

Incidence of Partial Edentulism in Himachal Population using Kennedy’s Classification: A Panoramic Radiographic Study

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Abstract

Aim: To determine the frequency and pattern of partial edentulism in Himachal population based on panoramic radiographic analysis.

Materials and methods: Data was collected from 121 panoramic radiographs and grouped into four Kennedy Classes.

Results: In the studied patient sample, most prevalent type of partial edentulism was Kennedy class III, in both maxilla (72%) and mandible (67.9%). Kennedy class IV was least prevalent (1.5% in maxilla and 4.7% in mandible)

Conclusion: Most prevalent type of partial edentulism in the studied sample was Kennedy class III whereas Kennedy class IV was least prevalent in both arches.

Keywords: Partial edentulism, Panoramic radiograph, Kennedy classes.

Introduction

The prevalence and pattern of partial edentulism is important to identify prosthetic needs of the community. It is an indicator of the oral health of the population and it also reflects success of various treatment modalities.

The prevalence of different patterns of partial edentulism vary from region to region and it is essential for a dental surgeon to be acquainted with the most common patterns in a population for providing best treatment options.[1]

Different types of classification systems exist for grouping patterns of partial edentulism. However, the most widely used system is Kennedy classification. [2, 3] So, Kennedy’s classification was used in this study.

A classification of partially edentulous arches, facilitate identification of potential combinations of teeth to ridge, communication and comprehension of prosthetic treatment among dental surgeons and technicians. It also facilitates case history recording and simplifies information exchange within staff. [4]

In Charveya's study, 112 partially edentulous patients of local population were examined. He concluded that the most common type of partial edentulism was type III, in both maxilla and mandible. [5]

This study was done to determine the prevalence of various patterns of partial edentulism in Himachal population, as classified by Kennedy using panoramic radiographs.

Materials and methods

One hundred twenty one panoramic radiographs of patients who reported to Lotus Diagnostic Centre, Shimla were identified and analysed. Radiographs taken between 2018 and 2019 were included in the study.

Inclusion criteria were panoramic radiographs of patients with acquired partial edentulism above 21 years of age, from both genders involving either or both jaws. Exclusion criteria were radiographs with (i) completely edentulous arches (ii) full dentition (iii) only missing maxillary and mandibular third molars

Data collected was categorized in Kennedy classes I, II, III, and IV in accordance with Applegate's rules. Upper and lower jaws were studied as separate groups.

Data were analyzed using statistical package for the social sciences (SPSS).

Table 1: Partially edentulous subjects, according to Kennedy's Classification

Kennedy's class	Maxilla	Mandible
I	4 (5.9%)	7 (6.6%)
II	14 (20.6%)	22 (20.8%)
III	49 (72.0%)	72 (67.9%)
IV	1 (1.5%)	5 (4.7%)
Total	68 (100%)	106 (100%)

Results

As the table 1 shows, In the maxilla, most commonly encountered type of partial edentulism was Kennedy type III (72 %), whereas less often encountered was Kennedy type IV (1.5%). The most prevalent type was Kennedy type III (67.9%) in the mandible, and least prevalent type IV (4.7%). Out of 121 radiographs, 53 were partially edentulous in maxilla and mandible, 15 were partially edentulous in maxilla only and 53 were edentulous in only mandible.

Discussion

Removable partial prosthesis is a cost effective and reversible treatment modality for partially edentulous patients at any age.[6] Education, attitude towards dental care, economic situation and occupation are some of the factors affecting edentulism. It is highly recommended to conduct population based epidemiological surveys to highlight risk factors for tooth loss.

Main purpose of using a classification for partial edentulism is to simplify the description of combinations of teeth to ridges.[6] Kennedy classification was preferred for this study as it permits immediate visualization of partially edentulous arches.[7]

The prevalence of different patterns of partial edentulism varies from country to country and region to region. Previous studies from developing countries shows that the most prevalent type of partial edentulism in many countries is Kennedy class III.[6,8,9,10] Results of our study shows the same in population of Himachal Pradesh. Kennedy class IV was least common in our study, which is also in line with other studies.[6]

In this study, most of the patients of Kennedy's class III were encountered in 40-60 years of age group. With increasing age, tendency for class I and II was found to be more prevalent.

Socioeconomic status, financial conditions, education and attitude of patients for oral health are some other criteria's which explain difference in patterns of partial edentulism.[5]

It was also noted in our study, that as compared to maxilla, partial edentulousness was more common in the mandible. One of the reasons for this is as mandibular teeth erupt earlier in oral cavity; more exposure to oral flora is there, resulting in their early loss.

Further evaluation based on multi location and larger sample size would be helpful in this regard.

Conclusion

According to this study, the most prevalent type of partial edentulism in the studied sample was Kennedy class III whereas Kennedy class IV was least prevalent in both arches. The prevalence of various classes of partial edentulism not only reflects pattern of tooth loss but also affordability of preventive treatment.

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