

## Original Research

### Assessment of prevalence of impacted third molars among orthodontic patients in different malocclusions

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#### ABSTRACT:

**Background:** To assess the prevalence of impacted third molars among orthodontic patients in different malocclusions. **Materials & methods:** A total of 150 patients were enrolled. The age range of patients was above 18 years since third molars have been found to erupt between the ages of 18 and 21 years. Out of 150 patients, 60 were male and 90 were female. OPGs were recorded and were evaluated. **Results:** Out of 150 subjects, 76 (50.7%) had impacted teeth. Malocclusions were classified as class I, class II and class III. Impacted teeth in maxilla and mandible were 160 in total. Class II had 30 maxillary impactions and 35 mandibular impactions. **Conclusion:** No significant association was observed between different types of malocclusion and third molar impaction.

**Keywords:** malocclusions, third molar, impaction.

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#### INTRODUCTION

Malocclusions can occur in three different spatial planes: sagittal, transverse and vertical. It is possible to identify three different types of skeletal relationship in the sagittal plane, defined from the analysis of the ANB angle, which represents the antero-posterior intermaxillary relationship. Skeletal class I occurs when the ANB angle is between 0° and 4°.

In this case there is a correct relationship between the upper and lower jaw, due to a harmonious growth between the jaw bases. In case of skeletal class II the ANB angle is increased over 4°; there is then an alteration of the relationship between the two maxillary bases with protruded position of the upper jaw, in relation to the mandible, a mandibular retrusion or a combination of both situations. <sup>(1,2)</sup> Finally, skeletal class III occurs when the ANB angle is less than 0°. There is an alteration in the relationship between the two maxillary bases with the mandible protruding from the upper jaw, a retrusion of the upper jaw or a combination of both conditions. <sup>(3)</sup>

The term impacted tooth defines a tooth's failure to erupt within the expected amount of time into the

dental arch unless intervened with treatment. Failure to erupt, followed by impaction is a common dental anomaly. This failure of the eruption could be due to many systemic and local factors, such as cleidocranial dysplasia, Down's syndrome, and arch-length deficiency. There is a correlation between the development of pericoronitis, cystic lesions, and caries with impacted teeth. Moreover, third molars have been found to be the most commonly impacted teeth in the oral cavity. <sup>(4,5,6)</sup>

#### MATERIALS & METHODS

A total of 150 patients were enrolled. The age range of patients was above 18 years since third molars have been found to erupt between the ages of 18 and 21 years. Out of 150 patients, 60 were male and 90 were female. OPGs were recorded and were evaluated. The third molar was considered impacted when it was not fully erupted to the assumed normal functional position in the occlusal plane. Results were obtained.

#### RESULTS

Out of 150 subjects, 76 (50.7%) had impacted teeth. Malocclusions were classified as class I, class II and

class III. Impacted teeth in maxilla and mandible were 160 in total. Class II had 30 maxillary impactions and 35 mandibular impactions. For class III, the third

molar impaction was found to be 3 in maxilla and 5 in mandible. P- value for class II was 0.002.

**Table: Distribution of impacted teeth in the patients with different malocclusions**

Malocclusions	Subjects having impacted teeth	Impacted teeth (N= 160)		P- value
		Maxilla	mandible	
Class I (95) Male= 45 Female= 50	44 (46.32%)	32	55	0.15
Class II (40) Male= 10 Female= 30	24 (60)	30	35	0.002
Class III (15) Male= 5 Female= 10	8 (53.4)	3	5	0.546
Total (150) Male= 60 Female= 90	76	65	95	

## DISCUSSION

In a large sample of the population, the chances of finding one or more impacted third molar is quite high. Third molars are the most common impacted teeth to be found in humans and their surgical extraction is one of the most common dentoalveolar surgical procedures in the oral maxillofacial surgical field. <sup>(7)</sup> Multiple factors could be responsible for its etiology. Therefore, understanding its pattern in various communities is very important. <sup>(8)</sup> In this study, Out of 150 subjects, 76 (50.7%) had impacted teeth. Malocclusions were classified as class I, class II and class III. Impacted teeth in maxilla and mandible were 160 in total. Class II had 30 maxillary impactions and 35 mandibular impactions.

One of the study reviewed 357 orthopantomograms of patients attending the Government College of Dentistry, Indore, Madhya Pradesh. Patients were evaluated to determine the prevalence of third molar impaction, angulation, and level of eruption in Class I, Class II, and Class III patients using Winter's classification to determine angulation of third molars and Pell and Gregory classification for level of impaction. Out of 357 patients, 187 (52.3%) were present with at least one impacted teeth. The third molar impaction was most commonly present in Class II malocclusion (60.65%). Overall, the most common angulation of impaction in both genders was the mesioangular (39%), and the most common level of impaction in both arches was Level B. <sup>(9)</sup> In Class I, Class II and Class III malocclusion vertical angulation was the most common finding in the maxillary arch and mesioangular angulation in the mandibular arch. No significant association was observed between different types of malocclusion and third molar impaction ( $P > 0.4648$ ). Study found that almost half of the adult patients above 18 years had at least one impacted third molar. The anteroposterior relationship does not have any significant role for the third molar impaction. <sup>(10)</sup> Having at least 1 impacted third molar

was the most commonly found in previous studies concluded. This is in disagreement with one of the study, which found that having at least 2 impacted third molars, 35.5% was the most common result. This is likely due to the mean age being higher in our study compared to the studies mentioned above. <sup>(11)</sup>

Furthermore, when comparing the distribution of impaction between the two jaws, our study showed this was higher in the lower jaw (58.5%) than in the upper jaw (41.5%). <sup>(12)</sup> The finding were in agreement with who noted that impaction is 1.33 more likely to happen in the mandible than the maxilla. <sup>(13)</sup> However, it was the opposite of one study that was conducted who found impaction to be 54% higher in the maxilla. They found statistical significance between the two sides having the right side more common with 59.9% ( $p = 0.018$ ), which was found in a previous study as insignificant. <sup>(14)</sup> Our study showed that in class III, the third molar impaction was found to be 3 in maxilla and 5 in mandible. P- value for class II was 0.002.

## CONCLUSION

This study found that almost half of the adult patients above 18 years had at least one impacted third molar. No significant association was observed between different types of malocclusion and third molar impaction.

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