

Prevalence of Impacted Third Molar Teeth among Andhra Population in Bhimavaram, India – A Retrospective study of 4 Years

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Abstract:

Introduction:

An impacted tooth is one that cannot, or will not erupt into its normal occlusal position, and is therefore pathologic and requires treatment. Missing teeth and teeth not erupting into its desirable position is a routine phenomenon for dentists and distressing phenomenon for patients. An impacted tooth is prone to cause distal caries of second molar in some cases depending upon the angulation of impacted tooth. Tooth impacted also cause pain, food lodgment, gum swelling, formation of cysts by enlargement of follicular space. As such, it is advisable to extract the impacted tooth at the earliest. Considerable debate exists in the literature regarding prophylactic removal of impacted third molar teeth.

Aims and Objective:

1. *To assess the prevalence of impacted third molar teeth*
2. *To assess the most common age group and gender associated with impacted third molars*
3. *To assess the most common site of impacted third molars i.e., mandible vs maxilla*
4. *To compare the results with similar studies conducted elsewhere*

Material and Methods:

The study design being retrospective with descriptive analysis of data included 2950 orthopantograms of patients aged between 16 to 45 years of age. Patients who presented for oral care during the period from June 2010 to June 2014 were included in the study. The parameters were standardized for evaluation of radiographs, analysis of data. All panoramic radiographs were taken with standardized equipment and specifications. The tooth was considered impacted when it was not aligned with the rest of the teeth in occlusion. Data regarding age, sex, number of impacted teeth, arch involved, and type of impaction were obtained from patients' records and panoramic radiographs were individually examined.

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Results:

Of the total 2950 orthopantograms, 600 patients (20.33%) had impacted molar teeth either in maxillary or mandibular arch or in both the arches. Percentage of mandibular impacted teeth was more than maxillary molar impactions in the ration of 1.7:1. 53 percent of impacted teeth were seen in mandible and 31 percent third molar teeth were impacted in maxilla. 16 percent were impacted molar teeth in both maxillary and mandibular arches.

The prevalence of impacted third molar teeth was higher in males as compared to females. While males has 65 percent impacted third molars, the percentage of impacted third molar teeth in females was 35 percent. Highest prevalence of impacted third molar teeth in either of the arches or in both the arches was seen in 16-25 years of age group (51.33%).

Conclusion:

1. *Males had higher incidence of impacted third molars*
2. *Third molar impaction was a frequent finding in mandible as compared to maxilla*
3. *16-25 years of age group was significantly affected with impacted third molars.*
4. *Percentage of impacted third molars is different in different parts of the world*

Keywords: *Third Molars, Jaw Pain, Maxilla, Mandible*

INTRODUCTION:

Missing teeth and teeth not erupting into its desirable position is a routine phenomenon for dentists and distressing phenomenon for patients. An impacted tooth is one that is prevented from erupting into its rightful position in the oral cavity because of malposition, lack of space, or other impedements.¹ According to Farman in 2004, impacted teeth are those teeth that are prevented from eruption due to a physical barrier within the path of eruption.² Any tooth in the dental arch/oral cavity may be impacted but the most common teeth to get impacted are mandible third molars. Third molars account for almost 98% of all impacted teeth.³ There is varied etiology as discussed and documented in the literature. Few of the factors and mechanisms which could be due to genetic or environmental factors leading to teeth getting impaction are: physical disruption of dental lamina in the developmental stage, space limitation, inherent defect in the dental lamina and failure of induction of the underlying mesenchyme.⁴ Racial variation in facial growth, jaw and teeth size, dietary habits, extent to which the teeth have attrited, and genetic inheritance are important factors determining the eruption pattern, status of impaction and the incidence of agenesis of third molars.⁵ More commonly cited factors in literature include: soft diet, jaw and teeth size discrepancy, inadequate masticatory forces. Systemic factors involving teeth impaction include Cleidocranial dysplasia, Down syndrome, febrile diseases and endocrine deficiencies.⁶ Theories which try to explain teeth impaction include Mendelian theory, Phylogenic theory and Orthodontic theory. Irrespective of the theory documented in the literature, the common basis involves discrepancy in tooth size and jaw size.

An impacted tooth is prone to cause distal caries of second molar in some cases depending upon the angulation of impacted tooth. Tooth impacted also cause pain, food lodgment, gum swelling, formation of cysts by enlargement of follicular space. As such, it is advisable to extract the impacted tooth at the earliest. Considerable debate exists in the literature regarding prophylactic removal of impacted third molar teeth. This is a separate subject and a separate study is required to assess prophylactic removal of impacted teeth. This study aims to assess the prevalence of impacted molar teeth over a period of four years and to assess its relation to age group, gender and to compare the results with similar studies conducted elsewhere.

Aims and Objective:

1. To assess the prevalence of impacted third molar teeth
2. To assess the most common age group and gender associated with impacted third molars
3. To assess the most common site of impacted third molars i.e., mandible vs maxilla
4. To compare the results with similar studies conducted elsewhere

MATERIAL AND METHODS:

The study design being retrospective with descriptive analysis of data included 2950 orthopantograms of patients aged between 16 to 45 years of age. Patients who presented for oral care during the period from June 2010 to June 2014 were included in the study. The parameters were standardized for evaluation of radiographs, analysis of data. All panoramic radiographs were taken with standardized equipment and specifications. The tooth was considered impacted when it was not aligned with the rest of the teeth in occlusion. Data regarding age, sex, number of impacted teeth, arch involved, were obtained from patients' records and panoramic radiographs were individually examined by a two investigators. Data collected was entered into a spreadsheet (Excel 2000; Microsoft, US) and analyzed subsequently. The prevalence of impacted third molars in relation to age, gender and type was assessed and displayed by frequency and percentage.

RESULTS:

Of the total 2950 orthopantograms, 600 patients (20.33%) had impacted molar teeth either in maxillary or mandibular arch or in both the arches. As shown in table 1, and graph 1; percentage of mandibular impacted teeth was more than maxillary molar impactions in the ration of 1.7:1. Table 2, graph 2 shows distribution of impacted teeth according to gender. 53 percent of impacted teeth were seen in mandible and 31 percent third molar teeth were impacted in maxilla. 16 percent were impacted molar teeth in both maxillary and mandibular arches as seen in table 2.

The prevalence of impacted third molar teeth was higher in males as compared to females. While males has 65 percent impacted third molars, the percentage of impacted third molar teeth in females was 35 percent as shown in table 2.

Table 1: Distribution of Impacted Teeth according to Maxilla, Mandible and in both the arches	
Maxilla	186
Mandible	318
Both Arches	96

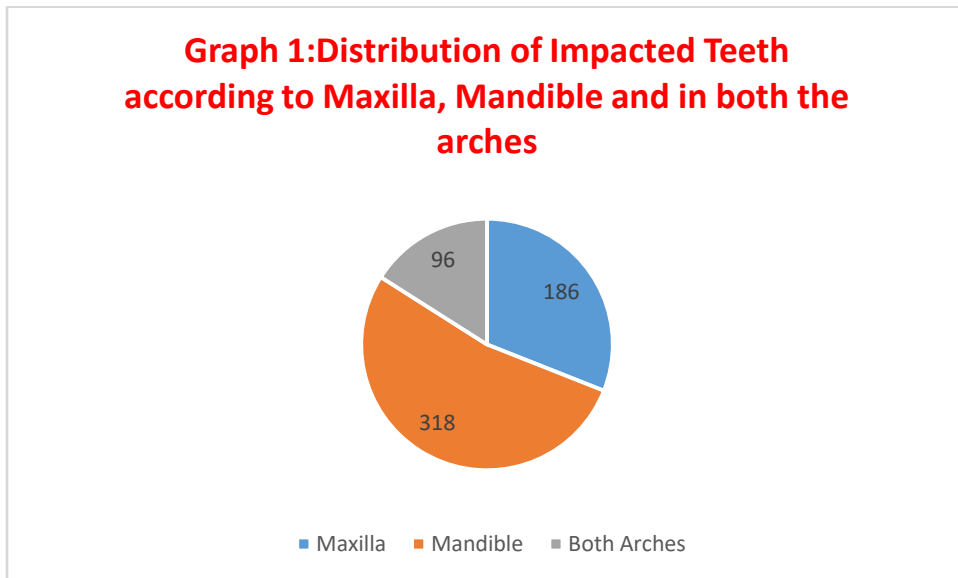


Table 2: Distribution of Impacted Molar Teeth according to Gender in Maxillary and Mandibular Arches				
	Maxilla	Mandible	Both the Arches	Total
Males	127	201	65	393
Females	59	117	31	207
	186	318	96	600

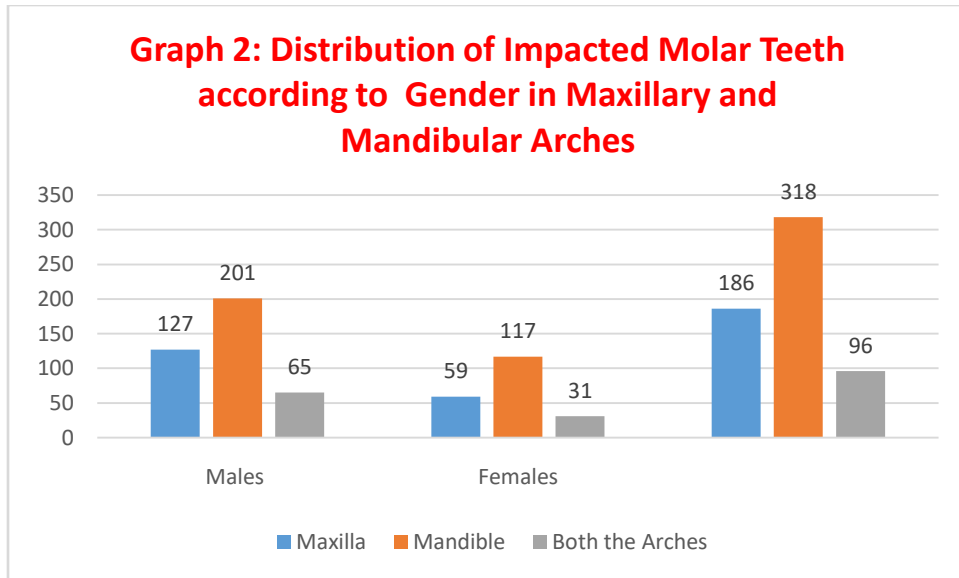


Table 3: Distribution of Impacted Teeth according to Age Group

Age Group	Maxilla	Mandible	Both the arches	Total
16-25 years	85	181	42	308
26-35 years	52	74	27	153
36-45 years	37	43	17	97
above 45 years	22	20	10	42

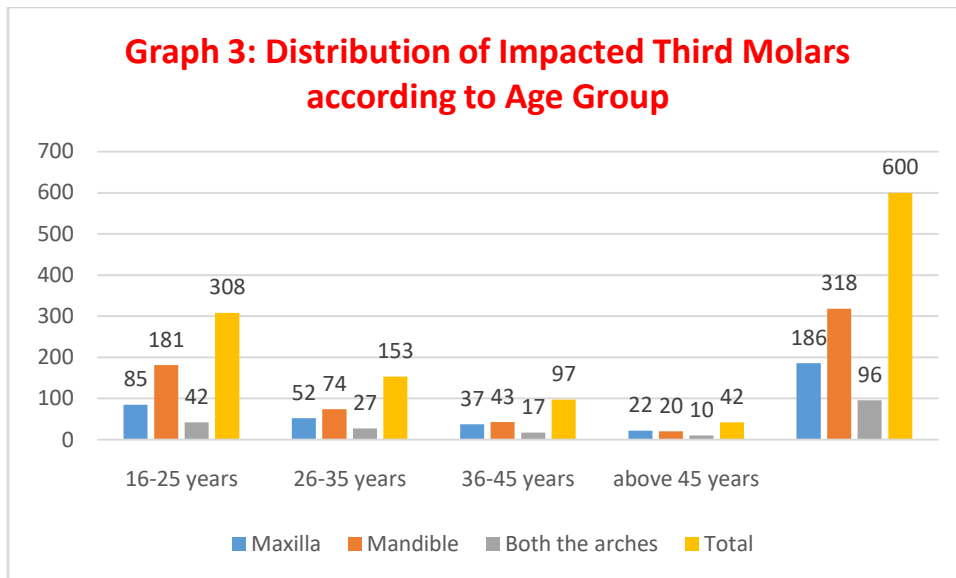


Table 3 and graph 3 shows distribution of impacted third molar teeth according to age group. Highest prevalence of impacted third molar teeth in either of the arches or in both the arches was seen in 16-25 years of age group (51.33%). This was closely followed by 25.5 % impaction in 26-35 years of age group. Percentage of third molar impaction decreased with increasing age.

DISCUSSION:

Any tooth which does not reach the occlusal plane even after two-thirds of its root formation can be categorized under impacted tooth. While the impacted third molars not only cause functional problems, they also add up to the financial burden on the patient and family. Othman R in 2007 conducted a study to assess the impacted mandibular third molars among patients University hospital in Malaysia.⁷ He stated that the mandibular third molars are the most frequently impacted teeth and surgical extraction has become one of the most common dento-alveolar surgeries. Findings of this present study also show that prevalence of mandibular impacted third molars is more than that of maxillary third molar impactions. Pain of unexplained origin, fracture of the jaw, periodontal diseases, cysts and tumors associated with impacted tooth, resorption of adjacent tooth, dental caries are some of the sequelae associated with impacted third molars. Evaluation of orthopantograms of all patients who visited our center was done and as such this study could not outline how many patients were symptomatic as the design of this study is retrospective. Mwaniki DL and Guthua SW in 1996 conducted a study to assess the incidence of impacted third molars among Kenya population.⁸ The male to female ratio of impaction in their study was 7:5. In the present study, prevalence of third molar impaction was higher than females in all age groups and in either of the arches i.e., maxilla or mandible or in both the arches. The ration of impaction for males:females in this present study is 1.9:1.

According to Ricketts RM in 1972 and study conducted by Kruger E *et al.*, involving New Zealand population, in dentistry, the most common surgical intervention is extraction of third molars in patients 20 years and older.^{9,10} In the present study, highest prevalence of impaction in either maxilla or mandible was seen in 16-25 years of age group and this decreased with increasing age group. As the age increases, prevalence of impacted third molar decreased due to the fact that patients would have removed the impacted tooth due to developing symptoms of pain and difficulty in eating. The overall prevalence of impacted third molars in this present study is 20.33% while Grover observed 96.5% of the third molars as impacted.¹¹ Similarly independent studies conducted by Nanda *et al.*, and Sandhu *et al.*, noted 40% and 68.5% impacted third molars.^{12,13} These findings are contrary to the results of this present study. This shows that rate of impacted third molars varies with geographic locations of the world. Irrespective of the percentage of rate of impaction in different populations, impacted third molars cause significant threat to the patient in terms of morbidity of pain, limited mouth opening, jaw dysfunction, temporo-mandibular joint problems affecting the psycho-social life of the patient.

CONCLUSION:

1. Males had higher incidence of impacted third molars
2. Third molar impaction was a frequent finding in mandible as compared to maxilla
3. 16-25 years of age group was significantly affected with impacted third molars.
4. Percentage of impacted third molars is different in different parts of the world

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