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DIFFERENT TREATMENT MODALITIES FOR TREATMENT OF DRY SOCKET :- A STUDY

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ABSTRACT

Dry socket/alveolar osteitis is a very debilitating, severely painful but relatively common complication following dental extractions. Its incidence is approximately 3% for all routine extractions and can reach over 30% for impacted mandibular third molars. A number of methods have been suggested in the literature as to how this condition may be prevented and managed. Most of these suggestions are empirical and not evidence based. This paper is a review of the literature on dry socket. The results carried out in the skims dental unit are presented and a suggestion is made as to how best this painful condition may be managed. Our audit showed that a wide range of treatments are being used in the treatment of dry socket: rinsing of the socket with chlorhexidine (74%) or saline (26%); placement of a non- resorbable obtundant dressing (56%); and, instruction in home rinsing of the socket with chlorhexidine (44%). This condition is one of the most examined topics in dentistry and is currently being researched in the skims dental unit. Over the years little progress has been made in establishing firm conclusions as to how best dry socket should be managed. Our recommendations are based on a review of the literature, being the best available evidence on which to base our clinical practice.

KEYWORDS

Introduction

Alveolar osteitis, also known as dry socket, is a severely painful complication arising between one and three days post extraction. It is very common. The incidence of dry socket ranges from 0.5-5% for all routine extractions, but can reach up to 38% for extractions of impacted mandibular third molars.1,2 Blum (2002) described alveolar osteitis as being the presence of "postoperative pain in and around the extraction site, which increases in severity at any time between one and three days after the extraction, accompanied by a partially or totally disintegrated blood clot within the alveolar socket, with or without halitosis".3 A localised fibrinolysis (resulting from conversion of plasminogen to plasmin, which acts to dissolve fibrin crosslinks) occurring within the socket and subsequently leading to loss of the blood clot is believed to underlie the pathogenesis of alveolar osteitis.4 There are many contributing or risk factors reported in the literature, which act together to precipitate a dry socket. Bacteria are cited to play a role in the breakdown of the clot.5 This is supported by an increased incidence of dry socket being seen in patients with poor oral hygiene, higher pre- and postoperative microbial counts in particular anaerobic bacterial counts and, in the presence of periapical infection, pericoronitis or periodontitis pre extraction.6,7 Nitzan et al. (1983) proposed, in particular, the role for anaerobic bacteria, especially Treponemma denticola, which showed plasminlike fibrinolytic activity in vitro. Although bacteria may play a role, no direct cause–effect relationship has been demonstrated between bacteria and dry socket.8 Difficulty of extraction or trauma during extraction has also been postulated as a major causative factor. Difficult extractions tend to be in older denser bone, which may have a decreased vascularity and a greater propensity to traumatic thrombosis of the blood vessels. Birn (1973) proposed that trauma during the removal of a tooth leads to a localised inflammation of the socket with accompanying release of tissue activators, which act to increase the levels of plasmin in the socket, leading to lysis of the blood clot.4 A more traumatic extraction leads to increased release of these activators. These tissue activators also release kininogenase enzymes and bradykinins, which play a key role in pain generation. However, others believe that trauma during surgery results in delayed wound healing due to traumatic thrombosis of blood vessels and hence decreased tissue resistance with resultant wound infection. There is a reported inverse relationship between operator experience and the incidence of dry socket.5 Surgical extractions in comparison to non-surgical extractions are reported to result in a ten-fold increase in the incidence of alveolar osteitis, which may be due to the increased trauma associated with surgical extractions.9 A consistent relationship between smoking and dry socket is reported in the literature. Following extraction, tobacco smokers demonstrate reduced filling of the wound with blood and an increased incidence of dry socket.10 This is thought to be due to the vasoconstrictive activity of nicotine, which acts to reduce perfusion in the area. Dry socket occurs more frequently in females than males, pointing to a possible hormonal cause. Sweet and Butler (1978) found the incidence of dry socket to be 4.1% in females versus 0.5% in males.11 The incidence of dry socket was reported to be similar between males and females prior to 1960. However, after this time there was a reported increase in females taking oral contraceptive medication. Oestrogen in oral contraceptives has been shown to increase plasma fibrinolytic activity (due to increased plasminogen levels) and it is hypothesised that this may contribute to instability of the blood clot in the socket. It has been suggested that extractions should be carried out on days 23-28 of the oral contraceptive tablet cycle, when oestrogen levels are at their lowest, so as to reduce this effect.12 Similarly, in a recent prospective study looking at risk factors for the development of dry socket in a Nigerian population it was found that avoidance of surgery on days one to 22 of the menstrual cycle may reduce the incidence of dry socket.13 Garcia et al. (2003) found that in a study of 267 women, 87 of whom were taking the oral contraceptive pill, dry socket occurred more frequently in those taking oral contraceptives (11%) than in those not taking oral contraceptives (4%).14 Dry socket rarely occurs in those younger than 20 years, which may be due to the greater bone elasticity, a better blood circulation and/or a more efficient healing capacity of bone in younger patients. It occurs most frequently between 20 and 40 years of age, which may be confounded by an increased number of third molar extractions carried out and a greater prevalence of smoking in this age group. It was previously thought that the use of local anaesthetic with vasoconstrictor may lead to increased risk of developing alveolar osteitis post extraction due to the temporary local ischaemia caused by the vasoconstrictor. However, it was found that this ischaemia lasts for approximately two hours and is then followed by a reactive hyperaemia.2,4 This contests the role of vasocontrictors in local anaesthetic in the development of alveolar osteitis, which is currently accepted to be inconsequential.1,15 Inadequate irrigation following removal of the tooth has been reported to be associated with increased incidence of dry socket. This was considered, possibly, to be due to contamination of the socket by bacteria and the reduction of this by high-volume lavage of the socket. This is no longer held to be true as bacteria are not thought to be the cause of a dry socket.[1,5]

Material and methods

The study was carried out in the Skims soura Srinagar Dental unit. A questionnaire was formulated, which included a number of questions pertaining to the source of the dry socket cases, the length of time between presentation and onset of symptoms, the symptoms experienced by the patient, and the method of treatment enlisted by the dentist treating the case. The treating dentist was asked to complete the survey to record the treatment carried out.

The questionnaire was designed to determine the number of true dry sockets. It was possible following education and training of the dentists working in the dental unit to determine this by the signs and symptoms present and thus to differentiate it from a spreading infection.

The presence of pain, altered taste, malodour, food impaction, a slough and a socket devoid of a clot all indicated a dry socket. The recording of the patient's temperature, presence of any extra-oral or intra-oral swelling, trismus and any effect on the patient's airway or floor of

mouth was used to eliminate the possibility of the case being a spreading infection rather than a dry socket/localised alveolar osteitis. The next section of the questionnaire dealt with what treatment was provided. This was divided into treatments localised to the socket and whether or not antibiotics were prescribed. Treatments localised to the socket may have been irrigation with saline or chlorhexidine, giving home instructions on rinsing of the socket, dressing the socket with a resorbable dressing, or the placement of an obtundant dressing. The questionnaires were collected and the results collated.

Results

A total of 30 cases of dry socket were recorded in the six-month period. Of the 30 cases, 10 resulted from extractions carried out by the patient's general dental practitioner and the remaining 20 cases resulted from extractions carried out IN PERIPHERAL HOSPITALS. During this time, 100 (80 simple, 20 surgical) teeth were removed in the skims and in chc hajin, giving a possible incidence of 3.5%. Of these 20 cases of dry socket, three resulted from surgical extractions and the remaining 15 resulted from simple extractions. The time between extraction and onset of symptoms ranged from one to three presentation of the patient was on average four to six days. All patients presenting had severe pain, the severity of this ranging from seven to 10 as measured by the visual analogue scale, scored with 10 as a maximum. Eighteen (70%) had halitosis and 25 (94%) of the cases experienced an altered taste. All cases showed the presence of a slough and the presence of food impaction was recorded in 20 (74%) of the cases.

The temperature was not recorded by any of the treating dentists, as this test was not indicated due to the lack of systemic symptoms. There was no extra-oral or intra-oral swelling evident in any of the cases and the airway and floor of the mouth also remained unaffected. The range of movement recorded ranged from 37-46mm, which would indicate that none of the cases suffered from limited movement or trismus. The most common treatment provided was irrigation of the socket with a 0.2% chlorhexidine digluconate rinse, with 20 patients (74%) receiving this treatment .The remaining seven (26%) chose saline to rinse the socket. However, in only 12 cases (44%), the patient was provided with a syringe and given instructions in home rinsing with chlorhexidine. A non-resorbable obtundant dressing was placed in 15 of the cases (56%). No resorbable dressings were placed, as these are currently unavailable in the skims hospital. Finally, no antibiotics were prescribed in any of the 27 cases . extraction and for seven days post extraction resulted in a reduction in the incidence of dry socket.30 A recent meta-analysis of the available literature suggests that although 0.12% chlorhexidine rinse has demonstrated effectiveness in reducing the incidence of dry socket, 0.2% chlorhexidine gel applied to the socket every 12 hours for seven days post extraction is the most effective therapeutic option to prevent dry socket. It indicates that further studies are required to compare the effectiveness of a 0.12% versus a 0.2% chlorhexidine rinse.[31]

In managing a dry socket, chlorhexidine has been shown to be a more effective irrigant than saline and so irrigation of the socket and instruction in home use of a syringe with chlorhexidine should form the mainstay of managing cases of dry socket.[13,14],

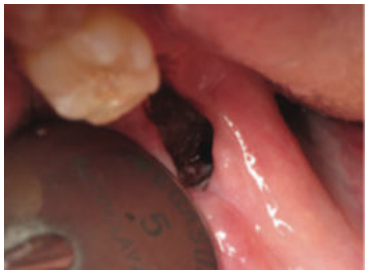

FIGURE : dry socket

Figure alvogyl

DISCUSSION

The results of the study suggest that the best form of management for a dry socket remains unconfirmed. Indeed, there is a lack of evidence to support one treatment method over another. In aiming to reduce the incidence of dry socket, each patient's risk of developing dry socket should be assessed pre extraction and any preventive measures should be implemented, such as avoiding smoking pre and post surgery, and an atraumatic surgical technique with the use of copious irrigation of the socket. The prophylactic placement of any dressing in the post-extraction alveolar socket is not supported by the literature and should not be carried out.

In preventing the occurrence of dry socket, a systematic review of the literature found that rinsing with chlorhexidine on the day of the extraction and for seven days post extraction resulted in a reduction in the incidence of dry socket.30 A recent meta-analysis of the available literature suggests that although 0.12% chlorhexidine rinse has demonstrated effectiveness in reducing the incidence of dry socket, 0.2% chlorhexidine gel applied to the socket every 12 hours for seven days post extraction is the most effective therapeutic option to prevent dry socket. It indicates that further studies are required to compare the effectiveness of a 0.12% versus a 0.2% chlorhexidine rinse.[31]

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The placement of a non-resorbable obtundant dressing such as zinc oxide and eugenol will relieve pain but cause bone necrosis and delay socket healing. Such a dressing should not be placed in managing dry socket, as these dressings are quite adherent to the socket and tend not to be eliminated. They must be removed. A dressing such as Alvogyl is self-eliminating and safe.

Antibiotics should not be prescribed in the treatment of dry socket unless the patient is systemically toxic, immune-compromised, or there is a risk of developing osteomyelitis. The prescription of analgesics is appropriate and necessary. A short course of NSAIDs and a preparation of paracetamol with codeine is recommended.

Conclusion

Dry socket is a self-limiting condition, the cause of which remains elusive. Management is aimed at relieving the patient's pain until healing of the socket occurs. Healing is facilitated and accelerated through reducing the insult to the wound by food debris and microorganisms, by irrigation of the socket with chlorhexidine, followed by placement of Alvogyl dressing or, if unavailable, instructing the patient in home use of a syringe for irrigation of the socket until the socket no longer collects debris, and the prescription of potent oral analgesics. The patient should be kept under regular review to ensure that the socket is healing, especially if a dressing has been placed.

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