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Original Research

Evaluation of effect of Impacted Third Molars on occurrence of Caries in Adjacent Teeth: An observational study

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ABSTRACT:
Aim- To assess the effect of Impacted Third Molars on occurrence of Caries in Adjacent Teeth. **Materials and methods**-A total of 50 patients were assessed in this study. The evaluation was limited to those individuals for whom panoramic radiographs were available and who had at least one impacted third molar. All radiographs were captured using a consistent panoramic x-ray apparatus. The classification of third molars adhered to the systems established by Winter and Pell and Gregory. The investigation focused on the prevalence of caries in the adjacent second molars. Informed consent was secured, and dental records were examined to gather information regarding the number of impacted third molars, associated pathological conditions, and patient-reported issues, including caries, pericoronitis, and recurrent pain. **Results-**Maxillary involvement occurred in 44 percent of the patients while mandible involvement occurred in 56 percent of the patients. Maxillary and mandibular right-side involvement occurred in 24 percent and 30 percent of the patients respectively. Maxillary and mandibular left-side involvement occurred in 20 percent and 26 percent of the patients respectively. Incidence of caries among maxillary right, maxillary left, mandibular right and mandibular left side was 4 percent, 4 percent, 2 percent and 6 percent of the patients respectively. **Conclusion-**Impacted third molars considerably elevate the likelihood of caries development in the neighbouring second molars.
Keywords-Impacted tooth; mandible; molars

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INTRODUCTION

Impaction refers to the failure of a tooth to emerge into its designated position, which can result from various factors such as disruptions in the eruption pathway, atypical positioning, insufficient space, or other impediments. According to Peterson (1998), an impacted tooth is characterized by its inability to erupt into the dental arch within the anticipated timeframe. Notably, impacted third molars are predominantly found in the mandible, accounting for approximately 90% of cases, in contrast to the maxilla. Epidemiological studies reveal a markedly higher incidence of impaction among mandibular third molars.[1]

Typically, the eruption of mandibular third molars occurs by the age of 21, with a greater frequency observed in females. These molars are the most frequently impacted teeth, followed by maxillary canines and second mandibular premolars. The rising incidence of impacted teeth poses a significant concern for dental practitioners and is acknowledged as a major dental health issue. While many impacted third molars may remain asymptomatic for prolonged periods, they are linked to a variety of pathological conditions, including dental caries, pericoronitis, periodontitis, cystic lesions, tumors, and pathological root resorption.[2, 3]

The presence of impacted third molars can adversely affect adjacent second molars, leading to conditions such as caries, periodontitis, and cervical resorption. These complications can result in the loss of dental hard tissue, pain, and discomfort for the patient, ultimately culminating in tooth loss and its associated ramifications. Such negative outcomes can significantly diminish the quality of life for affected individuals.[4, 5] Hence; the present study was

conducted for evaluating the effect of Impacted Third Molars on occurrence of Caries in Adjacent Teeth.

MATERIAS AND METHODS

The present study was carried out with the aim of assessing the effect of impacted third molar on occurrence of caries in adjacent teeth. A total of 50 patients were assessed in this study. The evaluation was limited to those individuals for whom panoramic radiographs were available and who had at least one impacted third molar. All radiographs were captured using a consistent panoramic x-ray apparatus. The classification of third molars adhered to the systems established by Winter and Pell and Gregory. The investigation focused on the prevalence of caries in the adjacent second molars. Informed consent was secured, and dental records were examined to gather information regarding the number of impacted third molars, associated pathological conditions, and patient-reported issues, including caries, pericoronitis, and recurrent pain. Data analysis was conducted utilizing SPSS software.

Table 1: **Incidence pattern of third molar**

Variable	Number	Percentage
Mandible involvement	28	56
Maxillary involvement	22	44
Total	50	100

Table 2: Side involvement with impacted tooth

Variable	Number	Percentage
Maxillary right side	12	24
Maxillary left side	10	20
Mandibular right side	15	30
Mandibular left side	13	26
Total	50	100

Table 3: Incidence of caries in adjacent tooth

Variable	Number	Percentage
Maxillary right side	2	4
Maxillary left side	2	4
Mandibular right side	1	2
Mandibular left side	3	6
Total	8	16

DISCUSSION

The evaluation of impacted third molars and their role in the onset of caries in neighboring teeth represents a significant focus within dental research. Partially erupted impacted third molars can foster conditions that promote plaque accumulation and bacterial proliferation, thereby heightening the likelihood of caries development on the distal surfaces of adjacent second molars. The angulation and positioning of these third molars are critical factors in this dynamic, with specific orientations being more prone to facilitate caries formation. Gaining insight into these associations is essential for making well-informed decisions regarding the management and extraction of impacted third molars, ultimately aiming to avert complications such as caries, periodontal disease, and pericoronitis. While some studies have suggested that there are no gender differences in the prevalence of

RESULTS

A total of 50 patients were assessed in this study. Maxillary involvement occurred in 44 percent of the patients while mandible involvement occurred in 56 percent of the patients. Maxillary and mandibular right-side involvement occurred in 24 percent and 30 percent of the patients respectively. Maxillary and mandibular left-side involvement occurred in 20 percent and 26 percent of the patients respectively. Incidence of caries among maxillary right, maxillary left, mandibular right and mandibular left side was 4 percent, 4 percent, 2 percent and 6 percent of the patients respectively.

impacted third molars, a substantial body of research, including the present study, has found a notably higher incidence of impacted third molars among females.[6- 9]

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mandibular jaw (37.6%). Except molars, approximal surfaces of all teeth demonstrated the highest caries rates, ranging from 58.5% to 77.5%. Occlusal fissures on the first and second molars contributed most significantly to caries frequency, from 52.7% to 66.3%. Females (59.1%) showed a higher incidence of caries than males (40.9%). Approximal surfaces of incisors, canines, premolars and occlusal fissure sites in molars showed the highest caries rates in both sexes. Caries was most common among individuals aged 17 to 25 years. Approximal surfaces of incisors, canines, premolars and occlusal surfaces in molars had the highest caries rates in all age groups, except for individuals older than 65 years of age.Gender and age do not affect the prevalence of caries on teeth sites.[11]

CONCLUSION

Impacted third molars considerably elevate the likelihood of caries development in the neighbouring second molars.

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