

Case Reports

Candidial leukoplakia- Case series

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ABSTRACT

One of the most common potentially malignant disorder is Oral leukoplakia. The word “leukoplakia” means white patch. WHO terms “leukoplakia” as, a white plaque of questionable risk having excluded. Candida is one the most common commensal in the oral cavity, the presence of candida is seen commonly in both normal and patients with pathology alike, but some studies have shown to have an increase in levels of candida in patients with potentially malignant disorders. This case series shows that the levels of Candida has a strong relation with the levels of dysplasia in patients with leukoplakia, out of 3 patients who have been diagnosed with Leukoplakia, 2 have been proven to have the presence of candida with the level of dysplasia being moderate, while there is an absence of candida in patients with mild dysplasia. Since this is a case series, further studies have to be done to prove that candida is present in majority of cases with oral dysplasia.

Keywords: Candida; Leukoplakia; Dysplasia.

INTRODUCTION

One of the most common potentially malignant disorder is Oral leukoplakia. The word “leukoplakia” means white patch. WHO terms “leukoplakia” as, a white plaque of questionable risk having excluded (other) known diseases or disorders that carry no increased risk for cancer (1,2) and “potentially malignant disorder” as the risk of malignancy being present in a lesion or condition either during the time of initial diagnosis or at a future date (3). The possible etiology are habits of alcohol and tobacco consumption, presence of sharp teeth and sharp ends of dental prosthesis, presence of pre-malignant epithelial changes, candida albicans, ultraviolet radiation, trauma. Candida is a normal commensal found in the oral cavity and some articles suggest that its incidence could be high in pre-malignant lesions as well, oral Candida is a “opportunistic pathogen”(4,5). Depending on the host immune mechanisms or local oral factors, Candida can transform from a harmless commensal to the pathogenic organism causing oral mucosal infection (5, 6).

CLINICAL PRESENTATION

CASE 1: A 59 year old male patient, reported to our department with complains of pain in the lower left back tooth region, the pain is pricking type, non-radiating, initiated by mastication and relieved by rest, on intra-oral examination, a greyish-white patch which is seen in relation to the right and left buccal mucosa extending from the commissure of the lips to the retromolar region, surrounded by areas of hyperkeratinisation, generalised staining seen in both upper and lower arch, patient also presented with personal history of pan chewing and smoking cigarette(4-5 packets per day) for the past 10 years and has ceased the habit before 3 years. On palpation, a non-scrapable white patch which is hard in consistency, patient’s habit of smoking combined with the greyish white patch seen in both right and left buccal mucosa is suggestive of homogenous leukoplakia.

Histopathology report shows presence of hyper-orthokeratosis with moderate epithelial dysplasia, microbiological culture done in Candida differential agar (CAD) with the saliva sample obtained from the patient shows the presence of Candidal hyphae.



Fig:1 The presence of greyish white patch in the right and left buccal mucosa and hyphal growth depicting the presence of candida species in Candida Differential Agar (CAD) medium

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CASE 2: A patient of 60 years old reported to our department with complains of pain in the lower right back tooth region and irritation in the right and left buccal mucosa, the pain is pricking type, non-radiating, initiated by mastication and relieved by rest. The patient has history of smoking for the past 20 years and is also an occasional tobacco chewer (*Pan*). Intra oral examination shows greyish white patch extending from the commissure of the lips along the line of occlusion to the retro molar region measuring

3x1 surrounded by areas of hyperkeratinisation, Palpation reveals areas keratinisation which is scrapable. Patient's habits of smoking combined with areas of white patch which is also non- scrapable, suggestive of a homogenous leukoplakia with candida manifestation. Histopathology suggestive of hyper-orthokeratosis with moderate epithelial dysplasia. Culturing of the saliva sample from the patient shows the presence of *Candida* as a hyphal form in the CAD medium.



Fig.2: An area of greyish patch in the right and left buccal mucosa and hyphal growth depicting the presence of candida species in the CAD medium

CASE 3

A 25 year old male patient reported to the department with complains of pain both the upper and lower tooth region, the pain is pricking type, non-radiating, intermittent, initiated by mastication and relieved by rest. Patient is a habitual smoker and a pan-masala chewer intra oral examination shows generalised stains in both upper and lower tooth region, greyish-white patch seen in the right and left buccal mucosa extending from the angle of lips along the line of

occlusion to the retromolar region also patient gives complains of itching and discomfort, with areas of slight erythema around the lesion suggestive of non-homogenous leukoplakia, histopathology suggestive of hyper orthokeratosis with mild epithelial dysplasia. Microbiological examination shows absence of *Candida* in the saliva samples which is cultured in *Candida* Differential Agar (CDA) from the patient (only the presence is confirmed and not the type).



Fig. 3: The presence of greyish white patch in the right and left buccal mucosa and absence of growth in the CAD medium

DISCUSSION

In the included case series, cases 1 and 2 where the levels of dysplasia is between severe and moderate, the level of candida increases as the level of dysplasia progresses, this is proven with level of colony forming-units (Cfu). In case1 wherein there level of dysplasia is high the colony forming is about 6735 Cfu/mm, in case 2 where the level of dysplasia is moderate the colony forming unit formed is about 3368 Cfu/mm, but in case 3 where there is mild dysplasia, there is complete absence of candida. The result of this case series shows that, with the level of dysplasia, the presence of candida also increases.

A study by Shah *et al.*, have shown that about 28% cases of oral submucous fibrosis and 40% oral leukoplakia have shown to have a strong association with the presence of *Candida* as indicated in my study, hence the chances of *Candida* being present in oral

potentially malignant disorders is a proven theory in many studies, but in this case series of oral leukoplakia with the presence of *Candida* has correlated the presence of *Candida* with the severity of dysplasia (8).

Studies by Krogh *et al.*, have also confirmed the presence of *Candida* in patient associated with potentially malignant disorders especially in leukoplakia and *Lichen planus* out of which about 80% of cases of Leukoplakia and 37% of lichen planus only presented with an overlying candida, hence shows similar predilection as the current case scenario (9).

While studies by Hatchuel *et al.*, have also showed the presence of candida in cases associated with pre-malignant lesion such as lichen planus and leukoplakia, about 17.4 and 16.6%, hence proven that the level of presence of *Candida* could be higher in cases with leukoplakia. Out of 3 cases, 2 have shown

to have the presence of *Candida* species in patients with oral leukoplakia (10).

CONCLUSION

Candida species such as the *Candida albicans* has been considered an etiologic factor for potentially malignant disorders, the process of pathogenesis is not completely understood and is still a field under extensive research. This case series has confirmed the significant association between the presence of candidal growth and potential malignant disorders, especially leukoplakia; and type of habit with colonization of the *Candida* species. Smoking seems to be the probable etiological factors in oral leukoplakia. Multivariate investigation has shown that the sort of lesion, age, site, and dysplasia are considered as independent risk factors hence are not much dependent or know to indefinitely present in pre malignant condition. Out of 3 cases 2 have shown to be positive for the presence of candida and are cases with levels of moderate dysplasia and the one case which shown the absence of candida is of mild dysplastic type. Hence this study has shown that the presence of candida increases with the levels of dysplasia in patients with leukoplakia.

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