FREQUENCY OF COMPLICATIONS WITH CONVENTIONAL DENTURES

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ABSTRACT

The objective of this study was to determine the frequency of complications with complete dentures. A total of 45 completely edentulous patients wearing conventional complete denture for more than one year were included in this study. These dentures were fabricated by private practitioners, undergraduate and postgraduate students in dental institutes. The complications associated with these dentures recorded by taking a detailed history and examination of the prosthesis and mouth of the patients. The data were analyzed by SPSS version 20.0.

Twenty were females while the remaining 25 were males with mean age of 61.06±9.4 years. The complications observed in the patients with regards to their frequency were; loss of denture retention (80%), developed of ulcers (37.7%), loss of denture teeth due to fracture (26.6%), fractures of the denture base (22.2%) and denture stomatitis (6.6%). The difference between males and females were not significant.

Key Words: Conventional complete denture, complications, denture stomatitis, loss of retention.

INTRODUCTION

Millions of people around the world have lost all their teeth and the prevalence of edentulousness increases with age. In Europe, the prevalence of edentulism between 65 and 74-year-old ranges from 12.8% in Italy to 69.6% in Iceland.1,2 Edentulism in Pakistan occupies an estimated 4.1% of the total population aged 65 years and above, with a projected increase to 9.3% by 2030.3 The loss of teeth can impair function, esthetics and phonation and are restored most of the time with prosthesis. Although preventive dentistry helps protecting teeth, the demand for prosthodontic treatment is expected to rise even in developed countries as a result of a rapid increase in their elderly population.4

Removable dentures are an economic and easy treatment modality for edentulous patients and are still widely used especially in developing countries.5 However, complete dentures may be associated with various complications. Much research has been undertaken in an effort to explain why some patients have more difficulty than others in wearing complete dentures successfully.6 Dental technicians may play an essential role in the success of dentures, but it should be remembered that they do not have adequate knowledge about biological structures and occlusion, which is needed for distribution of masticatory forces adequately. For this reason, the final tooth setup is always checked clinically by dentists/Prosthodontists. There is not enough research about the data such as vertical dimension, centric relation, and position of the artificial teeth relative to the denture base underlying tissues and borders of dentures, giving information about the general trend of quality of dentures delivered in general practice.5

According to Carlsson G7 the adverse effects of complete dentures can be divided into direct and indirect sequelae. The direct sequelae are residual ridge resorption and mucosal reactions, such as denture stomatitis, denture irritation hyperplasia, traumatic ulcers, and “flabby ridges.” It has also been suggested that there might be an association between oral carcinoma and chronic denture irritation, but no indisputable evidence appears to exist. Other conditions related to the wearing of complete dentures include altered taste perception, burning mouth syndrome, and gagging. Indirect sequelae are related to the great changes in masticatory function...
in complete denture wearers compared with dentate subjects. Bite force is reduced with risk for atrophy of the masticatory muscles. The reduced masticatory ability may lead to changes in diet habits with risks for an impaired nutritional status, especially in the elderly complete denture wearer. The objective of this study was to determine the frequency of complications with complete dentures.

**METHODOLOGY**

This cross-sectional study was carried out in the department of Prosthodontics, Bacha Khan Medical College, Mardan. The study duration was from October 2015 to January 2016. Informed consent was taken from all participants. A total of 45 participants were included in the study and according to the following criteria.

**Inclusion criteria**
- Patients wearing conventional complete denture for at least 1 years
- Denture fabricated by private practitioners, undergraduate and postgraduate students in dental institutes
- Both gender

**Exclusion criteria**
- Fixed and removable partial denture
- Implant supported denture
- Denture fabricated by unregistered practitioners
- Uncooperative, and mentally retarded patients
- Patients having medical conditions e.g. diabetes, AIDS, osteoporosis etc.

The dentures were examined and patients were interviewed. Every patient’s age, gender was recorded. The complications associated with complete denture wearers recorded were; development of ulcers, teeth lost due to fracture of the denture teeth, fractures of the denture base, denture related stomatitis, loss of denture retention.

The data were analyzed by SPSS version 20.0. Mean and standard deviation were calculated for numerical variable like age and frequencies and percentages were calculated for categorical variables like complications of complete denture and gender. Chi-square test was used to know the significance between the two genders for complication of complete denture. P<0.05 were considered significant.

**RESULTS**

A total of forty-five patients with a mean age of 61.06±9.4 years were included in this study. Maximum age was 78 years while the minimum was 45 years.

Amongst all, 20 were females while the remaining 25 were males. The percentages of genders are given in Fig 1.

Age distribution is given in Table 1. The most common age group was 61 to 65 years. The complications observed in the patients with regards to their frequency were; loss of denture retention (80%), developing of ulcers (37.7%), loss of denture teeth due to fracture (26.6%), fractures of the denture base (22.2%) and denture stomatitis (6.6%). The details are given
TABLE 3: GENDER-WISE CHI-SQUARE STATISTICS OF COMPLICATION IN COMPLICATION DENTURE WEARERS

<table>
<thead>
<tr>
<th>Complication</th>
<th>Gender</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of retention</td>
<td>Male</td>
<td>20</td>
<td>5</td>
<td>25</td>
<td>0.648</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>16</td>
<td>4</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>36</td>
<td>9</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Loss of denture teeth due to fracture</td>
<td>Male</td>
<td>7</td>
<td>18</td>
<td>25</td>
<td>0.547</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>5</td>
<td>15</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>12</td>
<td>33</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Denture stomatitis</td>
<td>Male</td>
<td>2</td>
<td>18</td>
<td>25</td>
<td>0.585</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1</td>
<td>23</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>3</td>
<td>42</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Fractures of the denture base</td>
<td>Male</td>
<td>6</td>
<td>19</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>4</td>
<td>16</td>
<td>20</td>
<td>0.519</td>
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<tr>
<td>Total</td>
<td></td>
<td>10</td>
<td>35</td>
<td>45</td>
<td></td>
</tr>
</tbody>
</table>

*chi-square test, P<0.05 is significant

in Table 2.

The gender-wise comparison for complication rate in complete denture wearers showed non-significant results. The p-value for all recorded complications is greater than 0.05, so non-significant. The details are given in Table 3.

DISCUSSION

Public health programs and development in technology have contributed to a decrease in edentulism worldwide; yet tooth loss is still a reality. In this context, the number of partially edentulous individuals requiring prosthetic treatment has been increasing. Since tooth loss can affect different aspects of patient’s life including appearance, phonetics and masticatory function it may have a consequence in patient’s quality of life and general health. Although a greater part of the population has an incomplete dentition, a substantial number of patients remain either not Prosthetically rehabilitated or functioning with a shortened dental arch without any need for treatment.

This study consist of a relatively small sample size of 45 cases because Bacha Khan Medical College Prosthodontics department is newly established postgraduate department; having less number of visiting patients. Inspite of this, this study can give a better guidance to clinicians to give proper attention to treatment planning and diagnosis while rehabilitating the completely edentulous patients.

In the current study, the mean age was 61.06±9.4 years. Another study published in Pakistan on this subject shows a similar results having mean age of 63.48±8.42 years. In the current males were more in number than females. The reason may be that males have more outdoor life and greater awareness about oral restoration. Similar results have found in other studies.

In the present study, loss of retention (80%) followed by oral ulceration of mucosa (37.8%). These complications severely affect the quality and efficiency in dentulous patients. Khan SA et al conducted a study in Karachi on complete denture complications using 65 patients using acrylic denture for more than 1 year. They reported ulcer development (44.6%), fractures in the denture base (27.6%), loss of retention (84.6%) loss of teeth (30.7%), and denture-related stomatitis (7.6%). These results are in accordance with the current results.

According to the current study, 22.2% patients have had fractures in their dentures, which may have been due to careless handling of the denture during maintenance and accidental droppings. Accidental damage or heavy occlusal forces are found to be the main reasons behind the midline fracture of an acrylic denture. Bilhan H et al in Turkey evaluated satisfaction and complications in patients with existing complete dentures and reported that the most common complication was loss of retention (85.9%), followed by ulceration (44.2%). These results are also similar to the current results.

CONCLUSION

The complete dentures are associated with numerous complications which emphasized proper diagnosis, treatment planning and follow up of prosthetically restored edentulous patients.
Frequency of complications with conventional dentures

CONTRIBUTION BY AUTHORS

1 Turab Khan: Paper writing.
2 Juanaidullah Khan: Topic selection, Data collection.
3 Munir Khan: Supervision of research, Data analysis.

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