Use of Controlled-Release Silver Dressing (CRSD)* for a Full-Thickness Wound on Irradiated Tissue

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Introduction

Radiation therapy (RT) is used to treat a variety of diseases. Radiation works by damaging the DNA of the cell, inhibiting it's ability to replicate. The patient is treated with a radiation beam that can leave him with full-thickness tissue damage including, dry, frail, hairless skin with an impaired ability to heal. This can result in disfigurement and dysfunction, especially on an extremity. RT is nonselective, meaning that any cell and tissue in the radiation field may be affected. Often, normal function of fibroblasts, white and red blood cells, blood vessels, sebaceous glands, sweat glands and hair follicles will be affected. Patients should be taught to protect this area from further injury and trauma as they are at risk for developing wound site infections. The new advances in wound care protect the patient from pathogenic organisms that can lead to infection, delayed healing and provide the optimal moist environment needed for healing.

* *Arglaes from Medline Industries, Inc.*

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Material and Methods

This is a 60 year old male that presented with a squamous cell carcinoma on the dorsum of his left hand. He underwent RT for five weeks resulting in a full-thickness wound. He was in his usual state of good health and nutrition was adequate. His lab values were within normal limits.

Discussion

The proven antimicrobial effects of silver are well documented in the literature. Historically, silver nitrate and silver sulfadiazine have enjoyed popularity in the treatment of burns and wound care. There is no known resistance to silver and the CRSD* has the ability to deliver ionic silver constantly and consistently for up to seven days, overcoming some of the negative aspects of these prior silver delivery methods. This CRSD has proven to be effective against a broad range of microorganisms including resistant strains such as MRSA and VRE. We chose this dressing for our patient because of its ability to deliver a controlled amount of ionic silver while maintaining an optimal moist wound healing environment.

Results

The wound was completely reepithelialized in 16 days, utilizing appropriate wound care. This included aggressive cleansing, irrigation, debridement (both sharp and enzymatic) and antimicrobial silver dressings.

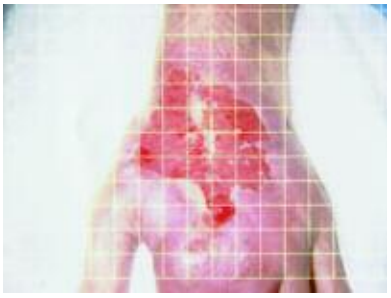
Conclusions

This case study demonstrates how proper assessment of the wound, and early aggressive cleansing, and debridement allowed this wound to progress through the normal stages of wound healing from inflammatory to proliferative and currently, in the maturation phase. This also demonstrates that by using silver technology with its known antimicrobial effect, this patient had an excellent outcome and complete resolution without any complications.

Case Studies

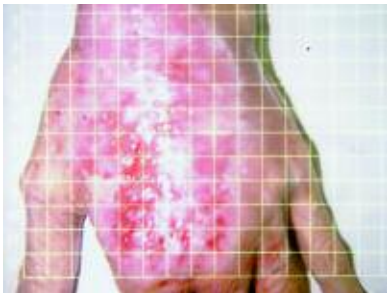
Day 1 (12/12/01) Pre-Arglaes

Full thickness wound, measuring 6.5 cm x 8.2 cm x 0.1 cm, with 100% necrotic tissue. Wound culture was positive for staphylococcus. The wound was irrigated with normal saline, sharply debrided, a enzymatic ointment applied, covered with a sterile 4 x 4 gauze dressing, and secured.



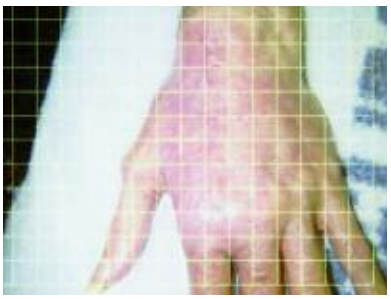
Day 2 (12/13/01) Initiation of Arglaes

Dressing change, wound irrigation, and further sharp debridement was scheduled, however, the wound had completely debrided, leaving a 100% granular, full thickness wound. At this time, due to the potential for infection, the controlled release silver dressing was applied.



Day 9 (12/21/01)

The wound base remained with 100% granulation tissue, measuring 3 cm x 4 cm with no depth.



Day 16 (12/28/01)

The wound was completely reepithelialized.

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