

FREQUENCY AND CLINICAL PRESENTATION OF DRY SOCKET- A STUDY

Fahim ud Din*, Iram Abbas**, Atta Ur Rehman*, Muslim Khan*

*Department of Oral and Maxillofacial Surgery, Khyber College of Dentistry, Peshawar.

**Department of Oral and Maxillofacial Surgery, Ayub Medical College/Hospital, Abbottabad

ABSTRACT

Objectives: To find out frequency and clinical presentation of dry socket in Department of Oral and Maxillofacial Surgery, Ayub Medical College/Hospital Abbottabad.

Material and methods: The study was carried out from 10th April to 10th October 2007 at Department of Oral and Maxillofacial Surgery, Dentistry Unit, Ayub Medical College/Ayub Teaching Hospital, Abbottabad. Patients of both genders and all ages were included in the study. They were observed for the presence of dry socket. Patients with previous history of two or more days of extraction, pain, sensitivity on gentle probing of the extraction socket and empty/ partially empty socket were included in the study. Data was analyzed using SPSS version-10.

Results: A total of 2520 patients including 1440 (57.14%) males and 1080 (42.85%) females were attended during the study duration. Dry socket was found in 70 (2.77%) patients. Fifty two patients (2.06%) were males and 18 patients (0.71%) were females. Majority of patients were in 3rd decade. Socket of mandibular first molar was involved in 31.42% cases followed by mandibular third molar in 30% cases and mandibular second molar in 18.57% cases. Pain and sensitivity on gentle probing of the extraction socket was present in all patients, trismus in 8, socket was fully empty in 30 and partially empty in 40 patients. None of the patients had halitosis.

Conclusion: In this study males of young age group were predominantly involved and the mandibular posterior teeth particularly the mandibular first permanent molars were commonly affected by the dry socket.

Key words: Dry socket, Incidence, Treatment, Prevention, Risk factors.

INTRODUCTION

Dry socket is attributed to an American dentist, James Young Crawford who used it to describe a socket devoid of blood clot and associated with pain¹. Loss of blood clot due to excessive fibrinolysis as a result of bacterial, local salivatory or hormonal factors exposes bone of the extraction socket to air, food and fluid². Some bacteria are known to possess fibrinolytic activity and *Treponema denticolum* has been postulated to have

an important etiological role in the development of dry socket³.

Risk factors that affect blood clot leading to dry socket include excessive extraction trauma,^{4,5} limited local blood supply e.g. mandibular teeth⁶, use of oral contraceptives,⁷ osteosclerotic disease, radiotherapy^{6,8}, use of excessive local anesthesia containing vasoconstrictor, smoking, presence of acute infections⁸ and inexperienced operator⁹.

Incidence of dry socket in both upper and lower jaws vary from 0 to 5%¹⁰ and in mandibular third molars varies from 0.5% to 37%^{8,11}. Peak incidence is reported between 18 to 33 years of age¹² and is more in females especially receiving oral contraceptives¹³.

Correspondence:

Dr. Fahim ud Din

Junior Registrar

Department of Oral & Maxillofacial Surgery

Khyber College of Dentistry, Peshawar

Cell: +92-0321-9693326

E-mail: fahim79pk@yahoo.com

Patient presents with pain, swollen dusky red gingiva which is tender on palpation, halitosis, enlarged regional lymph nodes, pyrexia, and trismus⁶. Pain in dry socket ranges from boring persistent deep seated, dull or severe, throbbing and localized to the socket or may radiate¹⁴. Bare bone of dry socket is extremely sensitive to touch⁸ attributed to increased pressure on nerve endings after loss of the blood clot². Trismus is related to the surgical trauma of extraction and is frequently found after surgical or difficult extraction¹³. Disintegration of blood clot and accumulation of food debris and its fermentation by bacteria produces halitosis¹⁵. It is most frequently found in patients with poor oral hygiene¹⁶ and smokers¹⁷. Radiographs show the outline of the empty socket and will confirm the presence or absence of a retained root, foreign body and loose fractured fragments of septal or alveolar bone⁸.

The aim of this study was to determine frequency and clinical presentation of dry socket. This will further help in the diagnosis and management of this painful complication of dental extraction. Because the pain associated with dry socket affects the quality of life of the patient.

MATERIAL AND METHOD DRY SOCKET

This study was carried out at the Department of Oral and Maxillofacial Surgery, Dentistry Unit, Ayub Medical College/Ayub Teaching Hospital, Abbottabad from 10th April to 10th October 2007. Patients of both genders and all age groups who have undergone one or more extractions were observed for the presence of dry socket. The diagnostic criteria for dry socket was based on history of extraction of two or more days ago and pain, clinical examination for sensitivity on gentle probing of the extraction socket, trismus, halitosis and condition of tooth socket. Radiographs were advised for the presence of broken root or bony pieces.

Pain was measured by Visual Analogue Scale (VAS). According to this scale patients measured their pain subjectively from out of three i.e. mild pain as S1, ranged from 1-4; moderate pain as S2, ranged from 5-7 and severe pain as S3 ranged from 8-10. Sensitivity on gentle probing of the extrac-

tion socket, halitosis, and trismus were considered on all or none basis (present or absent). Patients who had inter-incisal distance of less than 40 mm were considered as having trismus. This distance was measured with the help of a ruler. Condition of tooth socket was categorized as partial or full empty.

Data was analyzed using SPSS version-10. Descriptive statistics were used for age, gender, pain, sensitivity on gentle probing, halitosis, trismus and condition of tooth socket. Mean and standard deviation (SD) for age were calculated.

RESULTS

A total of 2520 patients including 1440 (57.14%) males and 1080 (42.86%) females were attended during the study duration. Dry socket was found in 70 (2.77%) patients including 52 (2.06%) males and 18 (0.71%) females with male to female ratio of 2.9:1. Majority of patients were in 3rd decade (27.14%) followed closely by 4th decade of life (22.85%). The details of age distribution are given in Table-1. Socket of mandibular first molar was involved in 22 (31.42%) patients followed by mandibular third molar, 21 (30%) patients and mandibular second molar 13 (18.57%) patients. The details of site distribution are given in Table-2.

Table-3 shows clinical features of dry socket in the patients of the present study. All patients measured their pain subjectively as S3 i.e. severe pain on visual analogue scale. Sensitivity on gentle probing of the extraction socket was present in all patients and trismus was present in 8 (11.42%) patients only. Halitosis was absent in all patients and socket was empty in 30 and partially empty in 40 patients.

DISCUSSION

Dry socket is a post extraction socket having pain due to loss of blood clot exposing bone to air,

Table-1: Distribution of patients according to age.

Age groups in years	n	%
11-20	12	17.14
21-30	19	27.14
31-40	16	22.85
41-50	13	18.57
51-60	10	14.28
Total	70	100

Table-2: Site distribution of dry sockets.

Site	n	%
Mandibular 1 st molar	22	31.42
Mandibular 3 rd molar	21	30.00
Mandibular 2 nd molar	13	18.57
Mandibular 2 nd premolar	4	5.71
Maxillary 1 st molar	4	5.71
Maxillary 1 st premolar	3	4.28
Mandibular 1 st premolar	2	2.85
Maxillary 2 nd premolar	1	1.42
Total	70	100

Table-3: Clinical features.

Clinical feature	Present		Absent	
	n	%	n	%
Pain	70	100	0	0
Sensitivity on gentle probing	70	100	0	0
Trismus	8	11.42	62	88.57
Halitosis	0	0	70	100

food and fluids.¹ Literature shows that prevalence of dry socket ranges from 0-5%^{10, 16, 18, 19} while in the present study the incidence of dry socket was found to be 2.77%.

There were 52 (2.06%) males and 18 (0.71%) females in the present study with male to female ratio of 2.9:1. Similarly higher male to female ratio (1.12:1) was reported by Khitab et al²⁰ in a local study. However, MacGreoger⁵ and Al Jadid²¹ reported lower male to female ratio. The male dominance in this study may be due to the reason that none of the females had the habit of smoking, which is a proven risk factor for the development of dry socket^{7,8,9,11,17}. Furthermore, none of the females had the history of using oral contraceptives in this study, which is again a risk factor for the development of dry socket^{3,6,7,8,13,14}.

Mean age in this study was 31.68 ± 11.23 years and most patients were in 3rd decade of life. Similar results were reported in literature world wide^{12,15,16,18,22}. The solid nature of bone which is relatively disease free e.g. periodontal diseases in this age group leads to difficult extraction and may require surgical removal. It is widely accepted that prevalence of dry socket increases with increase in extraction difficulty^{4,5,8,23} and surgical trauma²⁴.

In this study dry socket was significantly higher in the mandibular teeth than the maxillary

(P=0.045). Similarly significantly higher involvement of lower teeth (P=0.002) was reported by Nusair¹⁶. This may be due to dense, less vascular bone of the mandible than the maxilla³. However, anatomical studies and scientific evidence have revealed that the blood supply to the alveolus in the lower molar region is no poorer than that of other regions of the jaws²³. Lower teeth are usually more difficult to extract than the upper and gravity factor favors accumulation of food debris in the mandibular sockets³. Further more, in lower teeth the molar area was most common site for dry socket as reported in the literature^{12,15,18}. Increased incidence of dry socket in mandibular molar area can be attributed to increased bone density, decreased vascularity and reduced capacity of producing granulation tissue²². Additionally extractions of mandibular molar teeth are difficult, leading to excessive trauma and increased chances of developing dry socket¹⁸. In this study mandibular first molar socket was most commonly involved, however, literature worldwide has reported frequent involvement of mandibular third molar socket^{4,8,11,18,24}. This might be attributed to extraction of mandibular first molar mostly by undergraduates having lesser experience in extracting teeth. Inexperience of the operator is one of the risk factors for occurrence of dry socket according to Oginni et al¹² and Alexander²⁵.

Pain was present in all patients of the present study and was graded subjectively as S3 i.e. severe on visual analogue scale. Similar results were shown in the study by Nusair¹⁶. Dry socket pain is produced as a result of nerve endings exposure in the bare bone of the socket to air, food, fluids and release of kinins which are immediately available following tissue trauma and infectious process which liberates pain mediators^{2,3,12}. Empty or partial empty sockets were extremely sensitive to gentle probing in all patients of the present study. Trismus was present in 11.42% cases. All cases were related to the mandibular third molar area especially those cases which required surgical extraction. This could be attributed to the inflammation of the muscles of mastication secondary to surgical procedure and that the dry socket might not be the cause for its development.

Halitosis was absent in all patients of the present study unlike the results of Nusair¹⁶. In the

present study bare bone with complete empty socket was found in 30 (42.85%) patients whereas it was partial empty in 40 (57.14%) patients. This finding was consistent with the study of Nusair.¹⁶

The management for dry socket is to prevent it which can be achieved by providing an aseptic environment, avoiding instrumental trauma, smoking, excessive mouth rinsing and no fluids using straw¹. In females prevention can be achieved by scheduling extraction during last week of menstrual cycle (days 23 through 28) when estrogen levels are low or inactive². Incidence can also be decreased by use of topical or systemic antibiotics²⁶, antiseptic mouth washes including chlorhexidine²⁷ and antifibrinolytic agents^{11,28,29}.

Treatment modality for dry socket is considered effective if it improves the patient's quality of life by relieving patient's pain. Various treatment options are available for dry socket. Topical application of eugenol, Iodoform and Butylparaminobenzoate^{2,6} in combination have been used for pain relief. Application of honey to empty socket has also been found effective³⁰.

CONCLUSIONS

From this study the following conclusions were drawn:

There was frequent involvement of:-

1. Male were predominantly affected by the dry socket.
2. Majority of the patients were in the third decade of life.
3. Mandibular posterior teeth especially the mandibular first permanent molars were commonly involved.

RECOMMENDATIONS

The policy "prevention is better than cure" will remain best management for dry socket.

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