

The Use of Manuka Honey to Improve Healing After Third Molars Surgery

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Abstract

Introduction: This study was done to assess the efficacy of manuka honey (a plant extract) in improving healing after third molar surgery.

Method: A total of 20 patients with impacted mandibular third molar were included in this study. The level of discomfort, facial swelling, mouth opening, VAS scale for pain, presence or absence of alveolar osteitis was assessed in this study.

Result: No statistically significant difference was elicited on analysis. However subjective remarks point towards better acceptability.

Conclusion: This study concludes that, manuka honey has a promising result in healing after third molar surgery because of its antibacterial property.

Keywords: Manuka Honey, third molar surgery, impactions

Introduction

The conventional honey has been used as medicinal remedy since long period of time. Honey has been used in treating burns, infected wounds, open wounds etc. There is ample literature suggesting the use of honey in extraction socket in improving healing. Honey has been used to treat infected wounds since last 2000 year, even

before bacteria were discovered as an infectious agent. Honey has an inhibitory action on about 60 species of bacteria including aerobic and anaerobic, gram positive and gram negative microorganisms¹.

The pH of honey is acidic, ranging 3.2-4.2, which is low enough to inhibit the growth of many pathogens. The major antibacterial activity is due to the presence of the hydrogen peroxide, as a result of an enzymatic reaction in honey². All antibacterial property doesn't account for the peroxide generating system. Several chemical with antibacterial activity have been identified in honey such as Pinocembrin, Terpenes, 3,4,5 trimethoxy benzoic acid, 2 hydroxy,3 phenyl propionic acid, 2 hydroxybenzoic acid and 1,4 dihydroxybenzene.

It appears that honey from certain plants like Manuka honey has better antibacterial properties than the other honey³. Manuka honey is extracted from the Manuka tree (*Leptospermum scoparium*) which is found in New Zealand. It is known for its antibacterial property⁴. Manuka honey acts against harmful bacteria such as staphylococcus aureus and helicobacter pylori, which makes it a useful tool for the treatment of wounds and ulcers⁵

In conventional honey, hydrogen peroxide by the endogenous enzyme glucose oxidase is responsible for antimicrobial property whereas in Manuka honey, other factors are responsible for its properties⁶. Several other "non-peroxide" factors were discussed to be responsible for the unique antibacterial activity of Manuka honey, but the chemistry behind this phenomenon remained unclear for decades (Russel et al. 1990; Henriques 2006). Nevertheless, the so-called "Unique Manuka Factor" (UMF) was introduced some years ago for marketing purposes, leading to a classification of premium products based on microbiological assays. A UMF of 10, for instance, has the same antibacterial activity to a 10%

solution of phenol (Allen et al. 1991). The purpose of this study was to assess the efficacy of manuka honey (a plant extract) in improving healing after third molar surgery

Material and Method

20 Patients reporting with impacted mesioangular mandibular third molars to the Department of Oral and Maxillofacial Surgery were considered for the study. The patients were randomly allotted in 2 groups with 10 in each group.

Group A consisted of subjects receiving manuka honey in the third molar socket while group B acted as control.

To maintain the uniformity, all procedures were carried out by a single surgeon at the same center.

Informed consent was taken from each patient prior to 3rd molar surgery. Ward's incision was used for every patient with collar bone osteotomy was done followed by elevation of impacted third molar. Manuka honey was placed using dropper in the socket and flaps were sutured using 3-0 silk suture (Figure 1 to Figure 4). Patients were given standard anti-inflammatory after the procedure and were advised to take on SOS basis. The follow up was carried out on 3rd day till 7th day on the day of suture removal.

Following parameters were assessed-

Postoperative discomfort - The levels of postoperative discomfort was measured on seventh day after surgery. The patient was asked to fill in a questionnaire on the 7th day following surgery. This questionnaire is used to assess postoperative discomfort in patients who had third molar surgery. Patient's ability to enjoy food; speak properly; perceive altered sensations, appearance, pain, and sickness; and interference with daily activities were taken into consideration.

Facial swelling - To assess facial swelling, the distances between the labial commissure and the

tragus, and between the lateral canthus and the gonion was measured before surgery, 3rd day and 7th day.

Mouth opening - Change of the masticatory muscles status was also checked, mouth opening ranges was checked by measuring the distance between the upper and lower incisors using a vernier calliper before surgery, 3rd day and 7th day.

Pain - pain and change of pain was measured using a Visual Analogue Scale on 3rd day and 7th day. The presence or absence of alveolar osteitis was assessed on the 3rd and 7th day following surgery.

Alveolar osteitis – presence or absence was noted on 3rd postoperative day based on exposure of bone, foul smell or excruciating pain.

Results

Subjective analysis that is the questionnaire filled by the patients on postoperative discomfort revealed 8 out of 10 patients in group A reported better experience in enjoying food as compared to 5 in Group B at the 7th postoperative day. 3 patients in group A reported to be able to chew without much discomfort and were following their normal diet, while in case of group B only 2 patients reported the same at the end of 7th postoperative day. Pain was reported by all the patients' upto 3rd postoperative day. However, 2 patients in group A reported rapid relief after 3rd postoperative day from the pain, while none such findings were reported from group B. Only 1 patient in group A reported with altered perceived sensation in group A at the end of 7th postoperative day.

Facial swelling pre op on first day in group A mean was 109.7 ±5.7mm. mean for group B was 115.7±4.3mm. Facial swelling as observed on 7th day for group A was 105.8±4.2 mm , while for group B it was 109.8±3.2. There was an overall decrease however the difference is not statistically significant.

Preoperative Mouth opening recorded for group A 42.8±2.7 mm while for group B was 43.1±2.9 mm. Mouth opening recorded on 3rd postoperative day in group A was 36.7±2.3 mm while group B was 35.9±1.9 mm. 7th day postoperative mouth opening recorded in group A was 41.9±3.2 mm while in group B was 40.8±2.8 mm. there was statistical significant findings in either of the recordings.

Pain on the basis of VAS scale recorded 7.8±1.2 in Group A as compared 8.2±1.4 in group B on 3rd postoperative day. 7th Postoperative day recorded 5.4±0.9 in group A as compared to 6.1±1.2 in group B. None of the patients in either group reported with alveolar osteitis.

Discussion

The results reveal that although there is no statistical significant finding in terms of objective measurements, subjectively patient receiving Manuka Honey in their operative side were relatively well off as compared to their control counterparts. While patients had overall mild to moderate problem in enjoying food in the assessment period patients receiving manuka honey were more satisfied with the post sequel of their treatment as compared to control group.

Although very well known as a food, honey is not well recognised as a medicine, yet it is one of the oldest medicines known and has continued to be used as such throughout the ages. However, it has been “rediscovered” in more recent times by the medical profession⁷. The antibacterial activity of honey has been known for almost as long as bacteria have been known to be the cause of infection, and the large amount of published research over the years reveal the broad spectrum of action and the potency of this activity has been comprehensively reviewed². Mavric et al. 2008 demonstrated surprisingly high amounts of 1, 2 dicarbonyl compounds, 3-

deoxyglucosulose (3-DG), methylglyoxal are present in certain samples of Manuka honey. Methylglyoxal is a unique antibacterial compound found in high concentrations in Manuka honeys from New Zealand and directly responsible for the specific antibacterial activity of these samples⁴. In their study, concentrations of methylglyoxal as measured according to Mavric et al. (2008) ranged from 25 to 709 mg/kg. Among the samples analyzed by Adams et al. (2008), 30 samples had antibacterial activities higher or equal 10% equivalent phenol concentration⁴.

Conclusion

The use of manuka honey in extraction socket has a promising effect in healing as has been described in numerous literatures. We believe that a larger sample size may elucidate the subjective outcome of this study to revelatory finding.

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Legends Figure



Figure 1: Ward's incision



Figure 2: Extracted socket



Figure 3: Manuka honey placed in socket



Figure 4: Closure done using 3-0 silk suture