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

## 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



Lymphangioma Day 11



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.

## References:

St John J. "The Design and Performance of Nanoflex™ Transforming Powder Dressing: A Novel Wound Care Management System", presented at the Clinical Symposium 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.



## 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 immobilization. A dressing that will be effective for the length of cast placement is a desirable.

### Case Presentation

A diabetic male with a wound to his right foot, pathologic first metatarsal fracture and acute osteomyelitis underwent first ray amputation despite aggressive IV antibiotic therapy, Hyperbaric 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 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 preferred 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.

### References

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- 4.) De Souza LJ Charcot Arthropathy and Immobilization in a weight bearing Total Contact Cast. The Journal of Bone and Joint Surgery 2008; 90: 754-759.
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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:

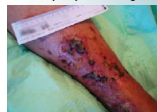
Pain has been categorized as Operative (debridement or surgically related), Procedural (related to dressing removal and application), Incident (related to movement, dressing slippage, etc.) and Background (persistent and underlying pain due to wound etiology). While Operative pain is managed by anesthetic 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



## 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 margined 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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## Pain Reduction with Transforming Powder Dressing

