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HONEY AS A MEDICAMENT FOR MANAGEMENT OF PATIENTS WITH DRY SOCKET: A REVIEW.

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ABSTRACT
Dry Socket is a common post-surgical complication following extraction of permanent teeth. Various risk factors has been mentioned for this complication including gender, age, amount of trauma during extraction, difficulty of extraction, inappropriate irrigation, infection, smoking, and oral contraceptive use. Honey is one of the oldest known medicines. Its use has been rediscovered in later times by the medical profession, especially for dressing wounds. It has been reported from various clinical studies on the usages of honey as a dressing for infected wounds that the wound become sterile in 3-6 days, others have also reported that the honey is effective in cleaning up infected wound. Therefore this review was done to know the various aspects of the usage of honey in the treatment of dry socket.

KEYWORDS: Dry socket, Honey, Alveolitis.

INTRODUCTION

Dry socket was first described in the literature in 1986 by Crawford. Dry socket also has been referred by various other terminologies like alveolar osteitis, fibrinolytic alveolitis, alveolitis, localized osteitis, septic socket, alveolitis sicca dolorosa, necrotic socket, localized alveolar osteitis and alveolalgia.[1]

There are up to 17 different definitions for the clinical diagnosis of dry socket.[2] Blum (2002) defined alveolar osteitis as "post operative pain inside and around the extraction site, which increases in severity at any time between the first and third day after the extraction, accompanied by a partial or total disintegrated blood clot within the alveolar socket with or without halitosis".[3]
Dry socket is reported to be associated with up to 37% of dental extractions.1 The condition develops when a blood clot fails to form or becomes dislodged from the socket of an extracted tooth. Symptoms typically include increased pain occurring 1–3 days post-operatively around the extraction site and this is commonly unresponsive to analgesics.[1] In addition, some patients may also complain of oral malodour.[4]

The treatment of dry socket includes conventional methods like use of antibiotics, medicated gauze, gel, rinse. It is a very common condition arising on extraction of mandibular molars it is associated with postoperative pain in and around the extraction site, accompanied by a partially or totally disintegrated blood clot within the alveolar socket, with or without halitosis.[5,6]

Honey is one of the oldest known medicines and its use has been rediscovered in later times by the medical profession, especially for dressing wounds. It has been reported from various clinical studies on the usages of honey as a dressing for infected wounds that the wound become sterile in 3-6 days, others have also reported that the honey is effective in cleaning up infected wound. It has also been reported that honey dressing decreases or stops advancing necrosis. Hence the honey can be used for the management of dry socket.[7] Among many therapeutic agents honey is a carbohydrate-rich syrup produced by bees from floral nectar.[8]

In Ayurveda, - honey is considered to positively affect all three primitive imbalance of the body. Charak and Sushruta applied honey dressing for sores. In the third

century, Greek philosopher Celsus used mixes honey and bran to treat burn.[7]

Honey helps to keep the wound moist, in addition it stimulates white blood cells to produce cytokines, particularly interlukin- 1, interlukin-6 and tumor necrosis factor. Honey also helps to speeds up the healing process and reduces scarring.10 It is the choice of material to be used in the treatment of dry socket. Honey dehydrates bacteria due to its hygroscopic property, rendering them inactive. The Potassium withdraws moisture from the bacteria. Aluminium sulphate and sucrose present in honey also accelerates normal healing process.[8]

Diagnosis of dry socket[4]

- Diagnosis is based on the history, symptoms and clinical presentation.
- Typically AO presents as an exposed socket devoid of blood clot. In contrast, a normally healing socket consists of a blood clot that is subsequently replaced by granulation and connective tissue with gingival healing typically over a 1–2 week period. Healing by secondary intention eventually leads to tissue consolidation and the socket becomes remodeled with bone.

Etiology

Many factors have been cited as contributing to the occurrence of dry socket including difficult or traumatic extractions, female sex, tobacco use, oral contraceptives and pre-existing infection.[9]

It has been suggested that an increased local fibrinolytic activity is the main etiological factor of dry socket. The increase in fibrinolytic activity could result in a premature loss of the intraalveolar blood clot after extraction.[10] The fibrinolysis is the result of plasminogen pathway activation, which can be accomplished via direct (physiologic) or indirect (nonphysiologic) activator substances. Direct activators are released after trauma to the alveolar bone cells. Indirect activators are secreted by bacteria.[11] Apart from the relation with the fibrinolytic process the exact etiology of dry socket is not well understood.[2,12]

Some of the factors implicated in its etiology include hypovascularity due to the density of bone, vasoconstriction activity of the local anesthetic agents, presence of underlying systemic conditions, imbalance of vitamin levels, etc.[6]

Risk factors[4]

Several risk factors have been found to be implicated in the loss of the blood clot, including:

- Non-compliance with post-operative care instructions.
- Bacterial breakdown and fibrinolysis.
- Impaired clot formation secondary to: smoking, oral contraceptive use, surgical trauma during extraction and infection around the tooth to be extracted such as pericoronitis.
- Women and those with a previous history of dry socket are also thought to be at a higher risk of developing dry socket.

Many materials were used previously to cover extraction socket in an attempt to enhance healing or prevent post-operative complications associated with extractions. According to the recent studies honey is effective when used as a dressing on infected or non-infected wounds. It is antibacterial, anti-inflammatory and odorless. It helps in granulation and epithelialization, shedding of necrotic tissue and has an analgesic and antioxidant effect. Honey helps to keep the wound moist, in addition it stimulates white blood cells to produce cytokines, particularly interlukin- 1, interlukin-6 and tumor necrosis factor. Honey also helps to speeds up the healing process and reduces scarring.[3]

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The antibacterial property of honey was first recognized in 1892 by van Ketel. The minimum inhibitory concentration was found to a range from 1.8% to 10.8% (v/v) indicating that the honey has sufficient antibacterial potency to stop bacterial growth if diluted at least 9 times due to its hygroscopic properties, its acidic pH and hydrogen peroxide.[14]

Natural products have been used for several years in folk medicine. Honey has an effective antibacterial potential to combat oral pathogens and hold promises for the treatment of periodontal diseases and mouth ulcers. Honey was used to treat infected wounds as long ago as 2000 years before bacteria was discovered to be cause of infection. 50 AD Dioscorides described honey as being good for all rotten and hollow ulcers. Honey has been reported to have an inhibitory effect to around 60 species of bacteria including aerobes and anaerobes. Gram-positive and Gram negative microorganisms.[2,3]

In study by et al, honey was used for the management of dry socket as a dressing material and results were very promising, pain was subsided from the very first dressing and complete resolution occurred in all the patients in 3-4 days. There was no allergic reaction reported. Honey

can be used as an alternative for traditional Zinc oxide dressing for the management of dry socket.[7,14]

Aspects of the effect of honey as a medicament for dry socket

Osmotic effect

The honey is saturated or supersaturated solution of the sugar 84% being the mixture of fructose or sucrose and the water content is usually 15-21% by weight. The strong interaction of these molecules with water molecules leaves very few of the water molecules available for microorganisms.[7,14]

Phytochemical factors

All the antibacterial activity does not account for peroxide generating system. It shows that there must be an additional antibacterial factor involved. Several chemicals with antibacterial activity has been identified in the honey by various researches like pinocembrin, terpenes, benzyol alcohol, 3,5-dimethoxy-4-hrdroxy benzoic acid, methyl 3,5-dimothoxy 4-hydroxy benzoiate, 3,45 trimethoxy benzoic acid, 2 hydroxy, 3 phenyl propoinic acid, 2 hydrobenzioc acid and 1,4 dihrdroxy benzene.[7,14]

Hydrogen peroxide

The major antibacterial activity in honey has been found to be due to hydrogen peroxide enzymatically in the honey. The glucose oxide enzyme is secreted from the hypo-pharyngeal gland of the bee in to the nectar to assist in the formation of honey from the nectar.[7,14]

CONCLUSION

The occurrence of dry socket in an everyday oral surgery or dental practice is unavoidable. The risk factors for this temporary and debilitating condition are clearly identified. However, adherence to superb surgical technique in a young, healthy, and nonsmoking male patient still carries a 1%-4% incidence of dry socket. Surgeons must recognize additional risk factors in patients with particular medical conditions and include this information as a part of the informed consent. Treatment options for this condition are generally limited and directed toward palliative care. The surgical site should be irrigated, avoiding curetting the extraction socket. Packing with a zinc oxide– eugenol paste on iodoform gauze can be considered to relieve acute pain episodes. Ultimately it is the host's healing potential which determines the severity and duration of the condition.

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