

Assessment of prevalence of dentigerous cysts associated with impacted mandibular third molars

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Abstract

Background: Prevalence of dentigerous cysts related to impacted third molars has been considered important because the risk justifies prophylactic extraction. The purpose of this study was to find out the prevalence of dentigerous cyst caused by impaction of mandibular third molar

Methods: A descriptive study was conducted in the Department of Oral and Maxillofacial Surgery. Samples were taken from the data of patient's medical record from July 2016 until June 2019.

Results: The result of this study showed the number of oro-maxillofacial cyst cases in the period was as much as 0.89%. Dentigerous cyst was the most common odontogenic cyst (27.95%). 41-50 years old study participants suffered the most from dentigerous cyst due to impaction of the mandibular third molars. The most chosen therapy was enucleation (100%).

Conclusions: Impacted third molars were mostly associated with the dentigerous cyst, with the same frequency in both male and female. The age group of 41-50 years old has high possibility of developing dentigerous cysts.

Keywords: Impacted Teeth, Mandibular Third Molar, Pathological Lesion, Dentigerous Cyst, Enucleation

Introduction

The failure of a tooth to erupt to its normal position in the dental arch leads to the impaction of that tooth. Impacted tooth mostly results in infection, dental caries, ear disorders, pain, mandible fractures and the formation of odontogenic cysts and tumours. One of the most common odontogenic cysts that are caused by dental impaction are dentigerous cysts. These cysts are mostly found in the third molar region, either in the maxilla and the mandible, the upper canine region, and fewer are found in the lower premolar region.^{1,2} Untreated dentigerous cysts can cause infections, pathologic fractures, shifting of the impacted tooth, and resorption of adjacent tooth roots.³

Based on the above background, this study was conducted to obtain information regarding cases of dentigerous cysts due to impaction of the mandibular third molar.

Subjects and Methods

A descriptive study was conducted in the Department of Oral and Maxillofacial Surgery, from July 2016 - June 2019.

The sample in this study was the dental record of patients with dentigerous cysts due to impaction of the mandibular third molars. Followed by the examination and recording the total number of cases of cysts, it was identified and examined which cases were included into dentigerous cysts due to the impact of lower third molar teeth. The examination and data recording included the number of patients, age, sex, and therapy was performed after.

Results

A total of 20,902 patients were included in this study. Among them 186 patients suffered from oromaxillofacial cysts. Most odontogenic cyst types were dentigerous cysts with as much as 52 cases (27.95%). It was found that dentigerous cysts occurred more in the permanent teeth than the primary teeth. In both the dentition, the most common cause of the dentigerous cyst was the impacted mandibular third molars.

Table 2 showed the prevalence of dentigerous cysts due to the impaction of mandibular third molar teeth by age group. Patients aged 41-50 years were the most frequently affected (50%) old which was found in as much as 7 cases (50%), followed by 21-30 years old

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(21.42%). There were no cases of dentigerous cysts due to impaction of mandibular third molar in the age group of 0-10 years old, 11-20 and more than 60 years old.

Table 3 shows the type of treatment most commonly assigned to patients with dentigerous cysts due to impaction of lower third molars in this study was enucleation.

Figure 1 shows the equal distribution of patients with dentigerous cysts due to impaction of lower third molars in male and female (50%).

Table 1: Percentage of Oromaxillofacial cyst from July 2016- June 2019

Timeline	Number of patients	Number of oromaxillofacial cysts detected (%)
July 2016- June 2017	7660	35 (0.65)
July 2017- June 2018	5832	62(1.06)
July 2018-June 2019	7410	89 (1.20)
Total	20,902	186 (0.89)

Table 2: Age distribution of dentigerous cyst due to impacted third molars

Age group (years)	Number of Dentigerous cyst (%)
0-10	0 (0)
11-20	0 (0)
21-30	3 (21.42)
31-40	2 (14.29)
41-50	7 (50)
51-60	2 (14.29)
>60	0 (0)
Total	14 (100)

Table 3: Treatment modalities provided for the dentigerous cyst

Treatment Modalities	N (%)
Enucleation	14 (100)
Marsupialisation	0
Total	14 (100)

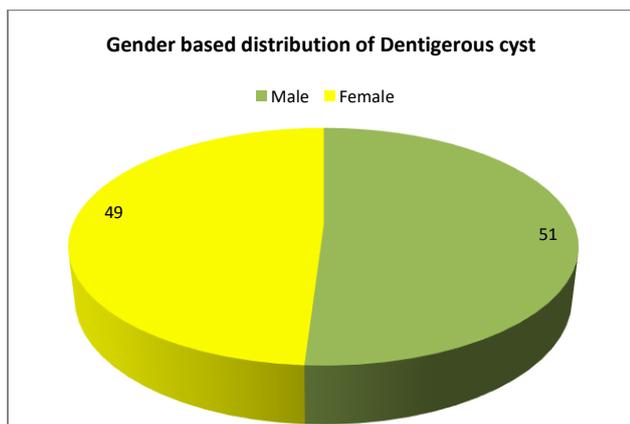


Figure 1: Gender based prevalence of dentigerous cysts due to impaction of third mandibular molar

Discussion

The most common type of odontogenic cysts found was dentigerous cysts which were found in 52 cases (27.95%). This result was in contrast to the results of Shafer et al. in 2006 which suggested that radicular cysts were the most common odontogenic cysts found, followed by dentigerous cysts.⁴ However, Ramadhani in 2008⁵ showed that dentigerous cysts were the most common cases (45%) found in the population. Differences in research results with existing theories may be influenced by environmental factors of society.

Our results showed that the most frequent cause of dentigerous cyst was the impaction of the mandibular third molars. This result was consistent with studies conducted by Coulthard 2003⁶ and Miloro 2004². Mandibular third molars mostly suffer from a lack of room for normal eruption as it is the last tooth to erupt in the oral cavity. This may result in a high frequency of dentigerous cysts in relation to mandibular third molars. The gender-based distribution of dentigerous cysts due to the impacted mandibular third molars was equal among male and female study participants. In contrast, studies conducted by Coulthard 2003⁶, Miloro 2004² and Saraf 2006⁷ stated that dentigerous cysts were found more in males than female.

The prevalence of dentigerous cysts due to impaction of mandibular third molar by age group indicated that the most affected age groups were 41-50 (50%) and the 21-30 (21.42%) years old. In contrast, Miloro 2004² suggested that dentigerous cysts were mostly found in the patients aged from 10-30 years old. Differences in the results may be caused by the samples limitation to dentigerous cysts caused by mandibular third molars, not the whole case of dentigerous cysts. Also, long periods of time research can also be one of the causes of this difference.

Enucleation was the preferred type of treatment modality in our research as no further surgery is required because the cysts are removed entirely, and the potential for case recurrence is small. However, the enucleation technique also has a disadvantage, which is it cannot be done for larger lesions and thinner bones because it can cause a fracture.⁸

Conclusion

Impaction of mandibular third molars was the most common cause for dentigerous cysts. Patients in the age group of 41-50 years had the higher possibility of developing cysts.

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