

Clinical Implication of Honey on Healing of Oral Recurrent Aphthous Ulcers- A Clinical Study

Dr. Anjana¹, Dr. Rahul Srivastava², Dr. Vishal Mehrotra³,
Dr. Shivi Rajput⁴, Dr. Kasif Iqbal⁵

¹ PG Student, Dept of Oral Medicine and Radiology, Rama Dental College

² Professor, Dept of Oral Medicine and Radiology, Rama Dental College

³ Professor and head, Dept of Oral Medicine and Radiology, Rama Dental College

^{4,5} PG Student, Dept of Oral Medicine and Radiology, Rama Dental College

Abstract

Aim: To assess the effect of honey on healing of oral recurrent aphthous ulcers.

Materials and Methods: 100 patients (50 male 50 female) with minor oral ulcers (2–5 mm) were attended to consultant in the O.P.D. of Rama dental College hospital & research center Kanpur, demanding a treatment for their painful ulcers were treated by either kenalog in orabase (Triamcinolon acetonide 0.1% in oral paste 5g) or the application of honey dressing.

Results: The ulcerations have almost completely disappeared after 3 days treatment by honey dressing.

Conclusions: Honey has an obvious influence on the rate of healing process of the oral ulcers.

Key words: Honey, ulcers, healing.

Introduction

Recurrent Aphthous ulceration (R.A.U) or recurrent Aphthous Stomatitis is the most common oral mucosal disease in human beings, despite much clinical and research attention, the cause remain poorly understood, the ulcers are not preventable, and treatment is symptomatic.[1] and affects approximately 10 –20 % of the population.[2] Recurrent aphthous ulceration is characterized by the periodic appearance of the painful small round to oval crateriform 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. Male and females are almost equally affected with a slightly higher incidence in females. [3–5]. A seasonal variation in R.A.U was noted by Ship et al. [6] It may have primary immunologic abnormalities that result in altered immunoregulatory balances. [7]

Sensitivity to food or allergies to other substances can cause ulcers in hematological normal patients with recurrent lesions.[8] Trauma has often been cited as a precipitating factor like bacteria streptococcus sangius or viral infection suggested as being involved in the etiology of R.A.U. Psychological factors, genetic factors and nutritional deficiency may promote R.A.U.[9]

Three main clinical types of aphthae can be distinguished: 1.Minor 2.Herpetiform 3.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 ulcers, measuring approximately 2mm in diameter, which may coalesce, in a field of bright erythema, and major aphthae, the most serious form, also comprise about 10% of cases. [2] Honey and its related bee products in traditional medicine stretch back centuries, since the first reports from Sumer, and then in ancient Egypt, Greece, Rome, and Asia. [10]

Honey has been described in ancient and modern 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.[11–13] Subrahmanyam[14] found that patients with honey dressed burn wounds, early subsidence of acute inflammatory changes, better control of infection and quicker wound healing was observed while in the silver sulfadiazin treated wounds sustained inflammatory reaction was noted even on epithelialization. The honey treated lesions of rabbits showed less edema, fewer polymorphnuclear, and mononuclear cell infiltration, less necrosis, better wound contraction.[15]Aldouri found in experimental study quicker ulcer healing observed in honey treated rate than untreated.[17] The Aim of this study was to assess the effect of honey on healing of recurrent aphthous ulcers.

Materials and Methods

Along 20 months of period, 100 patients with minor oral ulcers (2–5 mm) were attended to consultant in O.P.D. of Rama dental College hospital & research

center Kanpur, demanding a treatment for their painful ulcers. These patients ranged in age from 28–42 years, they should not have any systemic disease. They were examined under standardized conditions for minor ulcers on the whole oral cavity.

Two groups of patients were examined:

Group (1): 100 patients (50 male, 50 female) were treated by honey application (100% pure natural honey, applied by them) on their ulcers three times a day for 3 days only.

Group (2): 100 patients (50 male, 50 female) were treated by kenalog in orabase (Triamcinolon acetonide 0.1% in oral paste 5g), three times a day for 3 days only.

The patients were reexamined after treatment at 2 and 3 days (Table 1).

Table (1): Sample distribution according to patient's age, gender and size of ulcer after 2, 3 day treatment

Groups	Age Mean	Gender	Size of ulcer (mm) Mean	2day treatment mean ulcer size (mm)	3day treatment mean ulcer size (mm)
Group 1	30.5	M 50 F 50	2.9	1.07	0
Group 2	30.5	M 50 F 50	2.8	2	1.8

M: Male; F: female

Results

Oral ulcers in the group 1 showed a marked clinical improvement after 2 days of treatment with topical application of honey 3 times daily. The ulcers showed less edema, better ulcer contraction, improved epithelialization, relief of pain was noted. In comparison with group 2 after 2 day of treatment with kenalog in orabase ointment, there was lack of pain relief and ulcers were clearly present. After 3 days of honey treatment, the ulcers were closed, clean, and sterile, the ulcers has almost completely disappeared (Figure 1). On the other hand after 3 days of kenalog treatment, there were very slight improvement, slight relief of pain, slight contraction, slight decrease in ulcer size (Figure 2).



Figure: 1



Figure: 2

The difference in the effect of honey and kenalog in orabase on the healing time was significant The p–

value for honey treated group compared to kenaloge treated group was significant in ulcer size, pain, and healing as shown in Table 2.

Table (2): The P-value for honey treated group with kenaloge treated group

	P-value	Significant
Ulcer Size	0.001	S*
Pain	0.002	S
Healing	0.001	S

*P< 0.05 significant; S: Significant.

Discussion

Honey has been reported to contain about 200 substances. Beside carbohydrates, which are their major component (70 to 80%), honey contains low amounts of various substances such as organic acids, proteins, amino acids, vitamins, enzymes, minerals, and various other molecules like pigments, flavonoids, antibacterial factors, among others (White, 1975, 1979; Tan et al., 1989; Cherchi et al., 1994; Andrade et al., 1997; Anklam, 1998; Azeredo et al., 2003) [18]

The ability of honey to accelerate the healing could be attributed to its effect against the growth of common pathogenic organisms that grow at the site of ulcers or wounds and retard the healing period. Furthermore this study showed that honey has biological activity in accelerating the rate of healing process which believed to be related to its constituents since fructose, the predominant sugar in honey, is very hygroscopic [11]

Thus, along with the anti-bacterial properties inhibiting the growth of bacteria such as salmonella and E. coli, it makes honey an excellent skin treatment. as well as oral treatment, besides other components of vitamins and minerals. [19]

The result of present study as honey an excellent accelerator of ulcer healing and has therapeutic effect in the treatment of mucosal ulcers was in agreement with the finding of Al-Waili [13] who concluded that topical application of undiluted honey could faster eradication of bacterial infection, reduce period of hospital stay, and accelerate wound healing in caesarian sections. Also quicker oral ulcer healing was observed in other studies in experimental animals. [17] as well as in skin burns. [14]

Honey accelerates the healing of ulcer through decreasing bleeding and decreasing vascular permeability. [20] Honey is probably adsorb toxins from the mucous membrane and precipitate protein, so the pus and inflammatory exudates became adsorbed by the natural honey, thus protecting the

underlying tissues and enhanced normal healing and the epithelialization. [21] The natural honey is sticky because of its viscous nature, which make it adhere to the ulcer. By this mechanism for coating the ulcer and prevention of secondary infection as carob. [22] No allergic mucosal reaction or toxic effects have been reported with honey usage. [17]

Conclusion

Honey has been shown to be much more than a simple food product, but rather a valuable medical product with multiple mechanisms and beneficial virtues. The varying antimicrobial, antioxidant, and anti-inflammatory properties of honey are responsible for the diverse and broad range of varieties of applications of honey being investigated as powerful topical treatments for healing and wound repair. In this study we concluded, Honey is useful in the treatment of oral ulcers in comparison with the use of kenalog in orabase, with lack of any side effect since its constituents have biological activity on the recurrent aphthous ulceration.

References

- Jonathan A, Ship DM, Ann AM. Recurrent aphthous stomatitis. *Oral Surg. Oral Med. Oral Pathol. Radiol. Endod.* 1996; 81: 141–147.
- Cawson RA, Binnie WH, Eveson JW. *Colour Atlas of Oral Disease Clinical and Pathological Correlation's*. 2nd ed. Mosby-year book Europe Ltd. 1995; Pp: 11, 12.
- Sircus W, Church R, Kelleher J. Recurrent aphthous ulcer of the mouth. *J Med.* 1957; 26: 235–249.
- Fahmy MS. Recurrent aphthous ulcer in a mixed arab community. *Oral Epidemiol.* 1976; 4: 160–164.
- Cawson RA. *Essential of Dental Surgery and Pathology* 4th ed, Churchill. Living Stone. London 1984; Pp: 249–254.
- Ship II, Morris AL, Durocher RT. Recurrent aphthous ulcer and recurrent herpes labialis in a professional school student population. *Oral Surg. Oral Med. Oral Path.* 1960; 13: 1191–1202.
- Landesberg R, Fallon M, Insel R. Alterations of T-helper inducer and T- Suppressor inducer cells in patients with recurrent aphthous ulcer. *Oral Surg Oral Med. Oral Pathol.* 1990; 69: 205–208.
- Nolan A, Lmey PJ, Milligon KA, Forsyth A. Recurrent aphthous ulcer. And food sensitivity. *J Oral Pathol Med.* 1990, 20: 473–465.
- Scully C, Porter SR. Recurrent aphthous stomatitis: current concepts of etiology, pathogenesis and management. *J Oral pathol med.* 1989; 18: 21–27.
- Kuropatnicki, A.K.; Klósek, M.; Kucharzewski, M. Honey as medicine: Historical perspectives. *J. Apic. Res.* 2018, 57, 113–118.
- Sato T, Miyata G. The nutraceutical benefit, part III: honey. *Nutrition.* 2000; 16(6): 468–469.

12. Salcido R, Complementary and alternative medicine in wound healing (editorial). *Adv wound – care J.* 1999; 12 (9): 438.
13. AL–Waili NS, Saloom KY. Effects of topical honey on post operative wound infection due to gram positive and gram negative bacteria following cesarean section and hysterectomies. *Eur J Med Res.* 1999; 26: 4(3): 126–130.
14. Subrahmanyam M. A prospective randomized clinical and histological study of superficial burn wound healing with honey and silver sulfadiazine. *Burns J.*1998; 24(2): 157–161.
15. Oryan A , Zaker SR. Effects of topical application of honey on cutaneous wound healing in rabbits. *J Zentralbl Veterinarmed A.* 1998; 45 (3): 181–188.
16. Aldouri AS. The effect of the honey on the healing process of oral ulcer (experimental study). *Iraqi Dent J.* 2003; 33:186.
17. Sally A El-Haddad, Maysara D. Effect of honey for treatment of some common oral lesions: Follow up of 50 cases, *Journal of Dentistry and Oral Hygiene.* 2013, 5(6): 55-61.
18. Elaine C. Super formual arts crafts, how to make more than 360 useful products that contain honey and bees wax. 2000. Valley Hills press. Mississippi 78.
19. Ali At, Alswayed OA, Al humayd MS. Natural honey prevents ischaemia– reperfusion–induced gastric mucosal lesions and increased vascular permeability in rat. *Eur. J. Gastroentrol Hepatol.* 1997; 9 (11): 1101–1107.
20. Vardi A, Barzilay Z, Linder N: Local application of honey for treatment of neonatal postoperative wound infection. *Acta paediatr.* 1998; 87(4): 429–432.
21. Altaie TS. The effects of the carob on the healing process of recurrent Aphthous ulceration and herpes simplex ulceration. MSc. Thesis, College of Dentistry, University of Baghdad. 1998.

To cite this article: “Clinical Implication of Honey on Healing of Oral Recurrent Aphthous Ulcers- A Clinical Study”: Dr. Anjana, Dr. Rahul Srivastava, Dr. Vishal Mehrotra, Dr. Shivi Rajput, Dr. Kasif Iqbal, Rama Univ. J. Dent. Sci. 2023 June; 10 (2): 12-15