

FREQUENCY OF ALVEOLAR OSTEITIS FOLLOWING SURGICAL REMOVAL OF IMPACTED 3RD SEEN AT ORAL & MAXILLOFACIAL DEPARTMENT OF AYUB TEACHING HOSPITAL

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ABSTRACT

The most common complication encountered by dentists after extraction of impacted molar teeth is “alveolar osteitis” generally known as “dry socket”. It presents clinically as painful, exposed socket of bone after 3-4 days of extraction which is devoid of blood clot or healing epithelium. The purpose of this study was to document the incidence of alveolar osteitis after surgical removal of impacted 3rd molar patients seen at Oral & Maxillofacial Department of Ayub Teaching Hospital.

One hundred and fifty one patients with the impacted third molar with age range of 18-50 years were included in the study. Demographical data and clinical findings were recorded in well-tailored Proforma. Data Analysis was carried out in SPSS Version 25. Post stratification chi-square test was used. P value was at ≤ 0.05 .

In this study, 63(42%) patients were males & 88(58%) were females. Mean age was reported to be 32 years \pm 12.68. Extraction of impacted maxillary 3rd molar was done in 38(25%) patients and removal of impacted mandibular 3rd molar in 113(75%) patients. Alveolar Osteitis was reported in 12(8%) patients after extraction.

Key Words: *Impacted third molars, surgical removal, alveolar osteitis*

This article may be cited as: Bibi A, Hilal R, Haider AK. Frequency of alveolar osteitis following surgical removal of impacted 3rd seen at Oral & Maxillofacial Department of Ayub Teaching Hospital. Pak Oral Dent J 2021; 41(4):223-226.

INTRODUCTION

The most common complication encountered by dentists after extraction of impacted molar teeth is “alveolar osteitis” generally known as “dry socket”.¹ It presents clinically as painful, exposed socket bone after 3-4 days of extraction which is devoid of blood clot or healing epithelium.²

While exact etiology and pathogenesis of the dry socket has not been fully understood³ yet, it is said to be associated with multiple factors, most common being increased fibrinolysis of the blood clot.^{4,5} The increased fibrinolysis activity results from inflammation due to activation of the plasminogen in the blood (directly or indirectly) releasing tissue kinase.⁶ Direct activators are released from trauma to alveolar bone cells, while

bacteria cause release of indirect activators. These activators facilitate the process of conversion of plasminogen into plasmin, resulting in clot disintegration due to dissolution of fibrin.⁷

The overall incidence of dry socket after exodontia of impacted molars is approximately 12.07% in both genders. In the mandibular region, the incidence is 16.95% while in the maxillary 3rd molar extraction it is 7.34%. More than 95% of the patients report within 7 days of surgery with pain. Pain is severe, throbbing type accompanied with malodor and unpleasant taste and can be referred to ears, forehead and neck; and usually is not subsided by analgesics.⁵

Numerous risk factors have been found to be associated with this complication such as gender, age, degree of alveolar bone trauma occurred during extraction, difficulty level of exodontia, post-surgery irrigation, infection, smoking, use of oral contraceptive and insufficient experience of surgeon.^{1,8}

The purpose of this study was to document the incidence of alveolar osteitis or dry socket complicating exodontias of impacted 3rd molar in this center and to

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Received for Publication: Feb 17, 2020

Revised: Aug 27, 2020

Approved: Jan 14, 2021

compare them with other studies. Alveolar Osteitis was reported in 12(8%) patients after surgical removal.

MATERIALS AND METHODS

This cross-sectional study was conducted in Oral & Maxillofacial surgery Department of Ayub Teaching Hospital Abbottabad. The patients were included in the study by non-probability purposive sampling technique, reporting to the OPD. One hundred and fifty one patients with the impacted third molar with age range of 18-50 years were included in the study. Patients with any systemic disorder, receiving any kind of medications/treatment, smokers and patient with immune-incompetency were excluded from the study in order to reduce the factors as a cofounders causing dry socket. Sample size was 151 using WHO software for sample size determination with confidence interval 95%. Informed consent was taken.

Approval to carry out study was obtained from institutional ethical committee. Proper history, clinical examination and investigations were carried out to rule out factors mentioned in exclusion criteria. Data were collected using well-tailored Proforma. Only those extractions were considered which were performed by trainees of oral and maxillofacial surgery.

Data Analysis was carried out in SPSS Version 21. Frequencies and percentages were calculated for categorical variables like gender, location and presence of dry socket. Continuous variable like age was described in terms of Mean +standard deviation. Data were stratified by age, gender and location with respect to outcome variable and analyzed. Post stratification chi-square test was used. P value was at ≤ 0.05 .

RESULTS

In this study, out of 151 patients, 63(42%) patients were males and 88(58%) were females. Mean age was 32 years \pm 12.68. Majority of them belonged to age group 18-30 years (68%), followed by age group 31-50 years (32%). The distribution for the presence of impacted 3rd Molar with respect to Arch was found to be 113(75%) in mandible and 38(25%) in maxilla (Table 3).

Frequency of dry socket among 151 patients was analyzed and 12(8%) patients had developed the dry socket. Stratification of presence of impacted third molar and dry socket with respect to age, gender and location is given in Table 1&2.

DISCUSSION

Alveolar osteitis (Dry socket) is the most commonly occurring surgical complication after the extodontia of impacted molar teeth.^{1,9,10} Crawford described it for the first time for the dry appearance of socket after the loss of blood clot.²

The incidence of alveolar osteitis in smokers was 12% while in non-smokers it was 7%.¹¹ History of tooth infection increases the incidence of dry socket up to 0.09% as compared to cases without infection where its incidence was 0.04%.¹² Some studies suggest that local anesthesia played no role in dry socket while other studies suggested that higher incidence was recorded when three cartridges were used.¹³ Some studies have shown the dry socket incidence to be up to 77.85% on immediate irrigation and 22.2% when irrigation was not immediately performed on the post-extraction socket.¹¹ Difficulty level of surgery and Surgeon's expertise also

TABLE 1: STRATIFICATION OF IMPACTED 3RD MOLAR AND DRY SOCKET WITH RESPECT TO AGE DISTRIBUTION (N=151)

Age group	Mean Age	Impacted third molar		Alveolar osteitis		P-value
		Frequency	Percentage	Present	Absent	
18-30 years	32 \pm 12.68	103	68%	8	95	0.9046*
31-50 years		48	32%	4	44	
*Total		151	100%	12	139	151

*statistically not significant

TABLE 2: STRATIFICATION OF DRY SOCKET WITH RESPECT TO GENDER AND ARCH DISTRIBUTION (N=151)

Alveolar Osteitis	Gender				Arch			
	Male	Female	Total	P-value	Maxilla	Mandible	Total	P-value
Present	5	7	12	0.9967*	4	8	12	0.9890*
Absent	58	81	139		35	104	139	
Total	63	88	151		39	112	151	

*Statistically insignificant

TABLE 3: FREQUENCY OF IMPACTED THIRD MOLAR WITH RESPECT TO ARCH DISTRIBUTION (N=151)

ARCH	Number	%age
Maxilla	38	25.16
Mandible	113	74.84
Total	151	100

influence the amount of surgical trauma and hence the incidence of dry sockets.¹² Surgeries with higher level of difficulty in relation to direction and depth of impaction had significantly higher rate of occurrence of dry socket post-operatively.⁸

Akinbami BO et al have analyzed 1182 patients in their study, with total of 1362 teeth extracted over the period of 4-years. They reported that 1.4% teeth developed alveolar osteitis. Mean age of their study subjects was 35.2 (16.0) years. Greater numbers of the patients who reported with the complaint of dry socket were in the fourth decade of life. Patients who had undergone the extraction of mandibular teeth suffered with alveolar osteitis more than the cases of maxillary teeth extractions.⁴

Babatunde et al reported that more females (63.2%) turned up with dry socket as compared to male.¹⁴ Similar results were reported by the investigators in Nepal and Nigeria.^{15,16} Similar was the case in present study. Whereas, in Lagos study, the disparity in terms of ratio between males and females was found to be much higher, i.e: 1 : 4.4, and with respect to age, majority were in third decade of life.¹⁷ Corresponding to the previous studies, utilization of oral contraceptives in female amplified the frequency of dry socket considerably.

Little agreement is found regarding any association of age factor with the peak incidence of Alveolar Osteitis. Study conducted by Eshghpour and colleagues, showed that the age factor was very important in frequency of AO, as most of the studies reported its occurrence in patients within age range of 20 to 40 years.^{1,18-21} Some other studies inferred the similar results and reported no significant association of occurrence of alveolar osteitis and the age of the patient.²²⁻²⁴ The greater frequency of dry socket in 3rd decade of life could be caused by the repeated episodes of pericoronitis which itself poses much greater risk for occurrence of dry socket.²⁵

CONCLUSION

This study concluded that the incidence of alveolar osteitis (dry socket) was 8% after the exodontia of impacted 3rd molar and frequency in female was slightly higher.

REFERENCES

- Khan MA, Ahmad T, khadija, Hijab S. Frequency of dry socket, pain, wound dehiscence and swelling one week after removal of mandibular third molar impaction. JKCD. 2015;5(2):11-17
- Mamoun J. Dry socket etiology, diagnosis, and clinical treatment techniques. J Korean Assoc Oral Maxillofac Surg. 2018; 44(2):52-58.
- Parveen K. The Survey of the Knowledge of Dry Socket and Management Among Dental Practitioners; Still Controversy? JPDA. 2019;28(04): 192-96
- Akinbami BO, Godspower T, Dry Socket: Incidence, Clinical Features, and Predisposing Factors. Int J Dent. 2014(2): 796102. <http://dx.doi.org/10.1155/2014/796102>
- Shah A, Khan SZ, Waqarunnisa. Prospective study of the development of alveolar osteitis after 3rd molar impacted teeth extraction in randomly selected patients. Pak Oral Dent J. 2014;34(3): 422-25
- Tasoulas J, Daskalopoulos A, Droukas C, Nonni A, Nikitakis NG. An unusual microscopic pattern of foreign body reaction as a complication of dry socket management. Oral Surg. Oral Med. Oral Pathol. Oral Radiol. 2018; 125(5):e118-23.
- Sheikh MA, Kiyani A. Pathogenesis and management of dry socket (alveolar osteitis). Pak Oral Dent J. 2010 Dec 1;30(2): 51-54.
- Sardar T, Sadiq N, Ishfaq M, Sheikh G. Incidence of dry socket after removal of impacted mandibular third molar and its relation to surgical difficulty. Pak Oral Dent J. 2019; 39(2):159-63.
- Chandran S, Alaguelrajan M, Karthikeyan A, Ganesan K, Faiz MK, Vallabhaneni SS. Incidence of dry socket in south Chennai population: A retrospective study. J Int Oral Health. 2016; 8(1): 119-22.
- Goswami A, Ghorui T, Bandyopadhyay R, Sarkar A, Ray A. A General Overview of Post Extraction Complications-Prevention, Management and Importance of Post Extraction Advices. Fortune J Health Sci. 2020; 3(3):135-47.
- Abu Younis MH, Abu Hantash RO. Dry socket: frequency, clinical picture and risk factors in a Palestinian dental teaching centre. Open Dent J. 2011; 5:7-12.
- Tarajji B, Saleh A, Umair A, Azzeghaiby SN, Hanouneh S. Systemic review of dry socket: Aetiology, treatment and prevention. J Clin Diagn Res. 2015; 9(4):10-13.
- Eshghpour M, Nejat AH. Dry socket following surgical removal of impacted third molar in Iranian population: incidence and risk factor. Niger J Clin Pract. 2013; 16(4):496-500.
- Babatunde O. Akinbami and Thikan Godspower. Dry Socket: Incidence, Clinical Features, and Predisposing Factors. Int J Dent. 2014, doi: 10.1155/2014/796102.
- C. Upadhyaya and M. Humagain, "Prevalence of dry socket following extraction of permanent teeth at Khathmandu university teaching hospital (KUTH), Dhulikhel, Kavre, Nepal: a study," Kathmandu Univ Med J. 2010;8(29):18-24
- M. O. Ogunlewe, W. L. Adeyemo, A. L. Ladeinde, and O. A. Taiwo, "Incidence and pattern of presentation of dry socket following non-surgical tooth extraction Nig Q J Hosp Med. 2007;17(4):126-30..
- Catellani JE, Harvey S, Erickson SH, Cherkink D. Effect of oral contraceptive cycle on dry socket (localized alveolar osteitis). J Am Dent Assoc. 1980; 101(5):777-80
- Eshghpour M, Rezaei NM, Nejat A: Effect of menstrual uency of alveolar osteitis in women undergoing surgical removal of mandibular third molar: a single-blind randomized clinical trial. J Oral Maxillofac Surg. 2013; 71(9):1484-9. doi: 10.1016/j.joms.2013.05.004.

- 19 Nusair YM, Younis MHA. Prevalence, Clinical Picture, and Risk Factors of Dry Socket in a Jordanian Dental Teaching Center. *J Contemp Dent Pract.* 2007; 8(3): 53-63
- 20 Chandran S, Alaguvelrajan M, Karthikeyan A, Ganesan K, Faiz MK, Vallabhaneni SS. Incidence of dry socket in south Chennai population: A retrospective study. *J Int Oral Health.* 2016; 8(1): 119-22.
- 21 Murad N, Bangash ZQ, Qayyum FA, Khan MY. Serious post extraction complaint. *Pak Oral Dent J.* 2014; 34(3): 433-36
- 22 Draid YMA, Al-Wraikat MA, Khraisat HM, Mheedat Z, Obeidat L, Al Shadeifat N. frequency and comparison of different regimens for the prevention of dry socket at Prince Hashem Hospital, Jordan. *Pak Oral Dent J.* 2015; 35(3): 377-81.
- 23 Mudali V, Mahmood O. Incidence and predisposing factors for dry socket following extraction of permanent teeth at a regional hospital in Kwa-Zulu Natal. *S Afr Dent J.* 2016; 71(4): 166-69
- 24 Oginni FO. Dry Socket: A Prospective Study of Prevalent Risk Factors in a Nigerian Population. *J Oral Maxillofac Surg.* 2008; 66: 2290-95.
- 25 Ahmedi J, Ahmedi E, Agani Z, Hamiti V, Recica B, Tmava-Dragusha A. The Efficacy of 1% Chlorhexidine Gel on the Reduction of Dry Socket Occurrence Following Surgical Third Molar Extraction—Pilot Study. *Open J Stomatology.* 2014; 4(3); 152-60. DOI:10.4236/ojst.2014.43023

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