

## CHAPTER 5

### THE USE OF LEPTOSPERMUM HONEY IN CHRONIC WOUND MANAGEMENT

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In recent years the use of honey to manage wounds has gained considerable interest. One outcome of this has been the commercial development of regulated ‘medical quality’ honey and honey-based dressings. The clinical evidence for honey in wound care is reviewed in *Chapter 9*. To complement this review, and to add the patient perspectives, a selection of case studies is presented. The aim being to offer practical advice for the choice of honey, practical aspects of wound treatment, and, clinical outcomes. The following cases demonstrate the ‘multifunctional’ properties of one commercially available honey: control of bioburden, reduction of inflammation, skin care, and, exudate management.

#### Case study 1

Mrs C developed venous leg ulceration due to venous hypertension. The ulcer was initially treated with compression bandage therapy. However, after twelve weeks the wound had failed to heal so the patient was referred for vascular opinion. A colour duplex Doppler ultrasound scan revealed gross short saphenous vein (SSV) reflux. Ligation and avulsion of the SSV was performed to assist healing of the ulcer. The patient was reviewed as an outpatient four weeks later, but, despite surgery, the ulcer persisted. A wound swab taken during surgery confirmed the presence of *Staphylococcus aureus*, *Pseudomonas spp* and Haemolytic Streptococcus (Group B). The patient was commenced on ciprofloxacin 500 mgs bd for seven days.

Four months after surgery, the patient was becoming very frustrated as the ulcer still refused to heal and was affecting her quality of life. In an attempt to resolve the problem, Mrs C was admitted to hospital for split skin grafting and excision of the ulcer, as it was considered that grafting may offer the best chance of healing. During the procedure three biopsies of tissue were removed and sent for histology, which confirmed extensive epidermal ulceration and dense inflammation. The dermis was infiltrated by a well-differentiated invasive squamous cell carcinoma.

The patient was discharged after seven weeks. The skin graft had taken well but the donor site was over-granulating — this was being treated with a topical steroid. Mrs C was reviewed in clinic on a regular basis; at nine months the graft site had healed but the donor site had not.

The patient was referred to the wound care clinic. At this stage she was exasperated that the original area of ulceration which had been skin grafted had healed but she now had four areas of superficial skin loss causing similar problems to the original wound. She found bandages uncomfortable, they often slipped, causing damage to the delicate granulation tissue, and dressings used to manage exudate adhered to the wound — and were, therefore, painful to remove.

The four areas contained some over-granulation, indicative of prolonged inflammation, there was moderate exudate, and the surrounding area was normal. Mrs C was experiencing a moderate amount of pain. The analgesia prescribed by her GP was controlling this satisfactorily. A wound swab confirmed the presence of mixed skin flora (*Figure 5.1*).

As a possible remedy, it was felt that the use of topical honey would provide a protective barrier whilst treating the overgranulation, consequently reducing the exudate and pain Mrs C was experiencing. Having managed the wound itself the surrounding area of skin was treated with Cavilon™ barrier spray (3M Ltd) with an adhesive foam dressing applied to contain the honey. Initially, the community nursing service renewed the dressing three times per week (*Figure 5.2*).

At review two weeks later the area was healing, and the exudate and pain had reduced. The dressing regime was continued as before, but at this stage Mrs C was able to manage the dressing herself twice weekly (*Figure 5.3*).

Four weeks after the commencement of honey treatment the wound had healed. Mrs C was advised to keep the area moisturised to protect the skin and also prevent friction injury.



Figure 5.1: Case 1 — The donor site showing signs of overgranulation. The area was painful, moderately exuding, and dressing adherence was a problem. A wound swab showed mixed skin flora



Figure 5.2: Case 1 — Following application of honey under an adhesive foam dressing for two weeks, the area showed positive signs of healing



Figure 5.3: Case 1 — Further improvement after four weeks' treatment with the with honey dressing. Re-epithelialisation evident

## Case study 2

Mr D is a sixty-year-old gentleman. He is mobile and self-caring. In March 2001, Mr D had pantalar fusion of his left ankle following a fracture. However, in January 2002 Mr D was admitted for the removal of the metal work and incision and drainage of an abscess in the left ankle region. Treatment included a period of bed rest and elevation and intravenous antibiotic therapy. On review in clinic two months following admission, the wounds appeared clean and healthy and a further course of antibiotics was prescribed.

After nine months, Mr D's wounds had still failed to heal. He was referred to a consultant plastic surgeon with a view to split skin grafting to the wounds on the lateral and medial malleoli. The wounds were reported to be granulating but recalcitrant. On examination by the plastic surgeon, Mr D's left ankle was red and swollen and had a 2 cm deep open wound, discharging pus. An x-ray was performed which did not show any evidence of osteomyelitis and the wound swabs confirmed *Staphylococcus*

*aureus* and anaerobes, sensitive to flucloxacillin and metronidazole.

The plastic surgeon considered Mr D to have underlying peripheral vascular disease and, therefore, referred him for vascular opinion.

On examination by the vascular surgeon, Mr D had no palpable pedal pulses but had palpable femoral and popliteal pulses and good Doppler signals in the proximal anterior tibial and posterior tibial arteries.

Mr D was referred to the wound clinic in April 2003. The ulcers on the medial and lateral malleoli had a small amount of slough present within the wound. The surrounding areas were red and dry with no heat or swelling (*Figures 5.4a and 5.4b*).

Despite a plethora of dressings and the best efforts of the community nurses, the wounds refused to heal.

Mr D was advised to shower or bathe prior to wound dressing to assist with removal of dry skin, and to aid re-hydration of the dry skin around the wounds. Honey was applied to the ulceration and honey mixed with an emollient to the surrounding area two to three times per week. The honey was applied to a non-adherent dressing at approximately 3 mm depth, with a surgipad and wool and crepe bandage to secure.

At review in four weeks, the surrounding redness was starting to settle and there had been some debridement of slough within the wounds (*Figures 5.5a, 5.5b*).

At twenty-four weeks, Mr D's ulcer had almost healed and was about the size of a pinhead, there was no exudate and no pain. The redness surrounding the ulceration had completely disappeared. He was continuing to apply honey to the wound.





Figure 5.4a: Case 2 — Medial ulcer at start of honey treatment. This wound had been present for nine months; note the extensive inflammation



Figure 5.4b: Case 2 — Lateral ulcer also showing extensive erythema



Figure 5.5a: Case 2 — Medial ulcer after six weeks' treatment with honey. The erythema is reduced and discharge minimal



Figure 5.5b: Case 2 — Lateral ulcer also showing positive signs of healing



Figure 5.6: Case 2 — Lateral ulcer, September 2003



Figure 5.7a: Case 2 — The lateral ulcer almost healed





Figure 5.7b: Case 2 — The lateral ulcer at the point of closure.  
Inflammation greatly reduced

## Discussion

In both these cases the wounds appeared to be stranded in the inflammatory phase of healing. In normal wound healing the inflammatory stage lasts for approximately three days but may be prolonged. When this happens a chronic inflammatory stage is established and the wound does not move on into the proliferation stage of healing.

Honey has a direct anti-inflammatory effect on wounds, not a secondary effect from the antibacterial action removing the bacteria that cause inflammation. Honey applied to the wounds and surrounding area resolved the inflammatory effect of the wound allowing it to progress.

## 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](mailto:simon.dodds@goodhope.nhs.uk)

## Support

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