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Original Research Article

Pattern and causes of tooth extraction in patients reporting to GVPIHC and MT, Visakhapatnam, Andhra Pradesh

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ABSTRACT

Background: Teeth help us in masticatory function, phonetics and aesthetics. Loss of teeth may affect quality of life and has significant socioeconomic, psychological consequences. Its important to analyse the reasons and patterns of tooth loss to know their impact on the remaining dentition and oral health. Thus, the present study was designed to understand the pattern and causes of tooth extraction in a targeted population.
Methods: This retrospective study analysed 972 records of patients who underwent 1092 dental extractions in the department of dentistry at Gayatri Vidya Parishad Institute of Health Care and Medical Technology-Visakhapatnam from January 2021 to December 2021. Various aspects like the causes of extraction, type of teeth extracted, type of dentition involved and site of extraction were evaluated. The collected data was then tabulated and subjected to statistical analysis.
Results: A total of 1092 extractions were evaluated and noticed only 7% cases involving primary dentition. Caries (65.8%) was the most common cause of dental extractions followed by periodontitis. Majority of extractions were noticed in maxillary posterior region. First molars (27.4%) were often extracted followed by second molars. Least number of extractions involved canine.
Conclusions: Dental caries and periodontitis were the most common causes of dental extraction. Most extractions involved secondary dentition. Maxillary and posterior regions had maximum number of extractions. First molars were commonly extracted followed by second molars. It is necessary to implement preventive dental care programs and improve the oral hygiene awareness in public.

Keywords: Causes, Pattern, Extraction, Teeth

INTRODUCTION

Teeth help us in masticatory function, phonetics and aesthetics. Loss of teeth may affect quality of life and has significant socioeconomic, psychological consequences. It has become a global public health concern of immense proportion.[1]In developing countries, despite being preventable, dental caries and periodontitis remain the most common reasons for tooth extractions.[2] As age progresses the causes of extraction vary from caries, impactions, orthodontic purposes, trauma to periodontitis.[3] Non-clinical factors, primarily patient demand, constitutes 30% of the causes of dental extractions in a survey conducted in Iran.[4] Extraction of tooth is one of the most common and affordable procedure for patients to achieve instant results and relief from pain. Degree of urbanization has been found to affect the pattern of extractions.[5] Its important to analyse the reasons and patterns of tooth loss to know their impact on the remaining dentition and oral health. Thus, the present study was designed to understand the pattern and causes of tooth extraction in a targeted population.

METHODS

This retrospective observational study analysed 972 records of patients who underwent 1092 dental extractions at the department of dentistry at Gayatri Vidya Parishad institute of health care and medical technology-Visakhapatnam from January 2021 to December 2021. The inclusion criteria involved cases undergoing dental extractions. Incomplete data was excluded from the study. Various aspects like the causes of extraction, type of teeth extracted, type of dentition involved and site of extraction were evaluated. The usual causes of extraction like caries, periodontitis, physiologic mobility, trauma, orthodontic purpose, impactions were analysed. Extractions of supernumerary teeth and endodontic failure were categorised as others. The collected data was then tabulated and subjected to statistical analysis.

RESULTS

A total of 1092 dental extractions were analysed from the dental records and found that 93% of extracted teeth involved secondary dentition (Figure 1).

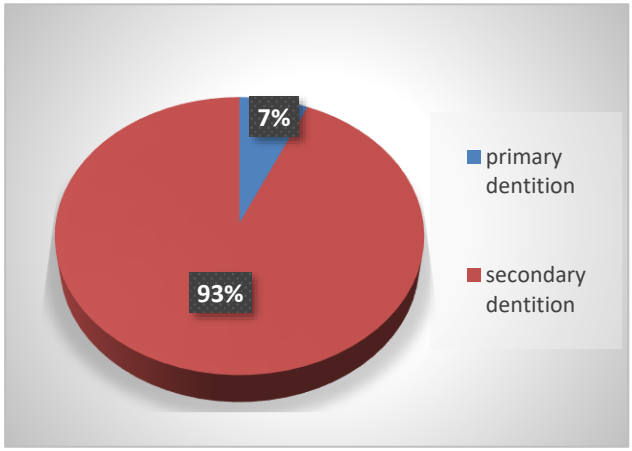

Figure 1: Distribution based on type of dentition.

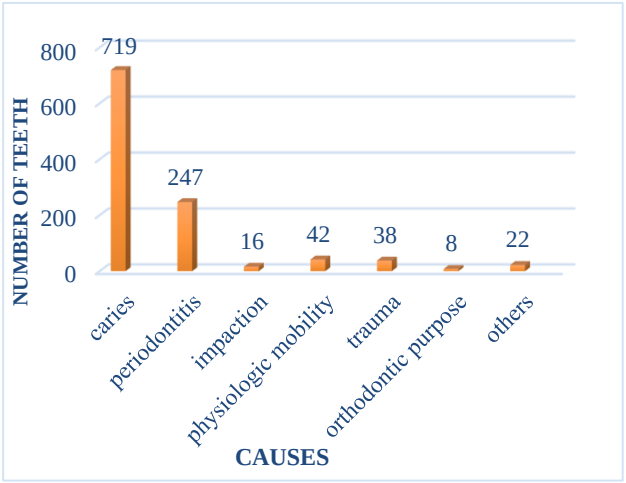

Figure 2: Distribution based on causes.

Caries was the most common cause for extraction accounting for 65.8% of extractions followed by periodontitis. The other causes included physiologic mobility (41.17%), trauma (3.47%), impactions (1.46%) and orthodontic purpose (0.73%) (Figure 2).

In our study population first molars (27.4%) were the most common type of tooth to be extracted followed by second molars (25.27%). Least number of extractions were noticed involving canines (1.09%). The third molars reported 12.08% of cases similar to that of central incisors. The second premolars were noticed in 6.59% of cases followed by first premolars (5.49%) and lateral incisors (3.29%) (Figure 3).

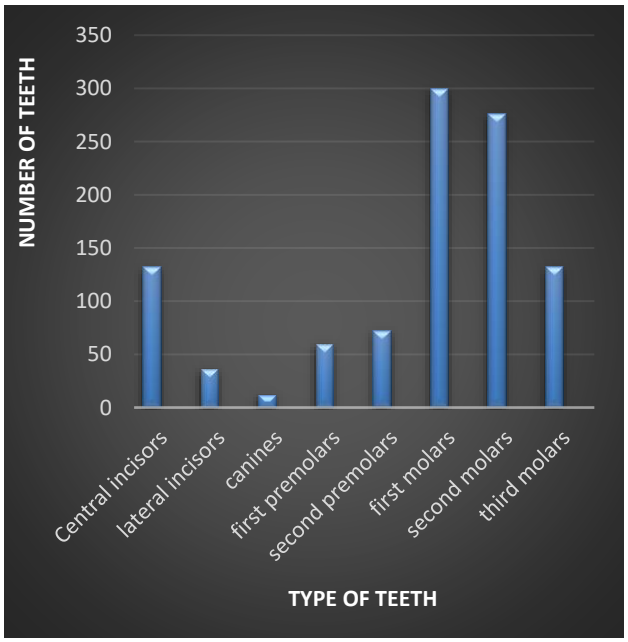

Figure 3: Distribution based on type of teeth.

Considering the location or site of tooth extraction, most teeth extracted were located in maxillary posterior region (46.79%). The pattern of distribution of teeth extraction among jaws was least in mandibular anterior region (Table 1).

Table 1: Distribution based on location.

Variables	Anterior	Posterior
Maxillary teeth	132	511
Mandibular teeth	48	401

The association between different locations was analysed through Pearson's chi-square test and was found to be statistically significant, $p<0.001$.

DISCUSSION

Loss of teeth not only affects mastication but also causes psychosocial issues. Knowing the pattern and causes of dental extraction is always beneficial to the dental health

care providers to improve the oral health awareness programs and to deliver better services to the community. A great variation exists in the pattern of tooth extraction in different regions. The primary dentition barely makes 10% of entire population which is true in our study. Sahibzada et al also reported less than 10% of primary dentition involvement in their study.[6]

Caries was found to be the major cause of dental extractions accounting to 65.84% of our study population. In many studies it was found to be responsible for majority of extractions in a wide range from 32.6% to 86.2%.[7] Our study reported periodontitis as the next predominant cause for dental extraction after caries, this was in contrast to the survey conducted in Riyadh where orthodontic reasons were considered as the second most common cause of tooth loss. Our findings were in accordance with the study conducted by Farsi who also reported periodontal problems as the second most common cause of tooth removal.[8] Sharif et al reported 9.9% cases with impaction problems in contrast to our study which reported only 1.46% of cases.[9] Other reasons for extraction in our study included failed root canal therapy, supernumerary teeth which accounted for 2.01% of cases similar to the study by Sahibzada et al.[6]

With regards to tooth type, the most commonly extracted tooth was first molar followed by second molar. This finding was in agreement with Passarelli et al where they reasoned it to the anatomical development of molar tooth that results in the formation of grooves and fissures making them more susceptible to dental caries.[10] The least common extracted teeth were the canines which could be attributed to their prominent smooth clinical crown and long roots with an extensive periodontal attachment making them resistible to caries and periodontal diseases. These results were similar to the study by Ali.[11]

Our study reported more number of maxillary teeth extractions which was in accordance with the study by Hamasha et al.[12] In contrast to our study Taiwo et al reported dominance of mandibular teeth extractions.[13] Posterior teeth were extracted more in number in our study than the anterior teeth. This could be probably due to poor access to oral hygiene maintenance and anatomical variations in posterior teeth.

The results of our study will help in the establishment of dental health policies in our area. In addition, it also showed the need to enhance preventive dental care in the population.

CONCLUSION

Dental caries and periodontitis were the most common causes of extraction of teeth. Most extractions involved secondary dentition. Maxillary and posterior regions had maximum number of extractions. First molars were commonly extracted followed by second molars. Health care providers must initiate more oral health awareness programs that are oriented towards dental disease prevention.

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