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Introduction

Off-loading plantar diabetic foot ulcers can be a challenge for both the patient and practitioner. Challenges involved in treating these plantar wounds involve both short term and long term placement and control of the dressing and compliance. The implementation of a novel powder wound dressing and felt padding system demonstrated assistance in all of the challenges. The physical properties of this powder wound dressing are unique due to its ability to form a solid, non-resorbable moist wound dressing after contact with wound exudate or saline. The 3D (Hapla, Cuxson Gerrard) felt padding system is a novel off-loading system that allows the patient to have access to an aperture for wound dressing changes, while still maintaining pressure redistribution.

Methodology:

The physical and chemical properties of a novel powder dressing formulated as polymer particles and the padding system have previously been studied. The plantar diabetic foot wounds were treated with the novel powder dressing followed by the felt pad system once weekly for four weeks. The patient was educated on dressing changes at home while keeping the felt padding intact.

The Combined Effect Of The Offloading Felt Pad System And A Novel Powder Wound Dressing On Plantar Ulcers

Case 1

63 y.o. IDDM African American male presented with chronic Wagner-Grade II ulcer on the plantar surface of the third metatarsal of the right foot. The ulcer has been present for 2 ½ years. Patient is non-compliant with offloading.

Visit 1 -3/24/10

Size of wound- 2.8cm length, Width 1.3, Depth 0. 2cm

Exudate- Low

Wound Bed- 90% granular/ 10% Fibrous

Wound Margin: Hyperkeratotic

Treatment

Wound Debrided

Dressings applied: Castellani's paint peri-wound, Altrazeal applied to the base of the wound

Offloading device: Hapla 3D system and surgical shoe

Visit 2: 3/31/10:

Patient presents with Hapla 3D system still in place, dry, clean, and intact.

Size of wound- 1.8cm length, Width 1.2, Depth 0. 2cm

Exudate- Low

Wound Bed- 100% granular

Wound Margin: Hyperkeratotic and Macerated

Treatment

Wound Debrided

Dressings applied: Castellani's paint peri-wound, Altrazeal applied to the base of the wound

Offloading device: Hapla 3D system and surgical shoe

Visit 3: 4/7/10

Size of wound- 1.7 cm length, Width 1.7, Depth 0. 2cm

Exudate- Low

Wound Bed- 100% granular

Wound Margin: Hyperkeratotic and Macerated

Treatment

Wound Debrided

Dressings applied: Castellani's paint peri-wound, Altrazeal applied to the base of the wound

Offloading device: Hapla 3D system and surgical shoe

Visit 4 : 5/19/10

Size of wound- 1.4 cm length, Width 1.0, Depth 0. 2cm

Exudate- Low

Wound Bed- 100% granular

Wound Margin: Hyperkeratotic

Treatment

Dressings applied: Castellani's paint peri-wound, Altrazeal applied to the base of the wound

Offloading device: Hapla 3D system and surgical shoe

Day 7



Day 7



Day 57



Case 2

40 year-old male presented with plantar verruca that has been curettaged and electrodesiccated. Patient was compliant and ambulated with crutches for four weeks. Patient had no pertinent past medical history.

Visit #1 3/16/2010

Right foot ulcer x 2; location: plantar heel distal and proximal

Type of wound: post-surgical

Wound bed: granular

Wound margin: healthy

Treatment

Wound cleansed and Altrazeal with Hapla 3D system and surgical shoe applied. Patient to keep foot dry and not remove dressings. Weight bearing as tolerated.

Visit #3 4/1/2010

Right foot ulcer x 2; location: plantar heel distal and proximal

Type of wound: post-surgical

Wound bed: granular

Wound margin: macerated and slightly hyperkeratotic

Treatment

Wound cleansed and Altrazeal with Hapla 3D system and surgical shoe applied. Weight bearing as tolerated

Visit # 6 4/23/2010

Right foot ulcer x 1; location: plantar heel distal; plantar heel proximal ulcer resolved

Type of wound: post-surgical

Wound bed: granular

Wound margin: macerated and slightly hyperkeratotic

Treatment

Wound cleansed and Altrazeal with Hapla 3D system and surgical shoe applied. Weight bearing as tolerated

Visit #10 5/18/2010

Right foot ulcer x 1; location: plantar heel distal

Type of wound: post-surgical

Wound bed: granular

Wound margin: macerated and slightly hyperkeratotic

Treatment

Wound cleansed and Altrazeal with Hapla 3D system and surgical shoe applied. Weight bearing as tolerated

Visit # 11 5/25/2010

Right foot ulcer x 2 resolved

Type of wound: post-surgical

Treatment

Patient is to keep the skin slightly moist with a fine layer of Aquaphor healing ointment daily. Weight bearing as tolerated

Throughout the therapy, the patient had no pain or problems ambulating using the combination of the dressing, felt 3D dressing, and surgical shoe.

Day 0



Day 7



Day 39



Case 1 Conclusion:

The Hapla 3D system, an assisted walking offloading device in combination with

Altrazeal, is an effective to treat a plantar neuropathic ulcer. In less than 4 weeks the patient's ulcer decreased in size: 1.4cm in length and 0.3cm in width. Moreover, after 1 week of treating the ulcer with Altrazeal, the ulcer base became 100% granular..

Case 2 Conclusion:

The combination of this novel powder wound dressing and off-loading felt padding system allow for use of the transforming wound dressing in plantar wounds. The combination 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

References:
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