

# The use of honey in wound management following ENT surgery

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## Abstract

Wound breakdown following major ENT surgery is a concern to patients, medical and nursing staff because it can lead to additional surgery, prolonged hospital stay and increased patient morbidity. Holistic assessment of the patient and the surgical wound are vital for effective treatment, but a universal regime is not established. Four patients with wound breakdown following ENT surgery were treated with Medihoney™ medical grade, sterile honey. Rapid healing was observed in all the wounds; patient satisfaction was reported. In conclusion, honey is a suitable choice for treating wound breakdown in ENT patients following surgery for head and neck tumours.

## Introduction

Wound breakdown following ENT surgery can be a prolonged and traumatic experience for patients. Having undergone radical surgery and then being faced with the breakdown of a wound that increases the risk of bleeding can have profound effects on the patient's psychological wellbeing. Additionally, the patient's rehabilitation and length of stay is increased as the wound may not be managed in the community.

Although the utilisation of honey in wound care has a documented history of over 4,000 years, it had lost favour in modern times. The introduction to the UK of CE marked wound care products containing honey, which are now available on prescription, has increased professional, media and public interest. Hence many patients request

the use of honey on their wounds, and the clinical evidence is increasing<sup>1</sup>. It is, therefore, essential that healthcare professionals are familiar with licensed products, and know when and how to use them.

One of the authors [VR] is currently carrying out a randomised controlled trial at Aintree University Hospitals NHS Foundation Trust, Liverpool, UK, comparing the efficacy of antibacterial honey (Medihoney™) with conventional treatments on a diverse range of wounds. Aintree Hospitals Trust is a regional referral centre for head and neck patients. The study has received ethical approval from South Sefton Research Ethics Committee and is ongoing. However, until the trial reaches completion and statistics are analysed, it is neither ethically nor clinically possible to judge the effectiveness of honey. In the meantime, case histories of four ENT patients recruited to the trial and randomised to the honey arm are reported here in order to illustrate the potential of honey in the management of difficult wounds.

## Method

### Dressing regime

Prior to receiving honey dressings, the dressing regime for ENT patients following surgery had been to dress wounds from theatre with Betadine soaked ribbon gauze, with daily renewal for 5 days post-operatively. On the sixth day the dressing regime was changed to Aquacel packing, which was again changed daily.

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The honey used in this report was Medihoney™ antibacterial honey barrier, which is a blend of gamma irradiated Australian and New Zealand honey from *Leptospermum* sp. (Jellybush and Manuka respectively) presented in 10g tubes. The honey was mixed into AQUACEL™ rope and used to pack the wound. This allowed the honey to stay in contact with the wound bed, even though this type of wound normally produces copious amounts of exudate. Neat honey was applied to the peri-wound area to reduce and prevent excoriation; an absorbent pad was used as a secondary dressing and the dressings were renewed daily. Patients did not report any adverse effects from the honey dressings and preferred them to the hydrofibre dressing alone. One patient even reported the dressing as a pleasant experience, because following weeks of naso-gastric feeding, she was able to taste honey. Bacterial flora was monitored in all patients by swabbing at weekly intervals.

### Case studies

A summary of data is presented in Table 1.

#### Patient A

Patient A, a 54 year old male with no previous medical history, was admitted to hospital as an emergency having experienced hoarseness of his voice for the past year with increasing stridor for 3 days before his admission. He smoked 10 cigarettes per day and drank approximately 56 units of alcohol per week. An emergency tracheostomy was performed and he was transferred to Aintree Hospitals Trust.

A diagnosis of large supraglottic tumour extending from the right false cord, crossing over to involve the left side was made. A CT scan of the thorax showed no defect, however, an

MRI scan of the head and neck confirmed a large transglottic tumour extending from the level of the peripheral foci into the trachea with complete occlusion of the airway at stage T4 N0 M0. A panendoscopy confirmed that the glottis had been destroyed by the extralaryngeal tumour, extending from the right vestibular fold through to the subglottis of 2cm in length. A biopsy confirmed squamous cell carcinoma but an oesophageal biopsy showed no malignant changes.

Seven weeks following his emergency tracheostomy, he was readmitted to Aintree for a total laryngectomy, total thyroidectomy creation of TOF, with left and right selective neck dissection II-IV. The wound was dressed as described above; however, 4 days post-operatively the wound began to break down. At this stage honey dressings were commenced.

#### Patient B

Patient B presented with hoarseness of voice and was admitted for laryngoscopy and biopsy. Her past medical history included hypothyroidism and hypertension. She is an ex-smoker and drinks 21 units of alcohol per week. The laryngoscopy revealed the presence of a mass in the left vocal cord and the biopsy confirmed well differentiated adenocarcinoma. She was discharged, but returned for a total laryngectomy and left level II-IV modified radical neck dissection with left hemithyroidectomy. At 10 days post-operatively the wound started to breakdown; it was 2.5cm deep and exuding chyl. Honey dressings were initiated.

#### Patient C

Mr C was transferred to the regional unit from his local hospital with a history of increased shortness of breath and dysphagia for the past 2-3 months. He smoked 20 cigarettes

Table 1. Summary of patient characteristics and healing times.

Patient	Sex	Age	Presenting condition	Microbial flora during treatment	Radio-therapy	Chemo-therapy	Topical treatments	Time to heal with Medihoney
A	M	54	Supraglottic tumour	Mixed skin and faecal organisms	No	No	Betadine soaked gauze	5 weeks
B	F	58	Adenocarcinoma	MRSA	No	No	Betadine soaked gauze	3 weeks
C	M	55	Supraglottic tumour	MRSA, Bacteroides	Yes	No	Betadine soaked gauze	3 weeks
D	F	52	Squamous cell carcinoma of cervical oesophagus	Anaerobic cocci	No	No	Silver nitrate to wound margin	5 weeks

per day but did not consume alcohol. A CT scan showed the presence of a supraglottic tumour at stage T3 N2b M0. A panendoscopy confirmed the diagnosis. A total laryngectomy, right modified radical neck dissection II-V, left selective neck dissection II-IV, total thyroidectomy were performed. At 7 days post-operatively the wound began to break down from the left side of the stoma. At this point honey dressings were applied to the wound.

*Patient D*

Mrs E was diagnosed in October 2004 with invasive poorly differentiated squamous cell carcinoma of the cervical oesophagus extending from the upper border of the cricoid ring which extended to the lower border of the thyroid gland, stage T4 N1 M0. In November 2004 she had two courses of chemotherapy.

She was admitted to the regional unit in January 2005 with increased dysphagia for solids since July 2004. She is an ex-smoker of 20 cigarettes per day. In early January

she underwent a total pharyngo-laryngo-oesophagectomy, total thyroidectomy and parathyroidectomy and gastric transposition. Five days post-operatively she developed post-operative pneumonia and 11 days post-operatively the wound began to break down.

**Results**

Wounds in patients A, B and C healed relatively quickly (Figures 1-3). In Patient D the wound healed but there was some over-granulation around the margins of the stoma that was treated with silver nitrate (Figure 4). The honey dressing in situ is shown in Figure 5.

**Discussion**

The first reported use of honey with oncology patients was the topical application of ‘household’ honey to patients with wound breakdown following radical excision of vulval carcinoma in 12 patients. Clearance of infection was observed within 3-6 days, and improved healing rates were recorded<sup>2</sup>.

Figure 1. Patient A immediately before commencing Medihoney (left) and 5 weeks later.



Figure 2. Patient B immediately before commencing Medihoney (left) and 3 weeks later.



Figure 3. Patient C immediately before commencing Medihoney (left) and 7 weeks later.



Figure 4. Patient D immediately before commencement of Medihoney (left), after 2 weeks (middle) and following application of silver nitrate.



Figure 5. Honey dressing insitu.



Topical application of honey has achieved significant reduction in radiation mucositis in patients with head and neck cancers undergoing radiation therapy in the oropharyngeal area<sup>3</sup>.

Furthermore, during 3 years in the paediatric haematology-oncology department of the University of Bonn, Medihoney was successfully used on dehiscent and infected surgical wounds. A wide range of common wound care situations was described and details of 16 exceptional cases were published<sup>4</sup>.

Honey was used not only to eradicate pathogens (including MRSA) from wounds, but also to prevent infections in these immunosuppressed individuals<sup>4</sup>. Additionally, there are case reports that support the use of honey on malignant wounds<sup>5,6</sup>.

Many researchers have noted that honey reduces malodour in fungating wounds, but a role in healing such wounds is difficult to accept. However, a possible role of honey in limiting tumour implantation into wounds following cancer surgery is emerging from animal and cell line studies. Anti-neoplastic activity of honey has been demonstrated in four bladder cancer cell lines and in the abdomen of experimental mice<sup>7</sup>. Pre- and post-operative topical application of honey to neck wounds in mice inoculated with Ehrlich ascites tumour demonstrated significant decrease in tumour implantation in those mice treated with honey compared to those without<sup>8</sup>.

As in previous studies<sup>9</sup>, the patients here readily accepted the use of honey on their wounds. The presence of copious exudate was predicted with such wounds; it was easily managed with a plain surgipad dressing and daily dressing changes. Dressings were removed easily without causing trauma to the wound or pain to the patient.

## Summary

In our hospital, honey has gained popularity with both surgeons and patients as a suitable dressing for ENT patients following cancer surgery. Although this practice has only recently been adopted, it is not a new concept. During Byzantine times, remedies for otolaryngological problems, such as head and neck cancers, included honey<sup>10</sup>.

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