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URL of this article: http://heanoti.com/index.php/hn/article/view/hn21208

Management of Pseudomembranous Candidiasis on The Tongue of A Smoker Patient

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ABSTRACT

Introduction: Candidiasis is an oral opportunistic infection caused by *Candida albicans* (C. albicans). This fungus may cause a pathogenic condition, and is the most common fungal infection in the human oral cavity. *Candida albicans* causes infection more frequently compared to other types of fungus, e.g. *C. tropicalis, C. krusei, C. parapsilosis, C. guilliermondi*. Predisposing factors e.g. the use of dentures, xerostomia, and smoking habits are known to cause the occurrence of oral candidiasis. **Objective:** To determine the management of *Acute Pseudomembranous Candidiasis*. **Case:** A 52-year-old male patient visited the Oral Medicine Clinic of Dental Hospital, Dentistry Faculty, Jember University complaining about his tongue suffering from thickening, white, and feeling uncomfortable when eating. The patient claimed hurt, and tasted bitter sensation while eating. **Conclusion:** The patient was completely diagnosed to suffer from *pseudomembranous candidiasis* on his tongue. **Management:** The therapy provided for the patient was Nystatin oral suspension functioning as a topical antifungal medicine, Becomzet (Vitamin B complex, A, C, E, and Zinc), tongue cleaner number 1 as a tongue cleanser appliance.

Keywords*:* Nystatin oral suspension, Pseudomembranous candidiasis, Tongue

INTRODUCTION

Candida albicans is considered as normal flora of the oral cavity, digestive tract and vagina, this fungus may turn into a pathogen in line with a change in the host that may occur locally or systematically. Candidiasis lesions may develop in everywhere in oral cavity, but the most common locations are the buccal mucosa, folds of the buccal mucosa, oropharynx and tongue (Lamey and Lewis). Chronic candidiasis without immediate treatment may develop precarious candidiasis leukoplakia, and subsequently results in squamous cell carcinoma. In addition, candidiasis may develop into a systemic infection through lymph flow attacking vital organs e.g. the kidneys, lungs, brain and blood vessel walls which are very fatal.[(1)]

Candidiasis is an infection caused by *Candida* which causes a pathogen condition, and is the most common fungal infection in the human oral cavity. *Candidiasis* is an opportunistic infection in the oral cavity caused by *Candida albicans (C. albicans)*. This fungus maycause a pathogenic condition, and is the most common fungal infection in the human oral cavity. *Candida albicans* causes infection more frequently compared to other types of fungus e.g. *C. tropicalis, C. krusei, C. parapsilosis, C. guilliermondi*.[(2)] Predisposing factors for the occurrence of oral candidiasis are for example the use of dentures, xerostomia, and smoking habits. Clinical manifestations of candidiasis in the oral cavity are divided into four i.e. Acute Pseudomembranous Candidiasis (thrush), Acute Athropic Candidiasis, Chronic Athropic Candidiasis, and Chronic Hyperplastic Candidiasis. This occurs because of the presence of predisposing factors including (1) changes in the normal oral flora (due to the use of broad-spectrum antibiotics, use of excessive mouthwashes, and xerostomia), (2) chronic local irritation (use of dentures and orthodontic devices , smokers), (3) corticosteroid use, (4) poor oral hygiene, (5) pregnancy, (6) decreased immunity (AIDS, diabetes mellitus, leukemia, lymphoma, chemotherapy, and radiation), (7) malabsorption and malnutrition.[(3)] Candidiasis manifestations in the oral cavity are generally in the form of white plaques on the tongue, gingiva, or mucous membranes that can be removed.[(4)]

In this case, it was found a pseudomembranous candidiasis on the tongue of the patient due to his severe smoking habits. Pseudomembranous candidiasis is also called 'trush' which consists of a collection of hyphae and yeast cells, inflammatory cells, bacteria, epithelium, food debris and necrolytic tissue.[(5)] Pseudomembranous candidiasis is an acute infection but may persist within a few months or years in patients taking corticosteroids,

in HIV or immunocompromised patients. The clinical description of Pseudomembranous candidiasis is the presence of widespread white lesions on the mucosal surface that may develop and form plaques that resembling milk clots. The plaque can be scraped and leaves the base of erythema and may also bleed. Pseudomembranous candidiasis is most commonly found in the buccal, tongue, and soft palate regions.[6] Treatment of pseudomembranous candidiasis is conducted using topical antifungal medicine e.g. nystatin, and is necessary to examine the systemic abnormalities as a trigger for pseudomembranous candidiasis.[1],[7]

METHODS

This study was a case report. A 52-year-old male patient visited the Oral Medicine Department of Dental Hospital, Jember University. We asked him about his complaint and than we examed hir oral cavity. We made the diagnosis of this case and got it was therapy.

RESULTS

A 52-year-old male patient visited the Oral Medicine Clinic of Dental Hospital, Jember University complaining about his tongue suffering from feeling thick, looking white, and feeling uncomfortable (hurt and bitter) when eating since 1 year ago, but had never got medication.

Based on the extra oral examination, no abnormalities were found. Intra oral examination found poor oral condition, as well as the loss of several teeth due to extraction remaining some roots. On the tongue, thick yellowish white plaque was found throughout the tongue surface, diffuse, may be scraped, and did not feel hurt (Figure 1). Temporary diagnosis demonstrated suspect pseudomembranous candidiasis in the tongue. The therapy provided was symptomatic therapy in the form of nystatin oral suspension functioning as a topical antifungal, as well as the provision of multivitamins containing B complex, vitamin A, C, E, and Zinc. In addition, the therapy conducted on the first visit was:

1. Tongue asepsis using povidonem iodine;
2. The tongue was dried with a sterile tampon;
3. Cleansing the debris with disposable spatula;
4. Swab performed using disposable spatula then stored in glass objects to be sent to the Microbiology Laboratory;
5. Topical treatment using nystatin applied to the tongue with 0.5 ml of pellet cotton;
6. Left for 5 minutes, and allowed to swallow
7. Allowed 20-30 minutes, the patient prohibited to eat, drink or gargle.

The patient was instructed to use the medicine as recommended in order to maintain his oral hygiene, especially tongue, to consume nutritious food and multivitamins, adequate rest and to for check up in the following week.

Figure 1. On September 12 2017, the patient first came to Oral Medicine Clinic of Dental Hospital, Dentistry Faculty, Jember University complaining about his tongue feeling thick and rough when touched, sometimes painful when eating hot food. Clinical condition of the tongue found white plaque, could be scraped, boundary was not clear, did not feel hurt.

Figure 2. On September 19, 2017, after 7 days the treatment, the white plaque was not found, the patient also felt comfortable when eating. Therapy was declared complete.

DISCUSSION

Diagnosis was made from a subjective examination i.e. anamnesis, objective/clinical examination, an supporting investigations. In the intra-oral examination on the tongue it was found white plaque almost on the entire tongue of the patient, the boundary was not clear, did not feel hurt. Based on the results of the investigation i.e. swab tests from the Microbiology laboratory showed the presence of spore formation +3 (positive 3) and hyphae +3 (positive 3), it indicated the presence Candida albicans infection on the tongue. From these results, a diagnosis of pseudomembranous candidiasis may be established.

Pseudomembranous candidiasis also called 'trush' consists of a cluster of hyphae and yeast cells, inflammatory cells, bacteria, epithelium, food debris and necrolytic tissue. The clinical description of Pseudomembranous candidiasis is the presence of widespread white lesions on the mucosal surface that may develop and form plaques resembling milk clots. The plaque may be scraped and leaves the base of erythema and may also bleed. Pseudomembranous candidiasis is most commonly found in the buccal, tongue, and soft palate regions (Langlais and Miller, 2000). It is caused by the presence of predisposing factors including (1) changes in the normal oral flora (due to the use of broad-spectrum antibiotics, use of excessive mouthwashes, and xerostomia), (2) chronic local irritation (use of dentures and orthodontic devices), (3) corticosteroid use, (4) poor oral hygiene, (5) pregnancy, (6) decreased immunity (AIDS, diabetes mellitus, leukemia, lymphoma, chemotherapy, and radiation), (7) malabsorption and malnutrition[(6)].

The etiology of the occurrence of oral candidiasis in the patient was suspected due to predisposing factors allowing the invasion of C.albicans fungi. Based on the anamnesis, it was known that the patient had smoking habit and smoked up to 1 pack of cigarette per day, usually smoked after eating. The patient had never treated his tongue, and it did not feel hurt. This condition was considered as predisposing factors for the growth of C.albicans in the patient's oral cavity. These habits caused disturbances in salivary secretions. The smoking habits may cause chronic irritation and heat that results in changes in vascularization and secretion of the salivary glands. It is known that saliva consists of anti-Candida components e.g. lysozyme, histatins, lactoferrin, and calprotectin, thus if the production of saliva decreases as in xerostomia and smokers, Candida may easily develop. Saliva plays an important role in maintaining homeostasis and the microflora of the oral cavity including in preventing fungal infections. Saliva has self-cleansing effect which dissolves pathogenic antigens and cleanses the oral mucosa. Salivary antibody (sIgA) and anti-microbial factors in saliva (lysozyme, lactoperoxidase, histatin, calprotectin, and lactoferrin) play an important role in preventing adhesion, colonization and Candida albicans infection. Thus, a decrease in the rate of saliva will cause reduced efficiency of the immune system as a control of Candida albicans infection allowing the occurrence of Candida albicans infection. In an elderly patient, cell proliferation or epithelial cell regeneration also experience interference allow it susceptible to diseases[(7)].

Smoking also induces an increase in epithelial keratinization. Hot smoke that blows continuously into the oral cavity is a heat stimulation that causes changes in blood flow and reduces the release of saliva. Irritation of the tongue triggers the formation of a protective layer of dead cells called keratin. Keratin on the tongue is the same contents that form hair and nails. Keratin formed in the tongue is generally swallowed and discarded when we consume food. Under normal tongue conditions, the amount of keratin produced is proportional to that discarded. However, this balance may be disrupted due to keratin which cannot be removed quickly. This condition similarly happens to people who consume a soft diet e.g. denture wearers. It may also occur because the keratin produced is faster than that is swallowed or discarded[(8)].

The patient went for check up on September 19, 2017, 7 days post treatment, the white plaque was clean thus the therapy was declared to be finished. The patient was instructed to maintain oral hygiene, to consume nutritious food, to have adequate rest, and to reduce smoking habit.

Management of oral candidiasis cases is conducted by overcoming infection and correcting the predisposing factors. The goal of therapy or treatment is to eliminate the etiology of Candida albicans, to accelerate the healing process, and to increase the body's resistance. In this case, topical antifungals were used to treat C. albicans i.e. nystatin oral suspension, tongue cleaner, and Becomzet multivitamins. Nystatin is a macrolide polyne, low in toxicity when used as a topical medicine, effective against most Candida species, and most commonly used to suppress local Candida infections. Antifungal polyene binds to elgosterol in the cell membrane of fungi, resulting in disruption of the structure of the cell membrane which causes leakage of intracellular content leading to cell death. Tongue cleaner is also used as a causative therapy to eliminate fungal etiology mechanically. Correction of predisposing factors may be performed by instructing the patient to stop or at least to reduce smoking habits, to improve the quality of rest, adjust the pattern of adequate nutritional intake with a balanced composition, and consume vitamin B complex and zinc.

CONCLUSION

It is concluded that the patient experiences pseudomembranous candidiasis on the tongue indicated with a white plaque, unclear boundary, does not feel hurt. This pseudomembranous candidiasis may be caused by smoking habits. Treatment provided for the patient is nystatin oral suspension as a topical antifungal, Vetzet (Vitamin B complex, A, C, E, and Zinc) tongue cleaner number 1 as a tongue cleanser appliance.

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