Partial Edentulousness in Patients Visiting the Dental Out-Patient Department of Gandaki Medical College, Pokhara, Nepal

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Keywords

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ABSTRACT

Introduction: Partial edentulousness is a dental arch in which one or more but not all natural teeth are missing due to dental caries, periodontal problems, trauma etc. It causes difficulty in chewing food, alteration of speech and unpleasant esthetics which adversely affect the general health and quality of life.

Methods: This study was conducted in the Department of Prosthodontics, College of Dental Surgery, Gandaki Medical College, Pokhara from November 2017 to March 2018. All patients above the age of 15 years presenting with partial loss of dentition and willing to give informed consent were included in the study. Data regarding age, gender, missing teeth, cause of permanent tooth loss and denture status were collected from 342 patients.

Results: The most common cause of permanent tooth loss was dental caries (58.2%) followed by periodontal (18.1%), dental caries and periodontal (9.4%), trauma (7.9%), dental caries and trauma (2.9%), periodontal and trauma (2.3%) and others (1.2%).The distribution of partially edentulous areas in maxillary arch (35.7%), mandibular arch (45.9%) and both arches (18.4%).The most common type of partial edentulism was found to be Kennedy's class III followed by class II, class I and class IV in both the arches.

Conclusion: The most common cause of permanent tooth loss was dental caries. Mandibular arch was more affected than the maxillary arch. The most common type of partial edentulism was Kennedy's class III.

INTRODUCTION

Partial edentulousness is a dental arch in which one or more but not all natural teeth are missing. Edentulism can occur due to dental caries, periodontal problems, poor oral hygiene, trauma, pulpal, periradicular disease, orthodontic and prosthodontic indications and some systemic factors.[1,2] It causes difficulty in chewing food, alteration of speech and unpleasant esthetics which adversely affect the general health and quality of life.[3,4]

For prevention and treatment of oral diseases, information is required about the cause of permanent tooth loss. The prevalence and patterns of tooth loss have been studied to a certain extent in other countries, but a few studies have been carried out in our country. A simple estimation of the proportion of partially edentulism is a rough indication of the prevalence of dental diseases and the success or failure of dental care. This forms a background for the assessment of treatment needs.

This study aims to identify the causes of permanent tooth loss and determine the pattern of partial edentulousness based on Kennedy's classification in patients visiting the dental OPD of Gandaki Medical College & Teaching Hospital, Pokhara, Nepal.

MATERIALS AND METHODS

This cross sectional study was carried out at Department of Prosthodontics, College of Dental Surgery, Gandaki Medical College & Teaching Hospital, Pokhara, Nepal. After the approval from institutional review committee, study was conducted among patients visited dental out-patient department from November 2017 to March 2018. Consecutive sampling technique was followed, and sample size was calculated as 342. The written informed consent was acquired before enrolling them to study.

The inclusion criteria were: aged between 15 years and 80 years, having partially edentulous region and those willing to give consent.

The exclusion criteria involved the patients who had completely edentulous or only missed maxillary and mandibular third molars. A brief history was taken and recorded in the case record sheet followed by oral examination using the Kennedy's classification by principal investigator.

Kennedy's classification:

Class-I: Bilateral edentulous area located posterior to the remaining natural teeth.

Class-II: Unilateral edentulous area located posterior to the remaining natural teeth.

Class-III: A unilateral edentulous area with natural teeth both anterior and posterior to it.

Class-IV: Single but bilateral edentulous area located anterior to the remaining natural teeth.

The findings were entered in work proforma and the data were entered into Microsoft 2007 Excel sheet. The descriptive statistical analysis was done using SPSS version 15 by age, gender, cause of permanent tooth loss, status of denture wearer, pattern of partial edentulism.

RESULTS

Out of 342 study population 147 (43%) were males and 195 (57%) were females with the age ranged between 15 - 80 years (Table 1). The most common cause of permanent tooth loss was dental caries (58.2%) followed by periodontal (18.1%), dental caries and periodontal (9.4%), trauma (7.9%), dental caries and trauma (2.9%), periodontal and trauma (2.3%) and others (1.2%). Mandibular was 18.4% of the study population had partial edentulism on both arches, while 35.7% had partial edentulism on the maxillary arch only and 45.9% on the mandibular arch only (Table 3). In the maxillary arch, Kennedy's class III (24.9%), was the most common pattern of partial edentulism followed by class II (10.5%), class I (10.2%), class IV (8.5%) Similarly in the mandibular arch, Kennedy's class III (34.5%) was the most common pattern of partial edentulism followed by class II (14.6%), class I (9.4%), and class IV (5.8%). (Table 4). Only 21.8% of the study population had replace their missing teeth (Table 5).

Table 1: Age and gender Distribution

Age range	Gender distribution	
	Males n(%)	Females n(%)
15 – 80 years	147(43%)	195(57%)

Table 2: Causes of permanent tooth loss

S.No	Causes of permanent tooth loss	Number (Percentage)
1	Dental caries	199 (58.2%)
2	Periodontal	62 (18.1%)
3	Trauma	27 (7.9%)
4	Dental caries and periodontal	32 (9.4%)
5	Dental caries and trauma	10 (2.9%)
6	Periodontal and trauma	8 (2.3%)
7	Others	4(1.2%)

Table 3: Arch wise distribution of partial edentulism

Arch	Number	Percentage
Maxillary only	122	35.7%
Mandibular only	157	45.9%
Both arches	63	18.4%
Total	342	100

Table 4: Distribution of Kennedy's classification in maxillary and mandibular arch

Kennedy's Class	Maxillary Arch n(%)	Mandibular Arch n(%)
Class I	35 (10.2%)	32 (9.4%)
Class II	36 (10.5%)	50 (14.6%)
Class III	85 (24.9%)	118 (34.5%)
Class IV	29 (8.5%)	20 (5.8%)

Table 5: Distribution of denture wearer and non denture wearer

Denture Wearer n(%)	Non Denture Wearer n(%)
75 (21.8%)	267 (78.2%)

DISCUSSION

In our study, we found that partial edentulism was more common in females than in males, which is consistent with the study carried out by Naveed H et al[4], Sapkota B et al[5], and Patel JY et al.[6] However, some earlier studies showed more males being edentulous than females.[7,8] This contradiction may be in part due to more females visiting the dental hospital and could also be attributed to the different socio-economic background and mal-habits like smoking and consumption of high sugar-containing diets among males. The most common cause of permanent tooth loss was found to be dental caries (58.2%) followed by periodontal disease (18.1%) which is in agreement with the findings of studies carried out by Muneeb A et al,[9] Akinboboye B et al.[10] The poor oral hygiene and inaccessibility for proper cleaning could be the possible reason which ultimately leads to dental caries and periodontal problems for tooth extraction.

In our study, Mandibular arch was affected more than the maxillary arch which is consistent with findings of other studies.[4,6] The most common type of edentulism was Kennedy's class III both in maxilla and mandible which is in agreement with the various studies conducted by Naveed et al,[4] Sapkota et al,[5] Patel et al,[6] Muneeb et al,[9] Bharathi M et al.[11] This could be due to the fact that the first molar is the first permanent tooth to erupt into the oral cavity, having a higher caries percentage and a higher chance of the tooth being extracted. The second most common type of edentulism was Kennedy's class I and least prevalent is class IV both in maxilla and mandible which is in agreement with various studies conducted by Patel et al,[6] Bharathi et al[11] and Charyeva et al.[12] However Kennedy's class I was the least common in the study conducted by Munneeb et al.[9]

In our study, 21.8% of the study population had already replaced their missing teeth. Of the various classes of partial edentulism patients with class IV situation got their teeth replaced which could be attributed to esthetic reasons. This was followed by class I and II; the main reason could be for masticatory purposes. However, persons with class III had the less percentage of replacement, which could be because they had an option of getting their teeth replaced with a fixed partial denture or an implant which might have been beyond their affordability.

CONCLUSION

The most common cause of permanent tooth loss was dental caries. Mandibular arch was more affected than the maxillary arch. The most common type of partial edentulism was Kennedy's class III and least common was Kennedy's class IV in both the arches.

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