

# Prevalence of Third Molar Impaction - A Retrospective Radiographic Study

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## ABSTRACT

**Objectives:** 1. To identify the frequency of third molar impaction. 2. To evaluate the pattern of third molar impaction.

**Methodology:** Six months records of the Digital Orthopantomographs of patients attending department of Oral Medicine and Radiology, SDM Dental College and Hospital were randomly collected. Age range of the patient being 19 years or older. Orthopantomographs were reviewed by the single examiner using a X-ray viewer. Third molar was considered impacted if the tooth is not in functional occlusion or if roots were not fully formed. Angulation was assessed by measuring the angle between the long axis of the impacted third molar relative to the long axis of the second molar using orthodontic protractor. The results were tabulated and sent for statistical analysis. To test the significance Chi square test was applied. The p value was set to 0.05

**Results:** These results show that third molar impaction was most common in mandibular arch than in maxillary. Most common type of impaction in the maxillary arch and mandibular arch was vertical type.

**Conclusion:** Third molar impactions are most common in the mandibular arch than maxillary with the higher incidence rate on the left side than right. Most common type of impaction in the maxillary and mandibular arches was vertical impaction followed by mesioangular

**Key Words:** Impacted tooth, third molars, Panoramic radiography

## INTRODUCTION

Tooth impaction is a pathological situation in which a tooth cannot, erupt into its normal functioning position unless facilitated by treatment.<sup>1</sup> Mandibular third molars are most frequently impacted after maxillary third molars. Third molar may be associated with various pathological process ranging from caries and pericoronitis, pressure effects and resorption of adjacent second molars, to cyst and neoplastic lesions. The significance of impaction or eruption of third molar is due to its possible advantage in being utilized as orthodontic anchorage, prosthetic abutments or for transplantation. At an early stage it is

difficult to decide whether the impacted tooth in question has to be retained or surgically removed as the impaction status and position does change over a period of time.<sup>3</sup> The aim of the present study was to assess the prevalence of third molar impaction.

## METHODOLOGY

Six months records of the Digital Orthopantomographs of patients attending department of Oral Medicine and Radiology, SDM Dental College and Hospital were randomly collected. Age range of the patient being 19 years or older. Ethical approval was obtained from

institutional review board. Digital Orthopantomographs were reviewed by the single examiner using a X-ray viewer. Third molar status was determined using OPGs. Third molar was considered impacted if the tooth is not in functional occlusion or if roots were not fully formed. Angulation was assessed by measuring the angle between the long axis of the impacted third molar relative to the long axis of the second molar using orthodontic protractor. The results were tabulated and sent for statistical analysis. To test the significance Chi square test was applied. The p value was set to 0.05.

**Inclusion Criteria:**

- Radiographs with impacted third molars

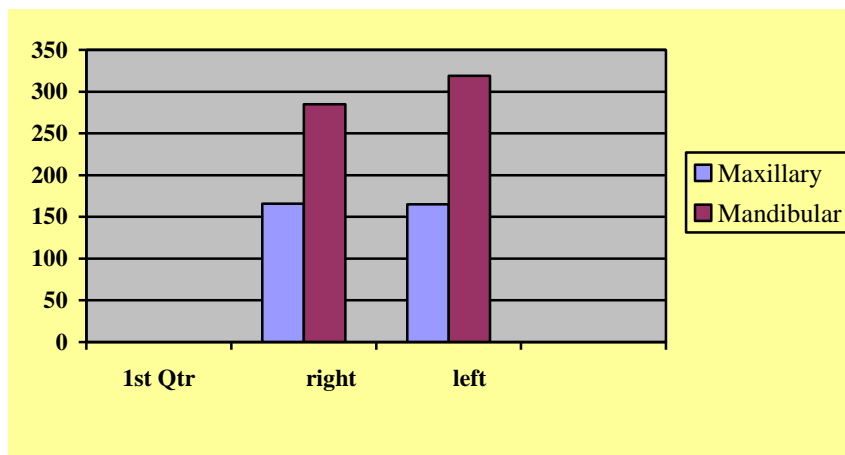
**Exclusion Criteria:**

- Patient’s age less than 19 years.
- Records with missing OPGs
- Records of the radiographs with syndromes like Gardner’s syndrome Clidocranial dysplasia etc.
- Absence of adjacent second molar

**RESULTS**

**Table 1: Total Impactions in Maxillary And Mandibular Right And Left Side**

Arch	RT	LEFT
maxillary	166	165
mandibular	285	319



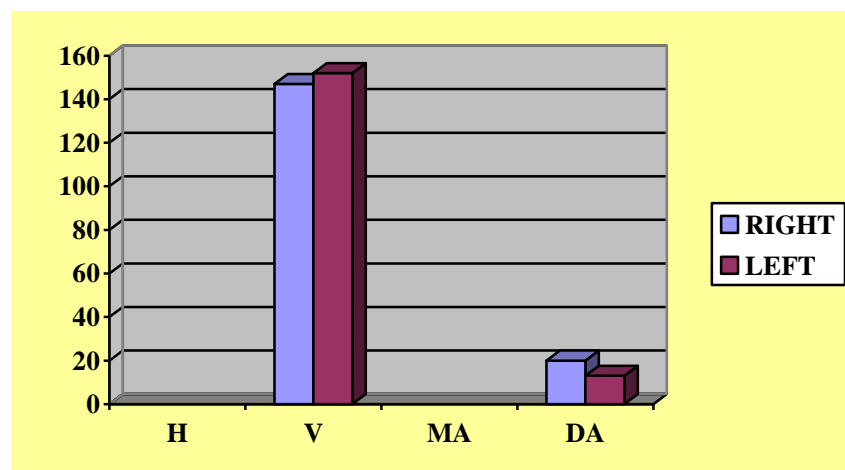
**Figure1: Comparison of total number of impactions in maxillary and mandibular arch**

**Table 2: Most common impactions in maxillary arch**

	RT	LEFT
H	-	-
V	147	152
MA	-	-
DA	20	13

**Table3: Most Common Impactions In Mandibular Arch**

	RT	LEFT
H	70	79
V	101	128
MA	102	111
DA	2	1



**Figure 2: Comparison of impactions in maxillary arch on right and left side.**

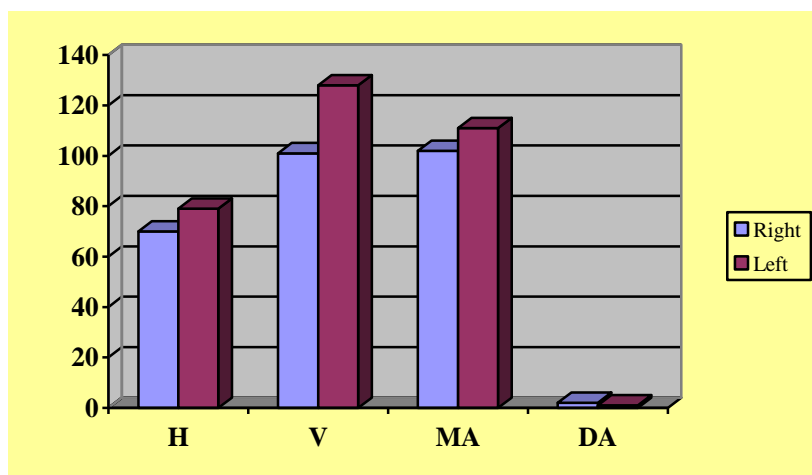


Figure 3: Comparison of impactions in mandibular arch on right and left side.

## DISCUSSION

The sample utilized for this study was taken from the dental records of patients presenting at the institution. The number of impactions in the maxillary arch 166 and 165 on right and left side respectively where as in mandibular arch impactions on right side 285 and 319 on left side (Table1, Figure 1). These results show that third molar impaction was most common in mandibular arch than in maxillary. This finding was in accordance with the other studies conducted which have showed higher prevalence of mandibular third molar impactions than maxillary. Most common type of impaction in the maxillary arch was vertical type (Table2, Figure 2). This finding of our study was correlating with the other studies. Again the most common type

of impaction in the mandibular arch was vertical (Table3, Figure3). The finding of this study was on contrary to the findings of the other studies conducted which showed mesioangular impactions to be most common in the mandibular arch. There are various theories widely stated in the literature to explain the development of impacted teeth. One among them, The Belfast Study Group specifically explains the development of type of impaction among the mandibular third molars. According to them, there may be differential root growth between the mesial and distal roots, which causes the root to either remain mesially inclined or rotate to a vertical position depending on the amount of root development.



Figure 4: Orthopantomogram showing mesioangular impaction on left side and vertical impaction on right side of the mandible

## CONCLUSION

Third molar impactions are most common in the mandibular arch than

maxillary with the higher incidence rate on the left side than right. Most common type of impaction in the maxillary and

mandibular arches was vertical impaction followed by mesioangular. Appropriate programmes that will further raise people awareness on the importance of regular dental check ups which could lead to an early detection of impacted teeth and institution of appropriate measures before complications arise are necessary.

**Conflict of Interest:** None.

#### REFERENCES

1. Hassan A H. Pattern of third impaction in a Saudi population. *Clinical, Cosmetic and Investigational Dentistry* 2010;2:109-113.
2. Quek S L, Tay C K, Tay K H, Toh S L, Lim K C. Pattern of third molar impaction in a Singapore Chinese population: a

retrospective radiographic survey. *Int J Oral Maxillofac Surg* 2003;32:548-552.

3. Guttal K S, Klavekar A, Okade A, Naikmasur V. Assessment of variables in mesioangular impactions and vertically erupted mandibular third molars. *Webmed Central Radiology* 2011;2(12): WMC002706.
4. Othman R. Impacted mandibular third molars among patients attending Hospital Universiti Sains Malaysia. *Archives of Orofacial Sciences* 2009;4(1): 7-12

How to cite this article: Madalli V, Burde K. Prevalence of third molar impaction- a retrospective radiographic study. *Int J Health Sci Res.* 2021; 11(3):116-119.

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