

Risk Factors In Complication Of Wound Healing After Third Molar Surgery

Research Article

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Abstract

Third molar surgery is the most common procedure done in dentistry. Although the overall complication rate is low, it is essential to prevent them. Factors reported to be associated with complication included age, gender, medication and periodontitis etc. The aim of the study was to evaluate the prevalence of complication post extraction of third molar surgery and to discuss the risk factors. This was a descriptive study which was performed in a university setting where the required data of patients who were diagnosed for third molar surgery in the department of oral and maxillofacial surgery at a private teaching hospital, Chennai from June 2019 to March 2020, was collected by reviewing patients records and the analysis of data of 86000 patients. The collected data was cross verified using photographs, reviewed by a reviewing expert and tabulated in Microsoft excel . The Sample size of the total number of patients treated for third molar surgery was n=529. The tabulated data was imported to SPSS software (statistical package for social studies) version 22.0 (IBM corporation) for statistical analysis. To minimize sampling bias, collection of data was done by simple random sampling methods within the university. There is high internal validity and low external validity. Incomplete , censored and repeated data were excluded from the study. Association between Gender, Age distribution, Extraction site and outcome of the third molar was done. Chi square test was also done for evaluating the statistical significance. From this study, 4.9% of the patients had complication post extraction. There was a higher rate of complication among females (3.2%) than males (1.7%), among 31-50 years showed a higher rate of complication (1.32%) than the rest. Complications were most commonly seen in mandibular third molars than maxillary third molars. This is the first study to assess the complication rates of third molar surgery done by undergraduate students. From this study we can conclude that there were fewer complications reported after third molar surgery done by undergraduate students.

Keywords: Extraction; Residents; Third Molar; Wound Healing.

Introduction

Third molar extraction is one of the most common procedures performed in dentistry. Although the overall complication rate is low and most complications are minor [1-4], efforts to limit intraoperative or postoperative complication may have a great impact in terms of enhancing patient outcome. Numerous studies have been devoted to evaluating all aspects of third molar surgery, including indications for removal [5-8], radiographic analysis for surgical planning [9-12], risk factors as well as complication by rate and type [13-16]. Overall complication rates range from 2.6%

to 30.9% [17-20]. Factors reported to be associated with complication include age, gender, medications such as antibiotics, corticosteroids or oral contraceptive, smokings, previous infections, periodontitis etc [2, 21, 22]. The four most common postoperative complications of third molar extraction reported in literature are localised alveolar osteitis, infection, bleeding and paraesthesia. In the evaluation of quality of clinical care, the incidence of complication is merely one factor that is taken into consideration. Patient satisfaction is a key to patient compliance and business success of a dental clinic. A literature review summarised factors affecting patient satisfaction, interpersonal factors, convenience

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and the cost of facilities [23-25]. The aim of the study was to evaluate the risk factors and prevalence rate of complication of third molar extractions done by undergraduates in Saveetha Dental College and Hospitals.

Materials And Methods

This was a retrospective study which was performed in a university setting where the required data of patients who were diagnosed for third molar surgery in the department of oral and maxillofacial surgery at a private teaching hospital, Chennai from June 2019 to March 2020, was collected by reviewing patients records and the analysis of data of 86000 patients. The collected data was cross verified using photographs, reviewed by a reviewing expert and tabulated in Microsoft excel . The Sample size of the total number of patients treated for third molar surgery was n=529. The ethical approval for this study is obtained from the ethical committee(ethical approval number SDC/SIHEC/2020/DIASDATA/0619-0320). The tabulated data was imported to SPSS software (statistical package for social studies) version 22.0 (IBM corporation) for statistical analysis . To minimize sampling bias, collection of data was done by simple random sampling methods within the university. There is high internal validity and low external validity. Incomplete , censored and repeated data

were excluded from the study. The data was analyzed using a chi-square test and the level of statistical significance was set at 5%.

Results And Discussion

The following are the results obtained from the analysis. Total sample size is 529 extraction out of which 95.09% had satisfactory healing post extraction and 4.9% complication rate was seen. There was a higher rate of complication males (3.2%) when compared to females (1.7%). Among 21-30 years patients showed better satisfaction than the rest and the age group 31-40 & 41-50 showed higher complication rate (1.32%) than the rest. Least complication rate was seen among upper right molars . Although the association did not show any significance. Figure 1 represents the association between gender and outcome of third molar extraction, Figure 2 represents the association age and outcome of third molar extraction and Figure 3 represents the association between the Extraction site and outcome of third molar extraction; these associations were statistically not significant (P>0.05).

The specific aim of this study was to evaluate the complication related to third molar extraction and risk factors. The overall complication rate in this study was 4.9%. The majority of complications were related to inflammation of the extracted site and dry

Figure 1. Bar graph showing association between gender & outcome of third molar extraction. Blue represents complications from surgery and green represents satisfactory healing. The X axis represents Gender distribution and Y axis represents the Number of Patients. Chi-square test was done and was found to be statistically not significant[chi square value - 2.817; p value(>0.05)]. This graph shows that the overall outcome was satisfactory post extraction(Green); among males it was 46.12% and females it was 48.96%. The complication(Blue) rate among the patients were comparatively less with a rate of 3.21% among males and 1.70% among the females.

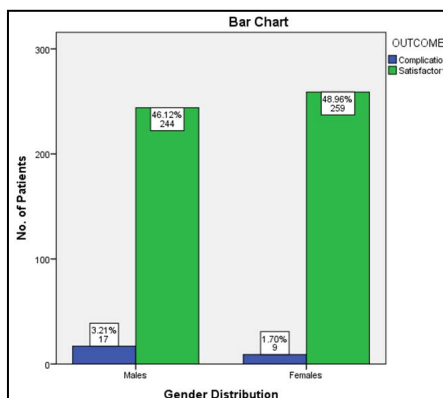


Figure 2. Bar graph showing the association between Age group and Outcome post third molar extraction. The X axis represents age distribution and Y axis represents the Number of Patients. Chi-square test was done and was found to be statistically not significant[chi square value - 2.637; p value(>0.05)]. From this graph the Age group 21-30 shows more satisfactory rates(Green) than the rest of the population who underwent extraction of third molars and patients in the age group 31-40 & 41-50 had the highest complication(Blue) rate of 1.32% each.

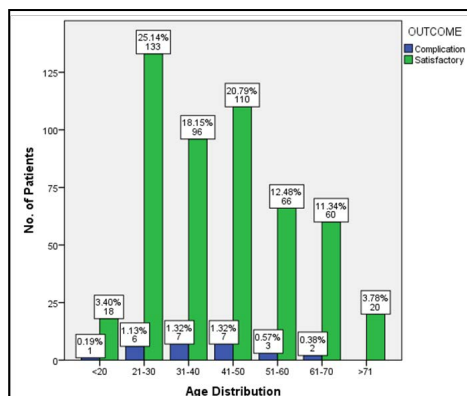
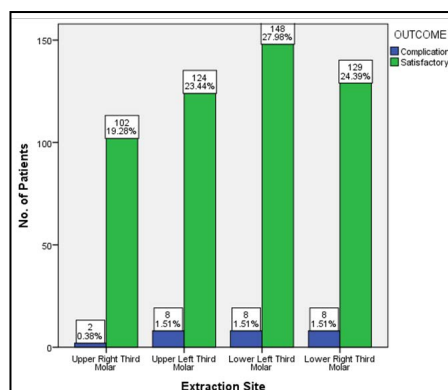


Figure 3. Bar Graph showing the association between Extraction site & Outcome of third molar extraction. The X axis represents Extraction Site and Y axis represents the Number of Patients. Chi-square test was done and was found to be statistically not significant [chi square value - 2.628; p value (>0.05)]. This graph shows that the satisfactory rate (Green) was mostly seen among the Lower Left Third Molars than the rest of the teeth with a rate 27.96% and there was equal distribution of complication rate (Blue) of 1.51% among the rest of the sites except for Upper Right Third Molar where the complication rate (Blue) was lesser comparatively.



socket being the most common complication. The complication rates documented in this study were within the ranges reported in other studies. Chipasco et al., [26] found that 4.3% complication rate in the mandible and 1.2% in the maxilla among healthy patients while Muhonen et al., [18] reported an overall complication rate of 9%.

The study did not find significant associations between gender, age and Extraction site. Gender was often cited as a risk factor for complication. Many studies reported increased complications among females associated with oral contraceptives usage [27, 28]. However consistent with our findings, Heasman and Jacobs [29] and Larsen [27] did not find age to be associated with complications. Age is considered as a risk factor for post extraction complications in various studies. However, our findings did not corroborate with other studies. Though the results were not statistically significant, the age groups 31-40 and 41-50 years showed more complications than the other groups. A study related to American Association of Oral and Maxillofacial Surgeons age related third molar study [30-33] showed that patients over the age of 25 years were 46% likely to develop the complication that those under that age. Consistent with other studies, our results indicated that mandibular third molars were associated with an increased frequency of complications relative to maxillary third molars.

The study was geographically limited and predominantly consisted of the South Indian population. Data which were unclear were excluded thereby reducing the sample size. Within the limit of the study, it was found that most of the patients had satisfactory healing post third molar extraction. To ascertain the results of this study and to increase the level of significance, the sample size and the geographic area of coverage should be extended to at least most parts of South India. Conducting a multicentered study with extended geographic area and wide range of population in future we can obtain better results. Thus this knowledge of wound healing post third molar extraction and association with various parameters is essential in a dental practice for clinical implementation.

Conclusion

From this study we can conclude that there were fewer complica-

tions reported after third molar surgery done by undergraduate students. This is the first study to assess the complication rates of third molar surgery done by undergraduates.

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