

**PROFILE OF IMPACTED THIRD MOLAR IN THRISSUR POPULATION**

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**ABSTRACT****BACKGROUND**

Impaction may be defined as the failure of complete eruption of tooth into the oral cavity. A tooth is considered impacted, when it has failed to fully erupt into the oral cavity, within the expected developmental time period. Incidence of impacted tooth varies from 8.5% to 69% in various population. We wanted to determine the profile of impacted molar teeth in Thrissur population in relation to age, side (Right or Left) and bone (either Maxilla or Mandible).

**METHODS**

1978 patients with impacted molar teeth examined during the period January 2007 to December 2016 were included in the study. Data was collected and entered into a spreadsheet (Excel Microsoft) and analysed subsequently.

**RESULTS**

Majority of patients with impacted tooth comes under age groups 11-24 years (41.7%) followed by 21-30 years (27.9%). Female to Male ratio 60.7% to 39.3%. Left side to right side is 51.8% and 48.2%. Mandible (99.7%) more commonly affected than maxilla (0.3%).

**CONCLUSIONS**

Present study shows that younger generation (age group-11 to 30 years) with impacted molar teeth are more commonly seeking treatment in our institution. Present study also shows that there is high prevalence of impacted tooth in females. With regard to the side of the impacted teeth (right or left), the difference was not statistically significant. Bone involvement in this study is more significant in mandible as compared to maxilla.

**KEYWORDS**

Impacted Teeth, Maxilla, Mandible, Pericoronitis, Periodontitis, Orthognathic Surgery.

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**BACKGROUND**

Impaction may be defined as the failure of complete eruption of tooth into the oral cavity. A tooth is considered impacted, when it has failed to fully erupt into the oral cavity, within the expected developmental time period.<sup>1</sup> To diagnose an impacted tooth, normal eruption (chronology of eruption) as well as the factors that influence eruption to be known. Incidence of impacted permanent teeth, mostly maxillary and mandibular third molars followed by maxillary

canines, mandibular premolars, maxillary premolars and second molars.<sup>2-4</sup> Impaction of first molars or incisors are uncommon in both arches. The most congenitally missing and impacted teeth are the third molars and first and among them mandibular third molars.<sup>1,5</sup> Incidence varies from 8.5% to 69% in various population. Third molar is the last tooth to erupt in the oral cavity. Impacted mandibular third molar causes many complications. In pathological point of view; chances of dentigerous cyst, pericoronitis, chewing difficulty etc., Impacted third molar causes resorption of adjacent tooth or its roots. So, it is better to remove the impacted tooth.<sup>2,6</sup>

Indications for the removal of third molar are, if a patient presents with one or more of the pathologic problems or symptoms such as periodontitis, pericoronitis, crowding of mandibular incisors, obstruction of orthodontic treatment, interference with orthognathic surgery, prevention of odontogenic cysts & tumours, root resorption of adjacent teeth, teeth under dental prosthesis, prevention of jaw fractures and management of unexplained pain.<sup>7-9</sup>

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**Aims and Objectives**

1. To determine the profile of impacted molar teeth in Thrissur Population, in relation to age.
2. To determine the profile of impacted molar teeth in relation to side (Right or Left),
3. To determine the profile of impacted molar teeth in relation to Bone (either Maxilla or Mandible)

**METHODS**

**Sample Size**

1978 patients with impacted third molars who were attended, examined and treated in the OMFS department of Government Medical College, Thrissur.

**Study Period**

A study period from January 2007 to December 2016.

**Settings**

Outpatient Department of Oral and Maxillofacial Surgery, Government Medical College, Thrissur.

**Study Subject**

Patients with impacted third molars who were examined and treated in the OMFS department of Government Medical College, Thrissur, during the study period.

**Methodology**

Study design includes patients attended in the Oral and Maxillofacial Surgery department of Government Medical College, Thrissur from January 2007 to December 2016. Age group includes 11 to 70 years. Classification of impaction, According to Winters in 1929, the impactions were classified into mesioangular, distoangular, vertical and horizontal. All the patients came to oral and maxillofacial surgery department Govt. Medical College, Thrissur for the treatment of impacted teeth; either partial or complete impaction included in the study. All the patients were seen and treated in the OMFS department. Out of a total of 1,08,275 out patients, 1978 patients were with impacted third molars. Patient records were reviewed in terms of age, sex, age group, side of impaction whether right or left, maxilla or mandible. All collected data were then entered in a data sheet and analysed subsequently, using the statistical package SPSS version 2.0

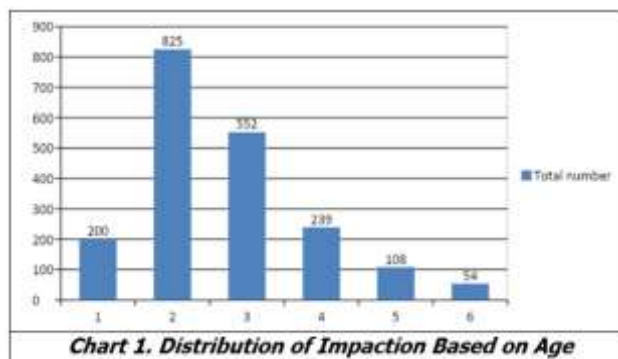
**RESULTS**

**Mean Age**

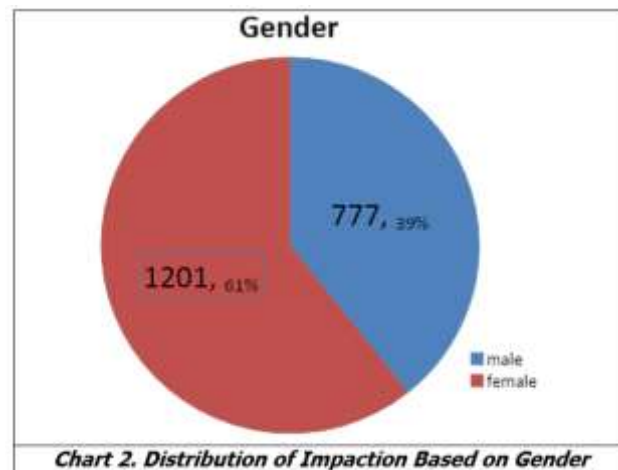
Among the study participants mean age is  $32.46 \pm 11.276$  years, with minimum age 11 years and maximum age of 70 years.

**Age Group**

Majority of patients with impacted tooth in the age group 11-20 years. (825; 41.7%). Followed by 21 to 30 years (552; 27.9%).

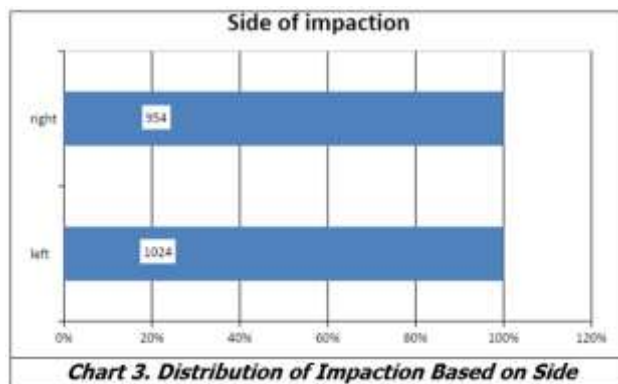


**Gender**



**Distribution of Impaction According to Side**

Majority in the left side – 1024 – 51.8%. (95% confidence interval, 49.62% - 54%).  
 Right sided – 954, 48.2%. (95% confidence interval = 46% to 50.4%).  
 And its difference was not statistically significant.



Mean age of the patient with right sided impacted tooth is  $32.18 \pm 11.298$ , which was compatible that of the left sided impacted. ( $32.73 \pm 11.255$  years) (t value 1.098 and p value 0.272).

Side	Mean Age $\pm$ SD	Mean Difference	t Value	p Value
Right	$32.18 \pm 11.298$ years	0.557	1.098	0.272
Left	$32.73 \pm 11.255$ years			

**Table 3**

### Bone

One patient with maxillary impacted tooth, remaining were in the mandible (99.9%) – 0% - 0.3%.

99.7% - 100%

Statistically higher in the mandible.

### Photomicrographs



**Orthopantomogram 1**

X-ray on right side shows lower third molar Mesial Impaction and left side shows Horizontal Impaction.



**Orthopantomogram 2**

X-ray on right side shows Vertical Impaction and Left side shows Distal Impaction.

### DISCUSSION

This study shows that the pattern of third molar impaction in the present sample is characterized by a high prevalence in females. Similarly, Qirreish<sup>4,10</sup> have reported that there were more females than males who presented with impacted mandibular third molars. But, similar studies by Abu Hussein Muhammad<sup>5,11</sup> and Dhuha Al Feeli<sup>6,12</sup> showed more male predilection in impacted teeth. Some studies have reported no sex predilection about third molar impaction.

Third molar impaction is a common problem affecting a large proportion of population throughout the world. In this study, the incidence of impacted third molar is found to be 1.8%. The reported incidence of impacted teeth in the present research work is lower than that reported by Morris and Jerman,<sup>7,13</sup> who reported frequencies of 65.6% in a study of 5000 subjects in United States of America and by Quek et al<sup>8,14</sup> were 68.6% in a sample of 1000 subjects in Singapore, respectively. This difference may be due to the fact that the genetic and racial differences are two important factors in tooth impaction and it also reflects the higher

number of patients turning in for dental treatment in the institution. Theories of impaction based on the hypothesis is that, an increase in tooth impaction is due to small jaw size and large tooth. Now people having more refined food in their diet rather than raw food. So the use of jaws and teeth for mastication is reducing, which may also result in more cases of impacted teeth in the population. Other theories include, Orthodontic theory<sup>15</sup> which states that the jaws and teeth normally move in an anterior direction during the process of growth. Any restriction in the forward movement results in an obstruction in the growth of teeth and leads to impaction. Another theory is Pathological theory which states that chronic infection affecting an individual may bring the condensation of osseous tissue further preventing the growth and development of the jaws. Endocrine theory states that increase or decrease of growth hormone secretion may affect the size of the jaws. In this study, majority of the patients were in the age group 11-20 years. (825, 41.7%). Followed by 21 to 30 years (552, 27.9%). From this study, it is evident that the incidence of impacted third molars decrease with corresponding increase in the age of patients. Obiechina et al<sup>9,16</sup> observed that patients in the 21-30-year age group presented with the highest number of impactions. Although large number of patients presented with left sided impaction, statistically it was not significant. More affected bone is mandible compared to maxilla.

This study provides the wealth of information regarding the epidemiology of third molar impaction, although there is limited information on angle and level of impactions.

### CONCLUSIONS

This study demonstrated that younger generation of age group 11-30 years with impacted molar teeth is more commonly seeking treatment in Govt. Medical Collage Thrissur. Present study also shows that there is high prevalence of impacted tooth in females. With regard to the side of the impacted teeth, Right or Left, the difference was not statistically significant. Bone involvement in this study is more significant in Mandible as compared to Maxilla.

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