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Angular Chelitis in Complete Dentures

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Abstract:

Purpose: Dentures may act as a reservoir for most of the pathogens and ulcers caused due to dentures harbour the same number of bacterial colonies. The main aim of this study is to assess the Candida albicans in complete denture wearers with angular chelitis. Though *Candida* albicans is the predominant pathogen in angular chelitis , other species may be present which are equally pathogenic.

Materials and method: Samples where collected from 12 angular chelitis patients in those using complete denture prosthetic appliances using sterile swabs. These were then cultured in suitable media to check for the candida species and other pathogenic bacteria. Standard culture medias were used and the confirmatory tests were done with candida differential media.

Results and conclusion: The predominant bacteria seen in such patients are *coagulase negative staphylococcus and viridans streptococcus*. Some species of *Candida albicans* were also found. Although other bacterial species may be present in these patients. Thus, this research is done to find the presence of Candida albicans in complete denture patients.

Key Words: Angular chelitis, Candida albicans, complete denture and pathogenic bacteria.

INTRODUCTION

Dentures are prosthetic devices that help in replicating the natural healthy oral cavity in adult patients and restores the normal functioning of teeth. These prostheses also help the patient to speak and builds self confidence. Although not all prosthesis are successful. There are several reasons to the failure of these prosthetic devices. One of them being angular chelitis. Angular cheilitis is a common inflammatory condition affecting the corners of the mouth or oral commissures. It is most commonly seen in long term denture wearers due to loss of Occlusal height in Old age or decreased inter maxillary space or decreased Vertical dimensions. In long term denture wearers due to attrition of the teeth because of prolonged usage the vertical dimension is decreased which results in deep folds of skin at the corners of the mouth which leads to collection of saliva in these areas resulting in skin becoming dry and fissured and causes ulcers. These ulcers are infected by the bacteria present in the normal flora of the oral cavity.

Angular cheilitis, one of the mucocutaneous lesions with deep fissures, affecting the angles of the elderly`s mouths with an ulcerated appearance, is associated with a variety of nutritional, systemic, and drug-related factors that may act exclusively or in combination with local factors. This endogenous infection is relatively common in edentulous or very old denture users in the elderly and immunocompromised, such as HIV-infected patients, diabetes mellitus, internal malignancy, and anemia (1). However angular cheilitis is infectious in origin and the patients may complain of burning of their lip angels, and several predisposing factors such as dentures, which altered vertical dimension of occlusion and lip support, avitaminosis, particularly deficiencies of Riboflavin and anemia may interact (2)

Different reports showed an increase in the frequency of angular cheilitis with increase in length of denture usage, suggesting that the loss of vertical height could be an important cause, as it is assumed that the over-closure of the jaws will produce occlusive folds at the angles of the mouth in which saliva tends to collect and the skin subsequently becomes macerated, fissured and secondarily infected and colonized mainly with *Candida* and few bacterial species such as *Staphylococcus aurous* (3,4). Poor oral hygiene, severe desorbed ridge and decrease in the face vertical height of occlusion can cause active colonization of *Candida*, which results in angular cheilit is among the elderly and institutionalized people leading to nutritional deficiency and impaired quality of life. (5,6,7). Management of the elderly mucosal *Candida*sis especially angular cheilitis is a major dentists' concern, especially in case of non-albicans species, which are less susceptible to common antifungal therapy than *C. albicans*. *Candida* species, which are a part of the human oral microbial flora, in particular *Candida albicans*, are the main etiologic agents responsible for the development of oral candidiasis. These funguses are known as the commensally intra-oral microorganism, which varies from 20% to 50% in a healthy edentulous population and up to 75% in denture-wearers (8). The manifestation of oral candidiasis can occur in many different forms including median rhomboid glossitis, atrophic glossitis, denture stomatitis, and angular cheilitis (9,10,11). Thus is study is done to find the presence of Candida albicans in angular chelitis patients.

MATERIALS AND METHOD:

Twelve patients with angular chelitis without any systemic disorders and those not under any antibiotics were selected. Samples were taken from the ulcerated corner of the mouth using a sterile disposable swab in a sterile tube. The bacteria was cultured using Nutrient agar, blood agar and candida differential media. Nutrient agar and blood agar is to identify the presence of coagulase negative staphylococcus and viridans streptococci. Candida differential media is to find the presence of sky blue color candia albicans. The samples were inoculated by streak culture on the culture plates. The plates were then incubated aerobically in an incubator for 24 hrs at 37 degree celsius. Cultured bacteria was isolated.

RESULTS:

In the present study, the cause for the presence of micro organisms is due to decrease in the vertical dimension. Among the twelve patients, the predominant bacterial species present was 41% viridans *streptococcus* followed by 58% coagulase negative *staphylococcus*. 25% of patient sample had Candida albicans. However, there was significant rise in the number of the bacteria which constitute the normal flora. The following were the findings of this study:

Sample1- *viridans streptococci.*

Sample2- *coagulase negative Staphylococcus and Candida albicans.*

Sample3- *Viridans Streptococci.*

Sample4- *coagulase negative Staphylococcus and viridans streptococci.*

Sample5- *coagulase negative Staphylococcus and Candida albicans.*

Sample6- *viridans Streptococcus.*

Sample7- *coagulase negative Staphylococcus.*

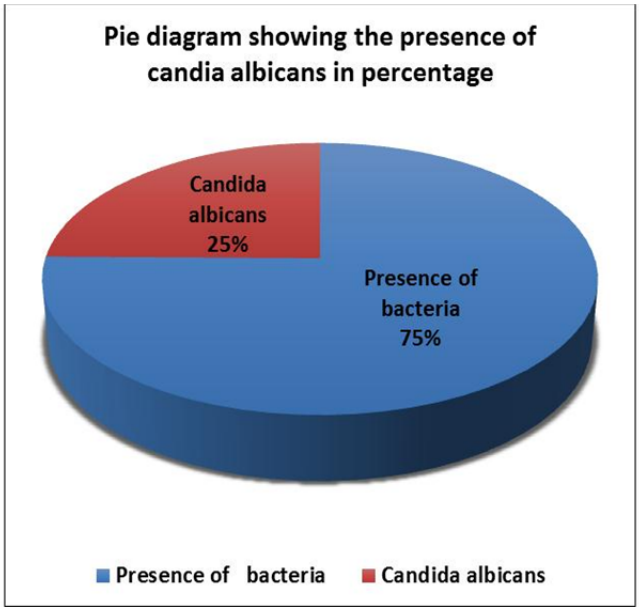
Sample8- *coagulase negative Staphylococcus and Candida albicans.*

Sample9- *coagulase negative Staphylococcus.*

Sample10- *viridans Streptococcus.*

Sample11- *Viridans streptococci.*

Sample12- *Coagulase negative staphylococcus.*



SUMMARY:

Candida species are known as the most prevalent opportunistic fungi, producing a high prevalence disease, candidias is in human body, with the extremely varied localization. Colonization of *Candida albicans* .in human mouth can promote oral candidiasis, with different manifestations. Angular cheilitis, one of the mucosal manifestations of oral candidiasis, results from colonization of *Candida* species in commissural folds, and satellite lesions on lips; however impaired immunity, diabetes mellitus and AIDS can also provoke this lesion (12,13). The present study was conducted in order to show the role of vertical dimension of occlusion modification in reduction of *Candida* species colonization in angular cheilitis lesions and improvement of this infection.

CONCLUSION:

The results of the present study led to the conclusion that there was a need for an oral manifestation management-based strategy focusing on clinical and preventative treatment. Angular cheilitis, as oral manifestations are frequent in the edentulous elderly using old dentures, is caused by a wide range of *Candida* species colonization. This lesion can be controlled with changing and replacing a new denture to modify the face vertical dimension, and improve the angular cheilitis lesions.

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