

Incidence of Distal Cervical Caries in Second Molars In Multinational Female Patients

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Abstract:

Aim: To identify the prevalence of caries in the distal aspect of corresponding lower second molars in patients referred for lower third molar assessment.

Materials and Methods: Patients, referred to Department of Oral and Maxillofacial Radiology, King Khalid University Female Campus, for panoramic radiography, were included in this study. The age range of the patients was 17-60 years. Radiographic examinations were carried out. The angulations of impaction and incidence of caries of the adjacent teeth were determined.

Results: 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.

Key Words: Distal cervical caries, impacted third molars, prevalence of caries

Introduction

The decision whether to remove a mandibular third molar is probably one of the most frequent treatment decisions faced by the dental profession. The debate concerning the indications for removal of impacted mandibular third molars has been ongoing for many years.

Prophylactic removal of third molars in young adults has become widely adopted preventive measure on poorly defined indications.

Indications for removal of impacted teeth vary from orthodontics, prosthodontics, and pathologic causes. One of the reasons that the impacted tooth is removed is carious lesion

on the adjacent teeth.

For mesioangular and horizontal impacted lower third molars partially exposed in the oral cavity, occlusal surfaces form plaque accumulative crevices against the distal surfaces of the second molars leading to caries.¹ Partially exposed impactions do not participate in mastication and offer favorable conditions for bacterial accumulation, which cannot be cleaned through normal brushings, and flossing resulting in caries.²

If the second molar caries deeply penetrates or structurally undermines the distal root or the furcation, the prognosis of the second molar may be questionable, and its extraction may be needed. When distal second molar caries is incipient, the dentist could decide to have the third molar extracted.

The following study was done to analyze the correlation of the distal caries of the second molar and the eruption state of the mandibular third molar using panoramic radiographs statistically and hence propose the acceptable guideline for preventive extraction of the mandibular third molar.

Materials and Methods

Consecutive panoramic radiographs and clinical records of 3000 patients, who reported to King Khalid University, Abha, Kingdom of Saudi Arabia, were retrieved for the purpose of this study. The patients from 17 to 60 years old were included in the study. One oral and maxillofacial radiologist confirmed the radiographs at the same time to determine the number and types of impacted teeth, and the presence of associated pathologies. 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.

The angulations of impaction were measured using long axes of the impacted and adjacent teeth. Pathologies associated with impacted teeth included: Carious lesions of the adjacent tooth (Graph 1).

Data were collected and recorded on a spreadsheet (Excel 2007; Microsoft), and a Chi-square test was performed.

Results

Panoramic radiographs of 3000 Arabian female patients aged 17-60 years old (mean 42 years) were examined. The total of 311 patients presented impacted teeth. The 22-30 years age group had the highest prevalence of tooth impaction (29.8%)

and semi-impaction (19.4%), but this trend decreased with increasing age. 62 patients, out of 311 patients, had distal caries adjacent to impacted third molar (Graph 2). The highest number 85% (53 cases) of caries were associated with mesioangular impactions followed by vertical, distoangular, and horizontal impactions (Graph 3).

Discussion

The prophylactic extraction of asymptomatic impacted wisdom teeth is defined as the (surgical) removal of wisdom

teeth in the absence of local disease.³ In this context, critical appraisal of the literature reveals that prophylactic extraction of third molars occurs in a disorderly manner without clearly defined criteria.

The study showed that 5% of the mandibular third molar teeth are removed because of second molar caries. However, data suggests the higher numbers according to other studies.⁴

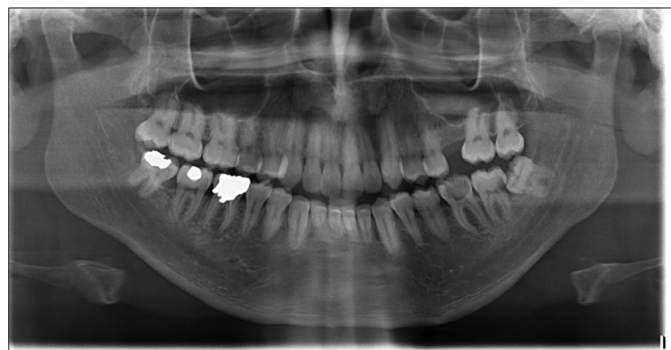
According to Adeyemo *et al.*, the major reason for third molar extraction was caries and its sequela (63.2%), followed by recurrent pericoronitis (26.3%) and periodontitis (9.2%).⁵ The results of Bataineh *et al.* showed an overall caries rate of 23% in impacted molars and 0.5% in the second molars associated with impacted molars.⁶ Because of the above mentioned reasons, early or prophylactic removal of a partially erupted mesioangular wisdom teeth could prevent distal cervical caries forming in the mandibular second molars.⁷ In the present study, only 20% incidence of caries was reported in the distal surface of the second molar, and 85% of this incidence was due to mesioangular impacted third molars. Since the positive results for caries are not statistically significant, the authors are not in favor of prophylactic extraction of third molar impacted tooth. However, due to small sample size and chances of observer bias due to difficulty in differentiating coronal radiolucency due to caries or resorption, the data cannot be very conclusive.

Conclusion

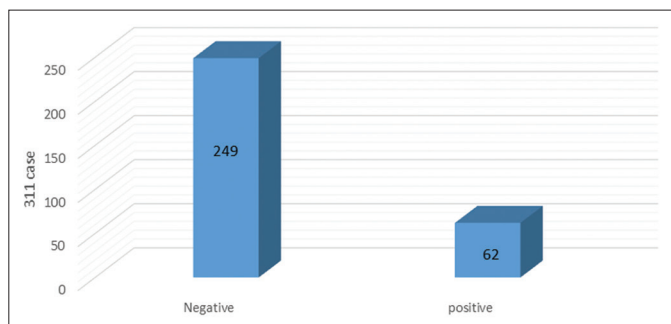
The authors agree with the NICE guidelines,⁷ that states all unerupted third molars as well as partially or fully erupted third molars classed as vertical, horizontal, or distoangular should be left in situ, providing they are pathology and symptom free. However, we recommend careful monitoring and interproximal radiographs to detect the lesions early and subsequently, the impacted tooth may be removed if deemed necessary.

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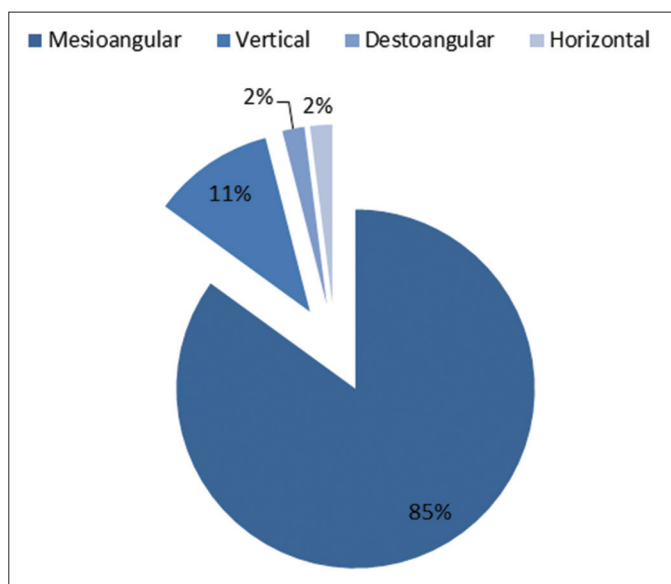
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Graph 1: Orthopantomogram showing distal caries on second molar adjacent to mesioangular impacted third molar.



Graph 2: Presence of distal caries of second molar.



Graph 3: Relation between angulation of the impacted third molar and caries on second molar.

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