Honey as a Novel Antimicrobial Coating in Salvage Revision Total Knee Arthroplasty

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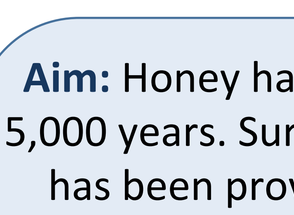
Aim: Honey has been used as a topical antiseptic for at least 5,000 years. SurgiHoney is a CE licensed sterile product, which has been proven to be non-toxic and effective when used topically in the treatment of chronically infected wounds. The key difference from other medical grade honey is the broad spectrum antimicrobial characteristics with activity against Gram +ve, Gram –ve and multi-resistant organisms. Its novel role against the bacterial bioburden and biofilm associated with periprosthetic infections around total knee arthroplasties (TKA's) is therefore considered.

Keywords: Revision, Arthroplasty, Infection, SurgiHoney



The Cardiff Debridement Strategy

- Surgical: Explantation & Sharp Dissection
- Mechanical: Curettage, Reaming, Levage
- Chemical: Honey

Repeated Cyclical Debridement

Methods: SurgiHoney was used as an implant coating immediately prior to wound closure after implantation of salvage endoprosthesis for multiply revised, infected TKA's undergoing staged reconstruction.

The Chemical Debridement of an Infected Endoprostheis using SurgiHoney

Results: During application of the Surgihoney we report no systemic adverse features. Physiological parameters including heart rate, respiratory rate and blood pressure were recorded and did not change significantly during and after the application. We also report good soft tissue and wound healing. Post-operatively we did not experience any wound complications or delayed wound healing. No early recurrent infection has been identified at early follow-up (6 to 12 months)

Operation (*previous multiple surgeries)	Microbe	Follow up
*2nd stage	Polymicrobial :Pseudomonas, Mycellial fungus, CNS, Eterobacter	6 months
*2nd stage	Polymicrobial: , CNS aureus, Enterobacter, Mycellial fungus	8 months
*2nd stage	Polymicrobial: CNS aureus, Aspergillus	12 months
*2nd stage	Polymicrobial: including CNS aureus and various anaerobes	11 months

- Honey contains innate antimicrobial components (methylglyoxal, bee defensin-1 and hydrogen peroxide) and has been used as a topical antiseptic for at least 5000 years.
- Surgihoney is not a natural honey but an engineered formulation of honey with enhanced antimicrobial properties (owing in part to enhanced production to hydrogen peroxide; H2O2). It is scaleable as it does not rely on a single floral source.

Conclusion: The use of Surgihoney as a novel anti-microbial is established in the management of complex wound infections. This is the first reported use of SurgiHoney as a deep, implant coating in the salvage of prosthetic joint infection.

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