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Evaluation of Mandibular Third Molar Extractions Performed By Intra Alveolar Method as Opposed to Transalveolar Method

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Abstract

The aim of the present study was to retrospectively analyse the prevalence of intra-alveolar and trans-alveolar extraction of mandibular third molars in patients at Saveetha Dental college. Retrospective data of 1747 patients was obtained and segregated. The inclusion criteria included 18-90 years are group, underwent extraction and visited between June 2019 to April 2020. Once the data was obtained it was statistically analyzed using SPSS by IBM version 20. The most commonly used method of extraction was the conventional technique (90.8%) comprising the majority whereas the trans alveolar method comprised (9.2%). A high association and significance was noticed between the age of the patient and type of extraction performed(P= 0.000)Extraction being one of the most common dental procedures that is being done, it is important to approach the same with the adequate and appropriate technique to prevent further complications as a result of the procedure

Key words: *extraction, forceps, conventional, transalveolar, mandibular.*

Introduction

There are various situations in which intervention from an oral and maxillofacial surgeon is required.[1–5] . However before treatment planning there are various factors to be considered such as systemic health[67]. Before attempting a procedure a comprehensive view on the same and disposal is required [8] Extractions are routine procedures in dental surgery.[9] Within the last few decades there has been an increase in the need for the same due to poor oral health, changing habits[10] and oral hygiene practices.[11–13] Traditional extraction techniques use a combination of severing the periodontal attachment, luxation with an elevator, and removal with forceps. If the elevator fails to cause noticeable separation of the tooth from the socket, the forceps accomplish the work through intermittent apical and lateral forces [14,15]. The development of many surgical techniques when systemic effects [11,16] are considered and newer designs of instruments for the procedure as well as administration of local anesthesia [17,18]has enabled the practitioners to carry out extractions with lesser complications.

But even now extraction of third molars can be an unpleasant procedure for patients and fear and anxiety[19] are major ruling factors in the same and dentists [20–22], due to the wide anatomic variance of the teeth and poor access and visibility[23], than for other groups of teeth.There is a certain level of pain perceived while administration of local anaesthesia [24].Although there are recent approaches to reduce the pain and treat the pain [21,25].[26] As root fusion is common in these cases, the extraction of the lower third molars can be more difficult than the extraction of the other molars of the

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human dentition. There are various complications that can result from Mandibular third extraction [27,28] and thus the technique for the procedure should be adequately chosen and executed with precision. It is important to take a comprehensive approach towards the same while keeping the medical history as a very important determinant for treatment planning.[29–31]

The two widely used are the transalveolar technique and the conventional technique. In conventional technique (also known as forceps,traditional or intra-alveolar technique), the tooth is extracted just like any other tooth in which an elevator to raise the mucosal tissue, severe the periodontal attachment and luxate the tooth within its bony socket and removed with the help of forceps and [32]. This technique can be followed when the tooth has reached the occlusal plane. Transalveolar extraction involves the removal of an impacted mandibular third molar often with the minor drilling of bone and sectioning of the crown under local anesthesia. [33]However the complicated rate with transalveolar extraction is much higher and there is an increased amount of postoperative pain that is produced to the patient.[33] It is important to place patient care at the focus for a practitioner. The aim of the study is to assess the Prevalence of transalveolar versus conventional technique in the extraction of lower third molar.

Materials and Methods

The present study involved a total of 1747 patients that underwent extraction of Mandibular third molar teeth. These included teeth that were extracted with forceps extraction and transalveolar extraction. The study was performed in a university setting at Saveetha Dental College and Hospitals. Thus the data obtained from the patients is of the same geographic location and ethnicity. The ethical approval for collection of retrospective data from the dental patient management archives was obtained from the Institutional Ethics Board. IRB Approval No: SIHEC/2020/DIASDATA/0619-0320).

The period of the study was between June 2019 to April 2020. Once the data was collected the same was verified by using photographs by two external reviewers who were blinded on the hypothesis from the present study. This was done to eliminate the chances of sampling bias. Before the commencement of the study a clear well defined inclusion criteria was defined. The inclusion criteria included that:

· Patients should have visited Saveetha Dental College during the study period.

· Patient has been treated by a resident of Saveetha Dental College, either an undergraduate or postgraduate student.

· Should have undergone extraction of Mandibular third molar with forceps or with transalveolar method

· Should have been within the age group of 18-90 years

Out of the study population that was chosen for the study there was no segregation process, as this would result in sampling bias. The data segregation was done according to various parameters such as speciality of clinic in which patient was treated, age of the patient, gender of the patient etc.

The data that was then tabulated was reviewed by an external reviewer and screened for internal validity of the study. The data was then exported to SPSS Software by IBM Version 20 for Statistical Analysis. Descriptive statistics was performed followed by Correlation tests to see any kind of correlation or taken in the present study.

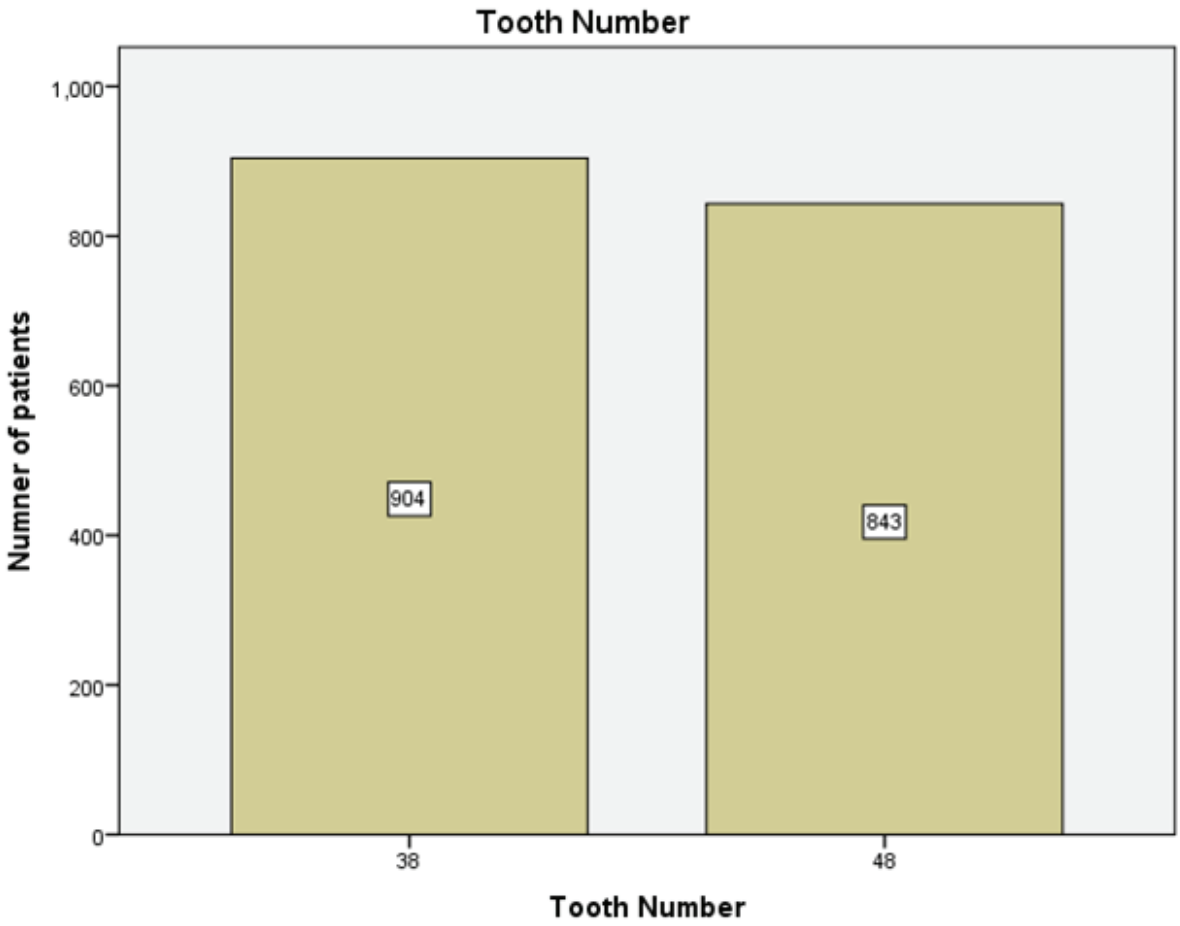
Results and Discussion

In the present study out of the total of 1747 that were included as part of the study population who underwent extraction of their third molar teeth, there was almost an equal gender predilection with males at 49.2% and females at 50.8%. The mean age of the patients undergoing extraction of their Mandibular third molar teeth is 41.84 plus or minus 14.47 years.

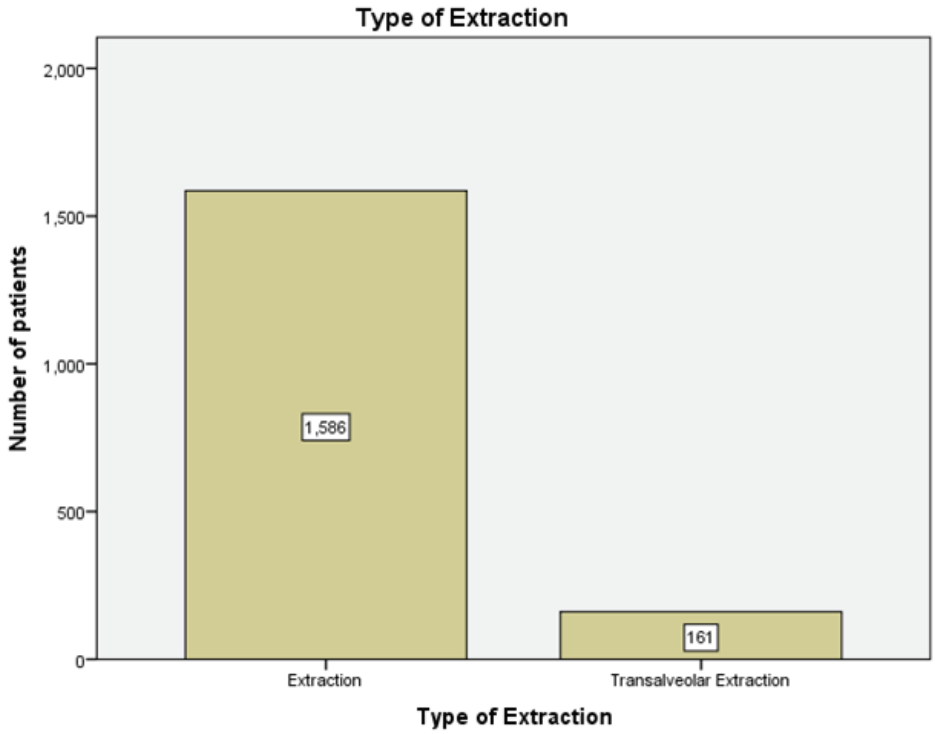
Out of the total extractions that were performed most were of tooth number 38,(51.7%) and 48.3% were tooth number 48. On the basis on the morality of treatment that was done, the major share was by conventional extraction (90.8%) whereas a smaller portion was by transalveolar approach (9.2%)

Maximum number of extractions were performed in patients between the age group of 18-30 years (27%). In the analysis of gender and the treatment modality that they have undergone it is observed that males tend to undergo a higher number of transalveolar extractions(52.1%)

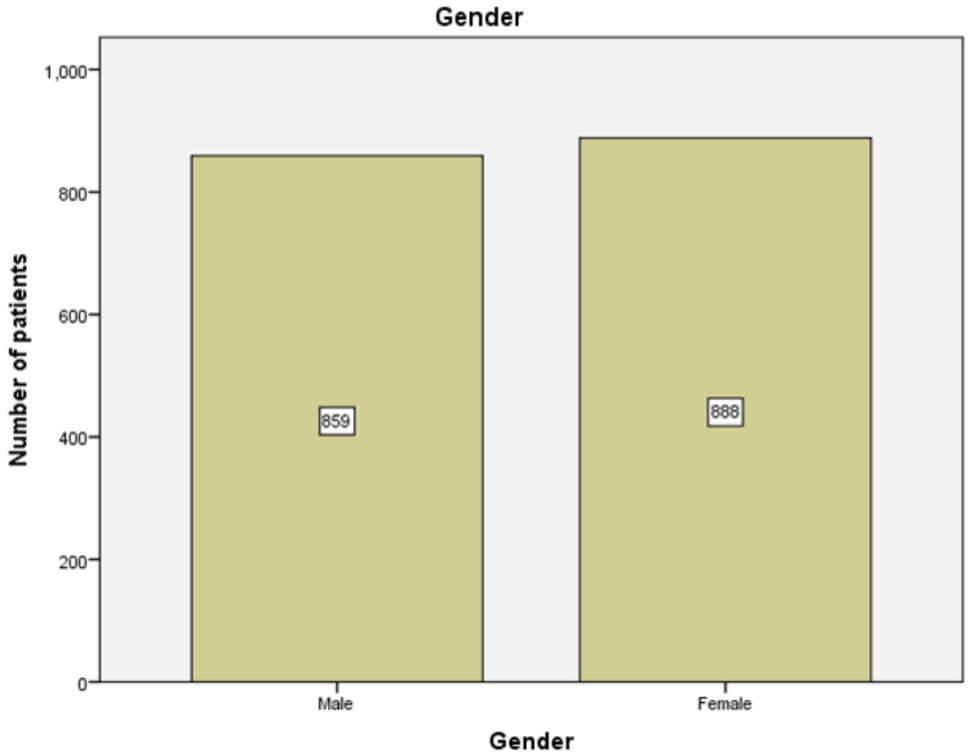
whereas females tend to undergo a higher number of conventional extractions (51.1%). There was no statistically significant association that was observed between the tooth to be extracted and the type of extraction that is followed for the same. Although there was a highly statistically significant Correlation that is observed between age and the type of extraction that is performed. (p= 0.000). Out of the total transalveolar extractions that were performed 133 of them were from impacted third molars while the rest were due to ankylosis, fracture of tooth, attempted forcep extraction etc. Out of the total 161 transalveolar extractions that are seen, 40% were seen in the age group of 31-43 years whereas 27.4% of the total forcep extractions are seen in the age group of 18-30 years.



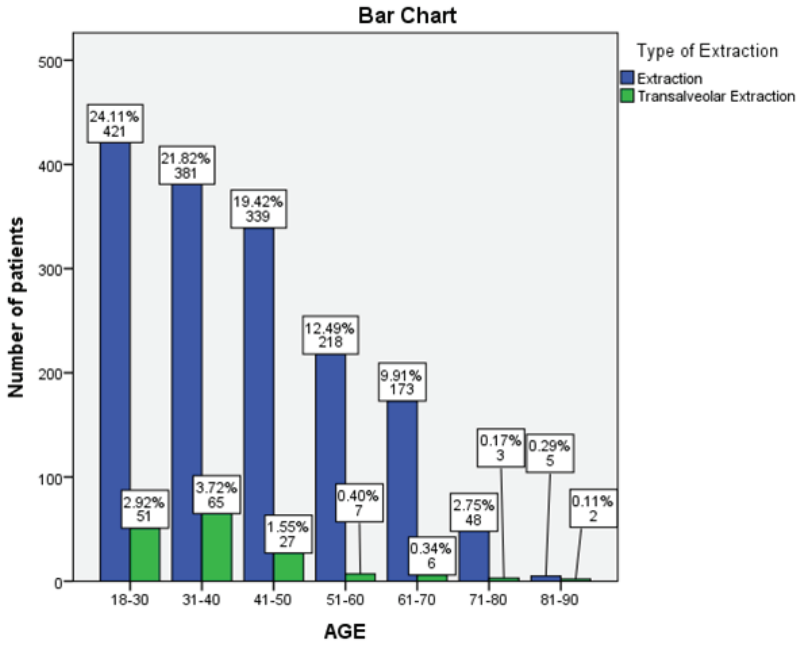
GRAPH 1: Represents the distribution of the teeth undergoing extraction with tooth number in the x axis and number of teeth extracted in the y axis. It is understood that mandibular left third molars (38) undergo extractions more often that mandibular right third molars(48).



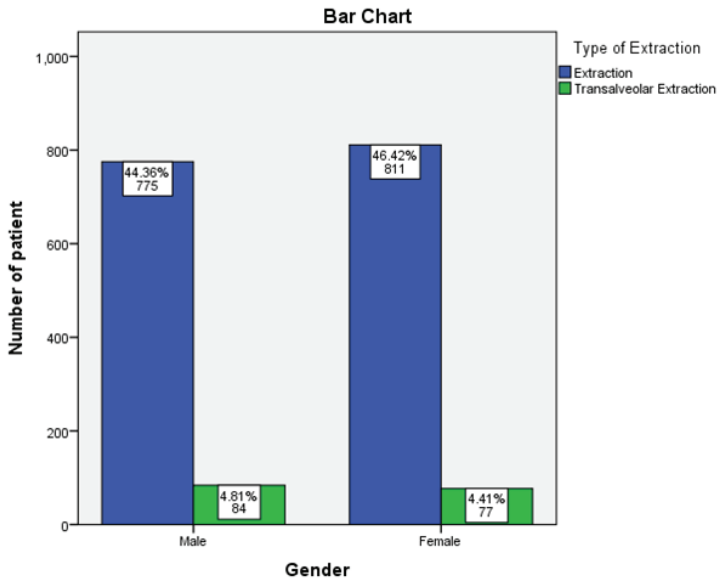
GRAPH 2: Represents the frequency of the different types of extractions performed with the type of extraction in the x axis and number of procedures in the y axis. Forceps/elevator extraction constitutes 90.8 %of all extractions performed which is greater than transalveolar for mandibular third molars



GRAPH 3: This bar chart represents the frequency of males and females who have undergone extraction with the gender in the x axis and number of patients in the y axis. It shows that both genders have undergone almost similar number of extraction.



GRAPH 4: This Bar Chart shows the association between age of the patient and type of extraction. X axis denotes the age of the patient and Y axis denotes the number of patients. The blue colour represents forceps extractions and green colour represents the transalveolar extractions. Maximum number of extractions were performed between 18-30 years, Maximum trans alveolar extractions between 31-40 years and Maximum forceps extractions between 18-30 years. Chi square test was done and association was found to be significant. Pearson Chi Square Value= 39.379, df=6,p=0.00(<0.05), hence statistically significant, proving younger individuals more often undergo extractions of mandibular third molars,



Graph 5: Bar graph shows association between type of extraction and the gender of the patient. Gender is plotted on the x axis and the number of patients is plotted against the y axis. Forceps extraction is represented by blue and transalveolar type of extraction is represented by green. It is observed that forceps extraction is performed more commonly in females whereas transalveolar type of extraction is performed more commonly in females. However there is no statistical significance for this association , Chi Square Test, Value=0.640,df=1,p=0.4(>0.05)

It is surprising that the amount of literature available towards the conventional type of extraction for Mandibular third molars is insufficient. This is the first of its kind study where the treatment modalities is compared for third molar.Although there is an increased amount of complications results from these procedures[34]

When the age group of the patients who underwent extraction of their third molars, it was observed that it was performed between the age group of 18-90 years, and the mean age group to undergo extraction is 41.84 years. Maximum number of extractions were performed between the age group of 18-30. There are various reasons for this particular aspect of the study. One of the most common reasons would be the progression and development of caries in an earlier age group as reported by Marthaler et al [35]. It is also to be remembered that this age group is prone to the eruption phases of Mandibular third molar teeth. However with evolution and recent changes in habits there has been a change in overall eruptive patterns in relation to dentition as such. Although it is expected that an older age group would have a greater count on extractions due to periodontal status, however in the present geographic location it is more prevalent in younger patients. There is also Prevalence of aggressive periodontitis [36,37] in this age group which could be attributed to the reason for extraction. Out of the total transalveolar extractions, most of them were performed within the age group of 31-44 age group. Although the ideal age reported by Al-Angudi et al [38]is 19-26 years, there could be an occurrence of trauma or any other attributed factors in the current population which could result in the same. There is no literature evidence on occurence of ankylosis and hence further studies are to be done to evaluate the same to ease the process for both clinician and the patient undergoing the same.

The most commonly performed type of extraction is conventional method as opposed to transalveolar method. It is to be noted that a more conventional type of extraction is to be done for Mandibular third molars to prevent the occurrence of various complications and pain that is associated with transalveolar extraction. It is important to tackle the entire clinical practice with a patient oriented approach and the patient should be the centre of priority. It is evident from the above discussion that extraction by conventional method would leave the patient far less painless and the chance of development of postoperative complications is also limited while using this technique. Thus further awareness programmes and studies are to be done to ensure better patient care and operatory comfort ability as well.

The limitations of the present study included that it is geographically isolated and single centered. There is no ethnic grouping that is performed in the study, this could influence the results of the study as the pattern of impaction is different in populations of different ethnicity.

Conclusion

Extraction being one of the most common dental procedures that is being done, it is important to approach the same with the adequate and appropriate technique to prevent further complications as a result of the procedure. Within the limits of the present study, simple forcep type of extraction is performed more frequently than transalveolar for lower third molars. Further multi centered studies are to be performed to assess the approach in various parts of the world and to bring about a concrete clinical practice guideline which would help the members of the dental fraternity as well as provide a better experience for the patients undergoing the procedure.

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Ethical Clearance: It is taken from "Saveetha Institute Human Ethical Committee" (Ethical Approval Number- SDC/SIHEC/2020/DIASDATA/0619-0320)

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