

Reasons for third molar extraction - A cross sectional retrospective study

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Abstract

Background: Tooth extraction is the most common dental procedure till date. The various reasons for tooth extraction being dental caries and periodontal disease. The present study aimed to evaluate the prevalence and the etiology of extraction of erupted third molar tooth. **Settings and design:** A retrospective cross sectional study was done on patients visiting department of dentistry from January 2018 to June 2018 for third molar extraction. **Materials and method:** Patients between 21 to 80 years undergoing extraction of erupted maxillary or mandibular third molar tooth were included. Patients with partially erupted and impacted third molars, medically compromised patients and pregnant females were excluded. Patients were evaluated by age, gender, the type of tooth extracted (maxillary/mandibular), etiology of the extraction. **Statistical analysis used:** Data was expressed as percentages. **Results:** A total of 192 extractions were done on 182 patients and analysed. The male: female ratio was 1:1.1. Mandibular third molars were commonly extracted (61.97%). The main etiology for extraction of teeth were severe caries / pulpal necrosis (60.9%) followed by malopposed/malpositioned tooth (20.3%) and severe periodontal disease (16.14%). The less common etiological factor for extraction were preprosthetic extraction (2.1%) followed by teeth in the line of fracture (0.5%). **Conclusion:** The main etiology for third molar extraction was severe caries / pulpal necrosis. Mandibular third molar were more commonly extracted than the maxillary third molar teeth.

Keywords: Extractions, Dental caries, Periodontal disease, Third molar

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INTRODUCTION

Teeth are removed from the mouth for a variety of reasons. Although the aim of dentistry is to preserve and maintain the teeth in the oral cavity, it is still necessary to remove some of them¹. Third molars are the last tooth to erupt in the oral cavity. Most of the times the third molars fail to

completely erupt in the oral cavity and hence remains partially erupted or impacted. Impacted third molars are the most common developmental disorder of the human being². Surgical management of impacted third molars is a common treatment routinely performed in the clinics of oral and maxillofacial surgeons. Removing asymptomatic third molars is not without controversy and debate³. Many of the studies have suggested that dental caries is the major reason for extraction of permanent teeth in younger age group but as the age increases periodontal disease becomes more important reason for tooth loss⁴. Various studies have been done to find the reasons for impacted third molar extraction either due to pathology or prophylactic removal. However very few studies have been done to analyse the reasons for erupted third molar removal. The present study was conducted considering erupted third molar as any other permanent tooth in the oral cavity. Hence the aim of

the present study was to evaluate the distribution and etiology of the extraction of the erupted third molar tooth.

MATERIALS AND METHOD

A cross sectional retrospective study was done at Akash hospital, Devanahalli to evaluate the various reasons for extraction of third molar teeth.

Setting and design: A retrospective cross sectional study was done on patients visiting department of dentistry from January 2018 to June 2018 for third molar extraction.

Inclusion criteria:

1. Patients between the age of 21 and 80 years
2. Patients undergoing extraction of erupted maxillary or mandibular third molar tooth.

Exclusion criteria:

1. Patients with partially erupted and impacted third molars
2. Medically compromised patients and pregnant females

RESULT

Demographic Pattern

The male: female ratio was 1:1.11. Females outnumbered males Table 1A. The patient age ranged from 21 to 80 years; most of the extraction was in the age group 21-30 years (n=90, 46.9%) followed by patients in the age group between 31-40 years (n=59, 30.7%). Age wise distribution of the injury is shown in Chart 1B

Table 1A: Gender wise distribution of patient with third molar extraction

Gender	Total number of patients
Male	86 (47.25%)
Female	96(52.7)

Table 1B: Age Wise Distribution of the Patients with third molar extraction

Age group	Total number of teeth extracted (n)	Percentage
21-30 years	90	46.9%
31-40 years	59	30.7%
41-50 years	22	11.5%
51-60 years	16	8.3%
61-70 years	4	2.1%
71-80 years	1	0.5%
TOTAL	192	100%

Number and percentage in different age groups

The most frequent tooth extracted was the mandibular third molar tooth (n=119). In the age group of 21-30 years most mandibular tooth were extracted [n=61 (51.2%)], and the least number in the age group of 71-80 years [n=1 (0.8%)]. A total of 73 maxillary third molars were extracted with maximum extraction in the 21-30 years age group [n=29 (39.7%)] and least in the 71-80 years age group [n=0 (0%)]. Table 2

Table 2: Number and percentage of third molar extraction in different age groups

AGE GROUP	mandibular third molar (number (n) of teeth extracted and percentage)	maxillary third molar (number (n) of teeth extracted and percentage)
21-30 YRS	61 (51.2%)	29 (39.7%)
31-40 YRS	35 (29.4%)	24 (32.8%)
41-50 YRS	12 (10.08%)	10 (13.6%)
51-60 YRS	8 (6.7%)	8 (10.9%)
61-70 YRS	2 (1.6%)	2 (2.73%)
71-80 YRS	1 (0.8%)	0 (0%)
TOTAL	119 (61.97%)	73 (38%)

Study design: Prior to this research, protocol of the study was approved by the ethical committee. A proforma was prepared for the collection of data. The parameters assessed included age, sex, etiology for tooth extraction. The etiology of tooth extraction was categorized into eight main categories:

1. Severe caries / pulpal necrosis
2. Severe periodontal disease
3. Orthodontic reason
4. Malopposed tooth/malpositioned tooth
5. Teeth in line of fracture
6. Preprosthetic extraction
7. Teeth associated with pathologic lesion
8. Preradiation therapy

Statistical Analysis: The data was entered into MS Office Excel 2016. The data obtained were statistically analysed and following content analysis the data were interpreted using percentage.

Analysis of reasons for tooth extractions based on numbers and percentage

Table-3 enumerates the various reasons for tooth extraction. Severe caries / pulpal necrosis appeared to be the most common reason accounting for 117(60.9%) of total extractions. Malopposed tooth/malpositioned tooth were the second main reason resulting in 39 (20.3%) extraction. Severe periodontal disease was the third major reason resulting in 31 (16.14%) extractions. There were no extractions done for preradiation therapy, orthodontic reason and for teeth associated with pathologic lesion. Preprosthetic extraction accounted for 2.1 % and only 0.5% of the third molar teeth were removed due to the teeth being in the line of fracture.

Table 3:

Reasons for extraction	Total number of teeth extracted	Percentage
Severe caries / pulpal necrosis	117	60.9%
Severe periodontal disease	31	16.14%
Orthodontic reason	0	0%
Malopposed tooth/malpositioned tooth	39	20.3%
Teeth in line of fracture	1	0.5%
Preprosthetic extraction	4	2.1%
Teeth associated with pathologic lesion	0	0%
Preradiation therapy	0	0%
Total	192	100%

Analysis of Reasons for tooth extractions in different age groups

When reasons for extraction among different age groups were analyzed, it was found that severe caries/ pulpal necrosis was predominant reason (70%) for tooth loss in age group of 21-30 years. Severe periodontal disease was the most common reason (81.8%) in 41-50 years age group. Malopposed tooth/malpositioned tooth was the most common reason (28.9%) in 21-30 years age group. There were no extractions done for teeth associated with pathologic lesions, preradiation therapy and orthodontic reason. 1.1% teeth in the line of fracture were removed in the age group of 21-30 years. Majority of the preprosthetic extraction 2 (50%) were done in the 61-70 year age group.

Table 4:

Age group	Teeth extract ed	Severe caries/ pulpal necrosis	Severe periodontal disease	Orthod ontic reason	Malopposed tooth/malposi tioned tooth	Teeth in line of fracture	Preprosthetic extraction	Teeth associated with pathologic lesion	Preradiation therapy
21-30	90	63 (70%)	0	0	26 (28.9%)	1(1.1%)	0	0	0
31-40	59	47(79.6%)	0	0	12(20.3%)	0	0	0	0
41-50	22	4(18.18%)	18(81.8%)	0	0	0	0	0	0
51-60	16	2(12.5%)	11(68.75%)	0	1(6.25%)	0	2(12.5%)	0	0
61-70	4	1(25%)	1(25%)	0	0	0	2(50%)	0	0
71-80	1	0	1(100%)	0	0	0	0	0	0
	192	117	31	0	39	1	4	0	0

DISCUSSION

Third molar extraction is one of the most frequent procedures in oral surgery⁵. World Health Organization (WHO) in its report identified good oral health as an indicator of good health and recommended various steps in order to improve oral health globally⁶. The present study consisted of 182 patients in which 96 females (52.7%) and 86 males (47.25%). This is consistent with the study done by Abed Al Hadi *et al.*⁷ wherein females outnumbered males. The comparison of our results from other study is limited due the fact that majority of the article published focus on the reasons of extraction of partially or completely erupted third molar rather than the erupted tooth. Our results show that 46.9% of the teeth were

extracted in the age group of 21-30 years followed by 30.7% in the age group of 31-40 years. This is consistent with the study done by CE Medina-Solis *et al.*⁸. This can be due to the fact that the oral hygiene measures are not being followed properly by the younger individuals and also the older people might have lost their teeth at an early age⁹. The present study results show that the mandibular third molar 119 (61.97%) were more commonly extracted, than the maxillary third molars 73 (38%). The results of the study are consistent with the study done by Abed Al Hadi *et al.*⁷, whereas the study done by CE Medina-Solis *et al.*⁸ shows more incidence of maxillary third molar extraction than the mandibular. In this retrospective study it was found that more than half of the teeth that is 60.9%

were extracted due to severe dental caries or pulpal necrosis. This finding is consistent with the study done by Anand et al¹⁰. This may be attributed to diet, socio-economic factors and level of dental awareness amongst the patients. Malopposed tooth/malpositioned tooth was identified as the second most common reason accounting for 20.3% of total extractions. This can be explained by the fact that mandibular third molars tend to occupy an abnormal position because of lack of space in the posterior mandible¹¹. Although teeth are primarily extracted due to disease such as dental caries and periodontal disease^{12,13,14} that can cause infection and pain, sometimes healthy teeth have to be sacrificed to improve chewing or for correction of malocclusions⁸. The same holds good for the maxillary third molar teeth. The third main reason for tooth removal was severe periodontal disease accounting for 16.14% of the total extraction. The finding is consistent with the study done by Abed Al Hadi et al.⁷. In the present study 2.1% extractions were due to preprosthetic reason, which was the fourth main cause for teeth extraction. This result is not in accordance to the study by CE Medina-Solis et al.⁸ where prosthetic extraction was the main reason for third molar removal. The last reason for extraction was the teeth being in the line of fracture 0.5%.

CONCLUSION

There were no extractions done for prophylactic reason. All the teeth extracted were associated with disease or were symptomatic. In the present study it was found that of the main reasons of tooth extractions was dental caries. Malopposed tooth/malpositioned teeth were second main reason for extraction. The third main reason was severe periodontal disease. The less number of preprosthetic extractions shows the attitude of patients towards prosthetic rehabilitation following tooth loss. We propose that third molars can be used to replace first and second molar if they are lost early. Dentists should emphasise on preventive measures that can be undertaken by patients in order to avoid caries and periodontal diseases so as to save the teeth whenever possible. Also the malopposed teeth should be extracted whenever identified so as to prevent further complications.

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