

Case Report

Manuka Honey in Managing Septic Burns: A Case Series

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ABSTRACT

Manuka Honey is a medical-grade honey (MGH) product gaining popularity in burn wound care. The increased use of MGH in burn wound management accelerates wound healing while minimising scar tissue formation. This case series follows 3 patients who were managed in a regional hospital in Gauteng, South Africa, with Manuka honey after sustaining burn wounds. These patients were not managed surgically despite early surgical debridement being the gold standard for septic partial to full-thickness burns. Theatre time is often not available in resource-constrained hospitals. The use of Manuka honey in burn wound management can therefore be used as an adjunct to surgical debridement in both deep-partial and full-thickness burns when theatre time is not immediately available.

Key Words: Manuka Honey, septic burn wounds, medical grade honey, wound eschar management

INTRODUCTION

Manuka Honey is a medical-grade honey (MGH) product sourced by the *Apis Mellifera* bee from the *Leptospermum scorparium* flower in New Zealand, gaining popularity in burn wound care.(1) Burn wounds are a burden, particularly in developing countries, accounting for prolonged admission, significant resource use, as well as patient mortality and morbidity.(2) The increased use of MGH in burn wound management accelerates wound healing while minimising the formation of scar tissue.(2) This case series follows three patients who were managed in a resource-constrained regional hospital with manuka honey after sustaining burn wounds; the total body surface areas of these burns were calculated using the 'Rule-of-Nine.'

CASE A

Patient A is a 46-year-old with no comorbidities or any surgical history, with a 9-day delay in presentation after initial injury. He sustained 13.5% partial-full thickness burns from an open flame while sleeping. Areas burnt included the right neck, back and arm after a blanket caught alight from an unattended stove. The patient presented to the local clinic, was scrubbed down, and the wounds were dressed. Although the patient was told to follow up every two days for wound review and dressings, he did not adhere to the management plan. A week later, when the patient presented to the local clinic, the wound was septic with thick eschar over the upper chest and right side of his back (figure 1), necessitating referral to a regional hospital.

Upon hospital admission, basic inpatient investigations were done, and the septic wounds were managed with manuka honey as well as targeted antibiotics. The patient's eschar was removed after 16 days of manuka honey dressings, with the wound being reviewed every third day (Fig 2). The patient responded well to the MGH and subsequent dressings. He was discharged to the wound clinic for further wound care and to await an elective split skin graft.



Figure 1: Patient A on 24/10/2026 before manuka dressings

CASE B

Patient B is a 34-year-old male with no medical or surgical history. He presented two days after sustaining hot water burns during an interpersonal altercation. The patient sustained 18% total body surface area deep- partial thickness burns to the face, neck, chest and abdomen. His vitals were within normal limits. Initially, the patient was dressed with Melladerm (a honey based wound gel) from the local clinic. On the first exposure, the wound was noted to have slough (*Fig 3*).

The wounds were subsequently dressed with manuka honey for 10 days, with wound review every third day. After this period, the patient's wounds were noted to be clean and mostly healed with good granulation tissue (*Fig 4*). The patient was discharged for review at the surgical wound clinic for further wound care.

CASE C

Patient C is a 26-year-old female with no medical or surgical background who presented to the hospital on the same day of the incident, with a history of flame burns to her legs.

She was assessed as having 18% Total body surface area partial thickness burns affecting the anterior aspect of both lower legs. During her admission, the patient's wounds were noted to have slough requiring surgical debridement (*Fig 5*). Patient C was managed with Manuka dressings for 6 days, with wound reviews every 3 days. On the sixth day, the wounds were noted to be clean (*Fig 6*), and the patient was discharged for follow-up at the surgical outpatient clinic for further wound care.

DISCUSSION

The wound-healing process is a stepwise process aimed at regenerating the protective function of the skin. Any disturbance in this cascade increases the likelihood of infection, wound contamination and oedema, thereby increasing the possibility of further tissue damage.

The current management of burn wounds includes early wound debridement to remove eschar, leaving a clean



Figure 2: Patient A after multiple manuka dressings with some visible slough requiring further chemical debridement



Figure 3: Patient B with adherent slough after exposure of manuka dressing



Figure 4: Patient B after manuka dressings



Figure 5: Patient C with adherent slough



Figure 6: Patient C after manuka dressings

wound bed conducive to healing, particularly in partial- to full-thickness wounds.(1) This has been noted to reduce patient hospital stay, morbidity, cost of inpatient care and consequently minimizing mortality rates.(1,2) This process removes dead tissue while preparing the wound bed for granulation by decreasing chemical mediators that promote the inflammatory process.(1) The use of conservative treatment is reported to be outdated, leading to high rates of sepsis and death, particularly in facilities where access to surgical debridement and immediate autologous skin grafting is available.(3)

Medical-grade honey is free from toxic substances, contaminants, and dangerous micro-organisms; it is organic and has undergone gamma sterilisation.(4) Manuka Honey has been found to have advantageous properties that are synergistic in managing burn wounds.(2) It is found to have the highest non- peroxide activity displayed by methylglyoxal, which assists in its bacteriostatic and bactericidal quality, clearing infections and accelerating debridement by suppressing oxidation and inflammation. This process consequently promotes angiogenesis, tissue granulation, re-epithelialization and wound contraction.(2) Methylglyoxal is known to be the unique manuka factor, responsible for most of its antimicrobial activity against organisms such as *Pseudomonas aeruginosa*, *Escherichia coli*, Methicillin-resistant *Staphylococcus Aureus*, *Protease mariiabilis*, *Enterobacter* species, and *Staphylococcus epidermis*.(2,5) Medical-grade honey is viscous, promotes moisture, ensures no further bacteria colonise the wound, and allows for an autolytic debridement process. MGH also ensures that wound dressings do not adhere to the wound. This quality ensures that no granulation tissue is removed during wound dressing changes, consequently reducing pain and

promoting healing.(2,5)The high osmotic pressure provided by MGH ensures that the lymphatic fluid is pulled from deeper dermal layers, removing dead, damaged or infected scar tissue, providing nutrient-rich water onto the wound bed.(2,5,6) Lymph then further uses proteases to activate hydrogen peroxide, assisting in the debridement process.(5) Further eschar formation is then avoided by inhibiting the activation of plasminogen to plasmin, which is important as it digests fibrin, thus preventing further slough and eschar. (6) Flavonoids in MGH are responsible for the removal of free radicals which is beneficial in reducing the consequences of inflammation in wounds.(2) MGH has been shown in studies to reduce COX-1 and COX-2 involved in prostaglandin production, thereby decreasing inflammation and consequently wound oedema.(6)

CONCLUSION

Manuka honey use has gained popularity in recent years for wound management due to its many beneficial properties. The three patients discussed above benefited from its rapid debridement properties. Two of these patients were assessed to have partial to full-thickness burns with delayed presentation to the hospital, requiring debridement. Manuka honey was used as an interim treatment to manage these burns. However, it must be noted that surgical debridement and skin grafting remain the gold standard for managing deep and full-thickness burn wounds; however, these procedures are not always readily available in resource-constrained health facilities. The literature clearly describes many qualities of MGH and its synergetic effects on wound healing compared to other wound dressings, especially in managing superficial burn wounds. Manuka honey is beneficial as an adjunctive treatment when definitive management is far from reach. There is no literature exploring the benefits of MGH compared with delayed surgical debridement in managing septic partial- to full-thickness burns in resource-constrained environments. This is particularly important as theater time is not always accessible, and interim wound management is essential. This leaves a gap for future research.

CONFLICTS OF INTEREST: NONE.

Research ethics committee approval

Ethical approval has been granted by Wits Human Research Ethics Committee protocol Number M250771 on 2025/08/07.

Written consent was obtained from the patients.

AUTHOR CONTRIBUTIONS

Concept - Dr Molewa

Article sourcing - Dr Nudelman.

Data collection and patient consent- Dr Moropa and Dr Mongalo.

Case series format and journal submission- Dr Kgwadi, Dr Nudelman, Dr Mongalo

Literature search- Dr Kgwadi.

Writing of original draft- all authors.

Editing and compiling- Dr Kgwadi and Dr Mongalo

Approval of final manuscript- all authors.

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