

CHAPTER 7

THE USE OF LEPTOSPERMUM HONEY ON CHRONIC WOUNDS IN BREAST CARE

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The following case studies illustrate how honey-based wound dressings were successfully incorporated into the care plan of two patients with breast lesions. In the first case, wound breakdown followed breast reduction surgery and, in the second, necrosis developed after radiotherapy. In both cases the wounds were refractory to 'first line' treatment but resolved with honey. Whilst there is a large body of evidence to support the use of honey in other wound types, there are few reports in breast care (Mossel, 1980; Keast-Butler, 1980).

Case study 1: control of malodour in a breast wound

Miss A was twenty-two years old when she was referred to a breast surgeon in April 2003 with pain and asymmetry due to benign changes in her left breast. At review, six weeks later, following a normal ultrasound scan and treatment with danazol, Miss A was resolute in her wish for breast reduction and was listed for surgery, that was performed in February 2004. Her breast was reduced using a superior medial pedicle technique removing 236 gms of normal breast tissue, with minimal skin tension on the wounds. Miss A made an uneventful recovery and was discharged the following day. At two weeks the wounds appeared to be healing well and at the six-week review, the T-junction had healed without problem. However, there had been some breakdown of the wound at the nipple/

vertical incision junction, even though healthy granulation tissue was present within the wound. Two weeks later the wound had deteriorated further. At initial referral to the wound clinic, although satisfied with improved breast symmetry, the unhealed wound was severely impacting on Miss A's lifestyle. She refused to look at the wound or apply dressings and she found the wound exudate distressing. She felt that the wound was malodorous and was convinced that other people were aware of the odour. Unable to accept these problems, Miss A would tolerate only dry dressings and left the wound care entirely to her mother. At this time, the wound contained some granulation tissue with small areas of necrosis and slough (*Figure 7.1*).

The initial goal at the outset of treatment was to control the odour as Miss A found this the most distressing symptom of the wound.

The patient was advised to shower daily and then apply Medihoney™ (Medihoney Pty Ltd) at a depth of 3mm with an adhesive foam dressing to protect and secure. Two weeks later (*Figure 7.2*), the necrosis and slough had been cleared from the wound and was replaced with healthy granulation tissue. Miss A still refused to look at the wound but agreed that the malodour had completely resolved. At one month (*Figure 7.3*) the wound contained healthy granulation tissue and Miss A was able to deal with the dressing regime herself. The wound continued to improve and, at review, sixteen weeks after recruitment to the trial, she reported that the wound had healed three weeks previously.

Miss A had found honey an acceptable dressing, and was particularly pleased that she was able to shower daily during treatment. She reported that the odour control resulting from the use of honey in the dressing regime was of paramount importance to her.



Figure 7.1: Breast wound at the start of treatment with honey. Note the presence of slough and necrotic tissue



Figure 7.2: Two weeks after commencement of treatment. The wound is showing signs of healing, the necrosis has resolved and the wound margins have progressed



Figure 7.3: After four weeks of treatment with honey, the wound is showing positive signs of healing, the slough has resolved and re-epithelialisation is well underway



Figure 7.4: After nine weeks of treatment with honey, the wound has reduced in size



Figure 7.5: The wound at healing (fifteen weeks after the start of treatment with honey)

Case study 2: management of radio necrosis

Mrs B was an eighty-year-old widowed, self-caring lady who enjoyed an active social life. In 1970 she was diagnosed with carcinoma of her left breast and underwent a Patey mastectomy, followed by a course of radiation therapy. In February 2001 she was referred by her GP for surgical consultation with a hyperkeratotic lesion of the upper sternal region that had been present for two years. A biopsy confirmed a viral wart and chronic radiation dermatitis. On return to clinic two weeks later, there was slough present in the wound and she was prescribed Augmentin®. The area healed after thirteen months, only to re-ulcerate a few months later, when she was referred to a plastic surgeon. Dressings were prescribed and the patient was referred to community nurses for care.

In September 2003, Mrs B was referred to the breast clinic because the ulcerated area had enlarged. It was approximately 4 cm x 3 cm with necrotic bone and costal cartilage observable at the base of the wound. The wound was dressed with 1% silver sulfadiazine cream and a course

of ciprofloxacin prescribed. Mrs B was also reviewed at this time by the oncologist. A full computed tomography (CT) scan revealed an ulcer on either side of the sternum with bony destruction. There was no focal mass lesion. The appearances were in keeping with either radiation necrosis or direct neoplastic invasion, but a biopsy confirmed radiation necrosis. The underlying dermis showed areas of necrosis, together with granulation tissue formation and dense mixed acute and chronic inflammatory cell infiltration, including numerous plasma cells. There was no evidence of malignancy.

Delayed radiotherapy ulcers are more common than acute ulcers and tend to be the result of ischaemia from changes in small arteries and arterioles; they heal slowly and may persist for many years (Mendelsohn *et al*, 2002). Late skin effects due to radiation therapy occur months to years after irradiation and are manifested by scaling, atrophy, telangiectasia, subcutaneous fibrosis, and necrosis. These symptoms may evolve and increase in severity for many years (Heggie *et al*, 2002), depending upon numerous factors. In general, high radiation doses (both daily and total) induce severe reactions in patients. Treatment field size is also an influence: the larger the area being irradiated, the less tolerance the skin has due to an increase in the area of capillary obstruction. Occlusion of the arteriocardillary circulation results in tissue infarction, leading to sclerosis and eventually fibrosis. This blocks the transport of vital nutrients to the tissues. Skin reactions are particularly evident in skin folds and areas subjected to pressure, such as bony prominences (Korinko and Yurick, 1997).

In January 2004, Mrs B was referred to the wound clinic. The wound was exudating thick offensive pus and necrotic bone and cartilage was visible within the wound. A wound swab confirmed mixed growth including *Staphylococcus aureus* and *Bacteroides spp*. This latter organism is an anaerobe known to contribute to wound malodour (Bowler *et al*, 1999). The patient was feeling well, although depressed and rarely left her home. The wound was being packed daily with an alginate rope and Mrs B was concerned that the area would never heal (Figure 7.6).

There were several problems to address following assessment. Mrs B was clearly finding it difficult to cope with a wound having such profound affect upon her life. The position of the wound meant that she was constantly aware of its odour. It was painful and the exudate leaked through the dressing regularly. The peri-wound area was sore and excoriated.

Mrs B was referred to the district nurses to increase the frequency of dressings to daily. The dressing regime was to apply skin protection

(Cavilon™, 3M Ltd) to the surrounding area and to pack the wound with an alginate rope (Algisite™, Smith and Nephew) soaked in Medihoney™ (Medihoney Pty Ltd) secured with a foam adhesive dressing. Progress was monitored at regular intervals (Figures 7.7–7.10) at the wound clinic.

After twenty-seven weeks of treatment (Figure 7.10), the wound had improved but complete healing was not achieved. A wound swab at this stage confirmed the presence of *Proteus* species and anaerobic cocci.



Figure 7.6: Mrs B's wound at commencement of honey treatment



Figure 7.7: The wound after six weeks of treatment



Figure 7.8: The wound after twelve weeks of treatment



Figure 7.9: The wound after twenty-three weeks of treatment



Figure 7.10: Twenty-seven weeks from commencement of treatment



Figure 7.11: Photograph of healed wound

Discussion

Initially, the patients in the studies were pessimistic about wound treatment with honey but were willing to accept, what some may consider, an unconventional therapy. Both patients found the use of honey acceptable, which is consistent with previous reports of patient satisfaction with honey dressings (Dunford and Hanano, 2004; Robson, 2003; Cooper *et al*, 2001). Although initial problems with leakage from dressings were experienced, as the honey reached body temperature and became more fluid, the problem was easily resolved when a satisfactory secondary dressing was used. The availability of newer dressings impregnated with honey, with the capacity to hold wound exudate, will pre-empt this situation in the future.

Dressings were initially changed daily for both patients and the frequency between changes was extended for Miss A as healing proceeded. In comparison to conventional dressings which are designed to remain in-situ for several days, this treatment may seem uneconomical, but the ease of application of honey allows some patients to manage their own dressing changes, thereby reducing district nursing time. As Mrs B was

already receiving daily dressings from the district nursing team prior to the application of honey dressings, this did not represent any increased costs. Molan (1999) has stated that the frequency of dressing changes must depend on the extent of dilution of honey by exudation, which normally reduces with time. Loss of fluid from a wound will reduce oedema and pain, and may account for some of the anti-inflammatory properties attributed to honey.

Mrs B had complained of pain within the wound before the start of honey treatment but found it to be diminished when honey was used. There are reports of patients who complain of pain on the initial application of honey and some have experienced continuous pain (Dunford and Hanano, 2004).

Neither of the patients in these case studies reported pain during treatment with honey.

Wound malodour can have serious effects on patient morale and the control of wound odour was critical for both patients reported in these case studies. Early eradication of this problem, as well as reduction in the size of the wound, had positive effects on both patients. There are many reports of honey having a rapid effect on the presence of malodour within a wound (Dunford and Hanano, 2004; Cooper *et al*, 2002a, b; Efem, 1988; Alcaraz and Kelly, 2002; Kingsley, 2001 are a few of the many such reports).

Honey has been found to inhibit major wound pathogens (Cooper *et al*, 2002a, b; Molan, 1999; Willix *et al*, 1992; Cooper and Molan, 1999), even when diluted by high levels of exudate in a wound. The eradication of bacteria from Mrs B's wound was not achieved on this occasion.

The psychological and emotional burden of a chronic wound is always debilitating; it affects patients' self-esteem, as well as having adverse effects on their daily lives. Effects often extend to employers and to other family members. Holistic patient assessment, together with the correct dressing selection to manage and improve the condition of a wound is vital. The healthcare professional, too, may become frustrated when well-proven and researched conventional therapies fail to have a beneficial impact on the wound.

In these two cases, 'appropriate' modern wound treatments had failed to promote healing, but both the patients experienced complete healing with honey.

Acknowledgements

The honey used in all the case studies is MediHoney™ presented in 30g tubes that had been gamma irradiated without affecting the antibacterial activity. MediHoney™ is produced in Australia by Medihoney Pty Ltd and is a standardised mix of antibacterial honeys including Australian and New Zealand *Leptospermum spp.*

Data for all these case studies is collected using the Leg Ulcer Telemedicine Medicine System (LUTMS), designed by Good Hope Hospital, West Midlands. LUTMS is a dedicated, secure, shared electronic patient record. The LUTMS has been designed to allow the incorporation of colour digital images in the electronic patient record. The LUTMS includes ulcer size measurement and automatically plots ulcer-healing rate. Information regarding the LUTMS can be obtained by contacting simon.dodds@goodhope.nhs.uk.

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