

Assessment of Prevalence and Pattern of Mandibular 3rd Molar Impaction: A Cross-Sectional Study

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ABSTRACT

Background: Impacted teeth, if left untreated, have a potential to induce various complications. The mandibular third molar is the most frequently impacted tooth with incidence varies from 9.5% to 68% in different populations. The aim of the present cross-sectional study was to assess the prevalence and pattern of mandibular 3rd molar impaction.

Materials and Methods: A retrospective cross-sectional study was conducted over the period of 1 year in which 270 cases of patients aged between 20 and 50 years were selected for the study. Parameters studied into the study were an age group, gender, location of the impacted third molar, angulation, position, and level of the impacted tooth. The data analysis was done using the Statistical Package SPSS version 22.0.

Results: In the present study total patients were 270 in which 61.48% were males and 38.51% were females. Impacted teeth were maximum in both males and females in the age group 20-30 years. Mesioangular kind of impaction was maximum in both males and females. According to Pell and Gregory classification at level B impactions were maximum (66.3%) and

class II impactions were maximum (51%).

Conclusion: Our study concluded that the prevalence of mandibular impactions were common in males than females. The study also noted that mesioangular impactions were the most common type of impaction. The least common form of impactions was the transverse types.

Keywords: Mandibular, Impactions, Mesioangular.

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INTRODUCTION

The word impaction is originated from the Latin word "impact" means organ or structure, which because of an abnormal mechanical condition has been prevented from assuming its normal position. William stated that impacted tooth is the one which is completely or partially unerupted and is positioned against another tooth, bone, or soft tissue so that its further eruption is unlikely.¹ Teeth become impacted when they fail to erupt or develop in their proper functional location. Of all teeth, mandibular third molars are the most frequently impacted.² The cause of third molar impaction is due to inadequate space in the mandible; this may cause pericoronitis, dental caries and the development of cystic lesions.^{3,4} The angle of impaction can be measured using Winter's classification system, with reference to the angle formed between the intersected longitudinal axes of the second and third molars.⁵ The Pell and Gregory classification system is one of the common methods used to assess the level of third molar impaction where the impacted third molars are

assessed in relation to the neighbouring second molars.⁶ The aim of the present cross-sectional study was to assess the prevalence and pattern of mandibular 3rd molar impaction.

MATERIALS AND METHODS

A retrospective cross-sectional study was conducted over the period of 1 year in which 270 cases of patients aged between 20 and 50 years were selected for the study. The patients below 20 years of age, incomplete clinical radiological records, incomplete root formation of the third molar, severe systemic disease conditions, craniofacial anomalies or syndromes such as achondroplasia, progeria, oxycephaly, cleidocranial dysostosis, and Down's syndrome, any previous trauma or pathology were excluded from the study. The clinical and radiographic records of these patients were evaluated. Parameters studied into the study were an age group, gender, location of the impacted third molar, angulation, position, and level of the impacted tooth. The

angulation was assessed using Quek's adaptation of the Winter's classification, which incorporated the use of an orthodontic protractor to quantify the angulation to reduce the errors associated with the evaluation by visual impression alone. The position and level of the impacted teeth were assessed using the Pell and Gregory classification. The analysis of the collected data was performed using the Pearson's Chi-square test. The data analysis was done using the Statistical Package SPSS version 22.0.

RESULTS

In the present study total patients were 270 in which 61.48% were males and 38.51% were females. In both the sexes, the maximum tendency to see an impacted mandibular third molar is in the age group 20-30 years. Mesioangular kind of impaction was maximum in both males and females. According to Pell and Gregory classification at level B impactions were maximum (66.3%) and class II impactions were maximum (51%).

Table 1: Distribution according to gender

Gender	N(%)
Male	166(61.48%)
Female	104(38.51%)
Total	270(100%)

Table 2: Distribution according to age group

Age group (yrs)	Patients with impacted teeth		N(%)
	Male	Female	
20-30	101	64	165(61.11%)
31-40	54	33	87(32.22%)
41-50	11	7	18(6.66%)
Total	166	104	270(100%)

Table 3: Type of impacted teeth in different gender

Angulation	Male	Female	N(%)
Mesioangular	75	52	127(47.03%)
Vertical	41	27	68(25.18%)
Horizontal	32	15	47(17.40%)
Distoangular	13	7	20(7.40%)
Transverse	5	3	8(2.96%)
Inverted	0	0	0(0%)
Total	166 (61.48%)	104 (38.51%)	270(100%)

Table 4: Distribution of the different level and class of impacted teeth

Level/class of impaction	(%)
Level/ depth of impaction	
Level A	25.8
Level B	66.3
Level C	7.9
Ramus relationship	
Class I	38
Class II	51
Class III	11

DISCUSSION

In the present study total patients were 270 in which 61.48% were males and 38.51% were females. Impacted teeth were maximum in both males and females in the age group 20-30 years. Mesioangular kind of impaction was maximum in both males and females. According to Pell and Gregory classification at level B impactions were maximum (66.3%) and class II impactions were maximum (51%).

Quek et al. who reported a frequency of 68.6% in Singaporean Chinese.⁷ Morris and Jerman reported (65.6%) a higher prevalence of impaction in a study population from the USA.⁸ However, a lower prevalence has been reported by Hashemipour et al. (44.3%) in the Southeast region of Iran.⁹ Other authors reported rate, Eliasson et al. as 30.3%,¹⁰ and Montelius as 32%.¹¹

Adequate development of the mandible with provision of enough space to accommodate the third molar, which is usually the last tooth to erupt, may reduce the prevalence of impaction commonly associated with the lower wisdom tooth.¹²

Hassan also found that Class B was the most common impaction level.¹³ In contrast, Monaco et al.,¹⁴ Obiechina et al.¹⁵ reported Class A as the predominant impaction level.

CONCLUSION

Our study concluded that the prevalence of mandibular impactions was common in males than females. The study also noted that mesioangular impactions were the most common type of impaction. The least common form of impactions was the transverse types.

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