

Original Research

Prevalence of denture stomatitis among complete denture wearer - A clinical study

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ABSTRACT

Background: Denture stomatitis (DS) designates the inflammation of the oral mucosa mostly the palatal, underlying a denture. The present study was conducted to assess cases of denture stomatitis. **Materials & Methods:** 180 cases of complete denture wearer having denture stomatitis were diagnosis of DS based on 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. Denture hygiene and year of denture wearing was also recorded. **Results:** Grading 0 was seen in 0%, 1 in 30%, 2 in 25% and 3 in 45%. The difference was significant ($P < 0.05$). Denture age was 1-5 years in 45%, 5-10 years in 35% and >10 years in 20%. Denture hygiene was good in 28%, satisfactory in 24% and poor in 48%. The difference was significant ($P < 0.05$). **Conclusion:** Common risk factors for denture stomatitis were chronic denture wearer and poor oral hygiene.

Key words: Denture stomatitis, Oral hygiene, Denture age.

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INTRODUCTION

The most common oral health problem among the elderly population is tooth loss and dentures wearing. Denture stomatitis (DS) is the clinical diagnosis of the disease that occurs in adults with removable dentures. Edema and inflammation of the mucosa covered by denture base are objective signs of the disease. Subjective symptoms as pain, itching and burning sensation are described, but in most patients with DS are asymptomatic.¹ Systematic review of numerous observational and experimental studies analyzing an association between mucosal lesions and wearing of removable dentures has shown that the DS prevalence ranges from 1.1% to over 36.7%. According to

Gendreau and Loewy², denture-related mucosal lesions are present in 15–75% of edentulous patients, mostly female. Moreover, some studies suggest that DS is present in two thirds of the patients using removable dentures. Regardless of the large number of studies published there are controversial conclusions in relation to DS prevalence, mainly due to heterogeneity and variations in research methodology. 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.³ *Candida albicans* has been shown to be the principal *Candida* strain responsible for inflammatory pathology, though various species of *Candida* like *C. dubliniensis*, *C. Parapsilosis*, *C. Krusei*; *C. Tropicalis* and above all *C. glabrata* have been isolated from the inflammatory lesion.⁴ The pathogenesis of candida-associated denture stomatitis is elaborate and multifactorial. *C. albicans* is a normal oral microorganism, and upto 67% of people carry this organism without clinical evidence of infection.⁵ The present study was conducted to assess cases of denture stomatitis.

MATERIALS & METHODS

The present study was conducted among 180 cases of complete denture wearer having denture stomatitis. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. The prevalence of denture stomatitis was recorded. The diagnosis of DS was made based on 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. Denture hygiene and year of denture wearing was also recorded. Data thus obtained were clubbed together and were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 180		
Gender	Males	Females
Number	110	70

Table I shows that out of 180 patients, males were 110 and females were 70.

Table II Grading of Denture stomatitis

Grading	Number	P value
0	0%	0.01
1	30%	
2	25%	
3	45%	

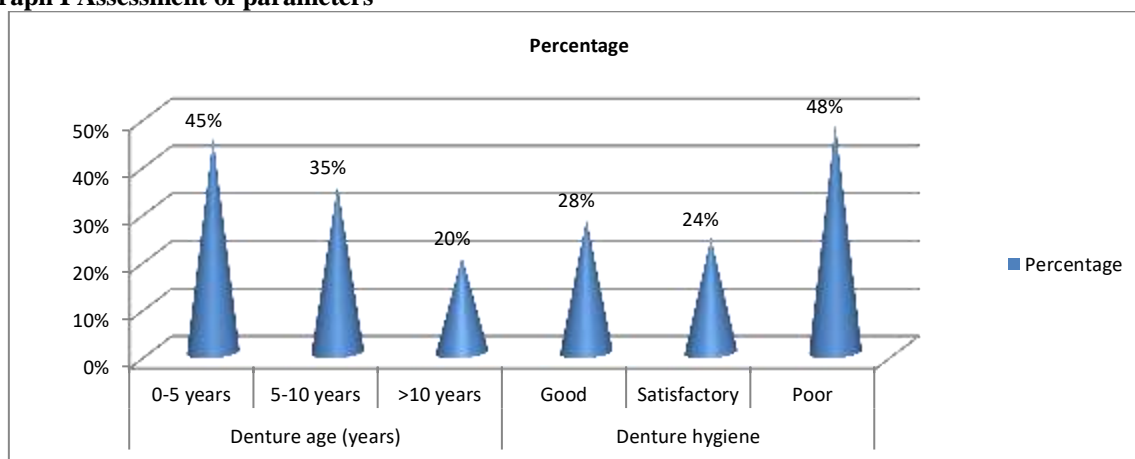
Table II shows that grading 0 was seen in 0%, 1 in 30%, 2 in 25% and 3 in 45%. The difference was significant (P< 0.05).

Table III Assessment of parameters

Variables	Parameters	Percentage	P value
Denture age (years)	1-5	45%	0.03
	5-10	35%	
	>10	20%	
Denture hygiene	Good	28%	0.04
	Satisfactory	24%	
	Poor	48%	

Table III, graph I shows that denture age was 1-5 years in 45%, 5-10 years in 35% and >10 years in 20%. Denture hygiene was good in 28%, satisfactory in 24% and poor in 48%. The difference was significant (P< 0.05).

Graph I Assessment of parameters



DISCUSSION

Denture stomatitis (DS) designates the inflammation of the oral mucosa mostly the palatal, underlying a denture. It is found in around 50% of edentulous patients wearing dentures and it is more frequent in women than in men.⁶ In 1962, Newton classified DS into 3 types on a clinical basis, type one: A focal inflammation which may indicate the early stage of the disease. Type two: a generalized inflammation characterized by a diffuse erythema of the mucosa covered by the denture.⁷ Type three: an inflammatory papillary hyperplasia. Type two is the most common between the 3 types of DS.² Predisposing factors to DS are usually divided into local and systemic. Diabetes mellitus and conditions of nutritional and immunity deficiencies are among the systemic factors.⁸ The present study was conducted to assess cases of denture stomatitis.

In present study, out of 180 patients, males were 110 and females were 70. Numerous studies have been done in the past to study the causes of the disease, but the main cause has not been agreed upon. Studies have pronounced different factors causing denture stomatitis like traumatic occlusion, poor oral and denture hygiene, microbial factors, age of the denture, allergy to the denture base materials, residual monomer, thermal stoppage below the denture, smoking, various types of irradiation, dryness of mouth, systemic conditions, diabetes mellitus and immunodeficiency, nutritional deficiencies and medications. Plaque on the inner surface of the denture harbors microorganisms causing inflammation of the mucosa.^{9,10}

We observed that grading 0 was seen in 0%, 1 in 30%, 2 in 25% and 3 in 45%. Denture age was 1-5 years in 45%, 5-10 years in 35% and >10 years in 20%. Denture hygiene was good in 28%, satisfactory in 24% and poor in 48%. Celic et al¹¹ 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 cleanliness 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 ($p < 0.01$).

Naik et al¹² in their study 100 patients aged 30 to 70 years were selected for the study. Among these, 70 patients were labeled test group showing signs of stomatitis and 30 patients as control group as they showed no inflammatory signs. Clinical tests included oral and denture hygiene evaluation, salivary measurements, and age of the dentures, and microscopic investigations were done. Results showed

no significant differences between the two groups in terms of saliva, oral and denture hygiene habits, and denture age. Test group showed stomatitis in patients who were wearing dentures for 5 to 10 years compared to control group who were wearing dentures for 10 years and above. Denture age was proportional to *Candida* colonization and not to degree of inflammation. Significant differences were found in *Candida* colonization of the fitting surface of the denture between stomatitis and control groups. Poor denture hygiene habits are the most prominent contributing factor for denture stomatitis and colonization.

CONCLUSION

Authors found that common risk factors for denture stomatitis were chronic denture wearer and poor oral hygiene.

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