

# CLINICAL CASE STUDIES DEMONSTRATING EFFECTIVE MANAGEMENT OF A THERMAL BURN, PRESSURE ULCER, AND TRAUMATIC INJURY UTILIZING A HYDROGEL SHEET IN COMBINATION WITH OTHER TREATMENT MODALITIES

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## ABSTRACT

With PPS (The Perspective Payment System) and the changes in the Medicare System we are all faced with the challenges of providing quality of care at reduced costs. As we look at the wound care area, with all of the advanced technologies now available in the marketplace today, perhaps we should expand the uses and applications of a given dressing as well as, use combination therapies beyond the Medicare HCPC code category to assist in an overall reduction of costs for optimal wound healing.

Although products are given a specific code with definitions of use and change, many of the dressings offered today provide additional properties that can extend beyond the definition code that was given to them. While reviewing and evaluating various types of wound dressings, although grouped by category type, each product varies in its composition, performance, and efficacy. It is imperative that clinicians expand their knowledge of the different types of products offered and to look at the true properties of the product for versatility of applications, longevity of use, ease of use, patient compliance, ease of change, and the main factor-achieving wound closure.

Reducing costs can be achieved by: minimizing the number of vendors, reducing the time per dressing change, reducing the number of dressings per week, per patient, and obtaining optimal wound healing. Combining wound care products and/or expanding their use and applications can assist in the overall reduction of costs in wound management.

This poster demonstrates the effectiveness of a glycerine hydrogel sheet that was used on diverse wounds such as: thermal burn, pressure ulcer, and traumatic injury. The poster also seeks to stimulate other clinicians interest in researching wound healing above and beyond the definitions of defined wound care category.

The glycerine hydrogel sheet was selected to reduce the impediments known to wound healing: slough, debris, necrotic tissue, bacterial overload, shear, friction and excess exudate. **The selected dressing was chosen for all case studies due to:**

- its ease of use
- cushioning effect
- bacteriostatic/fungistatic properties
- absorbent properties
- versatility
- cost effectiveness

**The benefits of the glycerine hydrogel dressing were:**

- the ability to offer "pain free" dressing changes
- the ability to conform to hard to dress areas
- the ability to absorb excess moisture as well as extract denuded tissue and debris from the wound site
- the ability to keep the wound site "infection free"
- the ability to keep the wounds odor free
- the ability to heal the wounds with minimal or no scar formation
- the ability to use the dressing for several days per patient use
- the ability to reduce nursing time/dressing changes
- the ability to reduce overall costs

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## Case Study #1: Thermal burn

### Introduction:

Patient is a seventy-seven (77) year old with painful thermal burns on three toes and the plantar surface of the left foot. A shortening can was left on the stove which caught fire. Patient threw the can to the floor and then stepped on it trying to put the fire out.

### Initial visit:

The initial emergency visit on 7/28/98 exposed 2nd and 3rd degree burns. Blisters were intact. Plantar burn measured 4.5 cm x 7.1 cm. The treatment plan was to leave the blisters intact, cleanse the wounds gently and apply an antimicrobial cream to the burns and cover with a bacteriostatic, absorbent hydrogel sheet. The care plan was chosen due to its ease of use, bacteriostatic properties, and for cushioning properties. Patient was instructed to change the dressing every other day.

### Follow up:

On 8/2/98, the patient returned to the wound clinic for wound assessment and evaluation. The plantar blister was mechanically removed and the wound now measured 4.3cm x 6cm. The blisters on the toes were left intact. Patient reported that the original care plan using the cream and gel sheet exhibited cool, soothing properties to the burns, the dressings were easily removed without sticking to the wounds and she also reported that she was able to walk directly on the wounds without pain. Wound evaluation showed no signs of infection. Treatment plan remained the same.

On 8/11/98, the assessment of the burns were all granulating except one area of one toe which measured 1.3cm x 1.5cm. All wounds remained infection free. The wound care treatment plan remained the same with the exception to change the cream and gel sheet daily.

On 8/18/98 all wounds healed except one toe. The antimicrobial cream was discontinued but the hydrogel sheet was continued for protection of the newly formed tissue. Last site visit was 9/8/98, forty nine (49) days from original date the burn wounds were fully healed without infection, scarring or contraction.

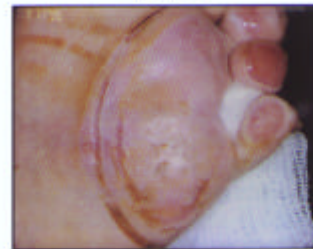
**Conclusion:** Following this simple protocol reduced the number of dressing changes weekly which proved to be cost effective. The dressings selected allowed the patient to be comfortable and allow mobility as well as, keeping the wounds infection free.



7/28/98



8/02/98



8/11/98



9/08/98



## Case Study #2: Traumatic Injury of Lower Leg with Erupting Hematoma

### Introduction:

Patient is a ninety (90) year old who sustained a blunt trauma to the left lower leg while boarding a train. She traveled from Arizona to her home in Iowa with the open wound.



### Initial visit:

The initial visit was 5/29/01, 10 days following the train ride. The leg wound measured 4.5cm x6.8cm with a palpable hematoma surrounding the wound 2cm x 2.5 cm. Due to the patients age and fragile skin, the treatment plan was weekly cleansing of the wound, covering the wound with a glycerine hydrogel sheet dressing and securing the bandage with a multi-layer compression wrap and changed weekly. The goal of initial treatment was prevention of infection, protection of the area and absorption and extraction of the hematoma.



5/29/01

### Follow-up:

In one (1) week, 6/5/01, the wound was open and the hydrogel sheet had partially absorbed the hematoma. The wound now measured 3.0 cm x 5.5 cm. The attachment photo is of the dressing to demonstrate its ability of autolytic debridement of the excess debris which was pulled out from the wound site. The other attachment photo is the dried blood that was easily lifted and removed from the wound site without the use of a scalpel. There were no signs of infection. The protocol remained the same as initial plan.



6/5/01



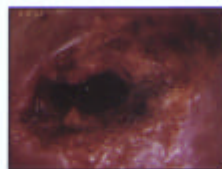
6/5/01  
Hydrogel  
Dressing

By week two (2), 6/12/01, the hydrogel sheet had absorbed the majority of the hematoma and wound contraction had begun with the wound measuring .5cm x 1.5 cm. The attachment photo is of the hydrogel sheet to continually show the absorption capabilities and autolytic debridement properties. No signs of infection were present. The patient reported no pain when the dressing was in place. To extend the longevity of dressing and the compression wrap, an alginate was added to the treatment. The alginate was chosen due to the high level of drainage that was present. The alginate was applied to the wound first, then the hydrogel sheet covered by the compression wrap. The dressings and compression wrap were changed weekly.



6/05/01  
Dried blood  
Removed from  
wound

The next couple of weeks the wound exudate had subsided and the alginate was discontinued. The wound continued to have excellent granulation and closure and only the hydrogel sheet and compression wrap were used. (no photos available)



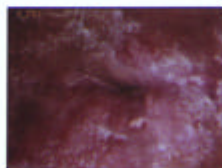
6/12/01

On 8/2/01, 65 days after initial treatment the wound was basically closed with no signs of infection. The patient was released from our care and it was recommended to use a foam dressing for the protection of the newly formed tissue.



6/12/01  
Hydrogel  
Dressing

**Conclusion:** The hydrogel sheet was effective in protecting the hematoma while the absorption properties helped to extract the excess fluids and debris within the hematoma which left only the devitalized tissue to be easily removed, causing no trauma or damage to the wound bed. The glycerine hydrogel kept the wound infection free. Using an alginate with the hydrogel assisted in the absorption of the excess drainage while maintaining a moist bacteria free environment. Weekly dressing changes assisted in making this protocol easy and cost effective.



8/02/01



### Case Study #3: Chronic Pressure Ulcer of the Ischium

#### Introduction:

Patient is a seventy-five (75) year old with a year old pressure ulcer of the ischium.

#### Initial visit:

The initial visit was on 8/11/98. The patient was a resident of a nursing home and was presented to the wound care clinic regarding a chronic pressure ulcer. The wound had been present for one (1) year and the nursing home staff was unable to bring it to closure. Upon assessment, the wound was pale with rolled edges. The wound measured .7cmx.5cm. The treatment protocol was cleansing the wound, edging of the wound, application of collagen/alginate wafer and covered with a glycerine hydrogel sheet. Dressings were changed bi-weekly.

The collagen/alginate was selected to assist in supplying nutrients to the chronic wound site as well as, absorption of exudate. The glycerine sheet was used as the covering due to its bacteriostatic/fungistatic properties. The goal was to "kick start" the old wound and protect it from infection.

#### Follow-up:

On 8/25/98 (14 days) after initial treatment, the wound started closure and now measured .2cm x.1cm with a beefy red wound bed and intact peri wound skin. The treatment plan was continued.

On 9/1/98 (7 more days or a total of three weeks), the wound had reached closure.

**Conclusion:** Chronic wound healing may need a combination of wound dressing therapies in order to get good wound healing and closure. In just 3 weeks after initial protocol, a wound that had been present for 1 year was closed. This simple solution reduced the bio-burden and allowed each dressing component to assist in the overall goal of rapid wound closure.

**General Conclusion-our experiences:** These case studies demonstrate the importance of choosing combinations of dressings that provide the patient the best outcome (pain relief, infection control, reduced scarring, exudate management, etc...) and to achieve the most cost effective wound management protocol for each patient. Our experiences with the glycerine based hydrogel indicate that it is very effective at preventing infection and often effective to stimulate chronic wound closure, we believe due to the reduction in bio-burden. We have found the absorption properties of the glycerine dressing to be very effective to reduce the fluid in hematoma injuries, which allows healing to occur under the damaged area and simple non-traumatic removal of the wound covering. Adding additional high absorbent dressings, such as, calcium alginates, Bard Absorption dressing, or Gold Dust, under the glycerine gel sheet, reduces the dressing changes and the nursing time and expense. Scar formation is greatly reduced and often eliminated, when wounds are allowed to heal under this glycerine based dressing.

#### References:

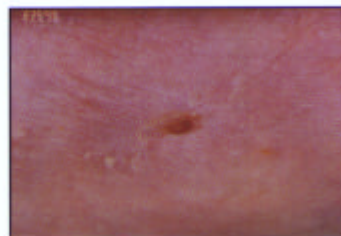
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  2. Kane D, Krasner D. Editors. "Chronic Wound Care"-A clinical Source Book for Healthcare Professionals, 2nd edition, USA: Scullin; 1997.
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- This poster was sponsored by Southwest Technologies, Inc. ©



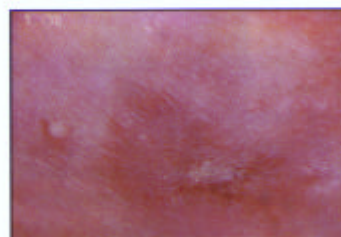
BACK



8/11/98



8/25/98



9/1/98

**Products Used:** glycerine hydrogel sheet-  **Elasto-Gel™**, Collagen-Calcium Alginate-Fibrocol, antimicrobial cream-Silver Sulvadiazene, compression wrap-Profore