

HEALING EFFECTS OF NATURAL HONEY ON ORAL MINOR APTHOUS ULCERS AMONG DENTAL PATIENTS IN QUETTA

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ABSTRACT

Natural products have been used for several years in folk medicine. Among the natural medicated products, honey has an effective antibacterial potential to reduce oral pathogens and holds promise for the treatment of periodontal diseases, mouth ulcers, and other diseases of the oral cavity. As people are realizing that modern medicine is not the only remedy for infections today, so many of us are looking for the alternative approaches with least possible side effects.

The purpose of this cross sectional study was to determine the effects of natural honey on healing of recurrent oral minor aphthous ulcers. A total of 20 subjects, with minor oral ulcers (2-5 mm in size) visiting the oral diagnostic clinic of Dental Section, Sandeman provincial hospital, Quetta, for treatment of their painful ulcers were selected for this study, by either application of natural honey dressing or triamcinolone acetonide 0.5% in orabase. The ulcerations almost completely disappeared after three days treatment by natural honey dressing as compared to triamcinolone acetonide 0.5% in orabase.

It was concluded that natural honey has an obvious influence on the rate of healing process of oral minor aphthous ulcers.

Key Words: *natural honey, minor aphthous ulcers, healing.*

INTRODUCTION

Recurrent Aphthous ulceration (R A U) or recurrent aphthous stomatitis is the most common oral mucosal disease known to human beings, despite much clinical and research attention, the cause remains poorly understood, the ulcers are not preventable, and treatment is symptomatic.¹ And affects about 10-20% of the population.² R.A.U is characterized by the periodic appearance of the painful small round or oval crateri-form ulceration on the mucosa of vestibule, cheeks, lips, tongue, soft palate, floor of the mouth and the pharynx with a bright red circular inflammatory

zone around the ulceration with a pseudomembrane ranging from gray to yellow in color. Both sexes are almost equally affected with a slightly higher incidence in females.^{3,5}

Food sensitive and allergies to other substances can cause ulcers in hematological normal patients with recurrent lesions.⁶ Trauma has often been cited as a precipitating factor, and also bacterial microorganism (such as *Streptococcus sanguis*) or viral infection are suggested as being involved in the etiology. Psychological factors, genetic factors and nutritional deficiencies may also promote aphthae.⁷ Three main

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clinical types of aphthae can be distinguished; minor, herpetiform and major aphthae. Minor aphthae are the most common and typically consist of shallow rounded ulcers about 2–6 mm across. Herpetiform aphthae account for about 10% of cases and consist of many minute (2mm) ulcers, which may coalesce, in a field of bright erythema, and major aphthae, the most serious form, also comprise about 10% of cases.

Medicinal importance of honey has been documented in the world's oldest medical literatures, and since the ancient times, it has been known to possess antimicrobial as well as wound-healing property. The healing property of honey is due to the fact that it offers antibacterial activity, maintains a moist wound condition, and its high viscosity helps to provide a protective barrier to prevent infections. Its immunomodulatory property is relevant to wound repair too. The antimicrobial activity in most honeys is due to the enzymatic production of hydrogen peroxide. In addition, honey is hygroscopic, which means that it can draw moisture out of the environment and dehydrate bacteria, and its high sugar content and low-level pH can also prevent the microbes from growth.⁸ The use of traditional medicine to treat infection has been practiced since the origin of mankind, and honey produced by *Apis mellifera* (*A. mellifera*) is one of the oldest traditional medicines considered to be important in the treatment of several human ailments. Currently, many researchers have reported the antibacterial activity of honey and found that natural unheated honey has some broad-spectrum antibacterial activity when tested against pathogenic antibacterial activity, oral bacteria as well as food spoilage bacteria.^{9,10}

In most ancient cultures, honey has been used for both nutritional and medical purposes. The belief that honey is a nutrient, a drug and an ointment has been carried into our days, and thus, an alternative medicine branch, called apitherapy, has been developed in recent years, offering treatments based on honey and other bee products against many diseases including bacterial infections. At present a number of honeys are sold with standardized levels of antibacterial activity. The *Leptospermum scoparium* (*L. scoparium*) honey, the best known of the honeys, has been reported to have an inhibitory effect on around 60 species of bacteria, including aerobes and anaerobes, gram-positives and gram-negatives.¹¹

The last prophet Muhammad (PBUH) recommended the use of honey for the treatment of diarrhea.¹² Honey has been described in ancient and mod-

ern medicine as being effective in the healing of various infected wounds, there have been few reports of its use in the healing of burns, ulcers and open wounds.^{13,15} Vardi, concluded that honey is useful in the treatment of post surgical wounds that are infected and do not respond to conventional systemic and local antibiotics treatment.¹⁶ The large volume of literatures reported the effectiveness of honey. It indicates that it may potentially be useful to treat periodontal diseases, mouth ulcers and other problems of oral health.¹⁷

Antimicrobial agents are essentially important in reducing the global burden of infectious diseases. However, as resistant pathogens develop and spread, the effectiveness of the antibiotics is diminished. This type of bacterial resistance to the antimicrobial agents poses a very serious threat to public health, and for all kinds of antibiotics, including the major last-resort drugs, the frequencies of resistance are increasing worldwide.^{18,19}

Therefore, alternative antimicrobial strategies are urgently needed, and thus this situation has led to a re-evaluation of the therapeutic use of ancient remedies, such as plants and plant-based products, including honey.

The Aim of this study was to assess the healing effects of natural honey on recurrent oral minor aphthous ulcers.

METHODOLOGY

The study protocol was revised and approved by the Head of Dental section, Prof Dr Zia ul Haq of Sandeman Provincial Hospital Quetta. All details about the patient and their identity were anonymous. Each subject was given both verbal and written information about the nature of the study and a written informed consent was obtained from study subjects.

Between July 2011 to April 2012, a group of 20 patients with minor oral ulcers (2–5 mm in size) attended the oral diagnostic clinic in Dental Section Sandeman Provincial Hospital, Quetta for the treatment of their painful ulcers. The patients male and female with their ages between 20– 60 years without any systemic diseases, such as leukemia, hemophilia, uncontrolled diabetes mellitus or serious cardiac problems. Demographic parameters including age, gender, and size of ulcers were recorded. Examined under standardized conditions for minor ulcers in the whole oral cavity. Each participant had the right to with-

draw at any time during the study. Researcher provided natural honey and (triamcinolone acetonide 0.5% in oral base 5g) to each participant. After selection of the patients the participants were divided into two groups.

Group (1): Five male and five female patients with minor oral aphthous ulcers were treated by honey application (100 % pure natural honey, applied by themselves) on their ulcers three times a day for three consecutive days only.

Group (2): Five male and five female patients with minor oral aphthous ulcers were treated by (triamcinolone acetonide 0.5% in oral base 5g), three times a day for three, consecutive days only. Both groups of the patients were called for follow-up re-examination after treatment of three, days to check the response of natural honey and topical steroid.

RESULTS

The results of this study are presented in Table 1. The mean age of the group 1 patients was 43.1, and group 2; 44.2 years. The mean ulcer size in group 1 patients was 3.5 mm and 3.6 mm in group 2, and mean ulcer size noted after 3 days treatment was 0 mm in group 1 and 0.25 mm in group 2.

The ulcers showed no edema, erythema and good ulcer contraction, improved with complete epithelialization and complete healing and finally no ulcer was found (Fig 1a and b).

DISCUSSION

The results of this study showed honey a good accelerator of ulcer healing and are in agreement with the finding of Mohamed SS, Al-Douri AS, and Al-Waili.^{20,21} Natural honey increases healing process and tissue repairing due to valuable nutritional constituents. Honey has anti-inflammatory and antioxidant activities that make it a suitable natural subject for



Fig 1 (a): Minor oral aphthous ulcer on the lower labial mucosa before treatment with natural honey.



Fig 1 (b): After 3, day's treatment of using natural honey.

wound healing. Honey's acidity and osmolality plays an important role in the healing process. Its antioxidant contents are important as wound healers and help in the eradication of microbial infections. The healing property of honey is due to the fact that it offers antibacterial activity, maintains a moist wound condition, and its high viscosity helps to provide a protective barrier to prevent infection.

The antimicrobial activity in most honeys is due to the enzymatic production of hydrogen peroxide. Its mechanism may be related to the low pH level of honey and its high sugar content (high osmolality) that is

TABLE 1: DISTRIBUTION ACCORDING TO PATIENT'S AGE, GENDER AND SIZE OF ULCER AFTER 3 DAYS TREATMENT

Groups	Age mean	Gender	Size of ulcer (mm) mean	3 days treatment mean ulcer size (mm)
Group 1	43.1	M5F5	3.5	0
Group 2	44.2	M5F5	3.6	0.25

M: Male, F: Female

enough to hinder the growth of microbes.²¹

Honey adsorbs toxins from the mucous membrane and precipitate protein, so the pus and inflammatory exudates are adsorbed by the natural honey, thus protecting the underlying tissues and enhanced normal healing and the epithelialization.²²

Sticky viscous properties of the natural honey, enables it adhere to the ulcer. This mechanism for coating the ulcer prevents it from secondary infection, and prevents ulcer surface from direct communication from different chemicals and microbes. No allergic mucosal reaction or toxic effects have been noted with honey usage.²³

CONCLUSION

There exists a huge data supporting the effectiveness of honey in the treatment of oral ulcers and wounds in comparison with the use of triamcinolone acetanide 0.5% in orabase. The data clearly demonstrate that with the use of honey, no allergic reaction is elicited and no significant side effects were reported. In addition to its valuable nutritional constituents, honey has anti-inflammatory and antioxidant activities that make it a suitable natural subject for healing oral ulcers.

The anti-bacterial, anti-inflammatory or anti-oxidant, as well as nutritional and physical properties of natural honey, makes it a logical and accepted natural agent for healing oral ulcers.

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