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A Review of Oral Candidiasis in Oral Mucosal Lesions.

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ABSTRACT

Oral candidiasis is the most common fungal infection encountered in general dental practice. The ability of the *Candida* species to colonize surfaces can be considered as a risk factor for oral infection. There are a number of oral lesions that are clearly associated, more often than others, with either candidial infestation or frank invasion. This article reviews about Oral candidiasis in Oral mucosal infections.

Keywords: oral, mucosal lesions, candidiasis.

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INTRODUCTION

The most common oral fungal infection in human beings is caused by the *Candida* species. *Candida* may be isolated from the oral cavity of healthy individuals who have no clinical signs or symptoms of *Candida* infection [1,2]. Systemic and local factors that reduce host resistance promote the transition from the commensalism to parasitism forms of *Candida* [3].

The balance between *Candida* colonization and candidiasis relies on the balance between pathogen characteristics (e.g. production of adhesins, secreted aspartyl proteinases), and host factors [4]. Host local predisposing conditions comprise: (i) reduced saliva secretion, (ii) epithelial changes and local mucosal diseases, (iii) changes in commensal flora, (iv) high carbohydrate diet, and (v) denture wearing. Additionally, host systemic factors have also been associated with *Candida* oral colonization, and include: (i) age, (ii) tobacco smoking, (iii) endocrine disorders, including diabetes, hypothyroidism, and hyperparathyroidism, (iv) rheumatic diseases, (v) nutritional deficiencies (iron or folate deficiencies), (vi) immunosuppressive conditions, such as chemotherapy, deficiencies of humoral or cell-mediated immunity, human immunodeficiency virus infection, and acquired immunodeficiency syndrome, and (vii) drugs such as broad-spectrum antibiotics, and corticosteroids [5-7].

Recently, an interest in the study of oral candidiasis has markedly increased mainly because of its association with viral infection due to human immunodeficiency, but also because of its relation with potentially malignant and malignant lesions of oral mucosa [8].

Oral Candidiasis in Oral lesions

Erythematous candidiasis

Erythematous candidiasis is a clinical form of *C. albicans* characterized by localized erythema of the oral mucosa, with or without associated symptoms [7,9,10]. It commonly occurs on the dorsum of the tongue and the palate, and less commonly the buccal mucosa [11]. This variant was previously known as antibiotic sore mouth, and is associated with chronic use of broad-spectrum antibiotics and corticosteroids [9]. It is also present in patients with HIV infections [12]. Histopathologically, this lesion is similar to pseudomembranous candidosis [7].

Angular cheilitis

Angular cheilitis is a chronic inflammatory lesion that affects the labial commissures. It appears clinically as erythematous, fissured lesions affecting the angles of the mouth [11]. It is often symptomatic and bilaterall [11]. Facial skin folds and wrinkling along the labial commissures and nasolabial folds may cause saliva accumulation and a chronic moist environment that predisposes to angular cheilitis. This is seen commonly in denture wearing patients with reduced vertical occlusal dimension [13]. While nutritional factors have an important aetiologic role in the development of these lesions, it is now thought most are caused by *Candida* species and/or *Staphylococcus* and *Streptococci* [14]. It can be associated with multifocal candidiasis.

Denture Stomatitis

This chronic inflammatory lesion is considered to be a form of erythematous candidiasis and is sometimes referred to as chronic atropic candidiasis. The erythema is localized to the fitting surface of the denture bearing areas of maxillary removable dental prosthesis [15].

Classically, the lesion presents as erythema and oedema restricted to the denture supporting area [7,16,17]. Lesions are frequently asymptomatic, however, patients may complain of slight soreness or burning sensations. Though most lesions are associated with a Candidal infection, other aetiologic factors include poor oral and denture hygiene [18,19], nocturnal denture wearing [19-21] and ill-fitting dentures [21].

Median Rhomboid Glossitis

Median rhomboid glossitis, also known as central paillary atrophy, was originally thought to be a developmental anomaly of the tongue. Now it is considered to be a variant of erythematous candidiasis [22].

This lesion is characterized by a symmetrical, erythematous, elliptical or rhomboid-like area located on the posterior dorsal surface of the tongue just anterior to the circumvallate papillae [11].

It is usually localized to the posterior aspect of the tongue in front of the circumvallate papillae [21].

Palatal “kissing lesion” usually results from direct inoculation that occurs when the dorsal tongue makes contact with the hard palate during deglutition. This presentation of erythematous candidiasis has been reverred to as chronic multifocal candidiasis [23].

Oral Leukoplakia

Leukoplakia is a predominately white lesion of the oral mucosa that cannot be characterized as any other definable lesion [24] Among the different types of leukoplakia, the terms “canidial leukoplakia” and “hyperplastic candidiasis” have been used to describe lesions with Candida found in histologic sections of leukoplakia, and hyperplastic candidiasis is often cited as an oral precancerous lesion [25]. Candida albicans is frequently found in histologic sections of leukoplakia and is consistently (60% of cases) identified in nodular leukoplakias but rarely (3%) in homogenous leukoplakias [25].

Oral Lichen Planus

Candida may act as a secondary pathogen and this super infection may possibly exacerbate the signs and symptoms of OLP which may be felt as ‘burning’ sensation or discomfort [26,27]. Due to endogenous nitrosation potential of this organism dysplastic changes are usually associated in lesions with candidal invasion [28].

The Candida organism has been identified in oral lichen planus (OLP) lesions. Culture studies have demonstrated Candida infection in 37% to 50% of OLP cases [29,30]. Secondary candidiasis has been reported in some OLP patients being treated with steroids [31]. Muzyka and Glick [32] surmised that corticosteroids lower host resistance to Candida by suppressing both nonspecific inflammatory responses and cell-mediated immunity. Secondary candidiasis may complicate the treatment of OLP [3].

Oral Submucous Fibrosis

C. albicans is the predominant species isolated in premalignancy and carcinoma. Candidal infection can induce epithelial atypia and lead to malignant transformation through the release of chemical carcinogens like nitrosamine compounds [33]. Similarly, Candida could play a role in malignant transformation in OSMF, but this process has not been confirmed. Recently, oral submucous fibrosis has been identified as a high risk precancerous condition that affects young Indians due to their habit of gutkha chewing [34]. Several predisposing factors may be present in patients with OSMF, but epithelial atrophy is considered one of the key features of OSMF. Decreased mouth opening may predispose an individual to candidal growth, and this Candida can further predispose the mucosa for malignant transformation through the process of nitrosation [33,35,36].

HIV and Oral Candidiasis

HIV infected patients are often diagnosed with oral candidiasis and it is considered as the most common opportunistic infection in this population [37]. The clinical presentations of this disease are usually in the form of pseudomembranous, erythematous, or hyperplastic candidiasis [38].

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