

Prevalence and Characteristics of Impacted Teeth in Bhilai, Chhattisgarh: A Radiographic Study

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Abstract-

Aim:

The aim of this study was to assess the angulation of impacted mandibular third molars and determine the gender distribution in people from Bhilai, Chhattisgarh.

Objective:

To determine commonest angulation in mandibular third molar and to investigate the gender-based prevalence of mandibular third molar impaction.

Materials and Methodology:

The research was carried out on a sample size of 140 individuals, comprising 72 females and 68 males. Data for the study was obtained from orthopantomograms of patients who visited Rungta College of Dental Sciences and Research in Bhilai. The orthopantomograms were carefully examined and analyzed over a period of 2 months. Subsequently, the collected data underwent thorough analysis.

Results and Conclusion:

The examination of the data indicated that the most prevalent angulation observed in impacted mandibular third molars is mesial angulation, and the male population was identified as the most affected gender group in cases of mandibular third molar impaction.

Index Terms- third molar, angulations, impaction.

I. INTRODUCTION

Tooth impaction, a condition where a tooth fails to erupt into its normal position due to space constraints, is increasingly common. Impacted teeth can lead to various complications such as pain, pericoronitis, root resorption, and cystic lesions.[1,2] A comprehensive understanding of the occurrence and dispersion of impacted teeth throughout the jaw's diverse regions is of utmost significance. Several classification systems have been proposed to categorize impacted teeth, with Winter's classification being widely used due to its simplicity. The necessity of removing asymptomatic impacted teeth has been debated, with some questioning the associated risks and adverse effects.[3,4] The main focus of this study was to evaluate the location of impacted third molars and examine the gender distribution using the classification system proposed by Winter.

II. MATERIALS AND METHODOLOGY

This study included 140 subjects (72 females and 68 males) who visited Rungta College of Dental Science and Research from February 2022 to March 2022 for dental treatment. Orthopantomograms were collected over a two-month period and traced for analysis. The inclusion criteria were patients aged 17 years and above, as third molars typically begin eruption by this age. Patients with significant pathologies related to third molars were specifically excluded from the study. Impaction was defined as the hindrance of a tooth's ability to erupt properly due to neighboring teeth, bone, or soft tissue. Winter's classification was employed to analyze the angulation of impacted third molars during the analysis process. Winter's classification is based on angulation of the third molar to the vertical axis of the second molar as Mesioangular, Distoangular, Horizontal, Vertical. Data observed was entered into a spreadsheet (Excel 2019; Microsoft, US) for analysis. The Excel sheet had the following column headings: - Registration Number, Age, Sex, Tooth Number (FDI) and Angulation (according to Winter's Classification).

III. RESULTS

Among the 140 panoramic radiographs examined, mandibular third molars were the most impacted teeth. The highest prevalence of tooth impaction was observed in the 21 to 30 years age group (49%), with a gradual decrease in older age groups (Table 1). The male: female ratio in the study group was approx. 1:1.1 (Table 3). Both left and right side of jaws were almost equally affected. Among the impacted molars, 42 patients had one, 63 had two, 24 had three, and 11 had all four sides involved (Table 2). A bilaterally symmetrical pattern was observed in impacted mandibular third molars, with over 50% exhibiting a mesioangular or horizontal orientation in relation to the second molars.

IV. DISCUSSION

The use of orthopantomogram (OPG) for studying impacted teeth is typically limited to hospitals/sizable dental practices due to associated expenses.[2,5] Concerns arise when relying solely on radiographs as the diagnostic tool for assessing impacted teeth and associated pathologies. Cross-verification with clinical records was conducted in this study to ensure the diagnostic validity of the radiographic findings. The occurrence of impacted teeth was comparatively higher among patients in their third decade, potentially indicating an awareness of oral health. The pattern of impacted teeth types observed aligned with previous reports, with third molars being the most commonly impacted. Males were mostly having a greater number of impacted teeth than with females, predominantly bilateral same angular impaction. Impacted lower third molars exhibited similar angulation as reported by previous studies. Notably, mesioangular and horizontally impacted mandibular third molars are partially exposed in the oral cavity and may cause potential clinical implications due to plaque retention against the distal surfaces of the second molars. The frequency of periodontal disease and caries detected in the lower second molars, in proximity to impacted third molars, was greater.

Figures and Tables

Table 1

Age	Frequency
17 – 20	41
21 – 30	67
31 – 40	27
41 – 50	5

Table 2

No. of Impacted Third Molar	Frequency
1	42
2	63
3	24
4	11

Table 3

Gender	Frequency
Male	68
Female	72

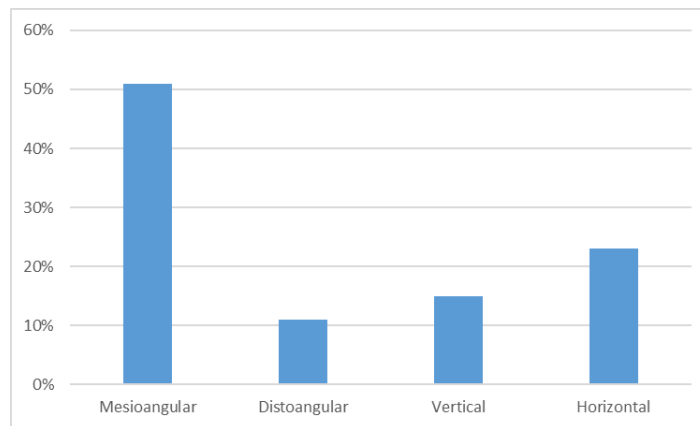


Figure 1

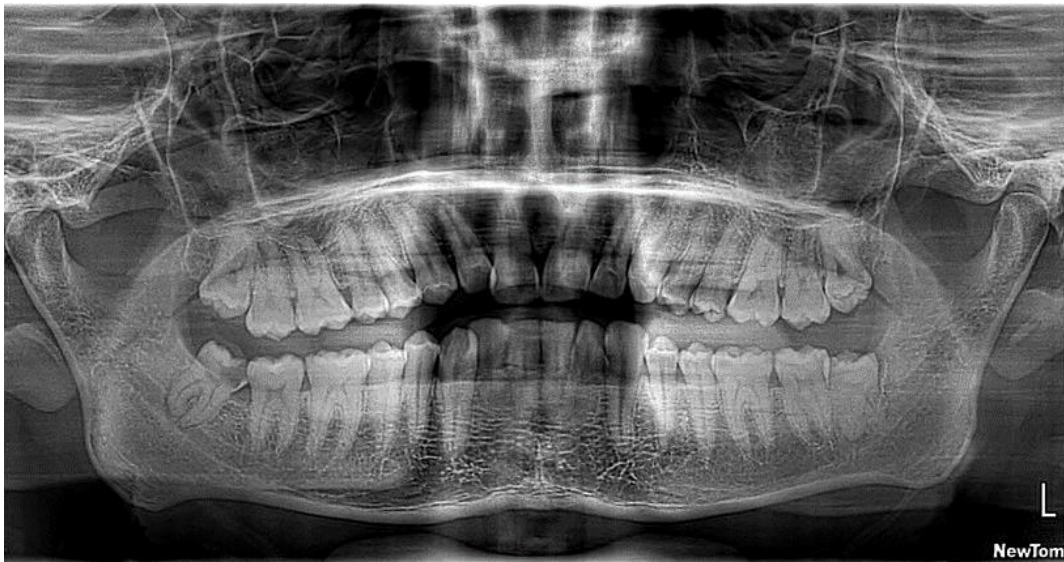


Figure 2: Showing Mesioangular Impaction with 48 and Vertical Impaction with 38



Figure 3: Showing Mesioangular Impaction with 38 and Horizontal Impaction with 48

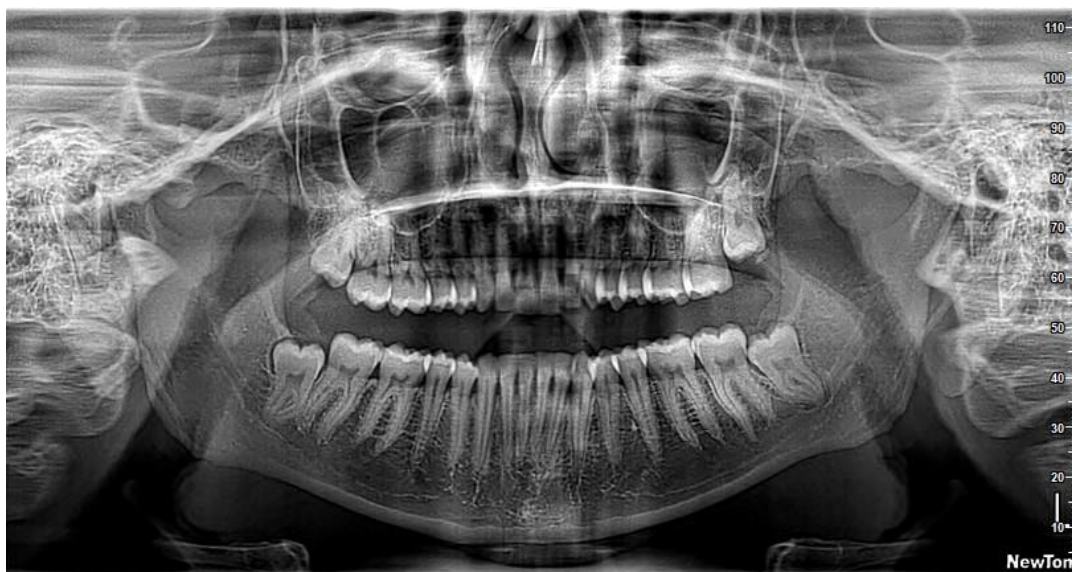


Figure 4: Showing Distoangular Impaction with 48 and Mesioangular Impaction with 38

V. CONCLUSION

Based on this radiographic study, mesioangular impacted third molar was the most common angulation observed in lower impacted teeth, predominantly affecting males which has also be mentioned in other studies.[6] Increased risks of caries and periodontal disease was seen in second molars when mesioangular or horizontal angulated impacted lower third molars were present. These findings emphasize the importance of evaluating impacted teeth to prevent potential complications and plan appropriate management strategies.

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