Journal of Applied Dental and Medical Sciences
NLM ID: 101671413 ISSN:2454-2288
Volume 6 Issue 1 Jan-March 2020

Original Research

Denture Stomatitis among Complete Denture Wearers - A Clinical Study

Vikas Sharma[1], Shruti Dutta[2]

[1]BDS, MDS (Prosthodontics crown and bridge and implantology), MO (dental), CHC Shoghi, Shimla, Himachal Pradesh, India
[2]BDS, MDS (Oral And Maxillofacial Surgery), Private Consultant, Himachal Pradesh, India

ARTICLE INFO

Keywords:
Complete denture, Denture stomatitis, Mucosal lesions

ABSTRACT

Background: The present study was conducted to assess denture stomatitis in complete denture wearers.
Materials & Methods: The present study was conducted on 580 completely edentulous patients wearing complete dentures since last 1-2 years. DS-modified Newton's index (NI) for denture stomatitis was recorded.
Results: There were 350 males and 230 females. Out of 580 cases, DS was seen in 190 (32.7%) cases. DS-modified Newton's index grade 0 was seen in 69.5%, 1 in 40%, 2 in 32% and 3 in 28%. The difference was significant (P< 0.05).
Conclusion: Authors found that denture wearers had high prevalence of denture stomatitis, hence they should be educated regarding maintaining cleanliness of dentures.

INTRODUCTION

Oral mucosal lesions associated with wearing of removable and fix dentures may lead to acute or chronic reactions to microbial denture plaque, which in itself may result due to constituents of the denture base material, or a mechanical denture injury. The lesions constitute a heterogeneous group with regard to pathogenesis. 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. 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%.

Denture stomatitis is the one suggested by Newton in 1962, based exclusively on clinical criteria: Type I: A localized simple inflammation or pinpoint hyperemia. Type II is an erythematous or generalized simple type seen as more diffuse erythema involving a part or the entire denture covered mucosa. Type III is a granular type (inflammatory papillary hyperplasia) commonly involving the central part of the hard palate and the alveolar ridges. Type III often is seen in association with type I or type II. Type III denture stomatitis involves the epithelial response to chronic inflammatory stimulation secondary to yeast colonization and, possibly, low-grade local trauma resulting from an ill-fitting denture. The present study was conducted to assess denture stomatitis in complete denture wearers.

* Corresponding author***: Dr. Shruti Dutta,*** *BDS, MDS (Oral And Maxillofacial Surgery), Private Consultant, Himachal Pradesh, India*.

MATERIALS & METHODS

The present study was conducted in the department of Prosthodontics on 580 completely edentulous patients wearing complete dentures since last 1-2 years. Ethical clearance was taken from institutional ethical committee. All were informed regarding the study and written consent was obtained.

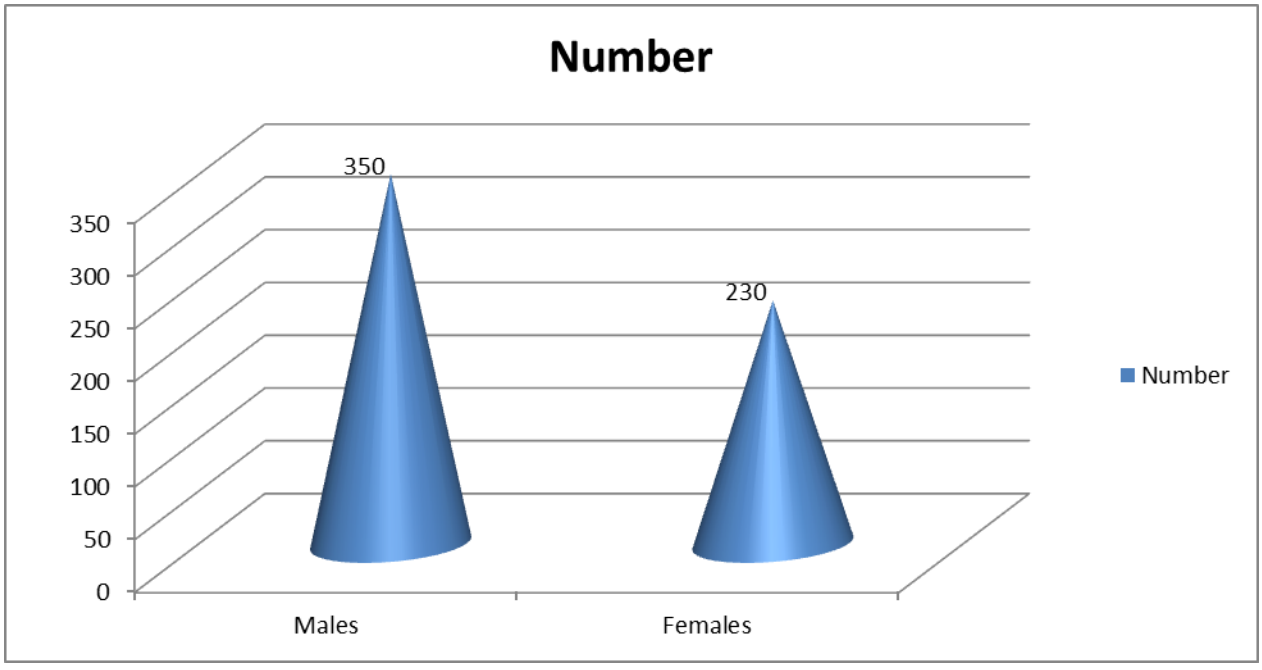
General information such as name, age, gender etc. was recorded. In all patients, careful examination was done. DS-modified Newton's index (NI): 0 = no inflammation; 1 = pin-point hyperemia; 2 = diffuse erythema; and 3 = papillary hyperplasia) in the complete denture wearers was used to record the cases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

RESULTS

Graph I: Distribution of patients

	Total - 580	
Gender	**Males**	**Females**
Number	350	230

Table I, graph I shows that there were 350 males and 230 females.



Graph I: Distribution of patients

Table I: Prevalence of DS in patients

Total	**DS**	**%**
580	190	32.7%

Table I shows that out of 580 cases, DS was seen in 190 (32.7%) cases.

Table III: Assessment of DS-modified Newton's index

Grade	Percentage	P value
0	69.5%	0.01
1	40%	
2	32%	
3	28%	

Table III shows that DS-modified Newton's index grade 0 was seen in 69.5%, 1 in 40%, 2 in 32% and 3 in 28%. The difference was significant (P< 0.05).

DISCUSSION

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. Inflammation under dentures is the most frequent denture-related mucosal change and also primarily related to maxillary CDs.[7] 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.[8]The combination of entrapment of yeast cells in irregularities in denture-base and denture relining materials, poor oral hygiene and several systemic factors is the most probable cause for the onset of this infectious disease. Hence colonization and growth on prostheses by Candida species are of clinical importance.[9] The present study was conducted to assess denture stomatitis in complete denture wearers.

In this study, there were 350 males and 230 females. Out of 580 cases, DS was seen in 190 (32.7%) cases. Cancovik et al[10] involved three groups of subjects with upper removable dentures: the DS group, and the positive and negative control groups. Swab samples were taken from the tongue and palatal mucosa for microbiological examination. Data of denture age, dentures night wearing, unstimulated salivary flow rate (USFR) and saliva pH values were evaluated for all the participants. prevalence of DS was found to be 26.5%. Significantly higher values of overnight wearing (p = 0.000) and the mean age of dentures (p = 0.022) were found in the DS group compared to the controls. In relation to the positive mycological finding, a borderline significance difference among the groups was confirmed (p = 0.053). No significant association was found between DS and gender, age, the type of dentures, USFR, pH of saliva and bacteria findings. The patients who wore dentures at night had 26 times more chances to get DS compared to the patients who did not wear them overnight.

We found that DS-modified Newton's index grade 0 was seen in 69.5%, 1 in 40%, 2 in 32% and 3 in 28%. Celic et al[11] involved 200 patients, of which 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.

It is evident from research that 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.[12] Hence, identification of

the causative species is essential for the rapid treatment initiation with an appropriate anti fungal agent.

CONCLUSION

Authors found that denture wearers had high prevalence of denture stomatitis, hence they should be educated regarding maintaining cleanliness of dentures.

REFERENCES

1. Dangi YS, Soni ML, Namdeo KP. Oral Candidiasis: A Review. International Journal of Pharmacy and Pharmaceutical Sciences. 2010; 2(4):1-5.
2. Dongari-Bagtzoglou A et al. Oral Candida Infection and Colonization in Solid Organ Transplant Recipients. Oral Microbiol Immunol. 2009; 24:249-54.
3. Liu X, Hua H. Oral Manifestation of Chronic Mucocutaneous Candidiasis: Seven Case Reports. J oral Pathol Med. 2007; 36:528-32.
4. Ajit L et al. Candida-Related Denture Stomatitis: A Pilot Study of the Efficacy of an Amorolfine Antifungal Varnish. Int J Prosthodont. 2005; 18:55-59.
5. Pereira-cenci T, Del bel cury AA, Crielaard W, Ten cate JM. Development of Candida-associated Denture Stomatitis: New Insights. J Appl Oral Sci. 2008; 16:86-945.
6. Perezous LF, Flaitz CM, Goldschmidt ME, Engelmeier RL. Colonization of Candida species in denture wearers with emphasis on HIV infection: A literature review. J Prosthet Den. 2005; 93:288-93.
7. Sharma, Samaranayake LP, Bendick CH, Schmidt-Westhausen M, Jayalathike MS. Prevalence of Oral Candida Species in Leprosy Patients from Cambodia and Thailand. J Oral Pathol Med. 2007; 36:342-6.
8. Maller US, Karthik KS, Maller SV. Candidiasis In Denture Wearers- A Literature Review. JIADS 2010; 1(1):27-30.
9. Konsberg R, Axell T. Treatment of Candidainfected denture stomatitis with a miconazole lacquer. Oral Surgery Oral Medicine and Oral Pathology. 1994; 78:306-11.
10. Cankovic M, Bokor-Bratić M, Marinoski J, Stojanović D. Prevalence and possible predictors of the occurrence of denture stomatitis in patients older than 60 years. Vojnosanitetski pregled. 2017; 74(4):311-6.
11. Celic C, El-Kabir M, Samaranayake LP. Candida and Oral Candidosis: A Review. Critical Reviews in Oral Biology and Medicine. 1994; 5:125-157.
12. Bhat V, Sharma M, Shetty V, Shastry CS, Rao V. Extracellular Enzymes of Candida Albicans and Their Role in Development of Denture Stomatitis-A Review. JIDA. 2011; 2(1):26-30.