

**INCIDENCE OF MESIOANGULAR IMPACTION OF THIRD MOLAR IN CHENNAI
BASED DENTAL COLLEGE**

S.B.Sree Lakshmi

Saveetha Dental College and Hospitals,
Saveetha Institute of Medical and Technical Sciences [SIMATS],
Saveetha University,
Chennai - 600077.

Kathiravan Selvarasu

Associate Professor
Department of Oral and Maxillofacial Surgery ,
Saveetha Dental College and Hospitals,
Saveetha Institute of Medical and Technical Sciences [SIMATS],
Saveetha University,
Chennai 600077.

Senthil Murugan Pandurangan

Associate Professor,
Department of Oral and maxillofacial surgery,
Saveetha Dental College and Hospitals,
Saveetha Institute of Medical and Technical Sciences [SIMATS],
Saveetha University
Chennai - 600077,
Tamil Nadu, India.

Vinod krishna Krishnaswamy

Associate Professor,
Saveetha Oral Cancer Institute,
Department of Oral and maxillofacial surgery,
Saveetha Dental College and Hospitals,
Saveetha Institute of Medical and Technical Sciences [SIMATS],
Saveetha University
Chennai - 600077,
Tamil Nadu, India.

ABSTRACT

Introduction: Impacted tooth is a tooth that was prevented from erupting into the correct position due to lack of space, malposition, or other impediments . Subsequently, impacted teeth have been defined as those that have failed to erupt into the dental arch within the expected time frame.

Materials and method: A retrospective study was conducted in a hospital setting at Saveetha Dental College and Hospitals evaluating and analysing 1251 patient case records visiting a dental hospital from June(2020) to March (2021) who presented with impacted teeth and among which 482 patients had mesioangular impaction of third molars.

Results and discussion: About 29.41 % male and 16.47 % female had impaction in the maxillary arch and about 20% male and 34.12 % female had impaction in the mandibular arch . There is a high incidence of impaction of third molars in the mandibular arch .However, this is not statistically significant (chi square test , $p=0.534$; $p>0.05$, significant) .

Conclusion: Regular dental checkups from an early age can help your dentist identify impacted teeth early on and offer a treatment plan when necessary.

Keywords: Third molar , impaction , extraction, pain , mesio angular, innovative

INTRODUCTION:

Tooth impaction is the pathological situation in which teeth erupting into position is prevented due to different causes such as lack of space in the dental arch, dental trauma in primary dentition malposition and impediments. Third molar is the most frequently impacted tooth, with a frequency of occurrence rate of 18-32% and it is considered impacted when its eruption into normal functional occlusion has been interfered with by other teeth, overlying bone or soft tissues and it is not fully erupted by its expected age of around 20. (1)

In most studies, the criteria used for eruption was the emergence of any portion of the crown through the oral mucosa but this may give misleading results because many of the third molars do not continue to erupt but remain impacted in a partially erupted position. (2) It is generally accepted that patterns of facial growth and jaw and tooth size are inherited and are likely to differ among populations and races and third molar eruption and continuous positional changes after eruption can be related not only with race but also with nature of the diet, the intensity of the use of the masticatory apparatus and possibly due to genetic background. (3) Although many impacted teeth may remain asymptomatic throughout life, they are a potential source of trouble and their early removal is recommended. Broadant believed that when a third molar became impacted the mandible had failed to achieve its full growth potential. (4)

Most commonly used classification system with respect to treatment planning. Depending on the angulation the tooth might be classified as Mesioangular, Horizontal, Vertical, Distoangular, Palatal, Buccal and Lingual. Most commonly the individual complains of food getting lodged beneath the gums and a soreness that is usually confused with throat infections and a swelling which is visible and mouth opening becomes difficult in severe cases with pain. (5)

The current general approach in dealing with impacted third molars is on the basis of clinical judgment, periodic evaluation by some clinicians and early extraction by others. (6) Most expected complications following third molar surgery include dry socket, pain, swelling, trismus, sensory nerve damage, infection and hemorrhage. These complications are disturbing for young patients, especially if they become permanent in cases of inferior alveolar or lingual nerve injuries. (7) When impacted teeth are retained completely within the alveolar process, the associated follicular sac is also retained along with it. Though in most persons the dental follicle maintains its original size sometimes it may undergo cystic degeneration and become a dentigerous cyst or a keratocyst. (8) In addition to factors related to surgery, the position and angulations of third molars are strongly associated with the number and degree of postoperative morbidities. Our team has extensive knowledge and research experience that has translate into high quality publications (9), (10), (11), (12), (13–22) (23), (24–26), (27,28). The main aim of the study is to find out the incidence of mesioangular impaction of third molar among patients visiting private dental college.

MATERIALS AND METHOD

A retrospective study was conducted in a hospital setting at Saveetha Dental College and Hospitals evaluating and analysing 1251 patient case records visiting a dental hospital from June (2020) to March (2021) who have impacted teeth and among which 482 patients had mesioangular impaction of third molars. The advantage of conducting this study in a hospital setting was the ease of Data Collection containing similar ethnicity with the involvement of both the genders. The unavailability of location specific data was the disadvantage of this study. Ethical approval for conducting the study was obtained from the Institutional Scientific Review Board, saveetha dental college. The collected from the oral surgery status of patient record were then tabulated in excel and then imported into SPSS software version 22.0 IBM corporation for statistical analysis. Incomplete data was verified with the concerned department or patient or excluded from the study. Sampling bias for the study was minimized by including all the required data. Internal validity being strict inclusion and exclusion criteria followed for all eligible samples and the external validity is the study being epidemiology.

The collected data include age, gender, different arch of impaction. A statistical test was done using a chi-square test with SPSS by independent variables including age and gender of the participants, whereas the dependent variables included different arch of impaction. All these were analysed using correlation and association.

RESULTS

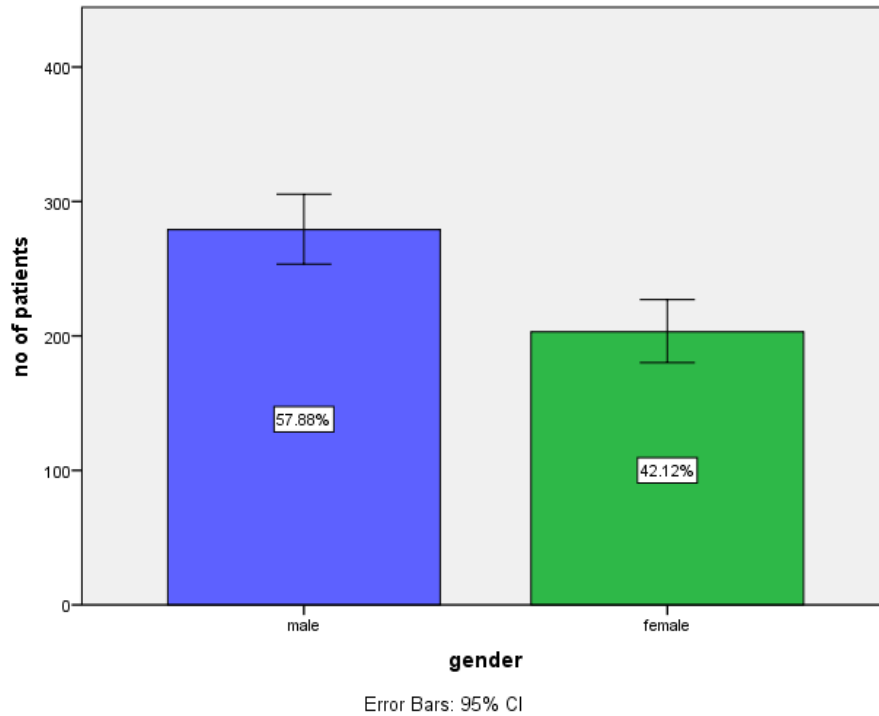


Figure 1 : The bar graph depicts the incidence of mesioangular impaction of third molar between different genders of the patients visiting the outpatient department of oral surgery at a private dental hospital in Chennai . The percentage of the number of patients is plotted along the y axis and the gender of the patient is plotted along the x-axis. Blue colour denotes male (57.88%) and green colour denotes female (42.12%). There is a high incidence of mesioangular impaction of third molar among the males .

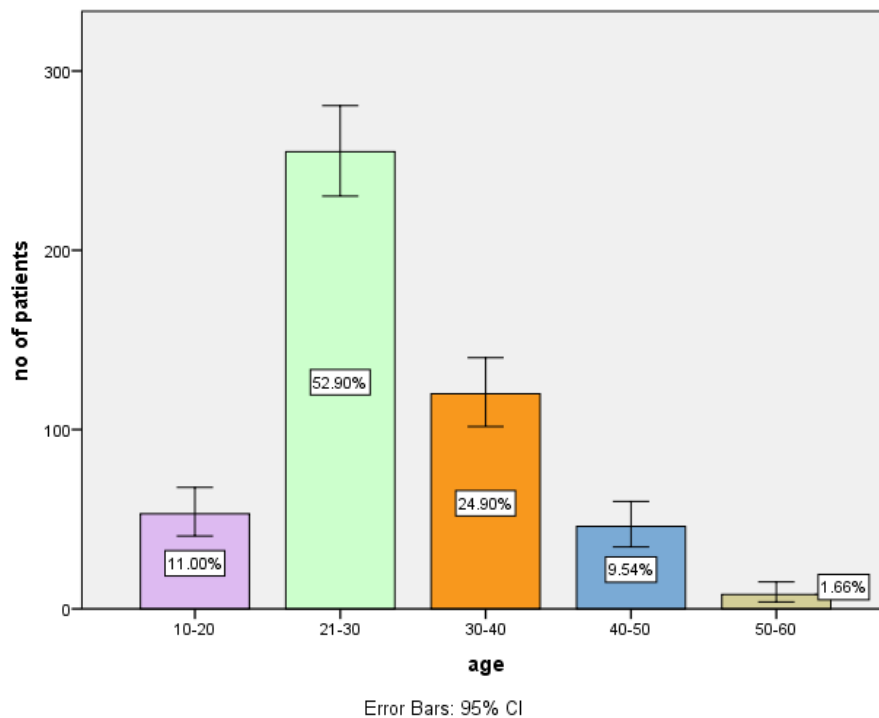


Figure 2 : The bar graph depicts the incidence of mesioangular impaction of third molar between different age groups of the patients visiting the outpatient department of oral surgery at a private dental hospital in Chennai . The percentage of the number of patients is plotted along the y axis and the age group of the patient is plotted along the x-axis. Violet colour denotes 10-20 years (11%), green colour denotes 21-30 years (52.90%) and orange colour denotes 30-40 years (24.90%), blue colour denotes 40-50 years (9.54%) , yellow denotes 50-60 years (1.66%) .There is a high incidence of mesioangular impaction of third molar among the age group of 21-30 years .

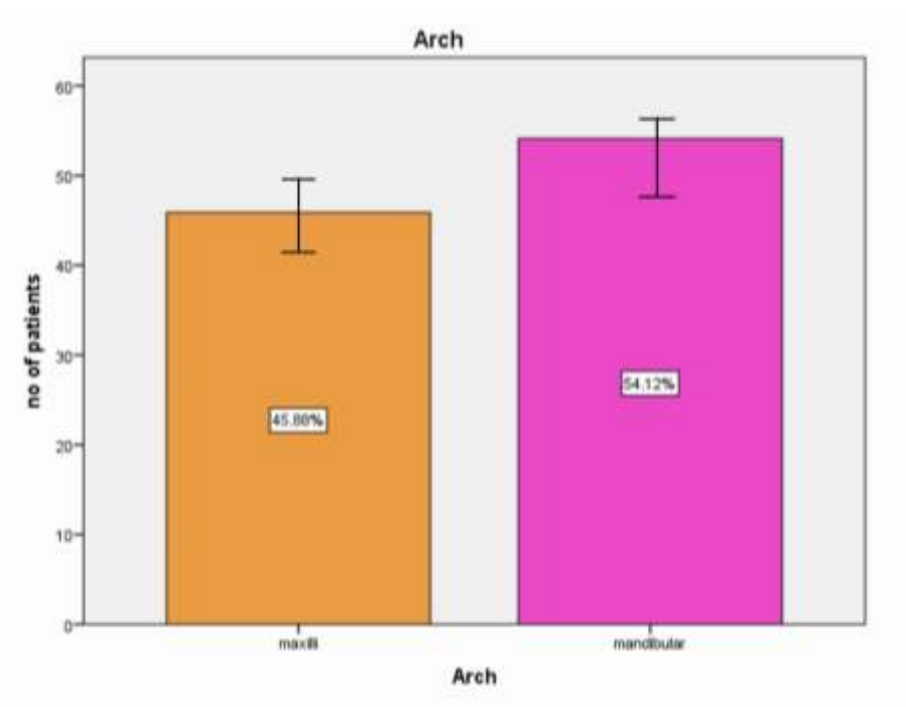


Figure 3 : The bar graph depicts the incidence of mesioangular impaction of third molar between maxillary and mandibular arch of the patients visiting the outpatient department of oral surgery at a private dental hospital in Chennai . The percentage of the number of patients is plotted along the y axis and the arch of the patient is

plotted along the x-axis. Orange colour denotes maxillary arch (45.88%) and pink colour denotes female(54.12%). There is a high incidence of mesioangular impaction of the third molar among the mandibular arch .

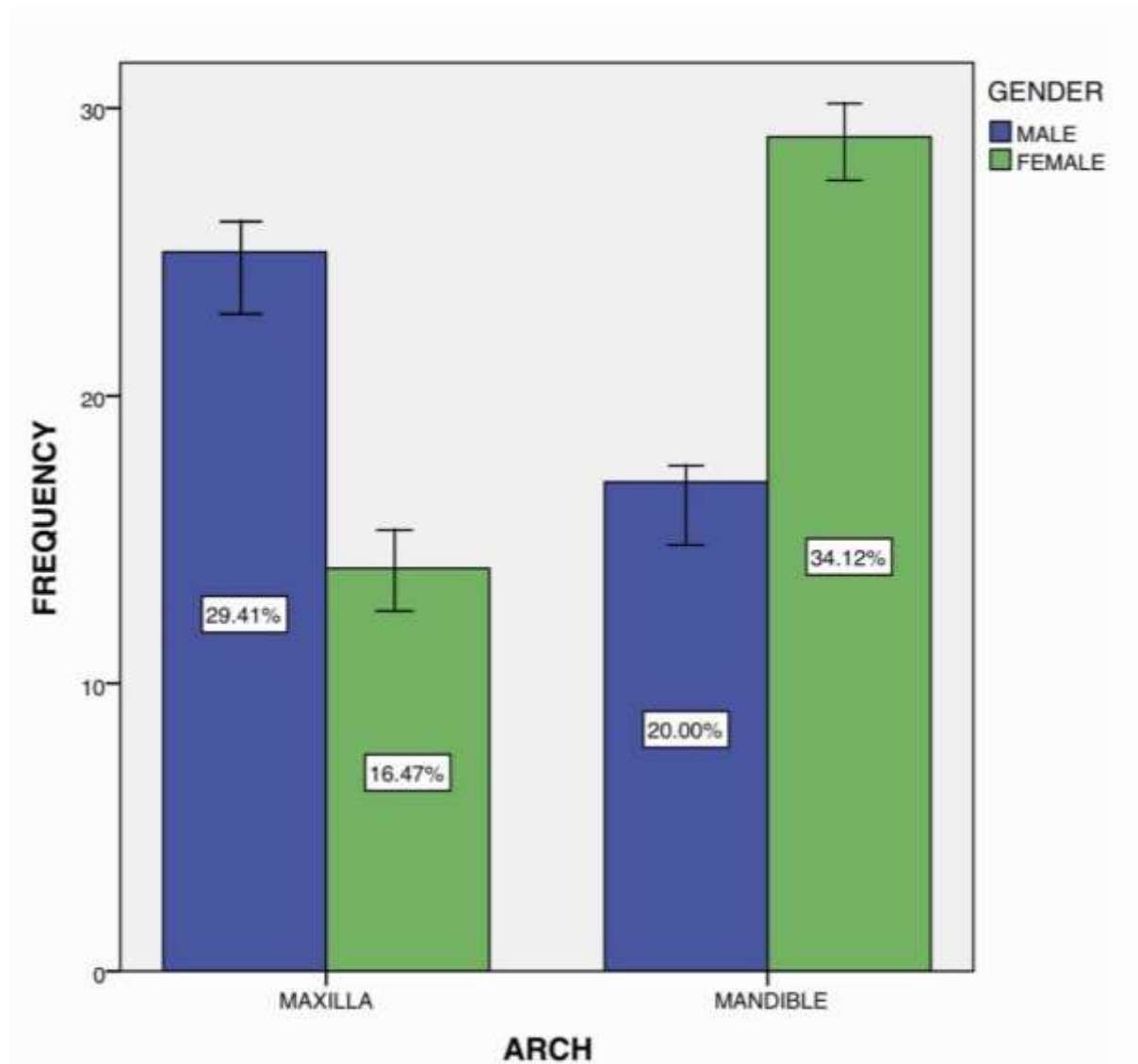


Figure 4 : The bar graph depicts the correlation between the impacted third molar in different arches between male and female patients . The frequency of the number of patients is plotted on y axis and the impacted third molar in different arches is plotted along the x-axis. Blue colour denotes male and green colour denotes female. About 29.41 % male and 16.47 % female had impaction in the maxillary arch and about 20% male and 34.12 % female had impaction in the mandibular arch . There is a high incidence of impaction of third molars in the mandibular arch .However, this is not statistically significant (chi square test , $p=0.534$; $p>0.05$, significant) .

DISCUSSION

According to the recommendations of National Institute of Health (NIH) both impacted and erupted third molars with evidence of follicular enlargement should be removed electively and that the associated soft tissue should be submitted for microscopic examination.(29)Impacted teeth with pericoronitis should also be extracted electively because of their known potential for repetitive infection and morbidity. Furthermore, third molars with non-restorable carious lesions and third molars contributing to resorption of adjacent teeth should be also extracted(30)

The decision of extraction of third molar teeth may be affected by the surgeon’s opinion on the eruption potential of the tooth. In the present, the male has 57.88% and female has 42.12 % incidence of mesioangular impaction(fig1).There is a high incidence of mesioangular impaction of third molar among the males. Many

authors claim that females had more number of impacted teeth . Hellman's² said in his study that the jaws of females stop growing when mandibular third molars just begin to erupt, whereas in males, the growth of the jaws continues beyond the time of eruption of the mandibular third molar.(31)

The age group of 20-30 years had a high incidence of mesioangular impaction which is about 52.90 % (fig 2). A tooth that may appear impacted at the age of 18 years may have as much chance as 30 to 50% of erupting fully, except horizontally impacted molars. Distal caries of second molar is a frequently noted complication of impacted third molars .(32)Caries in the adjacent second molars, external resorption of the roots of adjacent second molars were among the radiographically detectable pathologic conditions around impacted third molars in a study conducted among Jordanian population .(33) In this study about 54.12% of impacted teeth are in the mandibular arch (fig 3) .Since impacted third molar teeth do not play a significant role in mastication, occlusal load distribution and in maintaining occlusion, we suggest early prophylactic removal of impacted third molars. Most of the patients try avoiding surgical procedures in fear of the pain, swelling and related factors.(34)

The depth of the impacted third molar and the occlusal angulation between the impacted tooth and the occlusal surface of the second molar influences the distal caries in the second molar . A total of 5% mandibular third molars are extracted due to distal cervical caries in mandibular second molar teeth .(35) This can be correlated with the study conducted by Nunn ME et al., involving 416 subjects. They stated that the second molars adjacent to absent third molars were at the lowest risk for developing pathology; whereas, second molars adjacent to soft tissue impacted third molars were at greatest risk . One problem frequently encountered while assessing the radiolucency on the distal surface of second molars is whether it is due to caries or root resorption . Even with good resolution and cross examination by two investigators, the problem still exists.(36)

The study was geographically limited and predominantly considered 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 incidence of mesioangular impaction is more in the age group of 20-30 years with more male prediction.(37) 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 all parts of south India. Conducting a multicentered study with an extended geographic area and a wide range of population in the future we can get better results .(38) Establishing the proper diagnosis is a necessary condition for the effective treatment for the impaction. Thus this knowledge on the impacted third molar and correlation with various parameters is essential in a dental practice for clinical performance.

CONCLUSION :

Impacted teeth can be a forthcoming problem to caries , food lodgement leading to pericoronitis , periodontal-pulpal problem , dento alveolar abscess, supraeruption of teeth in the maxillary arch and in worse case even to osteomyelitis . From the study mesioangular impaction is more common at 21-30 years of age (52.90%) among males (57.88%) . Surgical removal of the impacted teeth is preferred in the 2nd and 3rd decades of life, since younger patients tend to tolerate the procedure better and have faster healing capacity.

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CONFLICTS OF INTEREST:

The authors declare that there were no conflicts of interest in the present study.

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