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Study of Honey Impregnated Dressing and Alvogyl as Dressing Materials for the Management of Alveolar Osteitis

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SUMMARY

To evaluate the healing properties of natural honey in the treatment of dry socket in comparison with alvogyl dressing. The study was carried on 100 patients. The results confirmed the analgesic and curative properties of natural honey. The bacteriological monitoring of the dry socket treatment was done.

INTRODUCTION

Natural honey is one of the greatest gift of the creator. Modern medicine had ignored honey as a therapeutic agent. Recently number of publications have appeared scientifically supporting the therapeutic effectiveness of honey. The Egyptians used honey as preservative for mummification since 9000 BC and Egyptians papyri dating from before 2000 BC have mentioned of wound salves containing honey. Majno[1] observed that honey was the most popular Egyptian medicine and mentioned it 500 times in 900 remedies.

Treatment of wounds remained a topic of interest for the researchers since the advent of man. Treatment may have been surgical application of various medicaments. Historically honey has been least controversial and made its universal acceptance throughout the ages. It is an ingredient that is practically harmless to the tissue and aseptic, antiseptic and antibiotic. It prevents adherence to the tissues and sulphur, chlorine, magnesium, copper, iron, aluminium, silica, wax, proteins like inhibine, catalase, propolis and carbohydrates like fructose, glucose, sucrose, maltose and water in varying proportions. It has low pH of 3.6.

Alvogyl is composed of iodoforme, butylparaminobenzoate, eugenol, penghawar and excipient. It is claimed to be antiseptic, analgesic and haemostatic. Alvogyl is suggested to be a specific medicine for alveolar osteitis for curative and prophylactic purpose.

Efem SEE[2] in his study on the healing of infected wounds and ulcers by honey, says that wound treated by topical application of honey resulted in rapid epithelialization, and absorption of adema from and around the ulcer margins.

Ali et al[3] conducted animal study to investigate the protective mechanism action of honey on ethanol-induced gastric lesions and consequently suggested that honey may be used in preventing and reducing ethanol induced gastric lesions in humans. Allen KL and associates[4] have also proved antimicrobial activity of honey in their studies in New Zealand.

Ali et al[5] conducted a detailed study on the efficacy of honey as antibacterial agent on bacterial growths including gram +ve and -ve organisms and concluded that honey inhibited the growth the even resistant organisms. Subrahmanyam M[6] recommended the use of honey as an ideal dressing for topical application after his study on 104 burns cases. He stated that honey treated patients reported relief of pain and he also observed low incidence of hypertrophic and post burn scars. Ndayiba G[7] concluded that honey application on wounds or infected burns gives satisfactory results. In their study they suggested that treatment with honey is simple, effective and inexpensive. They further proposed that it should be added to the list of

commonly used antiseptic agents.

Subrahmanyam M[8] in his study concluded that honey dressed burn wounds showed healing earlier as compared to polyurethane. The authentication of honey as a healer dressing has been proved by recent studies in different fields of medicine and surgery, however no study has been conducted in the oral cavity to investigate its efficacy. Alveolar osteitis (dry socket) is a common complication of extraction. Clinically patient complains of throbbing pain not even relieved by analgesic and surgical site reveals a partially or completely denuded alveolus. It may be covered by necrotic debris but blood clot is absent. The etiology of dry socket is multifactorial, complex and not fully understood.

PATIENTS AND METHODS

Fresh unprocessed honey obtained from bee hives was applied as dressing. Alvogyl of Septodont was used as a dressing for the other group. Clinical observations and bacteriological monitoring were made on 100 patients suffering from dry socket attending the department of oral and maxillo-facial surgery, de'Montmorency College of Dentistry, Lahore.

Before enrollment of patients for this study, patients were screened and adequate physical and medical examination was done on each patient. The patients suffering from debilitating diseases like diabetes, anaemia, tuberculosis, leukemia, syphilis were not included in the study Hereditary healing disorders, nutritional deficiencies, patients using concurrent medication, consuming alcohol, smokers, pregnancy and females on oral contraceptives were excluded. Maximum care was taken to include patients whose local and systemic conditions would not adversely affect the wound healing and any factor affecting the investigation was avoided to maintain uniformity. Ages of the patients under study were 18-41 years.

Two swabs were taken from the depth of the socket in each case before starting the treatment. One swab for aerobic and other for anaerobic microorganisms Subsequently after every one week two swabs were taken from the depth of the socket. The swabs were cultured for aerobic and anaerobic microorganisms and sensitivity. Thus bacteriological monitoring was maintained in each case by weekly tests. The healing of dry socket in 50 patients was studied by application of honey soaked dressing and on other 50 patients alvogyl dressing was applied. The dressing was protected by an acrylic guard and changed every 3rd day.

RESULTS

The various organisms isolated predominantly were staphylococcus aureus, staphylococcus albus, streptococcus haemolyticus, micrococcus, fusi formbacilli, spirochaetes and diplococci in varying number. In patients treated with honey, healthy granulation appeared in the majority of cases after about one week. The dry socket healed in 43 patients within 9 days and it took 10-15 days in 5 patients. The patients reported no pain and two patients did not turn up after first dressing.

Table 1: Number of patients treated in different age groups.

Age (Years)	*No. of patients treated with noney dressing (Group I)*	*No. of patients treated with alvogyl dressing (Group II)*
18 - 23	23	20
24 - 29	21	22
30 - 35	5	6
36 - 41	1	2
Total	**50**	**50**

Table 2: Swab culture result from 100 patients with positive results.

Type of organisms	*No. of organisms*	*Percent*
Staphylococcus aureus	15	27
Staphylococcus albus	14	25
Streptococcus haemolyticus	12	21.5
Fusiform bacilli	6	11
Spirochetes	4	7
Diplococci	3	5
Micrococcus	2	3.5

Table 3: Patients treated with honey dressing (n=50).

	1st day Pain	*2nd day Pain*	*3rd day visit*		*6th day visit*		*Ninth day visit treatment*	
			Pain	*Granulation*	*Pain*	*Granulation*	*Continue*	*Granulation*
18 - 23	-	-	-	+	-	++		+
24 - 29	-	-	-	+	-	++		+
30 - 35	-	-	-	+	-	++		+
36 - 41	+	-	-	+	-	++		+

Table 4: Patients treated with alvogyl dressing (n=50).

	1st day Pain	*2nd day Pain*	*3rd day visit*		*6th day visit*		*Ninth day visit treatment*	
			Pain	*Granulation*	*Pain*	*Granulation*	*Continue*	*Granulation*
18 - 23	+	-	-	-	-	+		+
24 - 29	-	+	-	-	+	-	+	
30 - 35	+	-	-	-	+	-	+	
36 - 41	+	+	-	-	-	-	+	

In patients treated with alvogyl healthy granulation tissue appeared in 16-25 days. Most of the patients complained of pain after first dressing. In group I, at the initiation of treatment 50 patients had positive swab cultures, in 48 patients sockets appeared to be sterile after treatment with honey for 7 days. Two patients missed recall visit. In group II, at the initiation of treatment 50 patients had positive swab cultures, only 4 patients swab showed negative cultures after 1 week. Whereas 46 patients indicated sterile socket after 2-3 weeks.

DISCUSSION

The principal function of a wound dressing is to provide an optimum healing. Major changes occur in the wound environment at different stages during healing. To optimize each of these stages may require different dressings. In the first act of repair, the acute inflammatory events limits damage and clear the stage for subsequent repair to take place. Wounds must be protected from further damage, infection must be controlled and debris must be cleared. In the second phase formation of firbovascular granulation tissue and epithelialization occur. An optimal wound environment must be provided to allow rapid repair and regeneration.

Honey as such as well as a prescribed medicine remained popular in every region of the globe but research on its dramatic properties has ben boosted for the past few years. Honey is sterile itself and inhibits the growth of both gram +ve and -ve organisms. Its anti microbial properties are attributed to its low pH, a thermolabile substance called. It also has inhibine, hygroscopic properties. The viscous barrier formed by honey renders the wounds sterile and prevents colonization. Honey also contains an enxyme catalase which may help in healing process. Chemical debridement action of honey, removal of offensive smell and energy source provision of honey makes it a suitable dressing material for almost every type of wounds. Honey has a debridement action and helps in removal of offensive smell from wounds.

The healing of the socket is associated with disappearance of dry bone and formation of healthy granulation tissues in the bony cavity. It is interesting to observe that aluminium, sulphate and sucrose present in honey also accelerate healing process. Healthy granulation tissues appear in majority of patients about one after treatment. The hygroscopic property of honey dehydrates bacteria, rendering them inactive. The bacteria cannot live in the presence of honey for the reason that honey is an excellent source of potassium. The potassium withdraws moisture from the bacteria which is essential to their existence.

The physical, chemical and biological properties of honey have ben documented[9-15]. The study of Efam SEE[13] established its properties and effective role in debridement of wounds by chemical or enzymatic action, absorption of oedema fluids around wounds, inactivation of bacteria, deodorization of offensive wound, promotion of granulation tissue and improvement of nutrition. Bergam A et al[14] reported that it has been known for more than 100 years that honey can accelerate would healing. But there has been isolated reports on its use in the healing of burns, ulcers, infected wounds except in the oral cavity. The present study is the first clinical study carried out to assess the use of honey for its analgesic and wound healing properties in the oral cavity.

The study concluded that pain was reduced and healing was accelerated in patients treated with honey compared to alvogyl dressing which is considered a specific dressing for dry socket. It is also noteworthy that there are no complications with honey dressing. Honey is easily, universally available and is far less expensive. It is, therefore, suggested to be dressing of choice for acute alveolar osteitis.

There are different types of honey and its constituents may vary and thus efficacy may also vary. it is desirable that further bacteriological, biochemical, histopathological and clinical studies are made to study the different varieties of honey and their effects, to establish honey as an ideal dressing agent for curative and prophylactic objectives. the efficacy of honey in the treatment of dry socket in patients suffering from diabetes, anaemia, tuberculosis, nutritional deficiencies, pregnant females and HIV positive patients has to be studied. The role of honey in the treatment of oral ulcers and endodontics has also to be evaluated.

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