Use of honey-based dressings to increase patient compliance: case reports

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The correct and effective management of wounds still remains challenging in modern day-by-day practice despite the fact that much effort and attention has been directed toward novel technologies and advanced approaches. As wound healing takes place in four stages, the selection of the appropriate treatment, depending on the respective stage of the patient's wound, is crucial. This article discusses single product wound management by means of case studies, in an attempt to describe a simplified and effective way to manage wounds.

Keywords: wounds, healing, honey, wound healing phases

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Introduction

A considerable amount of research has been performed to identify and continuously develop novel therapeutic approaches and technologies for the management of acute and chronic wounds.[1] The development of new approaches however, requires the understanding of the physiological trajectory of normal wound healing, described as the phases of haemostasis, inflammation, proliferation and remodelling. These four highly programmed, integrated and overlapping phases, occur in a specific time frame and sequence, in order for successful wound healing to occur.[2,3] Numerous factors can cause a disruption or affect one or more of these stages,[1] resulting in a non-healing chronic wound or delayed wound healing.[3] The latter has, through history, been a global concern due to the distress and discomfort it causes to the patient.[4] Subsequent to the rate of wound healing and especially in aesthetically sensitive locations, the degree of scarring post wound healing becomes an important factor to consider due to the life-long psychological and/or functional implications it may have on the patient.[5]

Although novel wound care techniques, such as negative pressure wound therapy (NPWT), have been developed and implemented with great success in the past two decades, patient-related factors play an important role in considering other therapies. A study performed in 2014 highlighted patients' experience with the use of NPWT, particularly the effect this therapy had on the patients' personal environment (physical, mental, social and spiritual aspects).[4]

One important factor to consider is the possibility of infection, as a wound causes a break in the integrity of the skin and therefore increases the susceptibility to microorganism infiltrations and subsequent infection. By preventing or treating the infection effectively, it can significantly improve wound healing.[6] Accomplishing this task has become a difficult endeavour in the modern age, due to the increased resistance of microorganisms towards antibiotics as a result of the inappropriate use of these products. Hence, exploring alternative therapies becomes increasingly crucial, and although many exist, implementation thereof may be challenging.[7]

By considering the aforementioned factors, the author's approach in the case was utilising a product (Wound Occlusive®) containing an age-old remedy, honey. The utilisation of honey-based topical products has re-emerged in the past few decades, with more evidence and data supporting beneficial claims associated with the use of honey-based products on wounds, such as the pH lowering effect on the wound; the ability to penetrate through biofilms; the debriding capacity; and the antibacterial and anti-inflammatory activity.[8]

Clinical cases

Patient A: A 66 years old male presented with a post-skin flap surgical wound. Injury to the patient's knee resulted from a car accident earlier in the year, where a skin flap was eventually performed. The wound has been treated using a NPWT dressing. The main complaint of the patient was that his quality of life had been affected by the current treatment as he was no longer able to function in his current job, and implied that the use of the dressing necessitated him to visit a professional nurse for every dressing change, while he was not noticing real improvements. The patient had diabetes Type 1 (well-controlled), was a non-smoker and appeared generally healthy.

The wound (42 mm [length] x 21 mm [width]) was located on the lateral side of the left knee, and during the first observation it could be stated that there were clear signs of inflammation and oedema in the tissue surrounding the knee and wound. The patient was admitted to hospital just prior to the appointment due to severe pain in the wound. During admission the NPWT dressing was replaced and the decision was made during the initial appointment after admittance to hospital that removal of the vacuum dressing would be postponed for another five days, which served as an observation period.

The treatment protocol adopted consisted of cleaning the wound with saline followed by an application of a thick paste of Wound Occlusive®. An absorbent dressing was applied as a secondary dressing due to the amount of exudate on the wound. Initially the wound dressing was changed every 48 hours, and after two sessions of 48 hours, the dressing change was moved to a 72 hours regimen.

Figure 1 shows that the size of the wound decreased significantly over the period of one month. In addition, it is observed that inflammation and oedema surrounding the wound had also decreased after one week of treatment; this observation was also supported by patient's feedback.

Patient B: A 13-year-old male presented with significant soft tissue injuries in the face post suture. The injury was the result of a hyena bite. The injury extended from the frontal region through the right orbital, right infraorbital, right upper cheek, right nasolabial and the contralateral perioral area.

Patient C: A 31-year-old healthy male presented with a brown recluse spider bite, otherwise known as the violin spider. The bite took place approximately eight days before surgical debridement of the wound was performed. The wound measured 75 mm (length) x 20 mm (width) x 5 mm (depth) located on the left antebrachium (forearm). After surgical debridement the wound was left open, whereafter the treatment protocol adopted consisted of cleaning the wound with saline followed by an application of a thick paste of Wound Occlusive®; an absorbent dressing was applied initially to accommodate the amount of exudate on the wound, although this was changed after 48 hours to a paraffin gauze dressing followed by the application of a crepe bandage.

Figure 1: Sequence of photos depicting Patient A post-skin flap wound's progress during one month treatment with Wound Occlusive®.

From Figure 3a to Figure 3c it can be noted that both the length, width and depth of the wound decreased within the period of one week. Additionally, it should be mentioned that the amount of exudate present on the wound bed was markedly lower and no signs of infection could be noted.

Discussion

Wounds can significantly affect a patient's quality of life in numerous ways due to pain, odour, decreased mobility, social isolation, psychological problems such as depression and anxiety, and the inability of the patient to perform daily duties and activities.[9] These factors place emphasis on the importance of treating wounds in a correct, efficient and timeous manner to minimise the effects on other areas of the patient's life. This objective was achieved in the present cases with the utilisation of Wound Occlusive®.

Figure 2b to 2d shows that the scarring has been significantly reduced.

Figures 3a to 3c: The significant reduction in wound size can be noted during the indicated period.

Wound Occlusive® (a honey-based ointment) can be described as a product that could be successfully utilised during all phases of wound healing, is user friendly and that will minimise scarring. Wound Occlusive® contains 50% (w/w) honey and the formulation of the product in its entirety contributes to the mechanism by which wound healing is facilitated, such as:

- zinc (major regulator during each phase of wound healing extending from oxidative stress, coagulation, immune defence and inflammation, angiogenesis, tissue re-epitheliasation, scar formation and membrane repair),[10]
- xylitol (can inhibit or interfere with biofilm formation), and[11]
- hyaluronic acid (modulates tissue regeneration).[12]

The ease by which treatment can be applied could also be seen as a beneficial factor as this might enhance patient compliance. This can be considered an advantage of Wound Occlusive® due to the frequency of application (48–72 hour) and the ease of application (most frequently a standard protocol). Additionally, the use of Wound Occlusive® in wound care practice may pose a solution to the increasingly perturbing problem of bacterial resistance towards antibiotics, as honey provides advantageous antibacterial activity against a variety of microorganisms, with no known honey-resistant phenotypes identified to date.[13]

Conflict of interest

No conflict of interest.

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