ORIGINAL ARTICLE

CLINICAL CHARACTERISTICS AND TREATMENT OF DRY SOCKET – A STUDY

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ABSTRACT

The objective of this study was to evaluate and analyze clinical characteristics and treatment outcome in dry socket patients. This study was undertaken on 90 patients having the clinical features of dry socket, at the private clinic of the author at Mardan, Khyber Pakhtunkhwa, from Jan 2008 to Mar 2011. Data regarding the age, gender, site of dry socket, time lapsed from extraction until diagnosis and treatment outcome was evaluated and reviewed. The age ranged from 17- 69 years with a mean value 34.3 years, with high frequency occurring in 4th decade. The male to female ratio was 1.12: 1. Sixty six patients presented dry socket in mandible, while 24 in maxilla. Dry socket was more common at 3rd molar in mandible and 1st molar in maxilla. Twenty six patients presented with dry sockets after three days. Surgical intervention was successful in all cases without any major complication.

Key words: *Dry socket, Incidence, Clinical features, Treatment outcome*

INTRODUCTION

Dry socket is a well-known complication after extraction or surgical removal of tooth.[1] It has also been referred to as alveolar osteitis, localized osteitis, alveolalgia, alveolitis sicca dolorosa, necrotic alveolitis, localized osteomylitis, and fibrinolytic alveolitis.[2,3] The clinical features of dry socket present as necrosis or disintegration of formed blood clot, halitosis and pain with a varying intensity from the extraction socket, which usually occurs 2- 4 days after tooth extraction and may last for several days to weeks.[3,4] The incidence of dry socket has ranged from 1% to 4% of extractions, reaching 45% for mandibular third molars.[5] A definitive etiology for dry socket has not been universally accepted but is commonly thought to include clot fibrinolysis as a result of bacterial invasion.[6] Several contributing factors have been reported in literature to be associated with increased risk of dry socket. They include traumatic extraction,[7] preoperative infection,[8] smoking,[9] gender,[10] nutritional deficiency, site of extraction,[5] use of oral contraceptives,[10] use of local anesthetic with vasoconstrictor,[7,8] inadequate postoperative irrigation[3] and low level of operator experience.[7,11] Increased age[5] and systemic conditions, such as diabetes and immunosuppresion have also been associated with a greater risk for dry socket.[12]

Several modalities have been advocated to reduce the incidence of dry socket in patients. They include the use of antiseptic mouth washes, antifibrinolytic agents, antibiotics, steroids, clot supporting agents and intra-alveolar dressings.[13,14] As a specific etiology has not yet been determined, it is necessary to follow preventive measures in the daily practice of tooth extraction starting with the patient's medical history. From the published data, it was not possible to determine an ideal or consensual treatment protocol.[13,15] Each institution has adopted a different protocol, thus, despite many studies and publications, additional investigations are still required to establish the best method to treat dry socket.

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Current management of dry socket include irrigation with normal saline, use of intra-alveolar paste (composed of benzocaine, balsum of Peru and eugenol) and surgical intervention.[1,8,16] Irrigation of socket with normal saline removes the tooth and bone fragments, necrotic tissues and food debris. Pain is controlled by advising potent analgesics. Placement of intra-alveolar paste is controversial in literature because it causes other complications.[7] Surgical intervention in the form of administering anesthesia, curettage and irrigation of the socket to cleanse it of necrotic bone, tooth fragments, induce bleeding and primary closure by advancement flap, to protect the clot and enhance healing by primary intention.[1,5,13]

METHODOLOGY

This study was undertaken on 90 consecutive patients having the clinical features of dry socket, at the private clinic of the author at Mardan, Khyber Pakhtunkhwa from Jan 2008 to Mar 2011. All these patients were referred from elsewhere to the author, where extractions were done either by quacks or inexperienced surgeons. With the consent of the patients all the necessary informations about the variables of the study written in preformed proforma were obtained through history, clinical examination and radiographic study. Treatment outcome was evaluated by follow up after 7 days. The data obtained were evaluated and analyzed by applying descriptive statistics.

RESULTS

Ninety patients presented with dry socket. Male (53%) outnumbered female (47%) with a ratio of male to female, 1.12: 1 (Fig 1). The age ranged from 17 to 69 years with a mean value 34.3 years. Most common age group involved was 4th decade (n=33, 36.6%) followed by 3rd decade (n=20, 22.2%), (Table1).

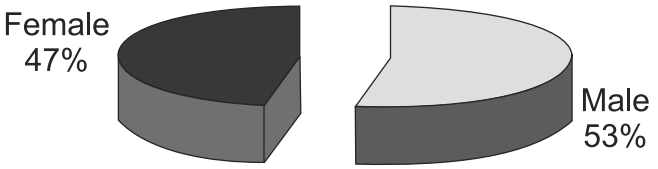

Fig 1: Gender distribution of patients (n=90)

Out of 90 patients 66 presented dry socket in mandible while there were 24 cases in maxilla with a ratio of mandible to maxilla 2.75:1 (Fig 2).Regarding

TABLE 1: AGE DISTRIBUTION OF PATIENTS (n=90)

Age groups (Years)	No. of patients	Percentage
11-20	2	2.2
21-30	20	22.2
31-40	33	36.6
41-50	15	16.7
51-60	12	13.4
Over 60 years	8	8.9

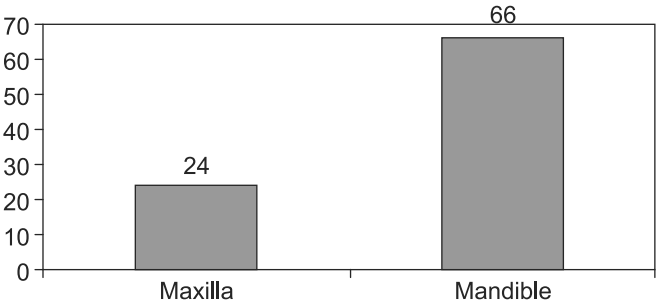

Fig 2: Distribution of dry socket in maxilla and mandible (n=90)

TABLE 2: DISTRIBUTION OF DRY SOCKET ACCORDING TO SITE OF EXTRACTION (n=90)

Maxillary						
Canine	1st premolar	2nd premolar	1st molar	2nd molar	3rd molar	**Total**
3(3.3%)	0	2(2.2%)	11(12.2%)	4(4.4%)	4(4.4%)	24(27%)
Mandibular						
Canine	1st premolar	2nd premolar	1st molar	2nd molar	3rd molar	**Total**
2(2.2%)	4(4.4%)	5(5.5%)	19(21.11%)	13(14.4%)	23(25.5%)	66(73%)
Total						
5(5.5%)	4(4.4%)	7(7.7%)	30(33.3%)	17(18.8%)	27(29.9%)	90(100%)

TABLE 3: DISTRIBUTION OF DRY SOCKET IN RELATION TO TIME LAPSE FROM EXTRACTION UNTILL DIAGNOSIS (n=90)

Period of time	No. of patients	Percentage
2nd day	15	16.66
3rd day	26	28.88
4th day	19	21.11
5th day	17	18.88
6th day	10	11.11
7th day and onwards	3	3.33
Total	**90**	**100**

the distribution of dry socket according to the site of extraction, 1st molars (n=11, 12.2%) and 3rd molars (n=23, 25.5%) dominated other sites in maxilla and mandible respectively, (Table 2). Twenty six patients (28.88%) presented with dry sockets after three days, while three patients (3.33%) after 7 days of their extraction, (Table 3). All patients were treated with surgical intervention without any complication.

DISCUSSION

The incidence of dry socket has been reported in the range of 0.5%- 5% and 1%-37.5% for routine dental extraction and surgical extraction of mandibular third molars, respectively, in literature.[7, 8, 17] In this study, male (53%) outnumbered female in dry socket. These findings are in agreement with the results of Nusair and Younis[8] but contradict with the results of Al-Jadid OG[18] where females were most commonly affected than males. The reason for the high percentages of male than female in this study may be due to the fact that, unlike Western societies in which smoking habits are almost identically distributed among both sexes, while no female smoker was reported in this study. Another possible explanation in most studies, reporting a higher incidence of dry socket in females, had a much higher percentage of oral contraceptive users than this study.

The findings in this study in relation to age revealed that the highest incidence was in the third and fourth decades of life, with a peak incidence in the 21-35 year age group, which is in agreement with the findings of other studies.[7, 8, 18, 19] The reason for this age dependence is still scientifically unclear, but the presence of well developed alveolar bone and the relative infrequency of periodontal diseases at this age make tooth extraction more difficult. Furthermore, surgical extractions are commonly performed at this age group population, which increased the incidence of dry socket in them.

The incidence of dry socket in this study was significantly higher in the lower jaw (73.3%) than in the upper jaw (26.7%). The result of this study regarding the involvement of mandible to maxilla correlated well with other studies done around the world.[7, 17,18, 20,21] The possible explanation of high risk in the mandible than maxilla may be due the high density of bone, decreased vascularity and reduced capacity of producing granulation tissue at this site.

In this study it has been found that the mandibular third molar had the highest incidence (25.5%) of dry socket followed by mandibular 1st (21.11%) and second molar (14.4 %). These findings are in accordance with other studies.[7, 8, 22] This is probably due to the large percentages of surgically extracted mandibular third molars, which reflect the effects of surgical trauma at this site during extraction. The high percentages of 1st and 2nd mandibular molars in this study may be due the high frequency of extractions of these teeth in our population.

Occurrence of dry socket in relation to time lapse from extraction until diagnosis was more common after 3rd day of extraction (28.88%), while three cases were reported at 7th day and onwards. Throughout the literature, the onset of dry socket is considered to occur 1-3 day after tooth extraction.[6, 12, 18] The present study also supports this finding about the postextraction period for dry socket occurrence.

Current established methods of dry socket treatment can be divided into irrigation, medicaments placement and surgical intervention.[1, 6, 8, 18, 22] Irrigation of the socket with normal saline and administering potent analgesics have been used for the treatment of dry socket. Maintenance of good oral hygiene and warm saline rinses assists in the healing of socket.[1, 16] Medicaments placement include antibacterial dressing, obtundent dressing, topical anesthetic dressing and combination of these.[1, 6, 8, 22] Placement of medicament is controversial in literature due to the occurrence of local complications at extraction socket.[6, 18, 22,23] In this study, all patients have been treated with

surgical intervention in the form of administering anesthesia, curettage and irrigation of the socket to cleanse it of necrotic bone, tooth fragments, induce bleeding and primary closure by advancement flap, to protect the clot and enhance healing by primary intention. This procedure provided immediate pain relief and promoted healing.

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