

Study of Prevalence of Caries on Distal Side of Second Mandibular Molar Due To Impacted Mandibular Third Molar.

Fareedi Mukram Ali¹, Muzaffar Ali Khan², Ali Atiyah Derrbishi³, Ghadeer Ahmed Al-Mughalis³, Mahmoud Almasrahi³, Areej Kinani³, Areej Ali Darraj³

¹Asstent Professor, Department of Oral & Maxillofacial surgery, College of Dentistry, Jazan University Jazan. Saudi Arabia.

²Lecturer, Department of Prosthodontics, College of Dentistry, Jazan University Jazan. Saudi Arabia.

³Dental Intern, College of Dentistry, Jazan University Jazan. Saudi Arabia.

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ABSTRACT

Background: Distal caries are commonly seen in the second mandibular molar in the incidence of impacted mandibular third molars. This might result in the need for root canal treatment or even extraction of the second molar along with third molar. The present study was done to study the prevalence of distal caries of second mandibular molars due to impacted mandibular third molar. **Methods:** The study included 107 patients presented to the clinics of college of dentistry, Jazan University, Saudi Arabia with various complaints. The cases observation started on the 1st of January 2017 and ended on the 15th of February 2017. The presence of distal caries on the second molars was recorded along with various angulations of the impacted wisdom tooth. All the data were collected and analyzed using percentage analysis. **Results:** Panoramic radiographs of 107 patients were studied. The patients were in the age range of 19 to 45 years. Out of 107 patients, 40 were males and 67 were females. Twenty-four patients (24.36%), out of 107 patients were found to have distal caries on the adjacent second mandibular molar. **Conclusion:** As the incidence of distal caries on the second mandibular molar was found to be high, it is recommended that careful monitoring and frequent radiographical examinations were necessary to detect the early caries.

Keywords: Distal caries, Impacted Third mandibular molar, Second mandibular molar.

INTRODUCTION

Impaction is failure of tooth eruption into normal position produced by abnormal positioning of a tooth, obstacle in the eruption path, lack of space, or other impediments.^[1] Many impacted third molars persist asymptomatic for years. However, retained third molars have been related with the development of a series of pathologic sequelae like periodontitis, caries, pericoronitis, cystic lesions, pathologic root resorption and neoplasm.^[1]

Name & Address of Corresponding Author

Dr. Fareedi Mukram Ali
Asst Professor,
Dept of Oral & Maxillofacial surgery,
College of Dentistry, Jazan University Jazan.
Saudi Arabia.

The present study was done to study the prevalence of caries on distal side of second mandibular molar due to impacted mandibular third molar.

MATERIALS AND METHODS

The study included 107 patients reported to the college of dentistry, Jazan, Saudi Arabia for any complaint. The patient's age ranged from 19 to 45

years. Out of 107 patients, 40 were males and 67 were females. The study was done form 1st January 2017 to 15th February 2017. All patients were subjected to clinical and OPG radiographic examination. [Figure 1]

A tooth was defined as impacted when it was obstructed on its path of the eruption by an adjacent tooth, bone, or soft tissue. A tooth was defined as semi-impacted when it was in the occlusion line but partially erupted.^[2]

The various angulations of the tooth impacted were recorded and also the pathologies associated were noticed specially the carious lesions associated with the adjacent tooth.

All the data were collected and analyzed using percentage analysis.

Inclusion criteria:

1. Patients having impacted mandibular third molar.
2. Patient willing to participate in the study and ready to undergo OPG examination.

Exclusion criteria

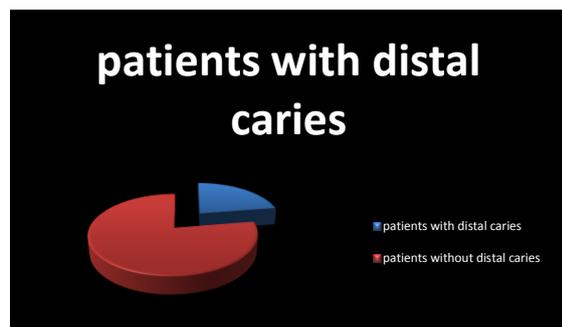
1. Patients not having impacted mandibular third molars.

RESULTS

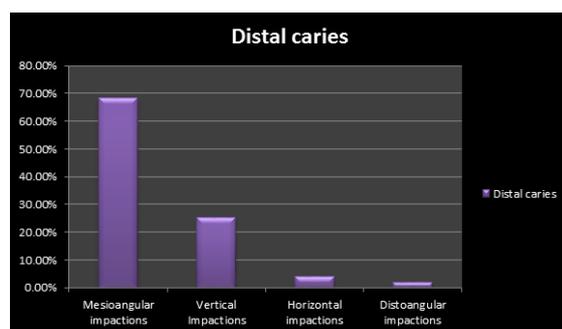
Panoramic radiographs of 107 patients were studied. Twenty-four (23.36%), out of 107 patients were found to have distal caries with the adjacent second mandibular molar. [Graph 1]. The incidence of caries was higher in those with mesioangular impaction (68.3%) followed by vertical (25.4%), horizontal (4.2%) and distoangular (2.1%) impactions. [Graph 2]



Fig. 1: Radiograph showing distal caries seen on the left permanent mandibular second molar due to mesioangular impacted mandibular third molar.



Graph 1: Pie chart showing patient with or without distal caries.



Graph 2: Incidence of distal caries according to the angulations of the impacted teeth.

DISCUSSION

Partially erupted mesio-angular or horizontally impacted mandibular third molars that contact the cemento-enamel junction of the second molar place this tooth at risk of developing caries in the distal cervical region.^[3]

Careful radiographic evaluation aims to support the clinical examination, because it provides supplementary information, such as: the reporting

of adjacent teeth, the amount of surrounding bone, the anatomical characteristics and the position of the third molars according to winter's classification.^[4]

Caries can also develop in the second molar even in cases where no noticeable communication presents between the oral cavity and impacted tooth; while in partially impacted teeth, occlusal and proximal sides are commonly affected. Caries in partially impacted teeth or nearby teeth may or may not be cavitated. Caries lesions happen because of undisturbed dental plaque in that area, that is difficult to be controlled by oral hygiene measures. In some patients caries is not present clinically, but can be present in the form of hidden caries which can be pictured radiographically.^[1]

For mesioangular and horizontal impacted mandibular third molars partially erupted in the oral cavity, occlusal surfaces form plaque accumulative crevices against the distal surfaces of the second molars leading to caries. Partial impactions do not participate in mastication and offer satisfactory conditions for bacterial accumulation, which cannot be washed through normal brushings or flossing resulting in caries.^[5] Sasanoet al demonstrates that the one-third partially erupted mandibular third molars had more propensities for developing a pathological condition like caries.^[6] In our study, one-fourth of the sample was found to be having distal caries.

A study done by Syed KB et al done among Saudi population found that 39% of patients with impacted mandibular third molars had distal cervical caries in second molars.^[7] Falci et al had studied 246 periapical radiographs of lower third molar region and found that the prevalence rate of caries on the distal surface of second molar was 13.4%.^[8] Sheikh et al done a study to evaluate the incidence of caries on distal aspect of lower second molars along with impacted lower third molars and found that 42.5% cases showed caries on distal aspect of lower second molars. Our study showed 23.27% of patients with impacted third molars have had distal caries in the second molar.

Ustaad F. et al studied the incidence of distal caries in second molar in multinational female population reported to the King Khalid University,^[9] Saudi Arabia and found that 62 patients, out of 311 patients, had distal caries adjacent to impacted third molar. Highest number 85% (53 cases) of caries were associated with mesioangular impactions followed by vertical, distoangular, and horizontal impactions. This finding was nearly similar to our study, as we also found the incidence of distal caries was highest with mesioangular impaction (68.3%) followed by vertical (25.4%), horizontal (4.2%) and distoangular (2.1%) impactions.

Extraction of wisdom teeth is one of the common surgical procedures in oral surgery. The judgement to remove a third molar is often not a simple and

straightforward one. A surgeon must evaluate the risks and benefits associated with the surgical removal of third molars. Therefore, it becomes necessary to be aware of the precise indications where the removal of a lower third molar is essential.^[2]

With the mandibular third molar absent, the exposure of the distal surface of root of the second molar can be corrected and thus prevents the development of distal cervical caries in mandibular second molar tooth.^[3]

CONCLUSION

As the incidence of distal caries on the second mandibular molar was found to be high, it is recommended that careful monitoring and frequent radiographical examinations were necessary to detect early caries. Nevertheless, it seems more conservative to advocate removal of impacted teeth communicating with the oral cavity since it might be impossible to prevent caries of the second molar.

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