**Introduction**

SurgihoneyRO™ is an antimicrobial wound gel utilising bioengineered honey to deliver Reactive Oxygen Species (ROS) to wounds. It is designed to aid in the breakdown of biofilms.

NELFT have evaluated SurgihoneyRO™ on 14 patients with a suspected bacterial load and/or a biofilm that have not responded to normal antimicrobial management. The study has taken place within a complex wound clinic at Brentwood Community Hospital. The majority of patients seen in the clinic have chronic leg ulcers or non-healing wounds. Wounds do not heal for a number of clinical reasons including biofilm, bacteria and infection that lead to delays in the healing process. SurgihoneyRO™ has been used due to its antimicrobial and wound healing properties on patients with stalled wounds, where standard care has not worked sufficiently.

**Method**

Fourteen patients with chronic wounds, venous leg ulcers (n=11), trauma wound (n=1), mixed aetiology wound (n=1) and fasciitis wound (n=1) were recruited with antimicrobial dressings previously with little effect. Exudate levels varied from low to moderate (n=12) to high (n=2). Biofilm was suspected to be present in 13 of the wounds.

SurgihoneyRO™ was applied every 72 hours for maximum antimicrobial effect directly to a hydrofibre dressing for ease of application with a secondary absorbent dressing and compression bandages/hoisery.

**Case studies**

**Patient 1**

Mrs B is a 76 y-o female who has had leg ulcers since Sept 2017, when she sustained a trauma injury to the right leg in May 2018. The wound became infected and following two courses of oral antibiotics she was assessed by Tissue Viability in June 2018. She received compression therapy and treatment with various antibiotics she was assessed by Tissue Viability in June 2018.

The wound responded well to SurgihoneyRO™, the wound size started to decrease within 7 weeks. These patients were maintained on SurgihoneyRO™ for maximum effect (more than twice weekly.) 4/5/18 - Start of SurgihoneyRO™ (wound size 2.9x1.8cm) 6/7/18 - Week 5 of SurgihoneyRO™ (wound size 1.7x1.0cm) and 0% slough

Mrs B has moved from compression bandaging into hoisery. She found the product very comfortable which pleased her as she had been a lot of pain prior to commencing the trial. Since using SurgihoneyRO™, the patient has been able to cut down her pain relief.

**Patient 2**

Mr K is a 76 y-o male who has had leg ulcers since Sept 2017, when he sustained a trauma injury to the right leg in May 2018. The wound became infected and following two courses of oral antibiotics he was assessed by Tissue Viability in June 2018.

The wound responded very well, it began to shrink in size. The edges of the wound may have increased as the wound bed was being cleaned of bacteria.

Patient 3

Mr A is a 64 y-o female who sustained a trauma wound to the right leg in May 2018. The wound became infected and following two courses of oral antibiotics she was assessed by Tissue Viability in June 2018.

She started on the SurgihoneyRO™ trial in August 2018. From Feb-July 2018 compression bandaging was discontinued, and she started on antimicrobial dressings which included Prontosan gel, Durofibre, Aquacel Ag and lineadine over 3 months. Compression was reduced from bandaging to hoisery once the exudate level had decreased.

Following initial good results, the wound stalled and appeared to increase in size. She was commenced on the SurgihoneyRO™ trial. SurgihoneyRO™ was applied to Durofibre and covered with a Kliniderm superabsorbent dressing to manage exudate levels. The patient was seen once a week in clinic and she self-cared once a week at home, changing the dressing herself.

The wound responded well to SurgihoneyRO™, the wound size started decreasing after one week of treatment, continuing to decrease over the following 4 weeks. SurgihoneyRO™ seemed to kick start the healing process again. The wound had appeared to have 100% granulation on the wound bed, however, throughout the healing process, which may indicate the presence of a biofilm.

Mrs T is now seen only once a month. She was very happy with results of the SurgihoneyRO™ trial and feels that it sped up the healing process. She found the dressing comfortable and easy to manage at home.

Mrs T is a 64 y-o female who sustained a trauma wound to the right leg in May 2018. The wound became infected and following two courses of oral antibiotics she was assessed by Tissue Viability in June 2018.

She received compression therapy and treatment with various antibiotics she was assessed by Tissue Viability in June 2018.

The wound responded well to SurgihoneyRO™, the wound size started to decrease within 7 weeks. These patients were maintained on SurgihoneyRO™ for maximum effect (more than twice weekly.) 4/5/18 - Start of SurgihoneyRO™ (wound size 2.9x1.8cm and 80% slough) 6/7/18 - Week 5 of SurgihoneyRO™ (wound size 1.7x1.0cm and 0% slough)

Wound bed improvements were seen in 79% (11/14) of patients. This demonstrates that the product clears the wound bed of bacteria and therefore indicates the destruction of a biofilm. 71% (10/14) of patients reported the dressing to be comfortable throughout the treatment. It is well known that medical grade honey may have a drawing effect which can cause pain in some patients. Within this trial 4 patients reported high levels of pain which they felt was attributed to the SurgihoneyRO™. One patient was taken off the trial after 2 weeks due to an increase in pain and was reluctant to take pain relief as he is already on multiple medications. During these two weeks the wound size increased in size, the wound bed however became much cleaner and 100% slough was removed.

The second patient cut the compression bandage off her leg, this patient, however, has been non-compliant with treatment in the past. The third complained of a sudden onset of pain after 5 weeks of using the sloughs and was discontinued. The fourth patient complained of pain after one week and discontinued treatment, it transpired that he had a wound infection and required oral antibiotics to manage this.

SurgihoneyRO™ has proven to be a very good product to de-slough, which inevitably leads to quicker healing, granulation and clearing biofilm resulting in wound healing.

**Discussion**

The patients in this evaluation had non-healing wounds despite previous treatment with conventional healed wounds. It is well known that medical grade honey may have a drawing effect which can cause pain in some patients. Within this trial 4 patients reported high levels of pain which they felt was attributed to the SurgihoneyRO™. One patient was taken off the trial after 2 weeks due to an increase in pain and was reluctant to take pain relief as he is already on multiple medications. During these two weeks the wound size increased in size, the wound bed however became much cleaner and 100% slough was removed.

Some wounds with appearance of 100% granulation may not be treated with antimicrobials despite not healing as expected, this may be due to biofilm persisting preventing healing. Further evaluation implies that some biofilms have been disrupted during treatment with SurgihoneyRO™.

The majority of patients within this trial had low-medium exuding wounds. Only 2 patients with high levels of exudate have so far been recruited for this trial and they were all discontinued due to pain. These patients were non-compliant which may not be expected. Due to the heavy exudate more frequent dressing changes would have been recommended for the majority of patients (more than twice weekly).

**Conclusion**

SurgihoneyRO™ appears to be very effective in aiding the healing of chronic non-healing wounds. It is well known that medical grade honey may have a drawing effect which can cause pain in some patients. Within this trial 4 patients reported high levels of pain which they felt was attributed to the SurgihoneyRO™. One patient was taken off the trial after 2 weeks due to an increase in pain and was reluctant to take pain relief as he is already on multiple medications. During these two weeks the wound size increased in size, the wound bed however became much cleaner and 100% slough was removed.

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**Supported by an Educational Grant from H&M Healthcare**

**References**

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- NELFT NHS Trust Foundation NHS
- Inadine over 3 months. Compression was reduced from bandaging to hoisery once the exudate level had decreased.
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- The wound responded very well, it began to shrink in size. The edges of the wound may have increased as the wound bed was being cleaned of bacteria.
- Due to the good results Mr K continued with SurgihoneyRO™ until the wound healed, which took 8 weeks. He reported the pain level of SurgihoneyRO™ to be 4-5/10 throughout the treatment, which he describes as the same as the previous dressings he has had.
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