THE EFFECTIVENESS OF SELF-ADAPTIVE WOUND CARE DRESSING* FOR WOUNDS OF VARIOUS ETIOLOGIES

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CASE 1: Healing of post-op incisional dehiscence in a patient with advanced comorbidities

A 72-year-old male with diabetes, hypertension, dyslipidemia, multiple previous foot infections who underwent partial 2nd ray amputation for osteomyelitis. By post-op day 14, the incision had dehisced in the interspace due to early ambulation. NPWT was applied and then discontinued due to maceration.

A. Week 0.
Dehisced wound was assessed on post-op day 18 after 4 days of NPWT. Sutures were intact. Maceration was observed on peri-wound and lateral toes.
A decision was made to start the self-adaptive treatment with gauze applied directly onto wound bed.

B. Week 1.
After 1 self-adaptive dressing application clinical improvement was observed.
There was less maceration and all of the discharged exudate was absorbed by the dressing.
It was decided to continue weekly re-applications.

C. Week 3.
Wound has started to close after 3 weeks of self-adaptive dressing treatment. Continued clinical improvement was noted in and around the wound.

D. Week 9.
The wound was completely closed and healed.

E. Week 12.
At the follow-up appointment it was noted that the wound continues to be closed and the surrounding skin appears healthy.

BACKGROUND

•Surgical dehiscence after partial ray amputations may result in devastating complications. A clinician should choose modalities that facilitate rapid wound closure. [1]

•Forefoot ischemia puts patients at risk of amputation due to gangrene and advanced ulceration. The primary goal of a clinician is to preserve the limb. [2]

•Advanced biologic product applications require protection from extraneous factors and maintenance of the necessary moisture balance, especially over exposed tendon or bone. [2]

•We evaluated effectiveness of a single modality treatment of wounds of various etiologies in a practical clinical setting: post-op incisional dehiscence in a diabetic patient with advanced comorbidities; forefoot ischemia in a patient with non-reconstructable vascular disease; and advanced biologic product application after diabetic amputation.

RATIONALE

•Multiple treatment choices exist for various types of wounds. A clinician's challenge is to choose modalities and dressings that will address each particular wound condition and promote fast healing. [3,4]

•A non-woven synthetic polymer self-adaptive dressing* is recently available for treatment of wounds of various etiologies and exudate levels. [5,6]

•Self-adaptive wound care technology is based on science of dynamic wound dressing materials with variable on-demand functionality; dressings are designed to facilitate moisture balance in wounds through simultaneous absorption of fluid and release of water vapor.

METHODS and RESULTS

•The self-adaptive dressings were evaluated in three patients with wounds of different etiologies. With patient consent, their wounds were treated with self-adaptive wound dressings.

•The first patient underwent a partial 2nd ray amputation and was started on self-adaptive dressing after NPWT was discontinued due to maceration of dehisced surgical wound. Weekly interdigital dressing applications for 9 weeks resulted in complete healing.

•The second patient had severely macerated and painful ischemic forefoot, amputation being the next option after various therapies failed. Self-adaptive dressings were initially applied daily, then gradually reduced to twice a week. Tissue quality improved significantly and pain reduced markedly to the great satisfaction of the patient.
A small residual wound remains and is expected to heal with continued treatment.

•The third patient underwent amputation of his 4th and 5th toes with residual dorsal defect and exposed tendons. A 3-dimensional human dermal substitute was used and self-adaptive dressing placed over it for 7 days. After weekly reapplications for 5 weeks, the patient is now almost healed.

CONCLUSIONS

• Self-adaptive dressing's unique technology as a single modality treatment was equally successful for various wounds as both a primary and a secondary dressing.

• It proved to be a go-to product for applications over dermal substitutes when finding the right secondary dressing to help with peri-wound moisture balance issues can be challenging.

• It was also effective in cases where previous treatment had failed in patients at risk of further complications and amputation.

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CASE 2: Forefoot ischemia with severe maceration post dry gangrene treatment

A 65-year-old male patient with non-reconstructable vascular disease was offered a below knee amputation after various therapies failed to heal a wound that began with ischemic great toe. Self-adaptive dressings were initially applied daily, then gradually reduced to twice a week.

A. Week 0.
After many failed therapies, the patient presented with a full thickness wound without infection to entire forefoot, painful and raw. The entire forefoot was severely macerated, patient was unable to separate his toes.

B. 8 weeks.
With daily applications of self-adaptive dressing that were later reduced to every other day, the swelling of the toes began to subside, the pain was decreased. The skin condition improved, starting to dry and epithelialize.

C. 16 weeks.
Self-adaptive dressing applications were gradually reduced to twice weekly. The toes have essentially healed and epithelialized. Residual wounds to great toe and medial 2nd toe were starting to close.

D. 20 weeks.
Continued improvement was observed with self-adaptive dressing treatment. Residual wound was still present to great toe; second toe wound has healed. The forefoot skin appeared to have normal turgor, texture and color. The patient continued to report minimal pain.

CASE 3: Management of dorsal wound with exposed tendons using dermal substitute and self-adaptive dressing over it

A 50-year-old diabetic male patient with an active substance abuse problem was hospitalized for hyperglycemia and burn wound to the right foot. A significant infection to his right foot developed and the patient underwent partial 4th and 5th ray amputations after his 5th toe turned gangrenous. Post-amputation the patient had a residual dorsal defect and exposed tendons for which NPWT was placed. Further treatment included use of a 3-dimensional human dermal substitute combined with self-adaptive dressing.

A. At presentation
Immediately post-amputation and surgical debridement. NPWT was prescribed and applied to the open ulcer.

B. Week 0.
Two weeks post-amputation. NPWT was used to prepare the wound bed for placement of skin substitute treatment.
Wound base was fibrogranular. Periwound was clean and intact with mild non-erythematous discoloration. Human dermal substitute was applied to the wound with self-adaptive dressing on top to preserve moisture balance.

C. 2 weeks.
After two weekly applications of human dermal substitute with self-adaptive dressing placed over it, tendons remained viable; the wound bed primarily consisted of healthy beefy red granualtion tissue, without periwound maceration.

D. 8 weeks.
After 8 weekly applications of human dermal substitute with self-adaptive dressing placed over it, tendon was covered, the wound was nearly epithelialized. Reduction of wound size was significant.

*ENLUXTRA Self-Adaptive Advanced Wound Dressing, OSNovative Systems, Inc., Santa Clara, CA • www.OSNovative.com