

Analysis of Incidence and Risk Factor Associated with Dry Socket

Saloni Bharti¹ Anupama Singh^{2*} Karn Singh³ Harsha Vardhan Choudhary⁴

¹Consultant Oral and maxillofacial surgeon, Patna Medicity Hospital, Patna, Bihar, India.

²Senior Resident, Department of Dentistry, Darbhanga Medical College and Hospital, Laheriasarie, Darbhanga, Bihar, India.

³Senior Resident, Department of Dentistry, Darbhanga Medical College and Hospital, Laheriasarie, Darbhanga, Bihar, India.

⁴Dental Surgeon, PHC Parwalpur, Nalanda, Bihar, India.

ABSTRACT

Background: Dry socket is a major complication that follows extraction of tooth/teeth. It is an acute inflammation of the alveolar bone around the extracted tooth and characterized by severe pain, breakdown of the clot formed within the socket making the socket empty. The present study was conducted to analyse the incidence and risk factor associated with dry socket.

Material and methods: The present retrospective study was conducted using the clinical records of all patients who had been diagnosed with dry socket following permanent teeth extraction. Data was collected. Pain and empty extraction socket with no blood clot were considered signs leading to diagnosis of Dry Socket. Data was obtained and statistical analysis was done using SPSS software package version 16.00 (SPSS Inc, Chicago, IL, USA). *P* values less than 0.05 were considered significant.

Results: In the present study a total of 2120 permanent teeth had been extracted. A total of 60 extractions were complicated by dry socket. Incidence of dry socket was more prevalent in females (63.33%) than males (36.66%). In males' dry socket was more prevalent in age group 21-30yrs and in females it was prevalent in age group 31-40 yrs. The most common risk factor for dry socket was smoking (35%) and oral contraception (25%).

Conclusion: The present study concluded that incidence of dry socket was more prevalent in females than males. In males' dry socket was more prevalent in age group 21-30yrs and in females it was prevalent in age group 31-40 yrs. The most common risk factor for dry socket was smoking and oral contraception.

Keywords: Extractions, dry socket, smoking.

INTRODUCTION

The term "dry socket" or alveolar osteitis was originally coined in 1896.¹ Dry socket, also known as alveolar osteitis, is a commonly encountered complication following dental extractions. The condition can be defined as: "postoperative pain in and around the extraction site, which increases in severity any time between one and three days after extraction, accompanied by a partially or totally disintegrated blood clot within the alveolar socket, with or without halitosis".² This phenomenon is due to resolution of blood clot and exposure of alveolar bone. Pain, halitosis, activity reduction, and

additional returns to visit surgeon are of costs patient will pay.³ Its incidence is approximately 3% for all routine extractions and can exceed 30% for impacted mandibular third molars⁴, and many factors have been cited as contributing to the occurrence of dry socket including difficult or traumatic extractions, female gender, tobacco use, oral contraceptive use and pre-existing infections.⁵ Many other factors contribute to the occurrence of dry socket like low experience level of operator⁶, preoperative infection⁷, sex⁸, site of extraction⁹, use of oral contraceptives¹⁰, smoking¹¹, and use of local

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*Correspondence Dr. Anupama Singh.

Department of Dentistry, Darbhanga Medical College and Hospital, Laheriasarie, Darbhanga, Bihar, India.

Email: anupamaduggu@gmail.com

anesthetics with vasoconstrictor¹². The incidence of dry socket can be reduced with antibiotics¹³, antifibrinolytic agents¹⁴, mouthwashes¹⁵, and steroids¹⁶. The present study was conducted to analyse the incidence and risk factor associated with dry socket.

MATERIAL AND METHODS

The present retrospective study was conducted using the clinical records of all patients who had been diagnosed with dry socket following permanent teeth extraction. The study was conducted over a period of 3 months. Before the commencement of the study ethical approval was taken from the Ethical Committee of the institute. All types of extractions (routine/surgical, retained root/whole tooth/deciduous tooth/impacted tooth) were included in the study. Data regarding demographic information of patients, smoking habits, medical history, medications, tooth extracted, indication for extraction, amount and technique of local anesthesia, post-operative medications, and the duration of the extraction, oral hygiene status were collected. Pain and empty extraction socket with no blood clot were considered signs leading to diagnosis of Dry Socket. Data was obtained and statistical analysis was done using SPSS software package version 16.00 (SPSS Inc, Chicago, IL, USA). Descriptive statistics included means and standard deviation. *P* values less than 0.05 were considered significant.

RESULTS

In the present study a total of 2120 permanent teeth had been extracted. A total of 60 extractions were complicated by dry socket. Incidence of dry socket was more prevalent in females (63.33%) than males (36.66%). In males dry socket was more prevalent in age group 21-30yrs and in females it was prevalent in age group 31-40 yrs. The most common risk factor for dry socket was smoking (35%) and oral contraception (25%).

Table 1: Incidence of Dry socket according to age and gender

Age group (yrs)	Male N(%)	Females N(%)	Total N(%)
21-	12(5	14(36.84%)	26(4

30	4.54 %)		3.33 %)
31-40	3(13.63%)	19(50%)	22(36.66%)
41-50	4(18.18%)	3(7.89%)	7(45.45%)
51-60	3(13.63%)	2(5.2%)	5(8.33%)
Total	22(36.66%)	38(63.33%)	60(100%)

Table 2: Risk factor associated with dry socket.

Risk factors	N(%)
Oral contraception (no other risk factor)	15(25%)
Smoking only	21(35%)
Traumatic extraction (no other risk factor)	8(13.33%)
HIV	5(8.33%)
Trauma plus contraception	4(6.66%)
Trauma plus smoking	4(6.66%)
Diabetes	3(5%)
Total	60(100%)

DISCUSSION

The exact etiology and mechanism of dry socket are not exactly known but several factors have been associated. Careful analysis into the pathophysiology of dry socket (DS) stated that poor oral hygiene, vasoconstrictors, and reduced blood supply are important factors but reports have placed emphasis on trauma from difficult exodontias causing fibrinolysis and release of pain inducing chemical substances.^{17,18}

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MacGreoger¹⁹ reported a higher incidence of dry socket in females with a male: female ratio of 2:3.

It is worth mentioning that the use of oral contraceptives is a factor that raises the prevalence of dry socket among female patients. The use of contraceptives thought to be the reason behind the increased susceptibility of females to dry socket²⁰⁻²² was minimal in this study. However, timing of dental extraction according to menstrual cycle is a predisposing factor in the occurrence of dry socket.²³

Some studies have linked smoking and the number of cigarettes smoked daily to alveolar osteitis formation.²⁴⁻²⁶ However, the pathologic mechanism that associates smoking with alveolar osteitis is unknown. The predominant theory has suggested that mechanical clot dislodgement occurs with the sucking motion of smoking.²⁵⁻²⁶

Mohammed H Abu Younes et al. reported that smoking, surgical trauma, and single extractions were considered predisposing factors in the occurrence of DS, and on the other hand factors like age, sex, medical history, extraction site, amount of anesthesia, and operator experience had no effect on the observation.²⁷

Hasan Momeni et al. reported that the incidence of dry socket was 0.6% and females were more common involved than males (0.8% versus 0.04%), the ratio of mandible to maxilla was 2.5 to 1, and mandibular third molars were more often involved than other teeth.²⁸

Larsen found smoking as one of the most significant factors related to DS.²⁹ Meechan *et al.* observed a significant reduction in filling of an extracted socket with blood clot in smokers.³⁰ The effect of smoking could be attributed to the suction and heat produced during smoking or systemic mechanisms. As smokers may ignore post-surgery instructions, post-surgical smoking habit may also contribute to incidence of DS.³¹

CONCLUSION

The present study concluded that incidence of dry socket was more prevalent in females than males. In males dry socket was more prevalent in age group 21-30yrs and in females it was prevalent in age group 31-40 yrs. The most common risk factor for dry socket was smoking and oral contraception.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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