

Original Research

Assessment of different type of third molar impaction and its correlation with type of malocclusion

¹Hashim Ahad, ²Mohd Younis Bhat, ³Ajaz Ahmad Shah

^{1,2}PG Resident, ³Professor & Head, Oral and Maxillofacial Surgery, Govt Dental College and Hospital, Srinagar, Jammu and Kashmir, India

ABSTRACT:

Background: Impacted third molars (M3) are common in modern society, more likely in the mandible, with a prevalence rate of 24% that can extend up to roughly 68% throughout the world. The present study was conducted for assessing different type of third molar impaction and its correlation with type of malocclusion. **Materials & methods:** A total of 100 patients who were scheduled for surgical removal of impacted third molar were enrolled in the present study. Complete demographic and clinical details of all the patients were obtained. Radiographs were obtained and pattern of third molar impaction was recorded. Oral examination was carried out using mouth mirror, probe and tweezers and type of orthodontic angle's malocclusion was recorded. Correlation of type of impaction with type of malocclusion was assessed. All the results were recorded and analysed by SPSS software. **Results:** Out of 100 subjects, vertical impaction, mesioangular impaction, distoangular impaction and horizontal impaction was seen in 39 percent, 40 percent, 10 percent and 11 percent of the patients respectively. While correlating the type of impaction with type of Angle's malocclusion, non-significant results were obtained. **Conclusion:** The type of dental malocclusion does not have any significant role for the third molar impaction.

Key words: Malocclusion, Third molar

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Corresponding author: Hashim Ahad, PG Resident, Oral and Maxillofacial Surgery, Govt Dental College and Hospital, Srinagar, Jammu and Kashmir, India

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INTRODUCTION

Impacted third molars (M3) are common in modern society, more likely in the mandible, with a prevalence rate of 24% that can extend up to roughly 68% throughout the world. This condition can generate several complications, such as caries, external root resorption of adjacent teeth, localized periodontal problems, infections, and mandible fractures. The etiology of M3 impaction has been associated with several factors, including a large variation in tooth morphology, prior tooth position and eruption pathway, root development, and deficient retromolar space.¹⁻³

The etiology of M3s impaction has been extensively studied. There is a general consensus that the main factor is the mesial angulation of lower M3s to the mandibular plane which has not been reoriented to the vertical direction. Another factor is the shortage of space from distal of M2 to the anterior border of ramus.⁴⁻⁶ Hence; the present study was conducted for

assessing different type of third molar impaction and its correlation with type of malocclusion.

MATERIALS & METHODS

The present study was conducted for assessing different type of third molar impaction and its correlation with type of malocclusion. A total of 100 patients who were scheduled for surgical removal of impacted third molar were enrolled in the present study. Complete demographic and clinical details of all the patients were obtained. Radiographs were obtained and pattern of third molar impaction was recorded. Oral examination was carried out using mouth mirror, probe and tweezers and type of orthodontic angle's malocclusion was recorded. Correlation of type of impaction with type of malocclusion was assessed. All the results were recorded and analysed by SPSS software.

RESULTS

Mean age of the subjects was 25.3 years. 71 subjects were males while the remaining were females. Out of 100 subjects, type I, type II and type III malocclusion was seen in 26 percent, 39 percent and 36 percent of the patients respectively. Out of 100 subjects, vertical

impaction, mesioangular impaction, distoangular impaction and horizontal impaction was seen in 39 percent, 40 percent, 10 percent and 11 percent of the patients respectively. While correlating the type of impaction with type of Angle’s malocclusion, non-significant results were obtained.

Table 1: Correlation of type of impaction with type of Angle’s malocclusion

Type of impaction	Angle’s malocclusion			Total	p- value
	Type I	Type II	Type III		
Vertical	10	15	14	39	0.981
Mesioangular	10	16	14	40	
Distoangular	2	4	4	10	
Horizontal	4	3	4	11	
Total	26	39	36	100	

DISCUSSION

The term “impacted” originates from a Latin word “impactus” (wedged). The WHO defined an impacted tooth like the one that is unable to fully erupt in its normal functional occlusion/ location by its expected age of eruption, because it is blocked by overlying soft tissue or bone or another tooth. The third molar (M3) varies more than other molars in terms of shape, size, timing of eruption, and tendency toward impaction. There are many causes of 3M impactions such as inadequate spacing, reduced mandibular growth, inadequate mandibular length, and varied facial growth. Björk found that failure of wisdom tooth in the lower arch to erupt completely was usually associated with lack of space in the alveolar arch between the second molar and the ascending ramus. A short mandibular length is thought to be another etiologic factor in M3 impaction.^{6- 9}Hence; the present study was conducted for assessing different type of third molar impaction and its correlation with type of malocclusion.

In the present study, out of 100 subjects, type I, type II and type III malocclusion was seen in 26 percent, 39 percent and 36 percent of the patients respectively. Out of 100 subjects, vertical impaction, mesioangular impaction, distoangular impaction and horizontal impaction was seen in 39 percent, 40 percent, 10 percent and 11 percent of the patients respectively. Williams et al, in a study examining the effect of different extraction sites on orthodontic incisor retraction in 260 cases of patients of the same age at (mean age 13 years), treated with the Begg technique, also investigated on the influence of extractions on third molar eruption. According to their results, the change in the rate of third molar eruption following premolar extractions was indifferent, in contrast with first molar extractions or a combination of first premolar and first molar extractions, which had a significantly positive impact.¹⁰

In the present study, while correlating the type of impaction with type of Angle’s malocclusion, non-significant results were obtained. Rindler, in his investigation, examined the data from the casts and lateral oblique radiographs of 78 patients between 10

and 15 years of age, with a Class II initial malocclusion and crowding in the lower arch. The patients were treated with different techniques and had both their second mandibular molars extracted at the same time with the initiation of root development of the third molars. In 21 cases no additional orthodontic treatment was involved and, in the rest of the cases, lower first molars were moved distally with the use of activators (9 cases) and fixed appliances (48 cases). As they reported in the summary of their study, the third molars successfully replaced the second molars in most cases (77%).¹¹ Jain S et al investigated the prevalence and pattern of third molar impaction and missing third molars in patients over 18 years in different anteroposterior skeletal patterns among central Indian populations. 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. 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.¹²

CONCLUSION

The type of dental malocclusion does not have any significant role for the third molar impaction.

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