Innovations in Wound Healing Therapy

"Where Wounds Go To Heal"SM

Keys to Healing a Chronic Wound

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Case Report - 5

Abstract

The keys to healing a chronic wound are:

1. Reduce the Bioburden (Debridement). Remove the excess inflammatory cells (WBC's) and their by products (proteases). These pro-inflammatory substances destroy the chemokines that attract fibroblasts, endothelial cells and epithelial cells to the wound. They also destroy the growth factors that bind to the receptor sites of these cells. These growth factors are responsible for stimulating fibroblasts to multiply and produce collagen. They stimulate endothelial cells to divide and produce new blood vessels in the wound. Finally they stimulate epithelial cells to also divide and migrate covering the wound with new skin. Prolonged exposure to these excess proteases also will digest the receptor sites of the fibroblasts, endothelial cells and epithelial cells, making them incapable of mitosis.

Debridement can be carried out using autolysis, surgery, enzymes or mechanically (wet to dry dressings). Once the bioburden has been removed, the next goal is maintaining an environment that is conducive for the growth of new tissue to heal the wound.

2. Maintain a Moist Wound Environment. A moist wound environment is necessary for oxygen and nutrients to diffuse from blood vessels out into the interstitial space to reach the fibroblasts, endothelial and epithelial cells. It is also necessary for the migration of these cells and for their receptor sites to come in contact with the growth factors that are in the wound bed. Once these receptor sites bind with the growth factors, collagen is produced and angiogenesis occurs forming granulation tissue. The wound defect fills in and epithelial cells divide and migrate, covering the defect with skin.

Case Study

83 year old type II diabetic with a history of an ulcer on the left leg for **over 4 months.**

Before Treatment

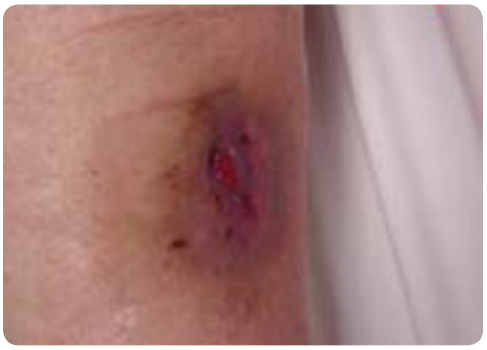
Prior to the patients referral to the Wound Healing Center, the wound was treated with multiple surgical debridements. At the center the wound was treated with enzymatic and one final surgical debridement to remove the remaining debris (bioburden) and rolled skin edge (mitotically incompetent cells whose receptor sites were digested by the excess proteases).

During Treatment

Removal of the bioburden and mitotically incompetent cells allows the number of growth factors to increase and bind with mitotically competent cells. This stimulates cell growth in the wound.

A sterile moist environment is now maintained with a combination of a silver antibacterial dressing (Acticoat) and a foam dressing (Allevyn) to maintain a moist wound without allowing excess moisture to the surrounding skin. With the above treatment the wound went on to **heal in 6 weeks.**

During Treatment



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During and After Treatment

THE PRIMARY CARE PHYSICIAN SHOULD REFER THE PATIENT FOR ADVANCED WOUND CARE IN A WOUND HEALING CENTER IF THE PATIENT:

- Has a wound that persists for more than 30 days after treatment
- Has a wound and Reynaud's phenomenon
- Has purpura
- Has a wound and hypertension
- Has gangrene or necrotic tissue in a wound
- Has a wound and diabetes

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About Precision Health Care

Precision Health Care is a comprehensive wound healing and hyperbaric medicine service organization dedicated to the development of state-of-the-art hyperbaric and wound healing centers through partnership and collaboration with our affiliate hospitals.

Community-based and patient-focused, we are driven by this mission philosophy: To provide select hospitals safe, comprehensive, compassionate wound healing and hyperbaric services for patients in need.

Questions or Comments?

Contact us:
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About the Author

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