



## International Journal of Applied Dental Sciences

ISSN Print: 2394-7489  
ISSN Online: 2394-7497  
IJADS 2018; 4(3): 158-160  
© 2018 IJADS  
www.oraljournal.com  
Received: 26-05-2018  
Accepted: 27-06-2018

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### Prevalence of eruption status of wisdom teeth (Third molar) in Rajnandgaon (Chhattisgarh) population: A digital panoramic study

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#### Abstract

**Aim and Objective:** To study the prevalence of eruption of third molar tooth among Rajnandgaon (Chhattisgarh) population by observing the presence or congenital absence of third molars among them and to analyze the percentage of impacted third molars using OPG.

**Materials and Methods:** 350 Indians aged between 16 to 26 years old were examined for the presence or absence of the third molars. To confirm the congenital absence of third molars using Orthopantomograms (OPG).

**Results:** The results were analyzed for both maxillary and mandibular third molars showing insignificant interobserver bias. It was noted that only 43% of males and 59% of females have congenital absence of third molar, and 49% of males and 32% of females have erupted third molars. 16% of males had partly impacted third molar whereas in case of female it was 26%. Congenital absence of third molars among females was 15% more than in males. Frequency of agenesis of third molars is more in maxilla than mandible. More males had impacted third molars than females. It was also noted that majority of them have their maxillary third molars erupted first before their mandibular third molars.

**Conclusion:** It was concluded that maximum mandibular third molars had erupted before maxillary third molars. More males had impacted compared to females according to our study.

**Keywords:** Third molar, Orthopantograph, prevalence, impacted

#### Introduction

Impacted tooth is defined as a tooth that is prevented from erupting into position because of lack of space or due to malposition of the tooth germ in the arches. Later on some authors suggested that impacted teeth are those teeth that prevented from eruption due to a physical barrier within the path of eruption<sup>[1]</sup>. Eruption time for third molars is between the age of 17 and 22 years. Tooth eruption is a complex process that is difficult to understand<sup>[2]</sup>. Furthermore, the pattern of Third molar eruption and continuous positional changes after eruption can be related to race, environmental factors, insufficient development of the retromolar space, systemic diseases, nature of the diet, genetic polymorphisms and the intensity of the use of the masticatory apparatus and possibly due to hereditary inheritance<sup>[3, 4]</sup>. Third molar impactions of mandible are a common condition related with difficulty of extraction and risk of complications, including iatrogenic nerve injury<sup>[5]</sup>.

Impactions may occur in both maxilla and mandible and assume different angulations and positions. A patient may have one or more impactions in either jaw. Identification of impactions can be done clinically and confirmed with radiographs such as Orthopantomograms, periapicals radiographs, spiral computed tomography & CBCT. The present study was undertaken to determine the prevalence of mandibular impaction as no previous study has been done in Rajnandgaon Chhattisgarh state.

#### Materials and Methods

The study was approved by Ethical Committee of government medical college Rajnandgaon (Chhattisgarh). The study was conducted in the department of dentistry of government medical college Rajnandgaon (Chhattisgarh). The subjects were included in the study after obtaining prior consent. The collected data were statistically analyzed using SPSS 14 software with a confidence interval of 95%. In our study 350 subjects aged between 16- 26 years were Examined (Figure 1).

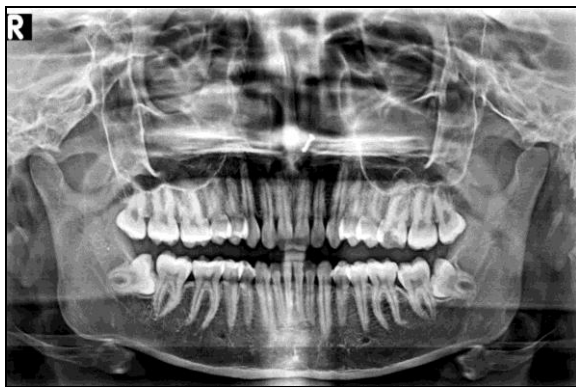
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The results from two observers were analyzed for both maxillary and mandibular third molars showing insignificant inter-observer bias (Figure 2). The inclusion criterion includes healthy volunteers with no medical history because some diseases affect the presence and development of third molar teeth and patients who had not undergone surgical removal or extraction of any tooth.



**Fig 1:** Orthopantomograph showing impacted molar (mesioangular) in the right mandibular jaw region



**Fig 2:** Orthopantomograph showing impacted 3rd molars in the left & right mandibular jaw region

**Results**

It was noted that only 43% of males and 59% of females have congenital absence of third molar, and 49% of males and 32% of females have erupted third molars. 16% of males had partly impacted third molar whereas in case of female it was 26%. (Table 1) Frequency of agenesis of third molars is more in maxilla than mandible. (Table 2) Congenital absence of third molars among females was 15% more than in males. More males had impacted third molars than females (Table 3). It was also noted that majority of them have their maxillary third molars erupted first before their mandibular third molars.

**Table 1:** Total number of third molars missing

Gender	Total no. Of patients	38	48	18	28
Females	175	13	17	19	17
Males	175	8	7	23	34
Total	350	21	24	42	51

**Table 2:** Agenesis of maxillary & Mandibular third molars

	Agenesis 18 & 28	Agenesis 38 & 48	Agenesis 18, 28, 38, 48
Male	17	12	3
female	21	16	5
Total	38	28	8

**Table 3:** Number of teeth missing according to age

	16-20years Age group	20-26years Age group	Total
Maxilla	88	29	117
Mandible	31	28	59
Total	119	57	176

**Discussion**

The wisdom tooth eruption is an unpredictable event. The third molar is the last permanent tooth to erupt into the oral cavity and is the most commonly impacted tooth. Most impacted third molars are asymptomatic and remain unnoticed unless discovered accidentally on radiographs. The term agenesis of third molar means in every individual congenitally missing of one, two, three or four third molars and the reason may be Late third molar mineralization and early physical maturation [6]. Third molar agenesis has been associated with dental numeric and morphological variations. The studies showed that mesio-angular impactions had the highest frequency, followed by horizontal and then the vertical impactions [7]. Third molar impaction being the most common between 17- 28 years. The frequency of missing third molars in Rajnandgaon (Chhattisgarh) population has been assessed. Our study was based on OPGs and IOPA from department of dentistry government medical hospital record Rajnandgaon and includes patients visiting the hospital over a period of time

The prevalence of impacted mandibular third molars in the population varies in different studies from 16.7% to 68.6% Our study shows the prevalence of mandibular third molar impactions of 36% which is consistent with other studies. It was noted that only 43% of males and 59% of females have congenital absence of third molar, and 49% of males and 32% of females have erupted third molars. 16% of males had partly impacted third molar whereas in case of female it was 26%. Congenital absence of third molars among females was 15% more than in males. Frequency of agenesis of third molars is more in maxilla than mandible. More males had impacted third molars than females. It was also noted that majority of them have their maxillary third molars erupted first before their mandibular third molars. Which is similar to other studies [8, 9]. There are many contributing factors to impaction of teeth like delayed eruption of third molars and lack of space on distal side on second molar [10], However several other factors need to be studied. Thus the results of the present study can be used as baseline data for future studies involving impacted third molars. Further longitudinal studies with more emphasis on clinical features and implications together with treatment outcomes need to be carried out

**Conclusion**

This study may provide preliminary data for District Rajnandgaon chhattisgarh population for the prevalence of agenesis but further large sized comprehensive studies are required to substantiate its usefulness. Data, concerning the incidence of third molars agenesis, belong to the essential characteristics of the dentition's status of the given population. Dental developmental anomalies can indicate the degree of genetic load of individuals and relatives. Regular monitoring of the third molars agenesis incidence should become an integral part of the appropriate oral health care as there are considerable differences in the incidence of the third molars agenesis, as shown in individual studies.

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