

Honey: antimicrobial and antibacterial nectar of the gods

REFERENCES

- Abdulrhman M, Elbarbary NS, Ahmed Amin D, Saeid Ebrahim R (2012). Honey and a mixture of honey, beeswax, and olive oil-propolis extract in treatment of chemotherapy-induced oral mucositis: a randomized controlled pilot study. *Pediatr Hematol Oncol* 29(3):285–92
- Allen JP (2005) *The Art of Medicine in Ancient Egypt*. The Metropolitan Museum of Art/ Yale University Press, New York/New Haven
- Cooper RA, Jenkins L (2009) A comparison between medical grade honeys and table honeys in relation to antibacterial activity. *Wounds* 21(2):29–36
- Cooper RA (2016) Honey for wound care in the 21st century. *Journal of Wound Care* | *WoundCare* 25(9):544–52
- Majno G (1975) The healing hand. In: *Man and Wound in the Ancient World*. Harvard University Press, Cambridge, Mass
- Forrest RD (1982) Early history of wound treatment. *JR Soc Med* 75(3):198–205
- Zumla A, Lulat A (1989) Honey: a remedy rediscovered. *J Roy Soc Med* 82(7): 384–85

Honey has been used in wound care for at least 3,600 years. Surprising? The Greek myths speak gushingly of the existence of a nectar of the gods, and it's no great leap of the mind to assume that honey was a prime candidate for such adulation. Furthermore, we know that ancient civilisations treated wounds with wine (which, like honey, they also consumed and held in high esteem).

Whilst honey has by now been accepted into the regular discourse of modern-day wound care, and is an established treatment modality, it has not always been thus. The use of honey in wound care follows a pattern familiar to other ancient treatments, such as silver, alginates, and larval debridement. First, widespread usage in ancient civilisations across multiple cultures, before seemingly being forgotten in favour of the new products. Finally, there is a modern-day renaissance, albeit one attenuated by the strictures of licensing and regulation, and necessarily bound by studious laboratory testing.

Rewind 4,000 years, to the ancient Egyptian kingdom, and we discover that honey was the standard antiseptic in use. The famous Edwin Smith papyrus, dating from anywhere between 2600–1600 BC (Zumla, 1989; Allen, 2005), details the standard Egyptian wound salve of honey, grease, and lint — not too far a cry from modern-day, non-adherent, absorbent, silicon dressings. Honey is mentioned in the papyrus an astonishing 500 times in 900 different remedies (Majno, 1975). This is especially remarkable given that the ancient Egyptians did not practice apiculture, so their honey was obtained from wild bees. Whether they knew that honey from different regions or colonies had different levels of clinical efficacy, we can never know, but the issue of seasonality, geographic variance, and antibacterial action is still a topic of investigation in the modern age (Cooper, 2009), some four millennia later.

Crossing the Sinai Desert from Egypt, we reach ancient Mesopotamia, where wounds were washed in milk or water before being dressed with honey or resin, and fast-forwarding 1,200 years, we see Hippocrates (460–377 BC) advocating natural remedies, particularly honey and oil as wound ointments (Forrest, 1982).

The intervening period between ancient civilisations and recent folklore remains curiously barren, much like other topics this column has focused on — the resurgence in the modern-day only came with the backing of scientific knowledge and protocol.

In recent times, there has been an explosion of interest in the use of honey as a wound treatment, both topically and internally, thanks to new understanding of the biochemistry behind its natural antiseptic and antimicrobial action, and arguably it is Manuka honey which has set the wound care world alight, and seen the widest popularity in usage.

Since honey was granted clinical approval for use in wound care in the UK in 2004, many manufacturers of wound dressings have capitalised on its antiseptic, antibacterial efficacy. The medicinal properties of Manuka honey were known by Maori legends in New Zealand (Cooper, 2016), and it is perhaps largely down to the work of Peter Molan that Manuka honey has seen such a stratospheric rise to prominence.

Honey now sees regular usage on all manner of clinical indications, from atopic dermatitis, fungating lesions, and pressure ulcers, to eradication of *Staphylococcus aureus* biofilms, as well as extensive use in the treatment of oral mucositis and esophagitis; two of the insidious side effects of radiotherapy and chemotherapy in head and neck cancer patients.

Even bee propolis, the resinous mixture of beeswax and bee saliva used to patch up beehives, has seen a resurgence in use. The antibiotic properties of propolis were successfully employed in the Boer War (Majno, 1975), and today it is the subject of much investigation both against cancer gene expression, and also chemotherapy-induced oral mucositis (Abdulrhman et al, 2012).

Cooper (2016) suggested that unlike the use of honey in more recent UK folklore, ancient civilizations carefully selected honey from differing floral origins for differing ailments, a practice now forgotten. One has to wonder, were it not for destruction of ancient papyri and other records, just how advanced would wound care be today? **WUK**