ISSN: 2581-5989
PubMed - National Library of Medicine - ID: 101738774

International Journal of Dental Science and Innovative Research (IJDSIR)

IJDSIR : Dental Publication Service

Available Online at: www.ijdsir.com

Volume – 4, Issue – 1, January - 2021, Page No. : 230 - 235

A New Remedy for Alveolar Osteitis: Prospective Study of One Year

[1]Dr. Archana Chaurasia, [2]Dr. Sakshi Gupta, [3]Dr. Asjad Raza Khan, [4]Dr. Shreya Maheshwari, [5]Dr. Pratibha Sharma, [6]Dr Gaurav Bhagia, [7]Dr. Abhishek Singh Panwar

[1-7]Institute of Dental Sciences, Bareilly, Uttar Pradesh

Corresponding Author: Dr. Sakshi Gupta**,** Institute of Dental Sciences, Bareilly, Uttar Pradesh

Citation of this Article: Dr. Archana Chaurasia, Dr. Sakshi Gupta, Dr. Asjad Raza Khan, Dr. Shreya Maheshwari, Dr. Pratibha Sharma, Dr Gaurav Bhagia, Dr. Abhishek Singh Panwar, "A New Remedy for Alveolar Osteitis : Prospective Study of One Year ", IJDSIR- January - 2021, Vol. – 4, Issue - 1, P. No. 230 – 235.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Background: alveolar osteitis is commonly known as dry socket which can be defined as the inflammation of superficial layer of post extraction socket walls which causes severe pain after 2-3 days of extraction. Incidence of dry socket is about 0.5-5% and approximately 37.5% in mandibular 3rd molar surgeries. Aetiology of dry socket is still unknown but according to Birn's fibrinolytic theory, there is fibrinolysis of clot causes dry socket & tissue trauma and inflammatory factors cause pain.

Material and method: A total 100 patients were included in this study which was carried out in department of oral and maxillofacial surgery in Institute of dental sciences, Bareilly during June 2018- May 2019. These patients were divided into two groups, Group A and B. Group A was treated with zinc oxide paste while Group B was treated with honey turmeric paste.

Result: In this study we used honey extract and turmeric paste in 1:1 ratio that is 1gm honey extract and 1gm turmeric to evaluate the healing process in alveolar ostetitis cases compared to zinc oxide eugenol paste. We noticed that healing occurs more rapidly in Group B than Group A which shows supra-additive property of mixture of turmeric and honey.

Conclusion: We concluded that honey turmeric paste heals the alveolar osteitis cases rapidly than zinc oxide paste. The patient compliance was also better with honey turmeric paste than zinc oxide eugenol paste. In terms of pain there is marked reduction at 3rd and 5th day in honey turmeric paste Group but on 7th day there was no difference between two groups.

Keywords: osteitis, honey turmeric paste, alveoalgia

Introduction

Alveolar osteitis means the inflammation of osteum of alveolar socket after extraction of tooth. Alveolar osteitis is commonly named as dry socket, and experienced by most of the dentists and oral & maxillofacial surgeons in day to day life[1]. It is very common complication of extraction, and usually occurs after three to four days of extraction. Dry socket was firstly introduced by Crawford

in 1896[2]. Dry socket can also described by terms like localized alveolar osteitis, post extraction osteomyelitis syndrome, alveoalgia, avascular socket, alveolitis sicca dolorosa, septic socket, nectrotic socket delayed extraction wound healing and fibrinolytic alveolitis[3]. The incidence of alveolar osteitis is in between 0.5-5% and it is approximately 37.5% in case of mandibular third molar extraction[4,5]. The onset of this condition is first to third day after extraction and 95-100% of all cases of dry socket have been reported to dentists or surgeons within a week[6].

Almost 18 definitions are given for alveoli socket osteitis and most recent one is "postoperative pain inside and around the extraction site, which increases in severity at anytime between the first and third day after the extraction, accompanied by a partial or total dislodgement of blood clot within the alveolar socket with or without halitosis"[6]. The increase in recovery period translates into increased cost to the surgeon as 45% of patients who develop alveolar osteitis typically require multiple post operative visits in order to manage this condition.

Aetiology of dry socket is yet unknown but it is said that dry socket occurs due to dislodgement of blood clot from the alveolar socket or lysis of blood clot before clot converted into granulation tissue as described by Birn's fibrinolytic theory. The fibrinolysis of clot can be direct (physiologic) or indirect (non-physiologic) activator substances. Direct activators are released by alveolar osteocytes but indirect activators are released by bacteria[7]. Treponema denticola is bacteria usually isolated from the dry socket, said by Nitzan et al. Razians et al described the association of Actinomyces viscosus and Streptococcus mutans which causes delayed healing of extraction socket[3].

There are some contributing or can say risk factors are associated with alveolar osteitis like surgical trauma and difficulty in surgery, lack of operator's experience, mandibular third molars, systemic diseases (diabetes mellitus, hypertension, etc.), oral contraceptives, gender, smoking, physical dislodgement of the clot, bacterial infection, excessive curettage of socket, age, single extractions are more prone to Alveolar Osteitis than multiple extractions, local anaesthetics with vasoconstrictors, saliva, root fragments remaining in socket, flap design and use of sutures[6].

Dry sockets can be prevented by systemic antibiotics after extraction, topical antibiotics, chlorhexidine mouthwash, para-hydroxybenzoic acid, topical tranexamic acid application, polylactic acid, steroids, eugenol containing dressing, lavage, 9- aminoacrinide, use of sterile gloves[3].

Materials and methods:

This study was carried out in department of oral and maxillofacial surgery in Institute of dental sciences, Bareilly during June 2018- May 2019 to compare and evaluate pain, oedema, redness, halitosis and patient's compliance on follow up period 3rd, 5th, and 7th day in cases treated with ZoE paste and honey extract turmeric paste.

Inclusion criteria

- Patients with 15-65 years of age.
- Patients with dry socket.
- Patients who are medically fit

Exclusion criteria

- Patients with systemic disease
- Pregnant patients
- Patients with poor oral hygiene

Sample

100 patients were included in this study who were divided into two groups by randomization

- Group A: patients treated with zinc oxide eugenol paste
- Group B: patients treated with pure honey extract and turmeric paste

Procedure

The sockets were irrigated with warm saline solutions and superficial curettage was done to remove all soft debris. Deep curettage was avoided to maintain residual blood clot present within the socket.

In group A, pom-pom dressing was prepared which was soaked in freshly prepared Zinc oxide eugenol paste, placed in extraction socket under all aseptic conditions and in Group B same pom-pom dressing soaked with freshly prepared Honey extract turmeric paste was placed in the extraction socket under all aseptic condition.

Result

A total 100 cases with dry sockets were included, out of which 60 patients were operated in private clinics while 40 patients were operated in department of oral and maxillofacial surgery, Institute of Dental Sciences, Bareilly. Out of these 100 patients 40 patients were females and 60 were males (female: male ratio 2:3). In these patients, total alveolar osteitis sites were 120 out of which 80 sites were in mandibular arch while 40 sites were present in maxillary arch(mandibular to maxillary arch ratio is 2:1).

Pain was evaluated by Wong Baker Visual Analogue Scale. Pain score was not significant preoperatively in both groups, in Group A the mean score was 8.860 $\pm$ 0.639 and Group B was 8.960 $\pm$ 0.604. The p value of preoperative pain score is 0.424 (>0.05). At post operative 3rd day the mean score of pain was 6.400 $\pm$ 0.903 in Group A while in Group B it was 7.060 $\pm$ 0.977 and p value is 0.001 (<0.05). At 5th post operative day, the mean score of Group A was 5.260 + 0.852nhile in Group B it was 5.600 + 0.903 and p value is 0.056 (<0.05) and at post operative 7th day the mean score as 1.000 + 0.808 in Group A while 0.960 + 0.832 in Group B and p value is 0.808 (>0.05).

Halitosis is recorded according to organoleptic test. The preoperative mean score in Group A was 2.94 + 0.651 and 3.06 + 0.842 in Group B and the p value is 0.428 (>0.05). At 3rd post operative day, the mean value recorded was 2.32 + 0.793 in Group A while 1.54 + 0.885 in Group B and the p value is 0.000 (<0.05). At post operative 5th day, mean score of Group A was 1.28 + 0.904 and1.20 + 0.880 in group B and p value was 0.655 (>0.05). At 7th post operative day, the mean score was in 0.70 + 0.646 Group A while 0.20 + 0.451 in Group B and p value was 0.000 (<0.05).

The score of oedema and redness as recorded on subjective basis. According to observation there was 1.900±0.707 in Group A while 2.160±0.680 in Group B and the p value was 0.064 (>0.05). At 3rd post operative day it was 1.500±0.677 in Group A while 1.260±0.486 in Group B and p value was 0.045 (0.05). At 5th post operative day it was in 1.100±0.543 Group A while 1.020±0.141 in Group B and the p value was 0.317 (>0.05). At 7th post operative day it was 0.600±0.670 in Group A while 0.040±0.197 in Group B and p value was 0.000 (<0.05). Patient compliance was poor in case of Group A as there is burning sensation and pungent smell of eugenol oil while good patient's compliance was noted in case of Group B

Discussion

In cases of dento-alveolar surgeries, it's very common that alveolar osteitis occurs. It generally occurs during phase of healing of extraction[2]. The aetiology of alveolar osteitis is still unclear. It is suggested that alveolar osteitis is occur due to high fibrinolytic activity, release of kinin as a result of tissue trauma and infection process which activates tissue activators and pain mediating activators[8-10].according to our study males are more commonly affected by alveolar osteitis than females due to smoking.

Dry socket is usually treated for pain till normal healing of socket. It is suggested need of systemic antibiotics for treating dry socket as it is the superficial inflammation of

the cortical plate of post extraction socket. Hence, topical or anaesthetic and antiseptic is prescribed. While systemic analgesics can be prescribed for pain relieving[2]. Various medicaments have been tried in the form of socket dressings like ZnOE, iodoform, metronidazole , chlorhexidine and systemic antibiotics with varying degree of success. Platelet rich plasma gel have also been tried to promote healing in dry socket[7,11,12].

Since ancient time honey is used as a medicine but in middle era it as not so popularised as people run behind chemical medicaments. Now people are back to ancient treatment options and natural medicaments for treatment of various diseases and conditions.

Many literature and researchers appearing in the effectiveness of honey in treating wounds and skin ulcers which describe the features of honey that indicate that honey has a potential for the therapy of periodontal diseases, mouth ulcers and other healing problems of oral health. According to White(1975), honey is a nector collected by bees from a wide variety of plants that is concentrated by evaporation of water to form a saturated or supersaturated solution of sugars, consisting typically a 17% water , 38% fructose , 31% glucose, 10% other sugars , and a wide range of micronutrients (vitamins , amino acids and minerals), with a Ph below 4[13]. 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[14].

Turmeric which is C.longa and Haldi in Hindi has been described as antibacterial, anti-fungal agent. Turmeric extract is rich in curcuminoids which is widely known as anti inflammatory, anti oxidant & anti microbial agent. Curcumin can be described as multifunctional medicament as it act prostaglandin inhibitor, liposomal membrane stabilizer, leucotrienes inhibitors and adrenal steroidogenesis activator,substance P depletor in nerve terminals, analgesic & anti oxidant[15]. Turmeric also contains proteins,fats, all have important role in wound healing & regeneration. The anti-inflammatory property of turmeric and presence of vit A & protein enhance fibroblastic activity[16,17]. Curcumin inhibits the 5-lipoxygenase activity to reduce inflammatory process in rats while 12-lipoxygenase and the cyclooxygenase activities in human platelets[18].

In studies on rats turmeric also reduces arachidonic acid induced oedema & markedly inhibits epidermal lipoxygenase & cyclooxygenase activity in vitro as reported in few studies. Turmeric also given orally since a long time as it is known as bacteriostatic as well as bactericidal in cases of cholecystitis[15]. It has been demonstrated that turmeric helps in treatment of chronic ulcers as it improves microcirculation, angiogenesis stimulation, promotion of granulation tissue formation and re-epithelialisation acceleration. It has been seen that topical or oral use of turmeric reduces the size of wound. This shows that oral intake or topical application of turmeric may enhance wound healing & contraction of wound when compared with daily cleansing with saline & ZOE dressing. Turmeric powder was tested for its healing abilities in acute wounds created by surgical incisions before entering the clinical trials[19].

In this study we used honey turmeric paste in 1:1 ratio that is 1gm honey and 1gm turmeric to evaluate the healing process in alveolar ostetitis cases compared to zinc oxide eugenol paste. We noticed that healing occurs more rapidly in honey turmeric paste than zinc oxide paste which shows supra-additive property of mixture of turmeric and honey.

Conclusion

We concluded that honey turmeric paste heals the alveolar osteitis cases rapidly than zinc oxide paste. The patient compliance was also better with honey turmeric paste than zinc oxide eugenol paste. In terms of pain there is marked reduction at 3rd and 5th day in honey turmeric paste Group but on 7th day there was no difference between two groups.

References

1. Bennet RG. Fundamentals of Cutaneous Surgery. St. Louis: C.V.Mosby; 1988 ;778.
2. Passi D, Hasija MK. Comparative study of honey extract and ZnO-eugenol dressing for management of alveolar osteitis: prospective study. Indian Journal of Research. 2018;7(2):119-21.
3. Faizel S, Thomas S, et al. Comparison between neocon, alveogel, and zinc oxide eugenol packing for the treatment of dry socket: a double blind randomised control control trial. J. Maxillofac. Oral Surg. doi 10.1007s12663-014-0667-z.
4. Blum IR. Contemporary views on dry socket (alveolar osteitis): a clinical appraisal standardization, aetiopathogenesis and management: a critical review.Int. J. Oral Maxillofac. Surg. 2002; 31:309-17.
5. Al-Khateeb TL, el-Marsafi AI, Butler NP. The relationship between the indications for the surgical removal of impacted third molars and the incidence of alveolar osteitis. J Oral Maxillofac Surg. 1991 Feb;49(2):141-5.
6. Kolokythas A, Olech E, Miloro M. Alveolar osteitis: a comprehensive review of concepts and controversies. International journal of dentistry. doi: 10.1155/2010/249073.
7. Peterson LJ, Ellis E lll, Hupp JR, Tucker MR. Contemporary oral and maxillofacial surgery. 4th ed. USA: Mosby 2003; 236-7.
8. Daly B, Sharif MO, Newton T, Jones K, Worthington HV. Local interventions for the management of alveolar osteitis (dry socket). Cochrane Database Syst Rev 2012;12:CD06968.
9. Nitzan DW. On the genesis of "dry socket". J Oral Maxillofac Surg 1983;41:706-10.
10. Birn H. Etiology and pathogenesis of fibrinolytic alveolitis (“dry socket”). Int J Oral Surg 1973;2:211-63.
11. Cawson RA, E.W. Odell, S. Porter. Cawson’s essentials of oral pathology and oral medicine; 7th ed. Spain: Churchill Livingstone:2002; 93-4.
12. Delilbasi C, Saracoglu U, Keskin A. Effect of 0.2% chlorhexidine gluconate and amoxicillin plus clavulanic acid on the prevention of alveolar osteitis following mandibular third molar extractions. Oral Surg Oral Med Oral Pathol Oral radiol Endod 2002; 94: 301-4.
13. White, J. W. 1975. Composition of honey. In Honey: a Comprehensive Survey, edited by E. Crane. London: Heinemann.
14. Molan PC, Allen KL.The sensitivity of mastitis causing bacteria to the antibacterial activity of honey. New Zealand J Agril Res.1997;40:537-40.
15. Lone PA, Ahmed SW, et al. Role of turmeric in management of alveolar osteitis (dry socket): a randomised clinical study. Journal of Oral Biology and Clinical Research. 2017;http://dx.doi.org/10.1016/j.jobcr.2017.08.005.
16. Srimal RC. Turmeric: a brief review of medicinal properties. Fitoterapia. 1997;68(6)83–94 .
17. Rao SGV, Selvaraj J, Senthil R, Radhakrishnan RN, Murali Manokar B. Efficacy of some indigenous medicines in wound healing in rats. Indian J Anim Sci. 2003;73:652–3.

18. Ammon HPT, et al. Mechanism of antiinflammatory actions of curcumine and boswellic acids. J Ethopharmacol. 1993;38:113–9.
19. Ramprasad C, et al. Observation on the Pharmacology of Curcuma Longa, Linn. Ind. J. Phys. and Pharm. A. 1957;1:136–43.