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Original Article

The pattern of tooth loss due to dental caries and periodontal disease among patients attending dental department (OPD), Dhulikhel Hospital, Kathmandu University Teaching Hospital (KUTH), Nepal

Upadhyaya C[1], Humagain M[2]

[1,2]Lecturer, Department of Dentistry, Dhulikhel Hospital, Kathmandu University Teaching Hospital (KUTH), Dhulikhel, Nepal

Abstract

Aims and objectives: The aim of this study was to investigate the type of tooth usually associated with extraction due to caries or periodontal disease and its relation to age at which these were lost, among patients attending dental surgery outpatient clinic, Dhulikhel Hospital, Kathmandu University Teaching Hospital (KUTH).

Materials and methods: A total no of 626 patients (male-299 and female-327) attending at outpatient clinic, in the department of Dentistry, Dhulikhel Hospital were taken in over a period of six months. The details about the permanent teeth to be extracted regarding each tooth type, including age and sex of the patient, type of tooth extracted, cause of extraction were collected, causes other than dental caries and periodontal disease were excluded.

Results: The highest proportion of extraction due to caries occurred between 21-30 years of age, while that of periodontal disease was between 51-60 years of age. More than 80% of teeth lost were from below 40 years of age group. Mandibular first molar was by far the most frequently extracted tooth due to dental caries followed by maxillary first molar. Maxillary teeth were lost more than mandibular teeth due to periodontal disease.

Conclusion: Dental caries and periodontal disease are the two most important factors for extraction or removal of tooth. In this study dental caries is the major cause for loosing tooth among young group of people.

Key words: dental caries, periodontal disease, extraction

In a country like Nepal the prevalence of different dental disease is not fully explored and documented. But the pattern of dental disease has been changing with the implementation of different preventive procedures and preservation of maximum tooth structure as possible[1]. In spite of this, dental caries and periodontal diseases are still the major cause for extraction, though their relative contribution to tooth mortality varies from place to place[2,3,4]. Tooth loss due to extraction is mainly due to extensive caries with loss of the maximum amount of tooth structure and its sequelae including failed conservative procedures and also advance periodontal disease, extraction to some extent reflect the pattern and prevalence of major dental disease in a given population.

The present study aims at correlating the type of tooth usually with extraction due to dental caries and periodontal disease and also its relation to the age of patient at which tooth were lost.

Materials and methods

A total number of 626 patients (male-299 and female-327) attending outpatient clinic, in the department of Dentistry, Dhulikhel Hospital were taken in over a period of six months from 01-01-08 to 30-06-08.The data about the permanent teeth to be extracted regarding each tooth type, including age and sex of the patient, type of tooth extracted, cause of extraction were collected, causes other than dental caries and periodontal disease were excluded. Detail clinical examinations were carried out for determining the cause of extraction, extraction and pre-extraction radiographs were taken when deemed necessary. The criteria were based on that used by Kay Blinkhorn[5,6].

Correspondence
Dr. Chandan Upadhyaya
Lecturer, Department of Dentistry, Dhulikhel Hospital, Kathmandu University Teaching Hospital (KUTH), Dhulikhel, Nepal
E-mail: updch@yahoo.com

Results

During the course of study a total no of 721 and 563 no of permanent teeth were extracted due to dental caries and periodontal disease respectively. The study has shown a steep increase in the frequency of extraction due to dental caries among younger group of patients, which peaks in 21-30 years of age group and then gradually decline to 80 years of age (Fig 1). More than 80% of teeth lost were from below 40 years of age group. This result clearly indicates that dental caries is a disease of young people. Total extraction due to dental caries was seen more in females of younger group than male.

In case of periodontal disease, the extraction frequency increased gradually from 21-30 years, peaked at 51-60 years of age group. A total of more than 70% periodontal extraction cases were from 41-70 years of age group. A total of 10.23% of extractions were from 11-40 years of age group.

Frequency of extraction due to caries according tooth type is shown in bar chart at Fig 2. Mandibular first molar was by far the most frequently extracted tooth followed by maxillary first molar. The anterior teeth of upper and lower jaw were less frequently extracted especially incisors.Mandibular teeth were extracted more in comparison to maxilla and interestingly over 80% of total extracted teeth due to caries were first, second, third molars.

The various tooth type extracted due to periodontal disease is shown in Fig 3. Here more number of anterior teeth were lost than posteriors .Maxillary teeth were lost more than mandibular teeth due to periodontal disease. Premolars of both upper and lower arch were lost more in no as compared to incisors.

Table 1: Pattern of multiple extractions based on age group and sex among patients attending at Dental Opd, Dhulikhel Hospital (KUTH)

Age of patient	Caries Male Female	Periodontal Male Female
11-20	5 8	1 2
21-30	11 23	2 4
31-40	26 32	5 7
41-50	9 14	24 37
51-60	3 1	21 32
61-70	2 1	6 9
71-80	1 0	4 6
Above 80	0 1	1 1

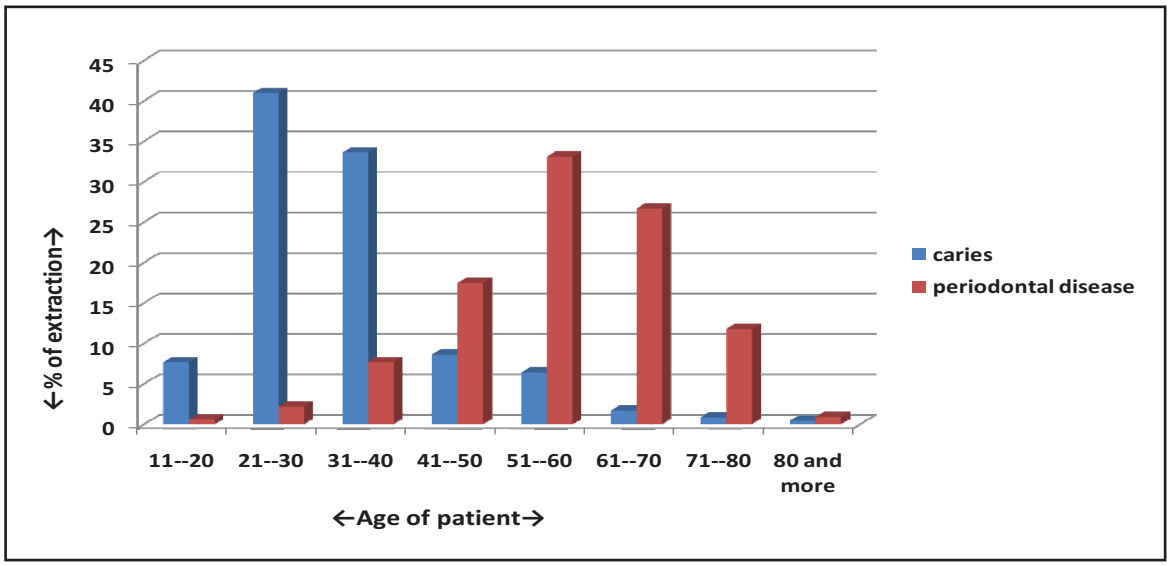

Fig. 1: Frequency of extraction due to Dental Caries and Periodontal disease according to age of patients

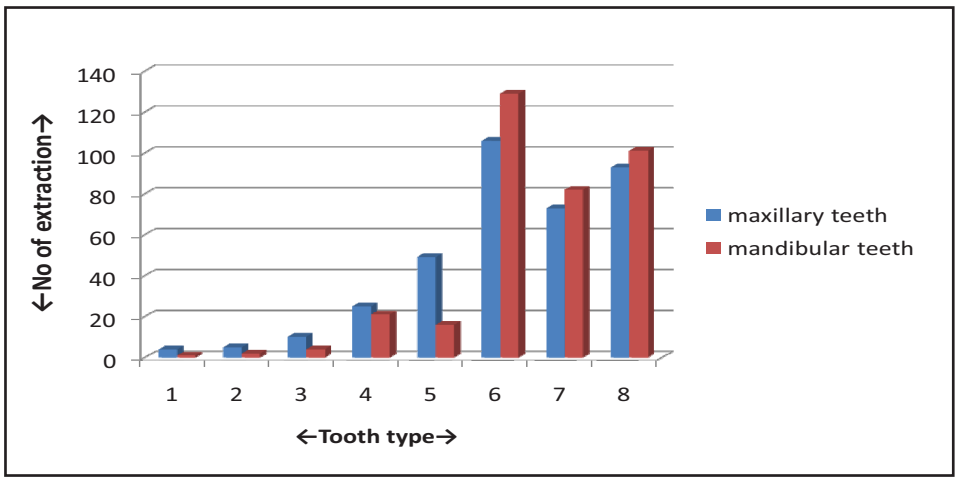

Fig 2: Frequency of extractions due to Dental Caries according to tooth type

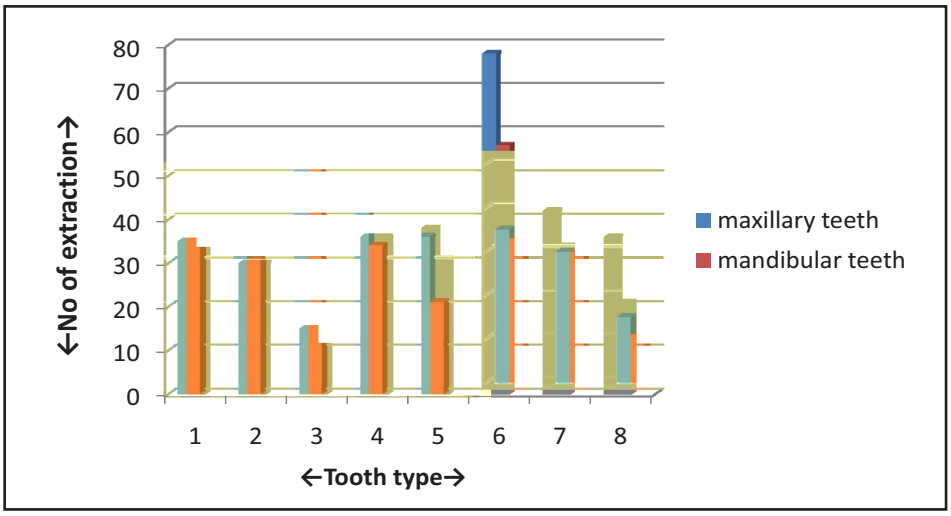

Fig 3: Frequency of extraction due to Periodontal disease according to tooth type

Discussion

The pattern of tooth loss seen in this study supports the widely held view that dental caries is the most common cause of extraction in the younger group of people while periodontal disease is more important and common in older group of people .The present study also confirms reports that caries is the most frequent cause of extraction[5,6,7].

Comparing the present study with similar studies done abroad, the difference is mainly in the age at which caries cease to be a cause of extraction and periodontal disease predominate, thereby reflecting the changing pattern in dental disease with age[5,6]. Over 56% of the total extractions noted in this study were due to dental caries which is slightly lower than that of studies reported from abroad[8].The present study also shows that periodontal disease for extraction became significant from 51-60 years onwards, contrary to its occurrence above 60 years in studies reported from developed countries[5,6]. In developed countries where level of oral health awareness is high percentage of extraction in younger age group due to dental caries is much less and those due to periodontal cause is very rare.

In a similar study done at dental college, Calicut, India and dental college, Trivandrum, India where the epidemiological variables compare well with the represent study, the transition from extraction due to caries to periodontal disease occurred at around the similar age range of 41-50 years[7,8]. The peak incidence of extraction due to dental caries occurred at a younger age in patients reporting at Dhulikhel Hospital, KUTH.

Dental caries still remains the major cause of extraction of posterior teeth by virtue of their unique occlusal morphology and early eruption of first molar which

predispose them to dental decay. An increased number of young people are thus dentally handicapped in our society. The introduction of different awareness programme by the electronic media, inclusion of oral health education classes during school levels, fluoride application, pit and fissure sealants etc. measures will help a long way on retaining these teeth.

However there was no marked difference in type of tooth extracted due to periodontal causes indicating the generalized nature of bone destruction associated with the disease. An increased frequency of anterior teeth extraction due to periodontal disease is due to their less susceptibility to dental caries and so lasted for a longer period[5,7]. More teeth were extracted due to caries at younger ages leaving less numbers of periodontal involvement and these are not really independent due to the habit of tooth brushing and other oral hygiene procedures are concentrated in anterior regions. The observations of caries as a cause of tooth loss in older age groups can be due to failure of long standing restorations rather than occurrence of new lesions [6]. So it should be noted that regular dental checkup visits have a protective effect against extractions due to dental caries in particular and other causes in general.

Male were less frequent visitors than the females and this behavior contributed to their extraction percentage. At the advance stage of disease, treatment sought by most female was extraction and this also reflects the socio-economic set up where dental treatment, with regard to its cost, was given a low priority. The female preponderance in extraction calls for more attention in the areas of dental awareness and motivation. Only then can better oral health of our young population be made a reality. The present study shows that dental caries is the leading cause of extraction in younger groups with periodontal disease predominating in older groups .In case of tooth loss due to periodontal disease, the age of onset, progress and final outcome coincide well with the natural course of disease.

Conclusion

Dental caries is still the major cause for loosing tooth among young group of people. The pattern of disproportionately, higher number of tooth loss due to dental caries can be reversed by cultivating prevention oriented habits and attitudes to bring down tooth mortality. Retention of a complete functioning dentition throughout life should be the ultimate goal of our profession.

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