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Prevalence of oral lesions in complete denture wearers- An original research

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Abstract:
Background: Complete denture patients are often associated with the various denture-related oral mucosallesions. The purpose of this study is to evaluate the prevalence ofdenture-related oral mucosal lesions in complete denture patients.
Materials and Methods: The study was consisted of 225 patientshaving various denture-induced oral mucosal lesions from theoutpatient department of the department out of the 395 completedenture patients examined. Data related to gender, age, length ofdenture use, hygiene care were obtained. All the data were tabulated and analyzed.
Results: In 225 complete denture patients. Denture stomatitis (60.23%) was the most commonlesion present, followed by Epulis fissuratum and angularcheilitis. The denture-induced oral mucosal lesions werefound more common in age >40 years (59.78%) and in female(52.70%) complete denture wearer patients.
Conclusion: The present studies showed that oral lesions associated with wearing denture are prevalent and create health problems that impact the quality of life of dental patients.
***Key Words**: Complete denture, denture stomatitis, Epulis fissuratum, oralmucosal lesions.*

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I. Introduction

Edentulism may be the last sequel of periodontal diseases and dental caries. In case of older adults, edentulism is essential as a correlate of self-esteem and quality of life. [1] Furthermore, the oral health of the completely edentulous patient is an important factor in relation to the nutrition, social interactions, and general systemic health of the patients. [2]

Denture-related oral mucosal lesions (DML) may representacute or chronic reactions to denture plaque, yeast, constituents ofthe denture base material, poor retention and mechanical injury.Nearly a half of denture wearers present at least one denture-related mucosal lesion, with the three most common denture-related mucosal lesions among elderly wearers of removable denture being denture stomatitis, angular cheilitis, and traumatic ulcer. [3]Mucosal inflammation in denture wearers occurs in various forms – local,generalized, papillomatous.

Acute and chronic inflammatory conditions of the oral mucosa can be classified on the basis of their respective etiological factors such as neuromuscular traumatic injuries arising from dentures with or without balanced occlusion. Denture stomatitis is classified into three types, Newton type1: Hyperaemia, which is associated with trauma; Newton type 2: Generalized erythema; and Newton type 3: Papillary hyperplasia only resolved by surgery. [4] In elderly patients, the increased incidence of disability following conditions such as stroke may limit their ability to effectively clean their dentures. Poor denture hygiene, continuous denture wearing and drug therapy (especially antibiotics and steroids) may lead to an increased frequency of yeast infection. The etiological factors in denture stomatitis are denture trauma and poor oral hygiene with a superimposed C. albicansinfection. Denture stomatitis is more common in patients who wear their dentures day and night.[5,6,7]

Angular cheilitis is a nonspecific term used to refer to all inflammations, erosions, ulcerations and encrustations at the corners or angles of the mouth. Patient may complain feeling of dryness and burning sensation at the corners of the mouth and difficult mouth opening. Mainly caused by reduced vertical dimension in worn out complete dentures, nutritional deficiency riboflavin, folate, iron and protein deficiency, candida infection, occlusal plane of the lower teeth is too high and sagging of facial tissues with age.

Denture induced traumatic ulcers may appear in differentshapes and sizes, usually round or oval with a diameter of 1to 8 mm. A typical location of dentureirritation is either the non-mobile oral mucosa or the regionswhere the mucosa is mobile during functionalmovements. Etiological factors may include overextended

denture borders, rough areas on the inner surface of dentures, bony spicule under the denture or it may be due to suppression of mucosal resistance to mechanical irritation e.g., diabetes mellitus and vitamin deficiency, xerostomia, radiation therapy.Epulis Fissuratum is benign hyperplasia of fibrous connective tissue which develops as a reactive lesion to chronic mechanical irritation caused by the flanges of poorly fitting denture.[3]

According to previous studies, nearly a half of denture wearers present at least one denture-related mucosal lesion, and three most commonly found denture-related mucosal lesions among elderly wearers of removable denture are denture stomatitis, angular cheilitis and traumatic ulcer.The present study was done to evaluate and analyze the prevalence of oral mucosal lesions in complete denture wearing patients.

II. Materials and Methods

The study was carried out on the complete denture wearing patients came to the Department of Prosthodontics over a period of 1-year. A total of 395 patients were examined and in that 225 patients were found to have various types of oral mucosal lesions. Data of gender, age, length of denture wearing, denture cleaning methods, and the presence of oral mucosal lesions were recorded. Informed consent was taken from all the patients.

Inclusion criteria Patients wearing both maxillary and mandibular complete denture.

Exclusion criteria

New patientsvisiting for the preparation of complete denture

Statistical analysis

All data were collected, tabulated and percentage analysis was done.

III. Results

A total of 395 patients were examined and in that 225 patients were found to have various types of oral mucosal lesions. In 16 patients two types of oral mucosal lesions were present.Denture stomatitis (60.23%) was the most prevalent lesion present, followed by the presence of the epulis fissuratum 16.51%) and angular cheilitis (7.9%). Papillary hyperplasia was found to be present in 7.4% of the complete denture wearing patients. About 5.8% patients shown presence of traumatic ulcer and occurrence of the denture-induced or chronic irritation induced squamous cell carcinoma was found in 1 patient.

The study patients were divided into two age groups of <40 years and >40 years. The denture-induced oral mucosal lesions were more common seen in the elderly patient's, i.e., age group of >40 years (59.78%). Females (52.70%) were shown to have more oral mucosal lesions as compared to males.

Different time period of contact of the dentures were studied and it is found that patients wearing dentures for more time period (>5 years) were having more chances of development of the oral mucosal lesions (65.40%). The cleaning method of combination of mechanical and chemical aids leads to less chances of oral mucosal lesions than mechanical cleaning alone (71.36%)

IV. Discussion

Access to dental care is improving in the most countries, and many people are able to maintain their natural teeth longer than the past, but there also people who are edentulous and need use denture. Oral mucosal inflammation in case of denture wearers occurs in local, generalized, or papillomatous forms.Acute and chronic inflammatory lesions of the oral mucosa can be caused by various etiological factors including traumatic injuries due to traumatic occlusion, neuromuscular traumatic injuries due to improper balanced occlusion. [9] In the present study, denture stomatitis (60.23%) was found to be commonest lesion in complete denture wearing patients, which is in accordance to the study done by Shah and Ahmad and in contrast to the study by Patilet al., [10] in which traumatic lesions were found more common. It was noticed that overnight wearing of the denture is an important factor in the pathogenesis of the denture stomatitisas the pH value of the palatal mucosa decreases due to continuous wearing of the denture, due to products of the yeasts, lactobacilli and streptococci. Furthermore, reduced salivation at night is an additional factor.[11]

Other factors such as denture cleaning methods, integrity of the denture (presence of crack, fracture or holes), poor oral hygiene, smoking, and quality and quantity of saliva can influence the presence of denture-induced stomatitis. The Candida albicansrole in the pathogenesis of the denture stomatitis is well investigated, and various strains of the Candida have been shown to populate the denture base and the oral mucosa. [12] Aging has been related to cause progressive increase in theCandida in the oral cavity. However, various studies showed that sole factor of complete denture wearing affected the number of Candida species; independent of the age of the complete denture wearer.The poor oral hygiene maintenance in denture patient increases the frequency of positive cultures for Candida in the dentures. [1]

Angular cheilitis is associated with a variety of factors such as nutritional, systemic and drug related factors in combination with the local factors like wearing of complete denture, as it is common in edentulous patients.

In our study, we reported one case of denture traumainduced oral squamous cell carcinoma. Panatet al. [13] and Shahand Ahmad et al. [10] also reported a case of oral squamous cellcarcinoma induced by ill-fitting dentures.The most common location for the denture irritation induced oral squamous cell carcinoma is floor of the mouth. The reasonfor development of lesion at this site is due to flange extensions of the mandibular denture.The denture irritation hyperplasia or papillary hyperplasiaand traumatic ulcer is caused by chronic injury of the tissue incontact with the ill-fitting denture border.In this study, we found that denture-related oral mucosal lesionswere more common in age group of >40 years, this was also seen in study by da Silva et al., in which 70% patientswere above age of 40 years.In recent studies, it was shown that aged and denture stomatitispatients show a decreased number of salivary neutrophils thancontrols and also had dysfunctions in the phagocytosis andkilling of the C. albicans.Age is also associated with the development of the variousnutritional deficiencies, systemic diseases, changes in thequality and quantity of saliva. These factors in accompany withthe denture use can facilitate changes in the oral environmentand enhances the development of oral mucosal lesiosn.

In addition, age is also associated with systemic diseases,nutritional deficiencies, polypharmacy, and changes in thequantity and quality of saliva. These factors, along with dentureuse, may facilitate changes in the oral environment and enhance the development of C. albicans.[1]

The increased frequency of denture induced lesions amongfemale is not much understood, but in can be explained byage-related and hormonal reasons. In case of perimenopausaland postmenopausal females, the decrease of the estrogenand progesterone and the atrophy of the oral mucosa cancontribute to the exacerbation of the inflammatory responsefor chronic irritation caused by the use of complete dentures,leading to increasing the incidence of oral mucosal lesions infemale patients.The female prevalence was also high in the presentstudy. It is in accordance to the study done by Patilet al., Shahand Ahmad and da Silva et al.The mechanical cleaning along with chemical aids found to be more effective, as chemical agents like silicone polymerprovides protective cover for dentures as a final step in thecleaning process. [14]

In the present study, patients using denture for long-term(>5 years) were seen to be more associated with the presenceof the development of the oral mucosal lesions, which was also seen in study by da Silva et al.Therefore, wearing of dentures can reduce the protective effect of saliva, decreased cleaning by tongue and ultimately reducedoxygenation of the oral mucosa and leads to the increasedtendency for the development of the oral mucosal lesions. Thisstudy therefore reinforces the importance of the dental servicesfor the edentulous adults.

V. Conclusion

The present studies showed that oral lesions associated with wearing denture are prevalent and create health problems that impact the quality of life of dental patients.

References

[1]. da Silva HF, Martins-Filho PR, Piva MR. Denturerelated oral mucosal lesions among farmers in a semi-aridNortheastern Region of Brazil. Med Oral Patol Oral CirBucal 2011;16(6):e740-4.

[2]. Felton D, Cooper L, Duqum I, Minsley G, Guckes A,Haug S, et al. Evidence-based guidelines for the care andmaintenance of complete dentures: A publication of theAmerican College of Prosthodontists. J Prosthodont2011;20Suppl 1:S1-123.Mostafa I Fayad (1), Mostafa M Hosny(2), Hassan M Sakr(3) and Fahd Nasser Alkahtany(4)Prevalence of Denture Stomatitis Among Complete Denture Wearersin Aljouf,ADJ-for Girls, Vol. 5, No. 3, July (2018) — PP. 219:223

[3]. Asif Ali Shah, TahirJamil Ahmad*.Oral mucosal lesions in complete denture wearers.Journal of Pakistan Association of Dermatologists 2011; 21 (3): 170-173.

[4]. MacEntee MI, ed. The Complete denture. A Clinical Pathway, Philadelphia: Quintessence Publishing; 1999.

[5]. Cuningham SM, ed. Lesions of Oral Cavity. Philadelphia: Quintessence Publishing; 2001.

[6]. Watt DM, MacGregor AR, eds. Designing Complete Dentures. Philadelphia: Wright; 1986.

[7]. Dr. Chandrasinh Rajput1, Dr. Shruti Mehta2, Dr. Priyanka Sutaria3, Dr. Hiren Rana4.Oral Mucosal Lesions in Complete Denture Wearers.International Journal of Science and Research (IJSR) ISSN: 2319-7064ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426

[8]. Shah AA, Ahmad TJ. Oral mucosal lesions in complete denture wearers. J Pak AssocDermatol 2011;21(3):170-3.

[9]. Patil S, Yadav N, Patil P, Kaswan S. Prevalence and the relationship of oral mucosal lesions in tobacco users and denture wearers in the North Indian population. J Family Community Med 2013;20(3):187-91.

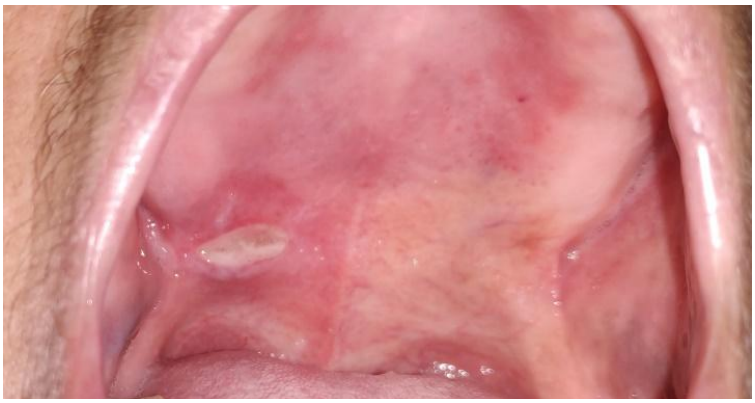
[10]. Marinoski J, Bokor-Bratic M, Cankovic M. Is denturestomatitis always related with *Candida* infection? A casecontrol study. Med Glas (Zenica) 2014;11(2):379-84.

[11]. Sahebjamee M, Basir-Shabestari S, Asadi G, Neishabouri K.Predisposing factors associated with denture inducedstomatitis in complete denture wearers. Shiraz Univ DentJ 2011;11:35-40

[12]. Panat S, Aggarwal A, Chakarvarty A. Denture inducedsquamous cell carcinoma: A rare case report. J Dent SciRehabil 2012;3(2):42-4.

[13]. Coelho CM, Sousa YT, Daré AM. Denture-related oralmucosal lesions in a Brazilian school of dentistry. J OralRehabil 2004;31(2):135-9.

PICTURES



Traumatic ulcer present on the palatal mucosa

Epulis fissuratum present in right buccal vestibule.

Denture stomatitis involving maxilla.

Malignant lesion arising from traumatic ulcer present in left buccal mucosa.

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