Honey: nutritional and medicinal value

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Introduction

Honey is considered as a balanced diet and equally popular with both sexes in all ages. There are various qualities of honey (i) Honey never spoils. No need to refrigerate it. It can be stored unopened, indefinitely, at room temperature in a dry cupboard. (ii) Honey is one of the oldest foods in existence. It was found in the tomb of King Tut and was still edible as honey never spoils. (iii) Because of the high level of fructose, honey is 25% sweeter than table sugar.

Honey as nutrition

Honey supplies energy at 64 calories per tablespoon, providing fuel to working muscles. Honey is a source of simple carbohydrates. Its composition on average is 17.1% water, 82.4% total carbohydrate and 0.5% proteins, amino acids, vitamins and minerals. The average carbohydrate content is mainly fructose (38.5%) and glucose (31%). The remaining 12.9% of carbohydrates is made up of maltose, sucrose and other sugars.

Nutrition facts: Serving size (100 g) Amount per serving calories: 304, total fat, 0 g 0%; saturated fat, 0 g 0%; cholesterol, 0 mg 0%; sodium, 4 mg 0%; total carbohydrates, 82 g 27%; dietary fibre, 0 g ~ sugars 82 g ~ protein 0 g 0%; Vit. A, 0%; Vit. C, 0%; Iron, 2%; Calcium, 0%.

Honey as a wound healer

Honey is not only used as nutrition but also used in wound healing and as an alternative treatment for clinical conditions ranging from gastrointestinal tract (GIT) problems to ophthalmic conditions. The use of honey as a dressing material, an ancient remedy that has been rediscovered, is becoming of increasing interest as more reports of its effectiveness are published. The ancient usage of honey as a wound dressing has been reviewed (1–3). During the early part of 20th century, researchers began to document the wound healing properties of honey. The introduction of antibiotics in 1940, temporarily stymied the use of honey. Nevertheless, concerns regarding antibiotic resistance and renewed interest in natural remedies, has promoted a resurgence of interest in antimicrobial and wound healing properties of honey. The properties of honey that make it effective against bacterial growth are (i) high sugar content, (ii) low moisture content, (iii) gluconic acid, creates an acidic environment and (iv) hydrogen peroxide. Another effect of honey on wounds that has been noted is that it reduces inflammation and hastens subsidence of passive hyperaemia. It also reduces oedema. Honey is reported to be soothing when applied to wounds and to reduce pain from burns, in some cases giving rapid diminution of local pain (4). It has been reported from various clinical studies on the usage of honey as a dressing for infected wounds postoperatively for better healing.
wounds that the wounds become sterile in 3–6 days, 7 days and 7–10 days (5). It has been reported that sloughs, gangrenous tissue and necrotic tissue are rapidly replaced with granulation tissue and advancing epithelialisation when honey is used as a dressing thus a minimum of surgical debridement is required (6). Topical honey on surgical wounds speeds up healing and impedes tumour implantation. Tumour implantation (TI) is a special concern in laparoscopic surgeries where, although the openings are relatively small, all the instruments used in the surgery come in close contact with the wound. ‘Honey could be used as a wound barrier against TI during pneumoperitoneum in laparoscopic oncological surgery and in other fields of oncological surgery’ (7). Comparing this study with one from 1998 in which tumoricidal chemicals were used to treat the instruments to reduce tumour implantation at the wound sites. This earlier study used hamsters instead of mice but followed a similar model (8).

One study suggests that there may be a potential therapeutic role for manuka honey confectionery in the treatment of gingivitis and periodontal disease (9). It is also noted that use of honey in diabetics had also reduced the amputation rate effectively. As rates of diabetes increase, it is important to identify effective strategies to reduce amputation rates, both to improve quality of life and to decrease cost (10).

Other substances used for wound healing

In different eras, different regimes and substances were used for wound healing. Each has its own advantages and disadvantages. One prescription, found on clay table that dated back to 2100 BC and thought to be the world’s oldest model manuscript, says to pound together dried wine dregs, juniper prunes, pour beer, then bind on wound after rubbing with oil. The oil might have served to prevent from sticking and the ingredients might have antibacterial properties.

Historically, maggots have been known for centuries to help heal wounds. Many military surgeons noted that soldiers whose wounds became infested with maggots did better and had a much lower mortality rate than did soldiers with similar wounds not infested. Maggot debridement therapy (MDT) was successfully and routinely performed by thousands of physicians until the mid-1940s, when its use was supplanted by the new antibiotics and surgical techniques that came out of World War II. But, emergence of antibiotic resistant strains of bacteria, such as methycillin resistant Staph Aureus (MRSA), and the curiosity of researchers has promoted a resurgence of interest in larval therapy (11). One study showed that the use of larval therapy had reduced amputation to 62% (12).

On the other hand, there is paucity of large-scale trials, showing importance of maggots in wound healing. Furthermore, no one knows the exact mechanism of action of maggots in healing. Some patients have complained of pain and in some, inflammation of surrounding tissue is noticed. A case history has suggested not using maggots with fistulae connecting to vital organs (13).

Naturally occurring myiasis can be beneficial, but sometimes it can be harmful, depending upon the type of maggot and the circumstances surrounding the infestation.

In short, large-scale clinical trials should be conducted to prove the efficacy of maggots for healing wounds; furthermore more information should be given to patients.

How much and how to apply honey?

The quantity of honey used varies; two studies reported using a thin layer honey, but most just refer to the honey being spread or poured over the wound. There is no indication of any of the reported modes of application of honey being decided upon empirical or theoretical grounds, the large degree of variance in modes appearing to reflect a more notional approach. Rationally, the amount of honey required per unit area of the wound would depend on the amount of exudation. The procedure that is described in most of the reports is to clean the wound first, even though many describe honey as having a cleansing and debriding action on wounds. Some report abscesses being opened and pockets of pus drained, necrotic tissue being removed, before dressing wounds with honey. Most report simply washing wounds with saline before dressing with honey, and when dressings are changed (14).

But what sort of honey?

A dermatologist suggests Manuka honey, saying: honey, of a commercial grade, can contain a certain number of bacteria that an individual could introduce into a wound including ‘botulism’. The honey that has been shown to be beneficial against some resistant bacteria is predominantly produced from the Manuka plant, which is native to New Zealand, and that is the Manuka honey. Manuka honey can be purchased in the UK and seems to be readily available.
No adverse effects have been noted in any of the studies in which honey has been applied topically to experimental wounds on animals. The many reports published in more recent times on its clinical usage on open wounds mention no more than a transient stinging sensation in some patients (15), other than in two cases where the pain persisted for 15 min (16) and in two cases where the pain was such that the application of honey could not be tolerated (15,16). Human allergy to honey is rare, but there could be an allergic reaction to either the pollen or the bee proteins in honey (17). Reference has been made to dehydration of tissues if too much honey is applied to a wound, but it has been stated that the hydration of the tissues is easily restored by saline packs. Honey sometimes contains spores of clostridia, which poses a small risk of wound botulism. However, in none of the many reports published on the clinical usage of honey on open wounds, the honey that was used was sterilised, yet there are no reports of any type of infection resulting from the application of honey to wounds.

Looking at this information suggests an obvious conclusion. We should be using honey on surgical wounds. Patients about to undergo surgery should ask their surgeons if they can apply honey to their wounds postoperation. They should as well be given the options of others ways of wound healing, like maggots, plants, etc. with prons and cons.

Protocols in the human studies for honey have varied from twice a day to every hour. Raw honey was used in all the studies. Honey seems especially indicated when wounds become infected or fail to close or heal. It is probably even more indicated on the wounds left by laparoscopic surgery to remove cancer.

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