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Research Article

**CANDIDAL COUNT AFTER PROVIDING THE PATIENTS  
WITH COMPLETE DENTURES AS QUANTIFICATION**

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**Abstract:**

**Introduction:** *Candida albicans* is the most frequent fungal opportunistic pathogen in humans. Denture plaque containing candida could give rise to oral candidiasis, like oral thrush or denture induced stomatitis. **Aims and objectives:** The main objective of the study is to analyse the candidal count after providing the patients with complete dentures as quantification. **Material and methods:** This cross-sectional study was conducted in Punjab dental hospital, Lahore during March 2019 to December 2019. Upper and lower complete dentures were constructed by the same clinician following standardized clinical techniques. All dentures were processed by the same technician in the dental laboratory within the institution. **Results:** The data was collected from 20 patients. Most of the patients were between 60 to 64 years of age. Minimum age was 50 years and maximum age was 65 years. The average age of the patients was  $58.90 \pm 4.37$  Years. Out of 40 patients, 20(50%) were male and 20(50%) were female with 1:1 male to female ratio. **Conclusion:** It is concluded that the significant results of this study emphasize the critical need to measure candidal activity of complete denture wearers.

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**INTRODUCTION:**

*Candida albicans* is the most frequent fungal opportunistic pathogen in humans. Denture plaque containing candida could give rise to oral candidiasis, like oral thrush or denture induced stomatitis. Candidal colonization of the fitting surface of denture serves as a reservoir for disseminated infections especially in immune compromised or medicated elderly. *Candida albicans* are considered the primary etiologic agent of candida-associated denture stomatitis, a disease which can vary from superficial mucosal lesions to a life-threatening systemic form [1]. Denture stomatitis is the most common infectious disease affecting the palatal mucosa, and is highly prevalent in denture wearers. Synthetic acrylic resins have a long, clinically proven history of use for dentures but this material is susceptible to microbial adhesion which can lead to denture stomatitis [2].

*Candida albicans* is considered as the principle causative agent. Almost 60-70% of all complete denture wearers have denture stomatitis. Candidiasis is mainly manifested as a biofilm formation on the surfaces of prosthesis in which *Candida* is the main culprit. Residual microorganisms and debris accumulate on the irregular surface of the prosthesis even if it is cleaned thoroughly thus result in the continuous re-infection of the palate [3].

After wearing prosthetic appliances, mucosal damage occurs due to two main reasons i.e. Candidal colonization and proteinase secretion by the organisms (filamentous form). Factors such as biofilm formation and its adhesion on the surface of prosthesis, dimorphism, enzymes secretion i.e. proteinases and phospholipases, convert the *Candida* species into an effective pathogen [4]. Other factors involve in its pathogenicity are AIDS, diabetes mellitus, head-neck cancer radiation therapy implementation, long-term antibiotic or corticosteroid use or nutritional disorders. Adhesion of *Candida albicans* occurs to acrylic surfaces of prosthesis and epithelial buccal cells than any other surfaces [5].

**Aims and objectives**

The main objective of the study is to analyse the candida count after providing the patients with complete dentures as quantification.

**MATERIAL AND METHODS:**

This cross-sectional study was conducted in Punjab dental hospital, Lahore during March 2019 to December 2019. Upper and lower complete dentures were constructed by the same clinician following standardized clinical techniques. All dentures were processed by the same technician in the dental laboratory within the institution. Complete denture was provided to the patient. On insertion, dentures were checked in the mouth for adaptation of the denture and were relieved as needed. The oral rinse technique was used to take the oral sample at the time of insertion. Patients were provided 10 ml of sterile saline in a sterile disposable container and asked to rinse their mouth for 60 seconds. The rinse was expectorated into a sterile container. To minimize the effect of diurnal variation, meals and brushing, the rinse samples were collected at the same time of the day between 9 and 10 A.M. and at least two hours after eating, drinking or any oral hygiene procedure. The sample was immediately sent to microbiology laboratory for confirmation and count of candida colonies.

Data was analyzed on computer program SPSS version 17. Mean and standard deviation were calculated for age.

**RESULTS:**

The data was collected from 20 patients. Most of the patients were between 60 to 64 years of age. Minimum age was 50 years and maximum age was 65 years. The average age of the patients was  $58.90 \pm 4.37$  Years. Out of 40 patients, 20(50%) were male and 20(50%) were female with 1:1 male to female ratio. At the time of insertion candidal count of the patients was zero for all patients while after one month of wearing complete dentures candidal count increased.

**Table 01:** Frequency of candidal count at the time of insertion and after one month of wearing complete dentures

Candidal count	At the time of insertion	After one month of wearing complete dentures
0	40(100%)	26(65%)
200 to 3000	—	05(12.5%)
3001 to 4000	—	03(7.5%)
4001 to 5000	—	03(7.5%)
> 5000	—	03(7.5%)

**DISCUSSION:**

In this study, oral carriage of candida count was higher in female which is similar to many other studies. This may be explained due to the fact that women have more candidal load on the basis of iron deficiency anemia and hormonal changes. The majority of the women in the present study were in an age group where menopause was likely to occur. Davenport results show that candidal carriage is more in males than females [7].

Kulak and Arikan also found higher denture induced stomatitis in male patients. Smoking is more common in males and can be a reason of high candidal count. Smokers were excluded and this may be the cause for low candidal count in present study. For this *in vivo* study, the sampling method used for candida in the oral cavity was oral rinse technique [8]. This method is extensively used, and even though it does not directly target specific mucosal lesions, it provides a count of the candidal carriage. A study compared oral rinse technique with imprint culture for detection of oral microorganisms and found oral rinse technique to be better for yeast recognition. This technique was verified to be the most sensitive and ideal technique to find and determine overall candidal carriage [9].

Several researchers have studied interactions among *Candida* and bacteria in an attempt to determine how oral bacteria may modulate *Candida* adherence and colonization. The influence of *Streptococcus salivarius* has been reported to decrease *Candida* adherence, while cooperation between several *Streptococci* and *Candida albicans* has also been reported. Other research groups assessed *in vivo* biofilms, with various plaque collection methods generally destructive to the biofilm structure [10]. In contrast, the new confocal scanning laser microscopy using molecular biological staining techniques may elucidate unsolved issues or even identify artefacts arising from traditional methodologies. A recent study using acrylic resin samples of denture wearers *in vivo* has shown that different subjects present different biofilm formation rates, architecture and densities [11].

**CONCLUSION:**

It is concluded that the significant results of this study emphasize the critical need to measure candidal activity of complete denture wearers. While giving oral hygiene guidance to the middle-

aged patients, denture wearing habits must be considered as a significant factor.

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