Study of pattern and prevalence of maxillary impacted third molars in Ghaziabad population

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ABSTRACT

Objective: To evaluate the prevalence and pattern of upper impacted third molar with the help of orthopantomograms (OPG).

Methodology: A total of 276 preoperative orthopantomograms were screened from the year 2020 – 2022 of the patients who reported to the Santosh Dental College and Hospital.

Result: Out of 276 OPGs, 108 Orthopantomograms were excluded from the study as they did not fit under our inclusion criteria. Among 168 orthopantomograms, 96 were male patient (57.14%) and 72 were female patient (42.85%). The most common pattern of angulation seen in maxillary third molar was vertical (36% on right side and 31.2% on left side) followed by distoangular (11.71% on right side and 11.41% on left side), mesioangular (9% on right side and 12% on left side) and horizontal (0.57%). Class A impaction was common in maxilla.

Conclusion: Surgical removal of the impacted maxillary third molar requires proper evaluation and assessment on the basis of different criteria.

INTRODUCTION

An impacted tooth is one that fails to erupt or develop into the proper functional location in the oral cavity beyond the time usually expected.[1] According to Farman, the impacted teeth are those teeth that are prevented from eruption due to a physical barrier within the path of eruption.[2] The cause of an impacted tooth can be multifarious, it is generally due to dense overlying bone, lack of space in the arch, abnormal root positioning, early physical maturity, late molar mineralization, or pathological reasons.[3] Prior to surgical removal of the impacted tooth, a clinician explicitly assesses the preoperative orthopantomograms to study the pattern, angulation, root morphology, and difficulty level associated with the impacted tooth. The orthopantomograms only aids the clinician in planning the minor surgical procedure but also contributes to the studies carried out to calculate the prevalence of the impacted pattern of teeth. The prevalence of impaction in different population ranges from 16.7% to 68.6%[4] and eruption of the third molars occurs between 17 to 21 years of age[5]. Furthermore, the eruption time of the upper third molar has been reported to vary with races.[6]

The contemporaneous objective of this study is to compare and assess the prevalence and pattern of impacted maxillary third molars in the regional center of Ghaziabad.

MATERIAL AND METHOD

A retrospective study was conducted on 276 preoperative digital Orthopantomograms stored and compiled for various treatment modalities in the Department of Oral and Maxillofacial Surgery, Santosh Dental College and Hospital, Ghaziabad. These 276 Orthopamtomograms, were carefully scrutinized and evaluated for the study. The parameters investigated in the study were gender, location (left/right), pattern and position of the impacted third molar. OPGs showing any pathology were excluded from the study. The variables on orthopantomograms were analyzed by using impacted maxillary classification given by Archer. The findings were tabulated on the basis of gender predilection, pattern and position of the impacted teeth.

INCLUSION CRITERIA

- Patients having impacted/erupted maxillary third molars.

EXCLUSION CRITERIA

- Orthopantomograms not fulfilling inclusion criteria will be excluded.

- Orthopantomograms with any pathology.
- Orthopantomograms depicting missing maxillary second molar.

RESULTS

Out of 276 preoperative orthopantomograms which were assessed for the study. 108 orthopantomograms were excluded on the basis of exclusion criteria and 168 orthopantomograms were included in the study. Out of which 96 were male and 72 were female. The pattern and angulation according to the study conducted revealed that vertical was most prevalent with 36% on right side and 31.2% on left side followed by distoangular 11.71% on right side and 11.41% on left side, mesioangular 9% on right side and 12% on left side and horizontal 0.57% as depicted in table no. 1. Class A impaction was the most common and Class B being the least common in maxilla as depicted in table no. 2.

Table 1

Position of long axis of impacted maxillary third molar in relation to long axis of second molar

	18	28
Vertical	117 (36%)	104 (31.2%)
Horizontal	1 (0.30%)	0
Mesioangular	14 (9%)	20 (6%)
Distoangular	39 (11.71%)	38 (11.41%)

Table 2

Relative depth of impacted maxillary third molar in bone:

	18	28
Class A	130 (40%)	125 (37.5%)
Class B	6 (1.8%)	5 (1.5%)
Class C	33(9.9%)	34(10.2%)

DISCUSSION

The last teeth to erupt in the oral cavity are the third molars, thus having a relatively high chance of becoming impacted. The prevalence of impaction in different populations ranges from 16.7% to 68.6%[4] and eruption of the third molars occurs between 17 to 21 years of age[5]. Furthermore, the eruption time of the third molar has been reported to vary with races.[6-7]

The study conducted by Hashemipour MA et al[4] was in accordance with our study. The study concluded that vertical angulation (45.3%) was most prevalent followed by distoangular (22.2%) and mesioangular

(19%) along with no significant difference between right and left sides.

In study conducted by Alfadil L[8] in 2019, showed highest prevalence of vertical angulation (56.5%), followed by distoangular (31.9%). The distribution of impaction in terms of depth level C (62.1%) was the most common followed by level B (35.8%)[9] whereas in our study Class A was the most common followed by Class C. This can attributed to difference in various factors such as environmental factor, ethnic background and sample size.

The present study about pattern and prevalence of upper impacted third molars uses a hospital based sample which lacks randomization. More precise studies are necessary to evaluate the pattern and prevalence of upper impacted third molars in a randomized sample representative of Ghaziabad population.[10]

CONCLUSION:

This article represents one of the few studies mentioned in the literature to scrutinize and diligently study the pattern of upper third molar impaction in the regional center of Ghaziabad. Upper third molar with vertical angulation are the most prevalent based on the results of our study whereas mesioangular followed by horizontal impactions are the least prevalent. While assessing the relative depth of impacted maxillary third molar Class A pattern were most prevalent followed by Class C.

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