity of planes throughout its surface extending to the periphery of the graft. It is very difficult to affix the graft without multiple sutures and/or clips throughout the grafts surface and not just at the periphery of the graft. This type of procedure typically requires multiple grafting procedures.

Methods

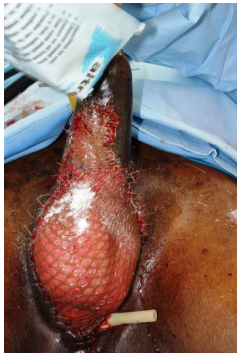
This case study presents the treatment of a 71 year old diabetic, African American male, who had a penile implant which became damaged and was malfunctioning with his penis in a permanent erect state ("bent" superiorly in the standard 90 degrees perpendicular to the patients body frame in a "functional position"). The damaged penile implant complicated the treatment after onset of the infection that had developed six days earlier, as Fournier's necrotizing fasciitis with severe systemic sepsis. This necrotizing faciitis involved the entire scrotum traveling along the volar surface of the penis toward the base of the glands. Immediate initial treatment included: broad spectrum antibiotics, treatment with hyperbarics prior to the urologist taking the patient to the operating room where under general anesthesia the entire scrotal skin was removed up to the base of and including that of the penis. He was treated for approximately two weeks with intravenous antibiotics, aggressive local care, and hyperbarics for two weeks prior to grafting. Grafting the scrotum is particularly difficult due to its shape and it usually requires multiple trips to the operating room to get adequate coverage due to the double spheroidal structure of the scrotum. The skin on the base of the penis is essentially perpendicular in relation to skin found on the scrotum. This tissue is quite delicate; pain and sensation can be extraordinarily excruciating and exceptionally miserable for the patient. One large graft (400 to 500 cm^2) was applied and this was meshed 3:1, sutured at the periphery where the scrotum had reached the base of the thighs and perineal area posteriorly and onto the penis using absorbable vicryl stitches; fewer than normal were used due to the Powder Wound Dressing* (PWD) fixation. No additional stitches were used in the bed of the graft nor in the area where an additional piece of graft was placed to cover the volar penile skin. The graft was covered with a PWD and aggregated with saline mist, which then affixed and anchored the graft to the underlying deep scrotal and penile wound surface. A light secondary dressing of 4x4's and net gynecology underwear was applied but no significant affixation to the secondary dressing was necessary. On one occasion in the following two weeks an additional dose of PWD was applied and aggregated again with saline.



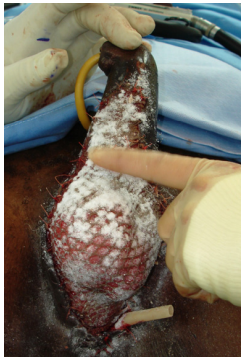
Gently Debrided Wound



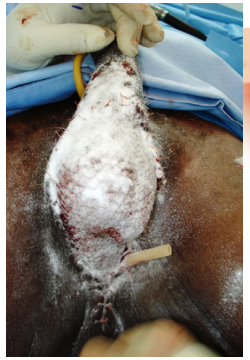
Application of Mesh Graft and Suturing



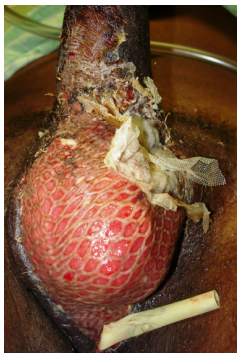
Graft in place with Application of Powder as Primary Graft Fixation



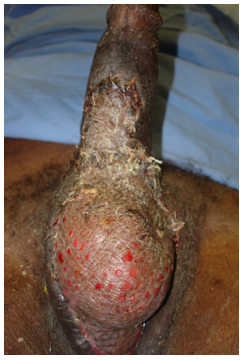
Gentle Spreading of Powder Dressing Over Graft and Tissue Surface



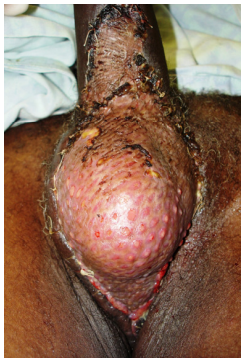
Powder Dressing in Place with Hydration and Aggregation Occurring



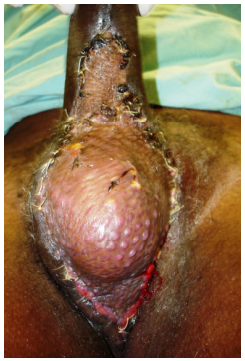
Day 5: Dressing Change. Powder Dressing has been removed from the scrotum. Some of the intact dressing and wound veil used to cover the primary dressing is visible on the dorsal skin of the penis.



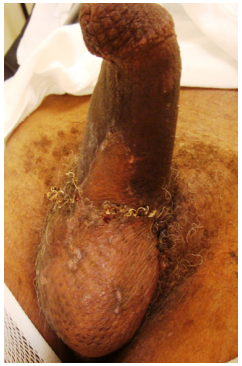
Day 12: Primary dressing left in place with tissue ingrowth visible at graft interstices.



Day 15: Graft in place with substantial ingrowth of new skin. Primary dressing no longer present.



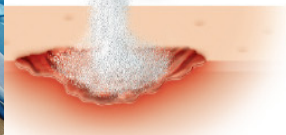
Day 19: Graft at nearly 100% take with new skin through all interstitial spaces.



6 Weeks Post Operative: Complete take of graft with excellent cosmesis.

Findings

The wound continued to show ongoing improvement following the grafting procedure. The skin graft began to turn obviously pink over its entire bed covering the scrotum and penis by the third day and it could be seen through the light layer of PWD as it was translucent. By the end of 14 days not only did the entire graft had a 100% take of all skin that was applied but the interstitial spaces between the webs were epithelialized. The graft remained anchored and "took" completely showing total epithelialization by the fourth week. It should be added that the PWD was also used on the donor site without a second dressing. The donor site was 24 cm x 8 cm. The donor site produced no pain post operation.



Conclusions

This case demonstrates that meshed STSG can be held in position and anchored to the bed with PWD that reconstitute themselves into a congealed "superstructure". Numerous areas on the graft that would have normally been sutured, were not sutured nor clipped at all, thusly decreasing pain. For the novel and unusual wound, dressing and treatment of the site following surgery requires delicate care and obviously in this case, minimal dressing changes and handling markedly improving the patients comfort. It also shows the scrotum which is a very difficult area to graft particularly when associated with a penile skin loss injury can be quite well handled with a PWD to help affix the graft to the wound bed. This is consistent with other studies where we have been successful in areas that are planar and flat or gently curved to be able to completely affix a skin graft without any other fixation including clips or sutures.
A secondary conclusion was that donor sites have very little to no pain when treated with the PWD.

The complications following a Fournier's necrotizing fasciitis of a male perineum and the treatment with a meshed STSG on the scrotum and volar surface of the penis associated with a damaged penile implant can be an exceptional challenge to both the patient and the surgeon.

This case study, reveals that delicate grafting of surfaces with complex geometry can be accomplished by fixation of a graft to a well perineum using a powder wound dressing. There was less pain as a minimal number of sutures were placed and dressing changes were minimized. There were no dressing changes for the donor site and powder wound dressing (PWD) was used as a the dressing, which also relieved pain in the donor site.

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*Altrazeal™ Transforming Powder Dressing

A TRANSFORMING POWDER DRESSING FOR MANAGEMENT OF COMPLEX ATYPICAL WOUNDS

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(1) Northwell Health System, Comprehensive Wound Care Healing and Hyperbaric Center, Lake Success, NY; (2) Alexandria University, Alexandria, Egypt; (3) SPS MD, Wellesley, MA; (4) Alleghany Health Network, Pittsburg, PA; (5) ULURU Inc., Addison, TX

American Professional Wound Care Association (APWCA) Wound Week 2022

BACKGROUND

Atypical wounds, or wounds of unknown or uncommon etiologies, comprise approximately 10-20% of all chronic wounds.[1,2] Treatment presents an ongoing challenge to wound care specialists. Inflammatory diseases, infections, chronic illnesses, malignancies, or genetic disorders may predispose a patient to atypical wounds.[4] Atypical wounds can be painful with prolonged healing times, resulting in a reduction in patient quality of life and increased mortality. With an aging population and the presence of a progressively diverse array of identified etiologies, atypical wounds are being identified with a higher frequency.

Current treatment for patients with atypical wounds is a challenge as these wounds are typically nonresponsive to conventional therapy.[3,4] Alternative treatment strategies for atypical wounds are under investigation and should be considered to address the current gap in knowledge and clinical management of these patients.

MATERIAL AND METHOD

We present a case series which evaluates the clinical outcomes of 3 patients with diverse atypical wounds which were refractory to prior treatment, including diagnoses with bullous pemphigoid (BP), pyoderma gangrenosum (PG), and vasculitis. Prior treatment in all cases was converted to a novel Transforming Powder Dressing (Altrazeal®, ULURU Inc., USA)

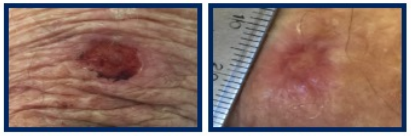
Transforming Powder Dressing (TPD) is a powder dressing comprised primarily of biocompatible polymers (same as those used in contact lenses). Upon hydration with saline, TPD granules aggregate to form a moist, oxygen-permeable barrier that protects the wound from contamination while helping to manage excess exudate through vapor transportation. Once applied, TPD may be left in place for up to 30 days. Additional powder may be added ("topped off") as needed without requiring primary dressing changes. TPD dries and flakes off as the wound heals.

For application instructions and risks of this device refer to Altrazeal Instructions for Use | EDU - 0014

RESULTS

BULLOUS PEMPHIGOID

History: 89 y/o male with 1.0 x 1.2 cm erosion on left elbow | **Wound Duration:** 3-4 months
TPD Treatment: Weekly dressing changes with TPD
Outcomes: Fully healed in three weeks

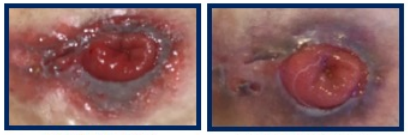


Day 0: Before Altrazeal Application | Day 17: Re-epithilialised + Smaller

PYODERMA GANGRENOSUM

History: 60 y/o female with 26 years of Crohn's disease, peristomal PG for three years, 27 hospitalizations
Challenge: Excruciating pain requiring use of narcotics every six hours. Developed irritant dermatitis from leaking stoma appliance. Required daily or twice a day changes of stomal appliance.
TPD Treatment: TPD applied and topped off every 4 days
Outcomes:

- Healed PG wound
- Reduced reapplication of of stomal appliance from once or twice per day to every four days
- Pain score reduced from 10/10 to 0/10
- Reduced home health visits
- Discontinued all pain medications

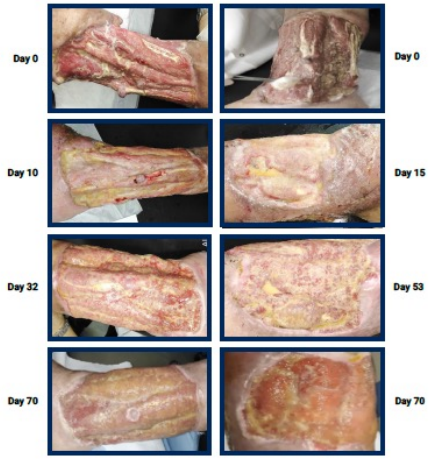


Before TPD Application | 2-months Post TPD Treatment

VASCULITIS

History: 42 y/o male with uncontrolled cutaneous vasculitis and history of p. aeruginosa. Developed circumferential venous ulcer on lower extremity with exposed bone and excruciating pain score (9/10).
Wound Duration: 4 months
TPD Treatment: TPD was changed twice a week for the first week and then on a weekly basis. Amikacin was used for infection control.
Outcomes:

- Accelerated granulation facilitated coverage of exposed bone
- Wound bed was ready for grafting in 70 days
- Patient reported reduction in pain immediately after the first application of TPD
- Prevented amputation



CONCLUSIONS

The implementation of the novel powder treatment showed improvement from a healing perspective in all three cases. The stagnating BP wound was fully healed in three weeks. In the second case, all peristomal skin complications were resolved after using TPD under the stomal appliance and the patient was able to wear the appliance for extended periods without pain or leakage. In the patient with vasculitis, a marked reduction in pain was observed within a few minutes of application of TPD. TPD stimulated granulation to cover the exposed bone and the extensive wound was ready for grafting within ten weeks. The powder form allowed for easy application to wounds of irregular shapes and causes. The reported cases demonstrate the effectiveness of TPD in the treatment of patients with painful or refractory atypical wounds.

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Acknowledgement: This poster was developed and presented in collaboration with ULURU Inc.

University Medical Center Hamburg-Eppendorf

2018 European Association of Dermatology and Venerology (EADV) Congress, Paris, France

CVderm German Center for Health Services Research in Dermatology

IVDP Institute for Health Services Research in Dermatology and Nursing

P2323 | Case Series: Chronic Wounds Treated With a Novel Transforming Powder Dressing

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[1]Institute for Health Services Research in Dermatology and Nursing (IVDP), University Medical Center Hamburg-Eppendorf, Hamburg, Germany | [2]Scientific Advisors, ULURU Inc.

BACKGROUND

Chronic wounds are associated with differing burdens for patients, health care professionals and health care systems. There is a high impact on quality of life for patients. Pain, exudation, malodor, and the resulting restrictions of leisure activities are typical. Transforming Powder Dressing (TPD) represents a novel transforming methacrylate-based dressing in powder form. Hydration of the powder granules leads to an irreversible aggregation. The resulting dressing conforms exactly to the wound surface and provides a moist wound environment. We present the results of a case series of patients with chronic stagnating wounds treated with TPD.

OBJECTIVES

The objective was to evaluate the impact of treatment with TPD on the reduction of wound size and pain score over an observational period of 12 weeks.

METHODS

We treated 11 patients with chronic wounds of different etiologies (Table 1) with Transforming Powder Dressing. All patients had received the best practice treatment and had experienced stagnation of wound healing for at least three months prior to the treatment with TPD. The observational period lasted 12 weeks. Wounds were inspected for a dressing change (or addition / top-off of more powder) every seven to fourteen days by a wound specialist. For every visit wound size and pain score (on the visual analogue scale - VAS) were obtained. Descriptive measures were computed. Quantitative variables were described as qualitative data as n in %, as mean with standard deviation (SD) for continuous variables. All analyses were performed using IBM SPSS, Windows® software version 23.0.

RESULTS

Study population

We included and analysed data of 11 chronic wounds from 11 patients, of which seven patients (64%) were female. The mean age was 63 years. The wounds were of different etiologies. Table 1 shows basic characteristics of the study population.

Tab. 1 Study population

Patient Number	Age in years	Gender	Duration before treatment in months	Etiology of the wound
1	74	Female	24	Post-thrombotic syndrome
2	61	Female	11	Pyoderma gangrenosum
3	24	Female	12	AV-Malformation
4	76	Female	12	Postoperative wound healing disorder
5	70	Female	12	CVI and mixed connective tissue disease
6	52	Female	156	Urticaria vasculitis
7	79	Female	7	Calcinosis cutis
8	64	Male	28	Peripheral arterial occlusive disease
9	72	Male	10	Diabetic foot and peripheral arterial occlusive disease
10	71	Male	8	Peripheral arterial occlusive disease
11	47	Male	30	CVI and mixed connective tissue disease

RESULTS

Wound size

The mean wound size decreased from 12.6 cm² at visit 1 to 2.7 cm² at last visit in week 12 (Table 2, Figure 1). The mean relative difference of wound size between visit 1 and the last visit was reduced by 40.9 % (SD 86.6 %). Four of 11 wounds full closure.

Tab. 2 Wound size in cm²

		Day 0	After 4 Weeks	After 8 Weeks	After 12 Weeks
Number of patients	Valid	11	11	9	7
	Missing	0	0	2	4
Mean		12.60	8.85	3.78	2.65
Median		8.75	7.50	1.33	1.08
Standard deviation		13.69	12.82	5.28	3.05
Minimum		1.80	.30	0.00	0.00
Maximum		49.00	45.50	14.00	6.96

Figure 1. Wound size (cm²)

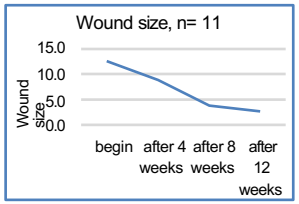
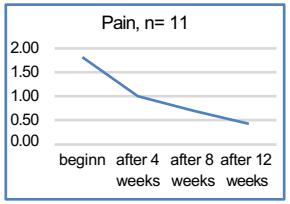


Figure 2. Pain score (VAS 0-10)



Painscore

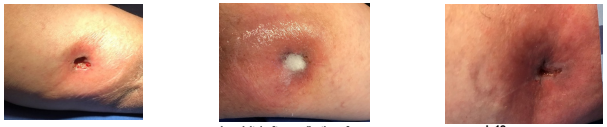
The pain score decreased from 1.8 (SD 2.1) at visit 1 to 0.4 (SD 1.1) at the last visit (Figure 2). Four of 11 patients had painless wounds.

Drop outs

During the treatment period 3 dropouts were observed. Patient 2 discontinued treatment because lack of time for consultations. Patients 10 and 11 discontinued treatment because of the progression of the wounds in week 8.

Clinical presentation

Figure 3. Patient 1 - Postoperative wound healing disorder

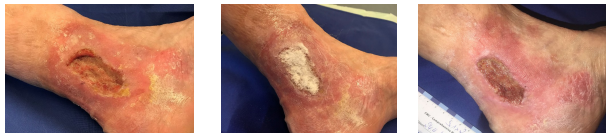


a = week 0 | b = visit 1 after application of powder dressing | c = week 12

RESULTS

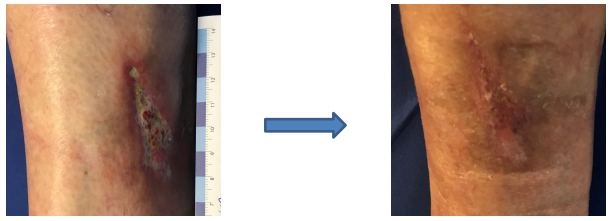
Clinical presentation

Figure 4. Patient 6 – Urticaria vasculitis



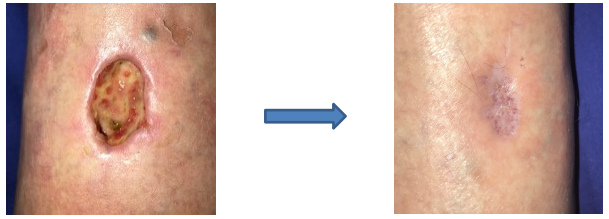
a = week 0 | b = visit 1 after application of powder dressing | c = week 12

Figure 5. Patient 5 - CVI and mixed connective tissue disease



a = week 0 | c = week 12

Figure 6. Patient 7 – Calcinosis cutis



a = week 0 | c = week 12

CONCLUSION

TPD offers a promising approach to treat chronic wounds. Reduction of wound size and pain contribute to a better quality of life and can reduce costs for the health care system. A highly beneficial characteristic of TPD observed during this study was the marked reduction in the frequency of dressing changes. In clinical routine, the mean period between dressing changes was about 2 weeks, suggesting the product offers a promising alternative to conventional dressings.

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The National

2009 APMA
Annual Scientific Meeting
Toronto · July 30–August 2

Transforming Powder Dressing Used Under Contact Cast for Complicated Charcot Arthropathy with Ulcer

Gregory A Bohn, MD; Matthew R Wilber, DPM

Introduction

When wounds complicate treatment of Acute Charcot Arthropathy, challenges with the requirements for optimal care of the wound may affect the choice of structural support and imobilization. A dressing that will be effective for the length of cast placement is a desireable.

Case Presentation

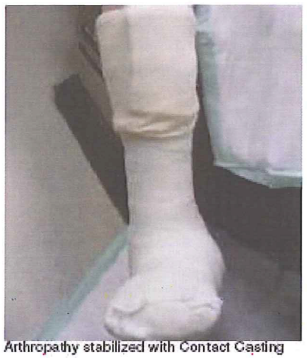
A diabetic male with a wound to his right foot, pathologic first metatarsal fracture and acute osetomyelitis underwent first ray amputation despite agressive IV antibiotic therapy, Hyperbartic Oxygen Therapy and wound care. After having healed, he returned in 7 weeks with acute warmth and swelling. X-rays demonstrate changes of Acute Charcot Arthropathy. A wound developed and was treated with [redacted] Transforming Powder dressing.

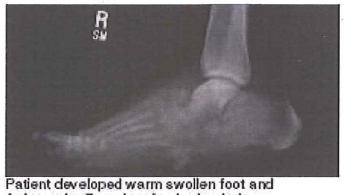
Methods

Transforming Powder
dressing was used with cadexomer iodine and becaplermin to control bioburden and impact healing while in contact cast.

Results

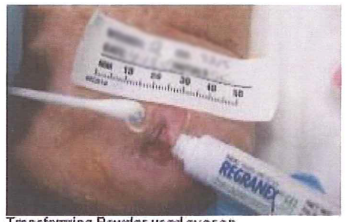
Transforming Powder
dressing works well under a total contact cast and stays in place. This dressing is effective in providing covering to bring about wound healing.


Arthropathy stabilized with Contact Casting

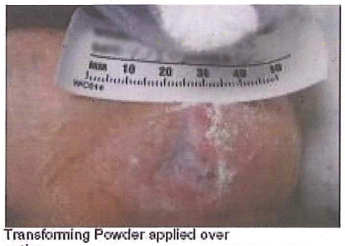


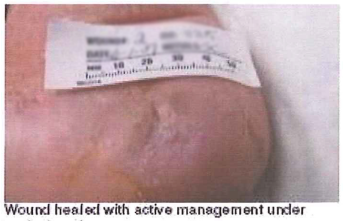
Patient developed warm swollen foot and Arthropathy 7 weeks after he healed


Heel wound developed while in Contact Casting



Transforming Powder used over an active; i.e., becaplermin.


Transforming Powder applied over active


Wound healed with active management under contact cast.

Conclusions

Transforming Powder
dressing has unique properties and applications that make it a prefered choice for a wide variety of applications. Difficulty in addressing Charcot Arthropathy when complicated with a wound requiring treatment poses a structural support problem as well as a wound problem. This new and unique dressing works well under a total contact cast to treat complicated wounds.

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Treatment of Non-Healing Radiation Injury Using Novel Extended-Wear Transforming Powder Dressing

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Laura L. Polson, BSN, RN-BC, CVAHP; Clinical Quality Value Analysis; Baptist Healthcare
WOCNext 2023 Meeting, Las Vegas, NV | June 4-7, 2023

BACKGROUND

Over half of all cancer patients receive radiation therapy, resulting in skin injuries in approximately 95% of those treated.[1] Further complications occur in up to 60% of treated patients[2] and include compromised wound healing, chronic ulceration, pain, secondary infections, and psychological distress.[2,3] Established standard of care (SOC) strategies for treating radiation wounds primarily utilize antimicrobial dressings which require frequent and painful dressing changes and consume significant human and material resources.

CASE OVERVIEW

This case study describes a 76-year-old female with metastatic cancer, s/p T8 laminectomy, tumor debulking, and radiation therapy with a nonhealing radiation wound on the thoracic spine. The wound was refractory to SOC therapy for a period of three months. Multiple topical agents were used including silver and other antibacterial dressings without any improvement in wound healing. Palliative care and home health nurses were required to perform daily dressing changes.

CURRENT CLINICAL APPROACH

A novel transforming powder dressing (TPD) was applied and covered with a contact layer and gauze. TPD was "topped off" three times over the 33-day treatment period and secondary dressings were changed prn. TPD is an extended wear dressing that covers and protects the wound while releasing excess exudate through vapor transpiration.

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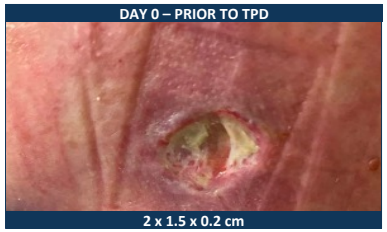
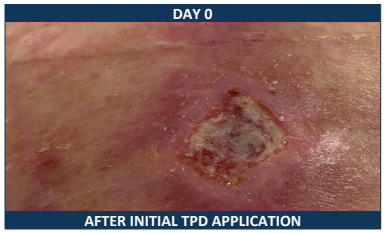
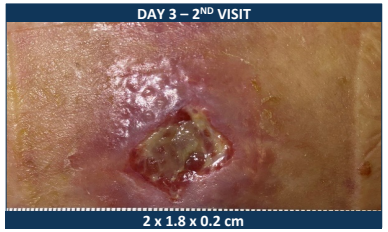
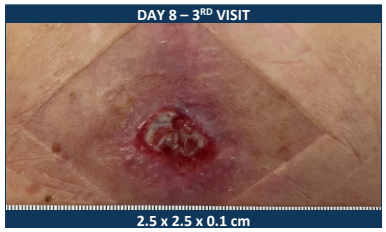
PATIENT OUTCOMES

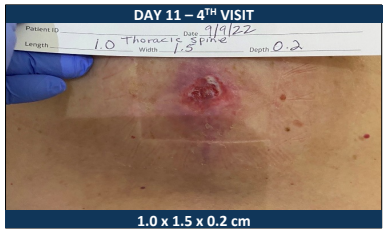
Prior to TPD, patient's non-healing wound measured 2.5 x 1.5 x 0.2 cm (0.6cm^3). TPD treatment resulted in full wound healing in 33 days. Patient reported pain and psychological relief after TPD application and was discharged from home health services.

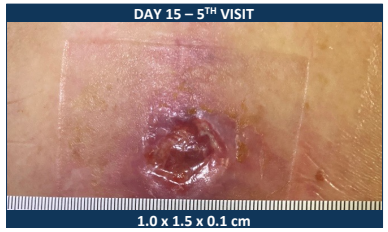


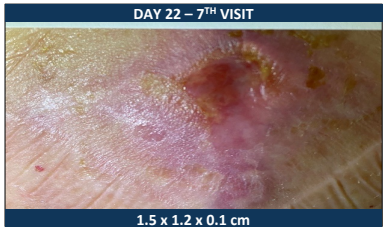


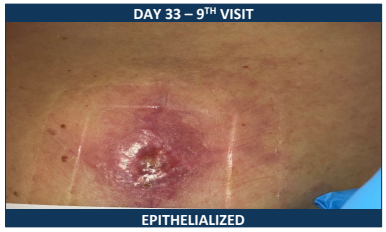












CONCLUSION

Radiation wounds are highly challenging, hard-to-heal wounds. The case demonstrated TPD's effectiveness in healing a three-month-old refractory wound within 33 days. The patient also reported reduced pain and no complications were observed. Nursing visits were reduced from daily to once a week with TPD. We conclude that TPD should be considered as a viable, alternative therapy for patients with chronic radiation injuries with poor prognoses.

EDU – 0070, REV O1

2009 APWCA Meeting,
Philadelphia, PA

Clinical Observations on the Use of a Novel Powder Wound Dressing in the Treatment of Atypical Wounds

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David W. Lee, BS Third year student
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Temple University School of Podiatric Medicine
Philadelphia, PA

Introduction:

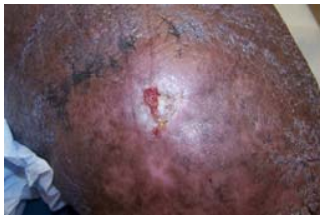
Atypical wounds are notoriously difficult to treat. Challenges involved in treating these wounds typically involve managing pain, an inability to debride due to Koebner's phenomenon or pathergy, and decreasing inflammation both peri-wound and in the wound. We describe the application of a novel powder dressing with unique properties to atypical wounds with positive results.

Methodology:

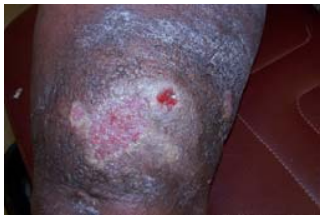
The clinical evidence of a novel powder wound dressing has been demonstrated previously for wounds such as venous ulcers or diabetic foot ulcers. In this case study, atypical wounds such as ruptured lymphangiomas in a patient with chronic lymphedema, pyoderma gangrenosum, and a sickle cell ulcer developing after hallux valgus surgery are studied with different treatment options. All of these wounds were treated with a novel powder wound dressing once weekly for four to eight weeks.
For each wound, the powder was applied according to manufacturers instructions where it transformed from a white powder into a translucent, flexible film on the wound bed. The dressing did not overlap onto tissue surrounding the wound. For the patient with lymphangiomas, the powder was allowed to transform and a compression boot was applied over the dressing with no complications between dressing changes.

Results:

The ruptured lymphangiomas healed uneventfully with application of the powder dressing. The sickle cell ulcer decreased in size and pain substantially in order for a skin substitute to be utilized. The pyoderma gangrenosum showed a decrease in pain and increase in granular tissue formation and continues to show improvement to date.



Lymphangioma Day 0



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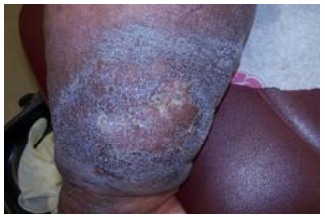
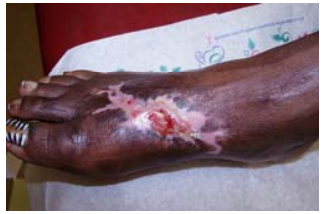
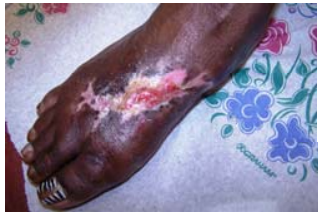


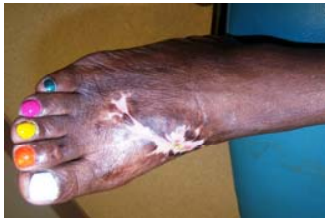
Lymphangioma Day 31



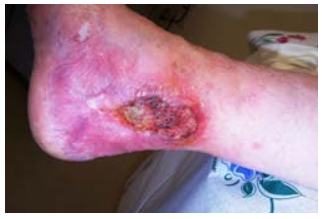
Sickle Cell Hematoma Day 0



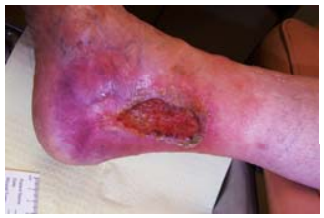
Sickle Cell Hematoma Day 7



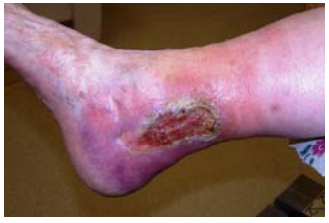
Sickle Cell Hematoma Day 21
Healed with Dermal Substitute



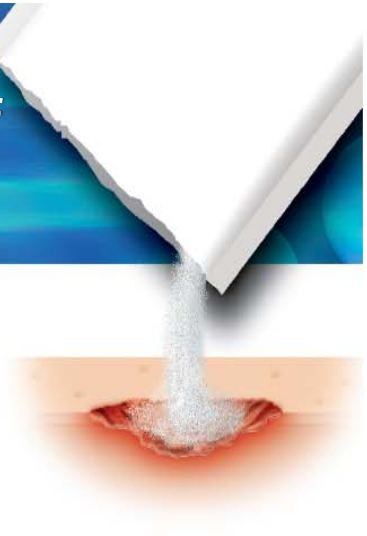
Pyoderma Day 0



Pyoderma Day 7



Pyoderma Day 21



Conclusion
The implementation of a novel powder wound dressing in treatment showed improvement from a healing perspective in all three challenges. The primary benefit seemed to be decreased pain for each wound as all of these clinical conditions have marked pain associated with the wounds. In addition, the wounds showed a decrease in depth accompanied by an increase in granulation tissue at each dressing change. The properties of this novel powder wound dressing allow for application to atypical wounds of irregular shapes and causes. The dressing demonstrates the capability to remain in contact with the wound bed for periods of up to seven days between dressing changes. More importantly, it provided a painless, efficient, and protective wound treatment that not only assisted in wound closure, but also in wound preparation for further interventions.

Learning Objectives:
The objective of this presentation is to show the physical and chemical characteristics of a unique powder wound dressing and demonstrate the use of this dressing in the treatment of atypical wounds.

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St John J. "The Design and Performance of Nanoflex™ Transforming Powder Dressing: A Novel Wound Care Management System", presented at the Clinical Sympoisum on Advances in Skin and Wound Care, Las Vegas, 2008.
Niezgoda, J. "Altrazeal™ A Transforming Powder Wound Dressing: The Clinical Experience," presented at the Clinical Symposium on Advances in Skin and Wound Care, Las Vegas, 2008.

Mary Gloeckner: RN, MS, CWON, Ostomy/Wound
CNS Gregory Bohn, MD FACS Medical Director
Trinity Medical Center
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Transforming Powder Wound Dressing Relieves Pain and Manages Moisture Restoring Quality of Life

Purpose:

Painful wounds limit a patient's activities and interfere with quality of life. Transforming Powder Wound Dressing relieves pain while managing wound moisture, restoring quality of life for patients. This presentation demonstrates pain reduction in two patients who had wounds that limited their activity. Transforming Powder Dressing has a unique property in that it reduces or eliminates pain when applied to the wound.

Objectives:

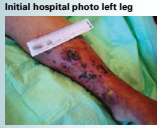
At the conclusion of this presentation the participant will be able to:
1. Realize that pain from wounds impacts on quality of life for patients with wounds.
2. Identify that nociceptive pain can be Procedural; related to dressings and their changes, Incident; related to movement with activity, and Background; related to factors related to wound etiology and local wound factors.
3. Identify a new novel Transforming Powder Dressing that has the ability to significantly impact on Procedural, Incident and Background pain and improve quality of life for wound patients.

Abstract:

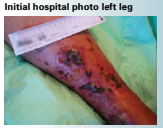
Pain has been categorized as Operative (debridement or surgically related), Procedural (related to dressing removal and application), Incident (related to movement, dressing slippage, etc.) and Background (persistent and underlying pain due to wound etiology). While Operative pain is managed by anesthetic agents and Procedural pain may be managed by both anesthetic agents and oral analgesics, Incident pain and Background pain are typically managed by oral analgesics either opioid or non-opioid. Co-analgesic medications are often added to manage Incident and Background pain. Patients tend to focus more on their Incident and Background pain as they experience this type of pain after they leave the clinic. Patients often understand that they will experience pain with surgical debridement and dressing change. Pain experienced in the clinic with debridement and dressing change can be addressed with topical anesthetics or other agents and techniques. When left on their own, Incident pain and Background pain are dealt with directly by the patient taking an oral medication. A new dressing material is available that has an exceptional unique property to reduce the pain commonly experienced by patients with wounds. Application of Transforming Powder Dressing not only reduces pain, but has a long wear time. Pain experienced with dressing change is less as the dressing lifts off easily. Oral opiates were not required in two patients with commonly painful wounds to manage pain with dressing change, during dressing wear or as Background pain treatment.

CASE 1

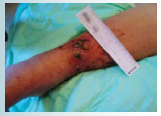
Initial hospital photo left leg



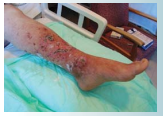
Initial hospital photo left leg



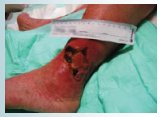
Initial hospital photo right leg



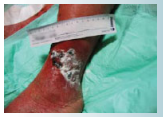
Transforming Powder Dressing applied



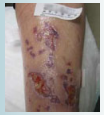
Left leg wound



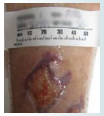
Left leg wound with powder



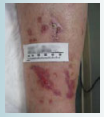
Outpatient wounds



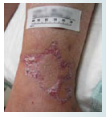
Outpatient wounds



Outpatient healed

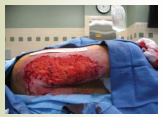


Outpatient healed



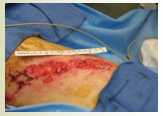
CASE 2

Arm wound

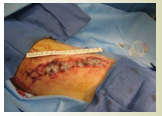


Arm wound

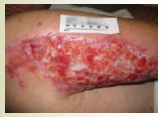
Thigh wound



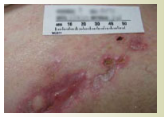
Thigh wound



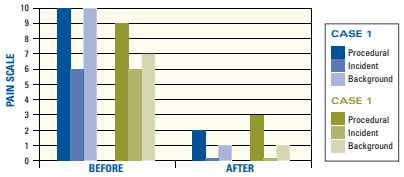
Arm wound healing



Thigh wound healed



Pain Reduction with Transforming Powder Dressing



Methods:

A new Transforming Powder Dressing became available for use in our wound clinic and hospital. Transforming Powder Dressing was applied to the wounds and pain evaluated by the patients response to standard pain scoring measures. Patients were asked to rate their pain on a scale of 1-10. They compared their pain experienced before the use of Transforming Powder Dressing and during treatment with Transforming Powder Dressing. Assessment of Procedural pain (relative to application and removal of dressing), Incident pain (related to dressing slippage) and Background pain (underlying pain) was performed during patient interviews.

Case Studies:

Case 1: A 54 year old female undergoing chemotherapy for metastatic ovarian cancer had suffered with bilateral lower extremity edema from obstructed lymphatics. She had suffered significant edema for 5 months; initially developed blistering was hospitalized and had multiple deep marginated ulcerations of both lower extremities. The patient suffered pain from daily dressing changes, pain from movement of the dressings and Background Pain from her wounds. With a pain level rating of 10, she couldn't stand for the initial evaluation. Transforming Powder dressing was applied and the patient noted a marked decrease in background pain. She also reported a significant decrease in pain with dressing changes and did not experience pain from dressing movement. Prior to discharge to outpatient care, the patient was engaged in physical therapy and active.

Case 2: A 57 year old male undergoing chemotherapy and radiation therapy for metastatic intracranial melanoma fell against a steam radiator and suffered 3rd degree burn wounds to his right arm and right thigh. He had been treated as an outpatient with daily Silvadene dressing changes. Concern for failure of skin grafting during chemotherapy, the patient underwent tangential excision of dead burn eschar and was treated with Transforming Powder Dressing. He was followed weekly in the wound clinic and had his dressing reapplied at each visit.

Results:

When applied to the wounds both patients experienced a decrease in Procedural pain, Incident pain, and Background pain as reported to nursing staff on pain assessment scoring (Figure 1). As an inpatient, Patient 1 required IV narcotics to control her pain. With application of Transforming Powder Dressing, she was weaned to oral narcotics and subsequently required no pain medicine on discharge to outpatient care. She had a family member reapply the powder as needed and continued her care as an outpatient in the wound clinic. Patient 2 was using oral narcotics every 6 hours as allowed, after surgery but transitioned to non-narcotic analgesics when his wounds were covered with Transforming Powder Dressing. He reported some pain with dressing changes but did not require narcotic pain management for dressing changes. His Incident pain was nonexistent as the Transformed Powder stayed in place and he noted little Background pain throughout the week.

Conclusion:

Both patients experienced a reduction in their pain level when the powder dressing was applied to their wounds. The intimate contact with the wound surface and the ability to manage moisture may be an important aspect of this effect. The moisture content of the dressing material is very close to that of normal skin. Optimizing the wound environment and sealing the wound may also contribute to this observed effect. The wounds of patient 1 healed while she was managed as an outpatient. Her activity level was not limited by her wounds. She has become productive and active. Patient 2 succumbed to his disease but benefited from his dressing in that he did not suffer from the pain of daily dressing changes or the side effects of narcotic medications. His dressings were changed weekly or biweekly rather than daily which greatly reduced the episodes of pain may have experienced.

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