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Case Report on the Treatment of Pressure Ulcers and Wounds in Oncological Patients

Caruso E[1], Pellegrino R[1], Scalese M[4], Aloe JF[4], Tedesco V[2], Gabriele C[1], Gambardella G[3], Strangis L[1], Gambardella D[1*] and Tedesco M[1]

[1]Department of General Surgery, G. Paolo II Hospital, Lamezia Terme, Italy

[2]Department of Medical and Surgical Sciences, University of Plovdiv, Bulgaria

[3]Department of Medical and Surgical Sciences, University of Catanzaro, Catanzaro, Italy

[4]Department of Farmacology, G. Paolo II Hospital, Lamezia Terme, Italy

[*]Corresponding author: Denise Gambardella, Department of General Surgery, G. Paolo II Hospital, Lamezia Terme, Italy

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1. Introduction

Pressure ulcers and surgical wounds represent a significant challenge in oncological patients and those with limited mobility, as these lesions can hinder the planning and timing of cancer treatments. Effective wound management is essential to reduce complications and accelerate healing. In this case report, we present two cases of patients with complex lesions treated with a dressing protocol based on hyaluronic acid and collagen. The purpose of this case report is to document the efficacy of this approach in promoting healing and allowing the timely initiation of cancer treatments.

2. Clinical Cases

2.1. Case 1

A 48-year-old Caucasian man with paraplegia secondary to spinal trauma was admitted with a diagnosis of "sub-occlusive bowel obstruction and complicated perianal abscess." The patient was initially treated with hydration, antibiotics, and fasting, but the clinical condition worsened, necessitating urgent surgery. A resection of the sigmoid colon and rectum using the Hartmann procedure was performed, with a histological diagnosis of infiltrating squamous cell carcinoma.

In the postoperative period, the patient received outpatient dressings with an ointment containing hyaluronic acid and bacterial collagenase to prepare the wound bed. After approximately ten days a dressing based on equine collagen was added, resulting in complete wound healing within 25 days.

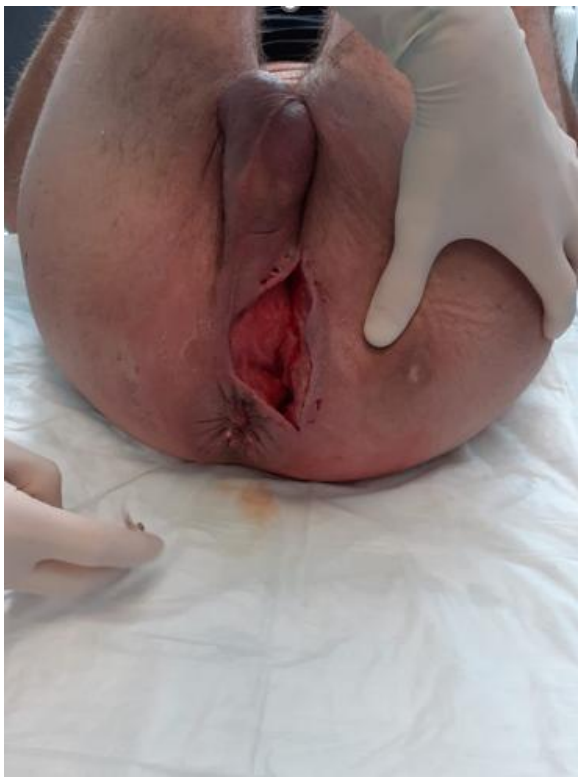

Figure 1: Initial treatment with an ointment containing hyaluronic acid and bacterial collagenase, showing the wound in its early stage.

Figure 2: After 15 days of treatment with dressing based on equine collagen, a reduction in wound size and progress in healing can be observed.

Figure 3: Wound after 25 days of treatment, nearly completely healed and ready for subsequent cancer treatment.

2.2. Case 2

A 59-year-old Caucasian man was admitted with a diagnosis of "complicated sacrococcygeal fistula with perianal abscess." Further tests revealed an adenocarcinoma extending from the perineum to the lower rectum. The patient underwent neoadjuvant chemoradiotherapy and subsequently an abdominoperineal resection according to the Miles procedure, with a final histological diagnosis of moderately differentiated colorectal adenocarcinoma with free margins.

In the postoperative period, the patient presented with a 10 cm x 6 cm ulcer in the anal and periscrotal region. Treatment was started with an ointment containing hyaluronic acid and bacterial collagenase, followed by alternating applications of dressing based on equine collagen. The wound showed nearly complete healing within 40 days, allowing the initiation of further cancer treatments.

Figure 4: Initial treatment with ointment containing hyaluronic acid and bacterial collagenase, showing the initial state of the wound.

Figure 5: Wound after 40 days of treatment, nearly completely healed.

3. Literature Review

3.1. The Role of Hyaluronic Acid in Wound Healing

Hyaluronic acid facilitates cell migration and collagen deposition, which are essential for tissue regeneration. Pazyar et al. (2014) highlighted that hyaluronic acid in a moist environment accelerates healing and reduces the risk of infection.

3.2. Role of Collagen in Tissue Regeneration

Collagen provides a matrix for cell organization. According to Wiegand and Hipler (2013), bioactive collagen improves the formation of granulation tissue, essential for stabilizing complex wounds.

3.3. Enzymatic Debridement with Collagenase

Bacterial collagenase facilitates selective debridement, removing necrotic tissue without damaging healthy tissue. Cooper and Bjarnsholt (2014) demonstrated that collagenase reduces bacterial load and improves the wound environment.

3.4. Benefits of the Combined Approach of Hyaluronic Acid and Collagen

Grimm and Nelson (2017) reported that the combination of hyaluronic acid and collagen creates an environment conducive to cell migration, reducing healing times.

4. Discussion

The treatment of pressure ulcers and surgical wounds, especially in oncological patients or those with limited mobility, is a multifaceted challenge requiring a multidisciplinary approach. This case report highlights the effectiveness of a protocol based on hyaluronic acid-based ointments and collagen-based dressings in promoting wound healing. The outcomes observed in both cases underscore several important points about modern wound care strategies.

First, hyaluronic acid, as a key component of the extracellular matrix, plays a critical role in tissue repair. Its hydrating properties create a moist wound environment conducive to cellular migration and proliferation. This is particularly important in pressure ulcers and post-surgical wounds, where healing can be delayed by factors such as local ischemia, bacterial colonization, and systemic conditions like cancer or immobility.

Second, the addition of collagen-based dressings, composed of equine-derived collagen and hyaluronic acid, further enhances wound healing by providing a structural scaffold that facilitates the deposition of new extracellular matrix. Collagen also modulates inflammation by attracting macrophages and fibroblasts, cells that are essential for the formation of granulation tissue. This dual approach addresses both the biochemical and structural requirements of wound healing, accelerating recovery times and reducing the risk of complications.

In Case 1, the integration of a hyaluronic acid-based ointment and a bioactive collagen dressing allowed for complete healing within 25 days, enabling the patient to proceed with necessary oncological treatments without delay. This is a significant outcome, as untreated or slow-healing wounds in oncological patients can result in postponed chemotherapy or radiotherapy, potentially compromising overall prognosis.

Case 2 demonstrated similar success, albeit over a slightly longer period, due to the larger size and complexity of the ulcer. However, the near-complete healing within 40 days highlights the adaptability of this protocol to more severe wounds. The use of the hyaluronic acid-based ointment in the initial phase of treatment ensured proper wound bed preparation, while the collagen-based dressing facilitated granulation and re-epithelialization.

From a broader perspective, the combined use of hyaluronic acid and collagen addresses several key challenges in wound care:

- Infection Control: By maintaining a moist environment and facilitating autolytic debridement, these dressings reduce bacterial load, as seen in studies by Cooper et al. (2014).
- Chronic Wound Management: Hyaluronic acid has been shown to enhance healing in chronic wounds by stimulating angiogenesis and fibroblast activity.
- Patient Compliance: The simplicity of application and the reduced need for frequent dressing changes make these products particularly suitable for outpatient settings.

While the results presented in this report are promising, it is worth noting the limitations. Both cases involved a relatively controlled clinical environment, and the success of the treatment may vary in patients with more severe comorbidities or in settings with limited resources. Further studies, including randomized controlled trials, would be beneficial to validate the efficacy of this approach across broader patient populations.

In conclusion, the outcomes from these two cases reinforce the potential of hyaluronic acid-based ointments and collagen-based bioactive dressings as effective solutions for managing complex wounds in oncological patients. By addressing both the biological and mechanical aspects of wound healing, these treatments can significantly improve patient outcomes, reduce healthcare costs, and optimize the timeline for critical cancer therapies.

5. Conclusion

The findings from these two cases highlight the importance of a tailored and evidence-based approach in the management of complex wounds, especially in oncological patients or those with limited mobility. The combined use of hyaluronic acid-based ointments and collagen bioactive dressings proved to be a highly effective strategy for addressing both the biological and structural challenges of wound healing.

The dual action of hyaluronic acid and collagen ensures:

- Enhanced Wound Healing: By creating a moist and bioactive environment, these agents accelerate the healing process, minimize inflammation, and support the formation of granulation tissue.
- Minimized Risk of Infection: The moist wound environment and enzymatic debridement facilitated by hyaluronic acid and collagenase reduce the bacterial burden, decreasing the risk of complications.
- Improved Functional Outcomes: Both patients were able to proceed with cancer treatments promptly due to the rapid healing of their wounds, avoiding delays that could compromise their overall prognosis.

This report underscores the broader potential of these therapies to address the increasing demand for effective, patient-centered wound management solutions. While the outcomes presented here are promising, they also emphasize the need for a multidisciplinary approach involving surgeons, oncologists, and wound care specialists to optimize results.

Moreover, the use of hyaluronic acid and collagen-based dressings is aligned with principles of modern wound care, such as promoting tissue regeneration, reducing the use of systemic antibiotics, and improving patient compliance. These findings are particularly relevant in light of the increasing prevalence of chronic wounds and the challenges posed by aging and oncological populations.

Future research should focus on larger studies to validate these findings and explore their application in other clinical scenarios, including chronic diabetic ulcers, venous leg ulcers, and post-radiation wounds. Additionally, the cost-effectiveness of these therapies should be evaluated to ensure broader accessibility across healthcare settings.

In conclusion, the integration of hyaluronic acid-based ointments and collagen dressings offers a practical and effective solution for managing complex wounds. By addressing both immediate wound care needs and long-term patient outcomes, these therapies

represent a significant step forward in the field of wound management. Their application can potentially transform the treatment paradigm for vulnerable patient populations, ensuring timely recovery and improved quality of life.

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