

Management Of Dry Socket- A Review

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ABSTRACT:

Dry socket is one of the common complications which may befall following the extraction. It is characterized by intense painful episodes, loss of taste sensation and halitosis. However, the pathogenesis is unbeknown but occurs more likely due to blood clot disintegration which has multiplex etiological factors. There are many methods emphasized for the prevention and management of this condition that is empirical and not the standard one. This review article aims to lists possible methods for management of dry socket

KEYWORDS: dry socket, fibrinolysis, osteitis

INTRODUCTION:

Dry socket is also termed alveolar osteitis, which occurs two to three days after the extraction. The first clinical appearance of dry socket was observed in 1896 and was described by Crawford^[1]. Birn named this complication as "fibrinolytic alveolitis"^[2-4]. Also been denoted by other terms like Alveolar osteitis, Localized osteitis, Post-operative alveolitis, Alveolalgia, Alveolitis Sicca Dolorosa, Septic socket, Necrotic socket, Localized osteomyelitis, Fibrinolytic alveolitis^[5,6]. It is characterized by fever, pain with varying intensity and halitosis, with an empty socket, consist of a disintegrated blood clot. On Clinical examination, the gingiva is inflamed with ipsilateral regional lymphadenopathy. The empty socket consists of a denuded bone surface with greyish-yellow slough and necrotic tissue^[7]. The pain may be localized, but most often radiates to temporal regions, for the mandible. In the maxilla, pain can radiate to the ocular or frontal region^[4]. Dry socket is more common in mandibular third molars has an incidence of 38%; 0.5%-5% for other routine extraction; 1%-45% for mandibular molar extraction^[8,9]. Thus the incidence of dry socket is elated in mandibular molars than maxillary molars.

ETIOPATHOGENESIS:

Many etiological factors have been proposed, but the exact specific cause for the occurrence of dry socket is unknown. The etiological factors include traumatic extraction causing injury to bone^[10]; oral flora which includes bacteria like Treponema denticola, a gram-negative, obligate anaerobic produces plasmin like substance begins the fibrinolytic activity^[11]; circulatory factor; poor post-operative care, saliva production; stress; enzyme factors^[12]; post-operative irrigation of socket; usage of mouth rinses^[13]; clotting factor disorder; nutritional factors mainly vitamins^[14]. The pathogenesis is characterized by fibrinolysis by conversion of plasminogen to plasmin that is achieved directly or indirectly. Direct activators are released from bone cells following the trauma. Indirect activators include bacteria and other predisposing factors.

PREDISPOSING FACTORS:

Some Predisposing factors which can provoke the occurrence of dry socket are:

- a. Age of the patient – commonly occurs between 20-50 years old people due to an eruption of third molars and are uncommon in younger age due to increased bone elasticity and increased blood circulation with better healing capacity^[9,15];
- b. Sex of the patient- women is more affected than a male with a ratio of 5:1. Due to alterations in the level of hormones mainly the estrogen during menstruation, there is an increased chance of occurrence of dry socket in the female. Estrogen can induce fibrinolytic activity indirectly, thus resulting in dissolved blood clot ^[16, 17].
- c. Oral contraceptive- increased incidence of dry socket is seen in the patient under medication of oral contraceptives. It indirectly activates plasminogen, induces lysis of blood clot [16]
- d. Smoking- Smoking has shown to have an increased occurrence of dry socket. It is characterized by the inhibition of neutrophil chemotaxis and production of immunoglobulin. Also, nicotine in the cigarette causes vasoconstriction ^[18].
- e. Area of extraction and no. of teeth
- f. Insufficient blood supply to the alveolus
- g. Systemic diseases like diabetes

CLINICAL MANAGEMENT:

The royal college of surgeons in England laid National clinical guideline in 1977 for management of dry socket which was further reviewed in 2004 ^[19]. They suggest when a patient approaches a clinic with characteristics of dry socket,

- a. He/she should be examined and radiograph should be taken to rule out the presence of any retained root or bone fragment to rule out the cause of pain
- b. The necrotic tissue or food debris present in the socket must be removed by irrigating with 0.12% chlorhexidine digluconate
- c. Then the socket has to be packed with Obtundent dressing to prevent food debris accumulation and local irritation from the bone. Obtundent should have antibacterial and antifungal property
- d. Commonly used obtundents are zinc oxide eugenol, alveogyl
- e. The patient can be prescribed with NSAIDS/ steroids for reducing the pain sensation if there is no medical complication
- f. The patient should be reviewed every two days to change the dressing and it should be done until the pain gets reduced. They will be instructed to rinse the socket with 0.2% chlorhexidine digluconate with a syringe at home^[20-22]

The treatments for a dry socket include placement of a self-eliminating dressing such as Alvogyl; placement of an obtundent dressing such as zinc oxide, eugenol, and lidocaine gel; a combination of these therapies and, where appropriate, the prescription of systemic antibiotics.

VARIOUS METHODS OF MANAGEMENT:

- a. Zinc oxide eugenol: Applied in the Gauze or as an ointment. Eugenol contains antiseptic and anesthetic properties thus depress sensory receptors involved in pain perception. But causes local irritation and delayed wound healing [23]
- b. Alvogyl: Most commonly used and commercially available, consists of eugenol acts as an analgesic, iodoform which acts as antimicrobial agent and butamen which acts as an anesthetic agent, [24] which has to be replaced after every 2days.
- c. Steroids: Though the topical application of corticosteroids has been reported to prevent the occurrence of dry socket, it only decreased the post-operative pain and not its occurrence. However, the topical application of hydrocortisone and oxy-tetracycline mixture reduced the incidence of dry socket in impacted third molars.[25]
- d. Topical anesthetic gel Oraqix: Contains 2.5% prilocaine, 2.5% lidocaine, thermosetting agents, hydrochloric acid and purified water. It has antiseptic and anesthetic properties [26].
- e. G.E.C.B Pastilles: Contains 3% eugenol, 3% guaiacol and 1.6% chlorobutanol as effective ingredients, and Balsam Peru as a base. Haghighat et al 2012, studied the efficacy of GECEB pastilles and ZOE, reported that GECEB shows more result in reducing the post-extraction complications[27]
- f. SaliCept Patch: Contains Acemannan hydrogel, the clear inner gel of Aloe Vera, promotes wound healing, augments reticuloendothelial function, regulates the immune response and acts as an anti-inflammatory and antibacterial agent[24,29]
- g. Vitamin C: Available as tablet form. It helps in wound healing and promotes antioxidant action thus reduces the infection and inflammatory action[27]. Maria et al concluded that 4000 mg vitamin C dose along with curettage and irrigation shows 100% pain remission in 4 days[28].
- h. Plasma Rich in Growth Factors (PRGF): Consist of platelets and fibrinogen which are obtained from blood that helps in wound healing and osteogenesis[30]. Platelet-derived growth factor (PDGF) and Tissue Growth Factor (TFG) are some of the Growth Factors in this plasma. PRGF, when used along with gelatin sponge, promotes earlier healing of wound when compared to zinc oxide eugenol [31,32]
- i. Low-level laser therapy (LLLT): Uses continuous mode gallium aluminum diode laser of 808 nm, 100-mW for 60sec - 7.64J/cm². Showed improved healing of the wound and enhanced antimicrobial action[24,33]

Of all these methods given that promotes healing of alveolar bone, it has been concluded that early and effective healing of the socket is seen in LLLT therapy and PRGH[23, 24, 34]

CONCLUSION:

Dry socket is the most common condition encountered after the extraction of the impacted third molar. The management of the dry socket is done until the patient relieves from pain and the healing of the socket occurs. Healing of the exposed socket also depends on patient cooperativeness by following post-operative instructions and maintaining proper oral hygiene. The treatment method includes the use of PRGH, LLLT Therapy, Alvogyl along with the irrigation of the socket. However, the exact etiology and pathogenesis for the occurrence of dry socket are unknown. In the future, further investigation is required to conclude about exact cause and mechanism so that the proper method of management can be performed.

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