原文題目(出處)：	The Effect of Topical Application of Pure Honey on Radiation-induced Mucositis: A Randomized Clinical Trial. J Contemp Dent Pract 2008 March; (9)3:40-7.
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內文：

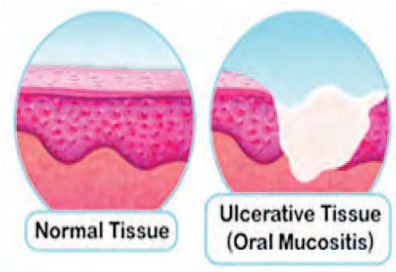
Aim: Radiation-induced mucositis is an early effect of head and neck radiotherapy. Mucositis can cause ulcers, and patients may experience pain and dysphasia which need treatment. The aim of this study is to evaluate the effect of pure natural honey on radiation induced mucositis.

Introduction:

- Radiotherapy plays an important role in the management of head and neck cancer.

Most patients with head and neck carcinomas, treated with curative intent, receive a dose between 50 and 70 Gy. This dose is usually given in 2 Gy fractions once a day for five days a week over a five to seven week period. The most common acute complication of radiotherapy in the head and neck region is oral mucositis

- mucositis is recognized as an epithelial and subepithelial injury develops in five phases:



1. Initiation
2. Primary damage response
3. Signal amplification
4. Ulceration
5. Healing

- Radiation mucositis is defined as a reactive inflammation of the mucous membrane during radiotherapy. It is characterized by atrophy of squamous epithelial tissue, absence of vascular damage,and an inflammatory infiltrate concentrated at the basement region.
- Also, honey has been used to manage burns, oral infections, surgical wounds, and pressure wounds. Biswall used topical honey to manage radiation mucositis successfully for the first time.

Methods and Materials:

- This double blind randomized clinical trial was conducted in the Babolsar Center for Cancer from March, 2003 to August, 2004. Forty patients with head and neck cancer who underwent radiotherapy of the head and neck were selected. Selected patients had no history of previous radio chemotherapy or other systemic diseases. All patients' blood sugar levels were checked, and those with a FBS > 150 mg/dl were not selected.
- The study group of 20 patients took 20 ml pure natural honey 15 minutes before then 20 ml doses

again at 15 minutes and six hours after radiotherapy.

- The 20 patients in the control group were advised to rinse their mouths with 20 ml of normal saline (0.09%) before and after each radiotherapy session.
- Examinations of the oral mucosa were performed on all patients at the beginning of treatment and continued weekly up to the end of radiotherapy by an evaluator.
- The Oral Mucositis Assessing Scale (OMAS) was used to score the ulceration or pseudo membranous areas from 0 to 3.

Erythema: scores ranging from 0 to 2 in nine distinct areas of the mouth.

- '0' :without erythema or ulceration (pseudo membranous area)

  3: is an ulceration more than 3 cm in diameter or severe erythema.

  The final score could range from 0 to 45.

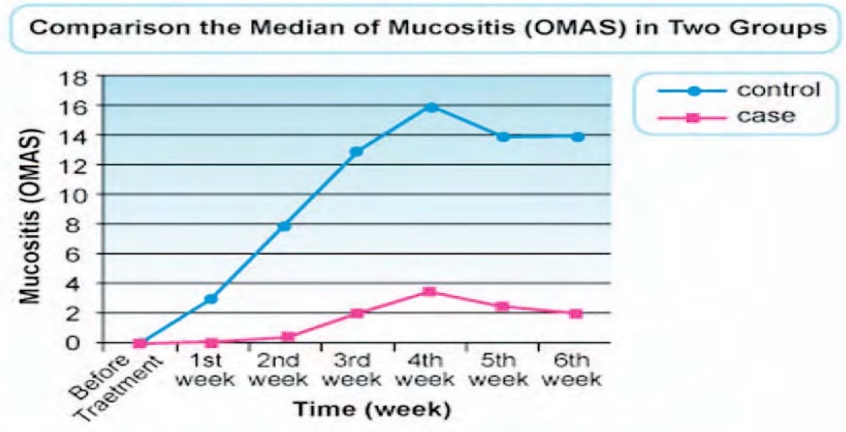
Results:

- The study was completed in August 2004, and all cases received radiotherapy as planned. The 40 patients evaluated were 18 females and 22 males with a mean age of 57.05±9.43 and 56.95±14.5. In the study group the mean weight loss was 1±0.35 (0 to 7 kg).
- The mean rank of OMAS at the end of each week in two groups was estimated (Table 1).

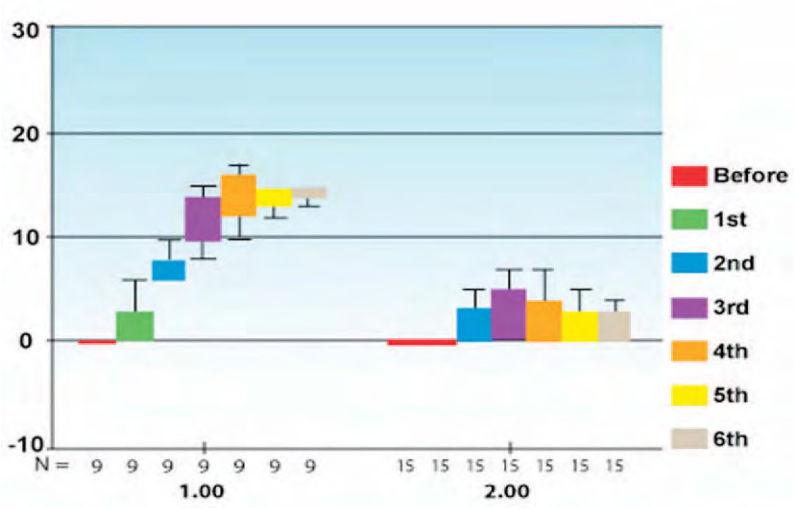
Mean rank (95% Confidence Interval) of OMAS at the end of each week during radiation therapy in the two groups.

Weeks (OMAS)	End of Week #1 (95% CI)	End of Week #2 (95% CI)	End of Week #3 (95% CI)	End of Week #4 (95% CI)	End of Week #5 (95% CI)	End of Week #6 (95% CI)
Control	27.80 (0.2-3.35)	28.25 (3.4-9.26)	28.76 (7.19-16.58)	26.73 (8.95-18.6)	25.73 (10.35-17.64)	20.00 (11.23-17.43)
Case	13.20 (0.15-0.41)	12.75 (0.87-3.12)	11.68 (1.48-4.25)	11.45 (1.19-3.73)	10.65 (1.08-3.31)	8.00 (0.79-2.4)

- The mucositis score of OMAS at the end of each week in the study group was significantly lower than the control group (Mann-Whitney test) (p=0.000) (Figure1).



- The mucositis score changes for the two groups during the six weeks were compared using the Friedman test and showed significant differences in the OMAS during the six weeks (p=0.000)(Figure 2)



Discussion:

- Currently, most oral care programs target the following:

• Removal of mucosal irritation factors

• Cleansing of the oral mucosa

• Maintaining moisture of the lips and the oral cavity

• Relief of mucosal pain and inflammation

• Prevention or treatment of infection

- Important factors which influence the effectiveness of honey are as follows:

• Its hygroscopic properties

• Its acidic pH

• The conversion of hydrogen peroxide from glucose oxydase and gluconic acid

• Its enzymes and tissue nutrition minerals and vitamins that help repair tissue directly

- High osmotic properties so it can extract water from bacterial cells and cause them to die. The glucose oxidase enzyme produces hydrogen peroxide.
- The effect of honey on infection is not only related to antibacterial agents but also to its effect on the proliferation of B and T lymphocytes. Furthermore, 1% honey in a tissue culture can release TNF, IL-1, and IL-6 from monocytes.

Conclusion:

- Within the limits of the Biswall and present study, it seems the effect of honey is not only based on antibacterial effects or geographic location and source of pollens but due to the combination of all useful properties in natural honey
- Within the limits of this study the results showed the application of natural honey is

effective in managing radiation induced mucositis.

Clinical Significance:

- Natural honey is a product with rich nutritional qualities that could be a pleasant, simple, and economic modality for the management of radiation mucositis.

題號	題目
1	Which complication is not possible following oral radiotherapy? (A) Xerostomia (B) Osteoradionecrosis (C) Hypogeusia (D) Hypokinesia
答案(D)	出處：Oral and maxillofacial pathology P.261
題號	題目
2	What is the most important measure against oral complications of oral radiotherapy? (A) Establishment good oral hygiene (B) Give viscous Lidocaine (C) Laser therapy (D) Hyperbaric oxygen
答案(A)	出處：Oral and maxillofacial pathology P.264,P.265