

Original Article

Evaluation of cases of denture stomatitis among complete denture wearers

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Abstract

Background: Denture stomatitis (DS) is a common oral disease in denture wearers and quite characteristic of advanced age. The present study was conducted to assess the cases of denture stomatitis among complete denture wearers. **Materials & Methods:** The present study was conducted on 445 completely edentulous patients wearing complete dentures. In all patients, careful examination was done to evaluate the degree of the DS-modified Newton's index (NI): 0 = no inflammation; 1 = pin-point hyperemia; 2 = diffuse erythema; and 3 = papillary hyperplasia) 4,5 in the complete denture wearers. **Results:** Out of 445 patients, males were 245 and females were 200. The difference was non-significant (P= 0.1). Out of 445 cases, DS was seen in 210 (47.1%) cases. 52% of maxillary and 43 % of mandibular dentures showed 0 grading, 25% maxillary and 20% mandibular dentures showed 1 grading, 13% maxillary and 25% mandibular dentures showed 2 grading and 10% maxillary and 12% mandibular dentures had 3 grading. The difference was significant (P< 0.05). **Conclusion:** Denture wearing habits, denture hygiene habits, denture cleanliness and oral hygiene instructions made significant influence on the degree of DS in CD wearers. Hence in complete denture wearers, education is must to ensure proper cleanliness of the denture to prevent DS.

Key words: Complete denture, Candidiasis, Denture stomatitis

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INTRODUCTION

Denture stomatitis (DS) is a common oral disease in denture wearers and quite characteristic of advanced age. Multiple etiological and predisposing factors are believed to be responsible for its initiation and progression. The inflammatory changes are characterized mainly by erythema and are found under complete or partial dentures in both jaws, but more frequently in the maxilla. Lesions of the oral mucosa associated with wearing of removable dentures may represent acute or chronic reactions to microbial denture plaque, a reaction to constituents of the denture base material, or a mechanical denture injury.¹

DS is divided into three types 3–5: Type I shows localized inflammation or pinpoint hyperemia; type II shows more diffused erythema and type III is a non-neo-plastic papillary hyperplasia with inflammation to a varying degree. Type I DS is commonly due to trauma from the dentures to the denture bearing area, whereas type II and III are mostly associated with candida and/or

bacterial infection together with mechanical trauma. The prevalence of the three types of DS in different groups of elderly population has been reported to vary in the range of 10–65 %.²

In the oral cavity *Candida* is a normal commensal along with other microbiota. In an immunocompromised patient who is wearing a complete denture, there is a risk of development of *Candida* associated denture stomatitis. This is due to the conversion of the normal commensal to an infection causing pathogen. Various factors enhance development and progression of the disease resulting in CADS. The prosthesis acts as a foci and trauma from the denture will facilitate infection.³ The present study was conducted to assess the cases of denture stomatitis among complete denture wearers.

MATERIALS & METHODS

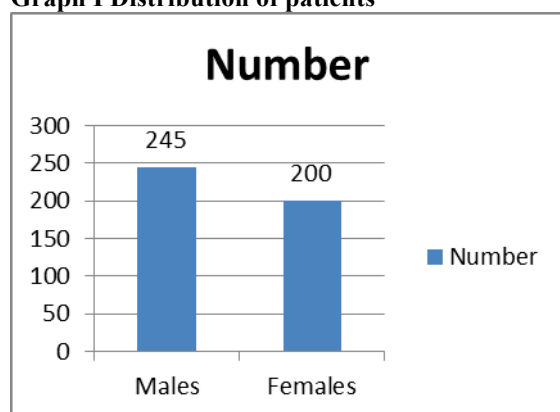
The present study was conducted in the department of Prosthodontics. It comprised of 445 completely edentulous patients wearing complete dentures of both

genders. All were informed regarding the study and written consent was obtained. Ethical clearance was taken from institutional ethical committee.

General information such as name, age, gender etc. was recorded. In all patients, careful examination was done to evaluate the degree of the DS-modified Newton's index (NI): 0 = no inflammation; 1 = pin-point hyperemia; 2 = diffuse erythema; and 3 = papillary hyperplasia) in the complete denture wearers. Results thus obtained were subjected to statistical analysis using chi-square test. P value less than 0.05 was considered significant.

RESULTS

Graph I Distribution of patients



Graph I shows that out of 445 patients, males were 245 and females were 200. The difference was non-significant (P= 0.1).

Table I Prevalence of DS in patients

Total	DS	%
445	210	47.1%

Table I shows that out of 445 cases, DS was seen in 210 (47.1%) cases.

Table II Grading of DS in patients

Grading	Maxillary denture	Mandibular denture
0 = no inflammation	52%	43%
1 = pin-point hyperemia	25%	20%
2 = diffused erythema	13%	25%
3 = papillary hyperplasia	10%	12%

Table II shows that 52% of maxillary and 43 % of mandibular dentures showed 0 grading, 25% maxillary and 20% mandibular dentures showed 1 grading, 13% maxillary and 25% mandibular dentures showed 2 grading and 10% maxillary and 12% mandibular dentures had 3 grading. The difference was significant (P< 0.05).

DISCUSSION

Denture-related stomatitis is the most common form of [oral candidiasis](#) (a yeast infection of the mouth). It is more common in elderly people, and in those who wear a complete upper denture (a denture which replaces all the upper teeth, worn by someone with no natural teeth in their upper jaw). Denture-related stomatitis is more likely to develop when the denture is left constantly in the mouth, rather than removing it during sleep, and when the denture is not cleaned regularly.⁴

Inflammation under dentures is the most frequent denture-related mucosal change and also primarily related to maxillary CDs. Several species of *Candida* have known to be involved in the process. Even though *Candida albicans* is the most frequent species, recently, non albicans species have been reported to be dominant.⁵

In our study, out of 445 patients, males were 245 and females were 200. Out of 445 cases, DS was seen in 210 (47.1%) cases. This is similar to Ajit et al.⁶ The denture plaque that contributes to the development of the DS is probably important and must be considered in the pathogenesis of this disease. The plaque that forms on unclean dentures has been cited as a local etiological factor for DS. Radford et al pointed out the influence of adhesion of *Candida Albicans* to denture base material in relation to denture plaque and DS.⁷

The prosthesis acts as a foci and trauma from the denture will facilitate infection. Several species of *Candida* have known to be involved in the process. Even though *Candida albicans* is the most frequent species, recently, non albicans species have been reported to be dominant. Hence, identification of the causative species is essential for the rapid treatment initiation with an appropriate anti fungal agent.⁸

We observed that 52% of maxillary and 43 % of mandibular dentures showed 0 grading, 25% maxillary and 20% mandibular dentures showed 1 grading, 13% maxillary and 25% mandibular dentures showed 2 grading and 10% maxillary and 12% mandibular dentures had 3 grading. This is similar to Sharma et al.⁹

In study by Celic et al¹⁰ a total of 200 patients took part in this study. Half of the examined patients (100) wore CD and the other half (100) RPDs. There were 63 males and 137 females, aged between 45 and 83 years. Different smoking habits, denture wearing habits, denture hygiene habits, denture cleanness and oral hygiene instructions had significant influence on the degree of DS in CD wearers (p < 0.01). In the RPD wearers, denture material and denture support had a significant influence on DS (p < 0.01). The significant correlation was found between the denture plaque accumulation and the DS in complete maxillary and mandibular and removable maxillary and mandibular partial dentures.

CONCLUSION

Denture wearing habits, denture hygiene habits, denture cleanness and oral hygiene instructions made significant

influence on the degree of DS in CD wearers. Hence in complete denture wearers, education is must to ensure proper cleanliness of the denture to prevent DS.

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