

Use of honey products in lower limb lymphoedema and recalcitrant wounds

Cristina Miguéns is a Registered Nurse with a PhD in Tissue Viability and Wound Management at the Community Health Centre Figueira da Foz, Portugal; Fernanda Inglês is a GP and Antonio Jorge Seco is a Registered Nurse, both at the Community Health Centre Pampilhosa da Serra, Portugal

Honey is a viscous, supersaturated sugar solution derived from nectar gathered and modified by the honeybee, *Apis mellifera* (Jull et al, 2008).

It has been used historically for its therapeutic properties, including, the promotion of rapid wound healing, reducing oedema, debriding necrotic tissue, reducing inflammation, stimulating tissue regeneration and as a topical treatment for infected wounds (Molan, 2002; van der Weyden, 2003). It can also be effective on antibiotic resistant strains of bacteria (Molan, 1992; Cooper, 1999; Cooper and Harding, 1999; Dunford, 2000).

Increasing concerns relating to antibiotic resistance, as well as the safety or toxicity of topical antiseptic agents, provide the impetus to search for a safe agent that can assist in the management of infected and critically colonised wounds and help to prevent infection (Stephen-Haynes, 2005).

With this perspective in mind, the authors used a honey-based product in a patient with lymphoedema in the lower limb and recalcitrant wounds.

Case report

This case involved a 45-year-old female who suffered from obesity (body mass index [BMI] of 53), who had circular lesions in both her oedematous lower limbs. She had previously been hospitalised several times, for intravenous antibiotics (broad spectrum).

She had mental health problems and lacked familial and social support. Her caretakers did not visit when she was admitted.

The ulcer in the left leg was an open ulcer of 14 years' duration, with slough, copious exudation and an unpleasant odour:



Figure 1. Left leg — day 0 (20/11/2009).



Figure 2. Right leg — day 0 (20/11/2009).



Figure 3. Left leg — day 7 (27/11/2009).



Figure 4. Right leg — day 7 (27/11/2009).

During this time, the left leg had been treated with gauze and iodine solution or cream, with dressings being changed three times a week.

The right leg also had an open ulcer, of eight years' duration, and had been treated similarly to the left leg in that period.

The open ulcers left the already challenged patient, both isolated and housebound. The wounds were distinctly malodorous, classified as being strong

(Houghton, 1995), and the smell was present throughout the house.

At first review

At initial presentation, both ulcers were shallow with a great deal of adherent slough, exudate and a high amount of malodorous fluid, which made it difficult to define the actual wound size and evaluate the surrounding skin (Figures 1 and 2).

Swabs were taken from both legs and were found to be positive for Gram

negative bacteriae, *Proteus mirabilis* showing the highest growth in the semi-quantitative samples. This confirmed the observed signs of malodour and wound appearance indicating local infection.

Method and observations

The patient was hospitalised at the first review (20 November, 2009) in a community centre (Pampilhosa da Serra, Coimbra, Portugal).

Treatment was started with a honey-based ointment (L-Mesitran®, Triticum), which was applied daily and covered with crepe bandages (Bastos Viegas). The aim was to reduce the bacterial burden, debride the slough, and reduce odour (White and Molan, 2005) and oedema.

The ointment was used for the first fourteen days (daily). During this time, autolytic debridement took place (Figures 3 and 4) showing that the wound was actually larger than was observed at first review.

After 14 days of treatment, a switch was made to a honey hydrogel sheet (L-Mesitran® Hydro), with three dressing changes a week (Figures 5 and 6). Wound size reduced and the periwound area remained in a good condition.

At day 45, because the exudate level was minimal, the authors decided to change the honey dressing again to the mesh (L-Mesitran® Net). This was used twice-weekly, until the end of treatment when complete healing had been achieved (Figures 7 and 10).

Summary

After three and a half months (106 days) of treatment with the honey products, the patient's infected ulcers had successfully healed and she was able to be discharged. During the first 14 days of treatment, dressing changes were undertaken daily, which improved the wound bed (debridement) and the periwound area, eliminated malodour and reduced



Figure 5. Left leg — day 14 (04/12/2009).



Figure 6. Right leg — day 14 (04/12/2009).

exudate. Thereafter, dressing changes were reduced to thrice-weekly (honey hydrogel sheet), and in the last weeks of treatment, an open weave honey mesh was used.

The patient's arterial permeability was evaluated by hand-held Doppler: the arterial sign was triphasic in all feet and both leg pulses. Compression therapy with short-stretch bandages (Pütterverband) was initiated at discharge. These were applied at the community health centre. The final result was excellent with good cosmetic results.

At six-month follow-up, there was no recurrence of the ulcers and the legs were in a good condition.

Discussion

Lymphoedema, sometimes also called elephantiasis, is a chronic condition characterised by an abnormal collection of fluid (lymph) (Macdonald, 2010). Estimates state that one person in 30 worldwide is afflicted with lymphoedema (Macdonald, 2010).

Results of surgery in upper or lower limb lymphoedema are variable (Vignes, 2002). In this case, surgery was not indicated due to the patient's obese status (BMI 53), as well as her mental problems and family situation.

Limited information is available on the influence of chronic wound healing on family life. However, it is clear that caring for a chronic patient adversely affects the whole family structure (Pitman, 2003). Equally, social support positively influences human health (DeVries, 2007) and, thus, in the authors' opinion, it follows that family support would also have a beneficial effect.

In this particular case, the leg wounds had been present for 8–14 years, undoubtedly having a major impact on the patient's social life and influencing her (already mentally challenged) overall quality of life. The wounds had previously been managed with povidone iodine and gauze.

For chronic wound healing, povidone iodine might not be the best choice, as it reduces both migration and proliferation of fibroblasts in a dose-dependent fashion (Thomas, 2009). Honey-based products, however, promote the proliferation of fibroblasts (DuToit, 2009). This could explain why wound healing suddenly progressed at an accelerated pace after 8–14 years of delayed healing.

Conclusion

In this case, the use of honey-based products to heal recalcitrant ulcers in



Figure 7. Left leg — day 45 (11/01/2010).



Figure 8. Right leg — day 45 (11/01/2010).



Figure 9. Left leg — day 106 (04/04/2010). End of treatment with complete wound healing.



Figure 10. Right leg — day 106 (04/04/2010). End of treatment with complete wound healing.

lymphoedematous lower limbs was successful. The Gram negative infected legs (*Proteus mirabilis*) quickly debrided without the use of antibiotics. The honey-based products helped with the progression to full wound healing in approximately 3½ months. At six-month follow-up, the patient remained free of ulceration. **WUK**

Declaration of interest

The authors declare no conflicting interests.

References

Cooper R, Molan PC, Harding KG (1999) Antibacterial activity of honey against strains of *Staphylococcus aureus* from infected wounds. *J R Soc Med* 92(6): 283–5

Cooper R, Molan P (1999) The use of honey as an antiseptic in managing *Pseudomonas* infection. *J Wound Care* 8(4): 161–4

DeVries AC, Craft TK, Gasper ER, Neigh GN, Alexander JK (2007) 2006

Curt P. Richter award winner: Social influences on stress responses and health. *Psychoneuroendocrinology* 32(6): 587–603

Dunford C, Cooper R, Molan P, White R (2000) The use of honey in wound management. *Nurs Standard* 15(11): 63–8

DuToit DF, Page B (2009) An *in vitro* evaluation of the cell toxicity of honey and silver dressings. *J Wound Care* 18(9): 383–9

Haughton W, Young T (1995) Common problems in wound care: malodorous wounds. *Br J Nurs* 4(16): 959–63

Jull AB, Rodgers A, Walker N (2008) Honey as a topical treatment for wounds. *Cochrane Database of Systematic Reviews* 2008, Issue 4. Art. No: CD005083. DOI: 10.1002/14651858.CD005083.pub2

Macdonald JM, Ryan TJ (2010) Lymphoedema and the chronic wound: the role of compression and other interventions. In: Macdonald JM, Geyer MJ, eds. *Wound and lymphoedema management*. World Health Organization, Geneva: 63–83

Molan P (1992) The anti bacterial activity of honey: 1. The nature of the antibacterial activity. *Bee World* 73(1): 5–28

Molan P (2002) Re-introducing honey in the management of wounds and ulcers: theory and practice. *Ostomy Wound Management* 48(11): 28–40

Pittman J (2003) The chronic wound and the family. *Ostomy Wound Management* 49(2): 38–46

Stephen-Haynes (2005) Utilising honey in primary care. In: White R, Cooper R, Molan P eds. *Honey: A modern wound management product*. Wounds UK, Aberdeen: chap 3

Thomas GW, et al (2009) Mechanisms of delayed wound healing by commonly used antiseptics. *J Trauma* 66(1): 82–90; discussion 90–1

Van der Weyden E (2003) The use of honey for the treatment of two patients with pressure ulcers. *Br J Community Nurs* 8(12) (suppl): s14–s20

Vignes S, Trévidic P (2002) Role of surgery in the treatment of lymphoedema. *Rev Med Interne* 23 Suppl 3: 426s–430s

White R, Molan P (2005) A summary of published clinical research on honey in wound management. In: White R, Cooper R, Molan P eds. *Honey: a Modern Wound Management Product*. Wounds UK Publishing, Aberdeen: 130–42