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CASE REPORT

ORAL CANDIDIASIS: A CASE REPORT AND REVIEW OF LITERATURE

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ABSTRACT

Candidiasis, a common opportunistic fungal infection of the oral cavity is caused by Candida species. There are many risk factors involved including the use of prosthetic dentures with poor denture hygiene. We hereby present a case of an elderly female wearing maxillary and mandibular complete dentures for 20 years with poor denture hygiene. She complained of burning sensation in the mouth for 1 week. After complete examination, a provisional diagnosis of Pseudo membranous candidiasis w.r.t mandibular ridge and Atrophic candidiasis w.r.t maxillary ridge and the hard palate was made. The lesions healed completely in 5 days after the application of candid mouth paint and maintenance of oral and denture hygiene.

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INTRODUCTION

Oral candidiasis is also known as oral candidosis, oral thrush, oropharyngeal candidiasis, moniliasis, candidal stomatitis. It is an opportunistic infection affecting the oral mucosa. Eight speciesof Candida are known to be pathogenic, especiallyin immunosuppressed persons: Candida albicans, Candida guilliermondii, Candida kefyr, Candida tropicalis, Candida parapsilosis, Candida viswanathii, and Candida glabrata (Lynch, 1994). Candida albicans is the most common pathogen of the group. Candida albicans are the normal components of oral microflora and around 30% to 50% people carry this organism. The rate of carriage increases with advancing the age of the patient and is recovered from 60% of dentate patient's mouth over the age of 60 years (Rao, 2012). However, under the influence of conditions that affect the host's oral flora or immune response, Candida albicans or other Candida species can become pathogenic and cause various oral mucosal changes. Candida albicans is a dimorphic fungus that causes severe opportunistic infections in humans (Molero *et al.,* 1998). It has an ability to grow in two different ways, reproduction by budding, forming an ellipsoid bud, and in hyphal form, which can periodically fragment and give rise to new mycelia, or yeast-like forms (Cutler *et al.,* 1991).

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We present here a case of oral candidiasis in an elderly female treated with topical antifungal agents and maintenance of proper oral and denture hygiene.

CASE REPORT

A 67 years old female patient reported to our department with the chief complaint of burning sensation in the mouth for 1 week and also complained of loose pair of dentures. Patient was relatively asymptomatic 1 week back when she started experiencing burning sensation in the mouth which was sudden in onset, aggravated on eating food and relieved on rinsing the mouth. She also complained of loose upper and lower dentures which she had been for 20 years. She was hypertensive and on medication for the past 7 years. On examination a greyish white loosely adherent slough was seen over the mandibular ridge extending from the right to the left retromolar region. Also a few irregular erythematous regions were noted over the hard palate and the maxillary ridge. On palpation there was no tenderness associated with the mandibular ridge, the hard palate and the maxillary ridge. The slough was scrapable and tissue tags were present. Slightly erythematous areas were noted after the removal of the slough. A provisional diagnosis of Pseudo membranous candidiasis w.r.t mandibular ridge and Atrophic candidiasis w.r.t maxillary ridge and the hard palate was made. The differential diagnosis given were chemical burn and frictional keratosis.

Figure 1. Left Mandibular Ridge Lesion

Figure 2. Right Mandibular Ridge Lesion

Figure3. Maxillary Ridge and Hard Palate Lesion

Figure 4. Old Pair of Complete Dentures

Figure 5. Healed Left Mandibular Ridge Lesion

Figure 6. Healed Right Mandibular Ridge Lesion

Figure 7. Healed Maxillary Ridge and Hard Palate Lesion

Exfoliative cytology and fungal staining was carried out and the patient was advised to discontinue denture use, mouth rinsing after every meal, Candid mouthpaint daily 3 times application for 5 days, advised new dentures, educated about denture hygiene and recalled after 5 days. Exfoliative cytology confirmed fungal hyphae. The follow up after 5 days revealed completely healed maxillary and mandibular lesions with significant relief from burning sensation.

DISCUSSION

Oral candidiasis is classified as (Greenberg *et al.,* 2008):

1. **Primary oral candidosis:**
   a. Acute form: Pseudomembranous, Erythematous.
   b. Chronic form: Erythematous, Pseudomembranous, Plaque like, Nodular. Candida associated lesions: Denture stomatitis, Angular chelosis, Median rhomboid glossitis
2. **Secondary oral candidosis:** Familial mucocutaneous candidiasis, Diffuse chronic mucocutaneous candidiasis, Familial mucocutaneous candidiasis, Chronic granulomatous diseases, Candidosis endocrinopathy syndrome, Acquired immune deficiency syndrome (AIDS).

Local predisposing factors

Impaired salivary gland function can be predisposing factor to oral candidiasis (Epstein, 1990). Antimicrobial proteins in the saliva and specific anticandida antibodies prevent overgrowth of candida. Therefore the conditions which causes decrease salivary flow can lead to an increased risk of oral candidiasis. Prosthetic dentures predispose to infection with candida in as many as 65% of elderly people wearing full dentures (Dreizen, 1984). Wearing of dentures produces a microenvironment conducive to the growth of candida with low oxygen, low pH, and an anaerobic environment. Inhaled steroids have been shown to increase the risk of oral candidiasis because steroids possibly suppress cellular immunity and phagocytic activities (Garber, 1994). Other factors are oral cancer/leukoplakia, lichen planus and a high carbohydrate diet (Ohman and Jontell, 1988).

Systemic factors

There are so many systemic factors which predispose to candida infections. Extremes of life predispose to infection because of reduced immunity (Guida, 1988). Some drugs such as broad spectrum antibiotics alter the local oral flora creating a suitable environment for candida to proliferate. Immunosuppressive drugs such as the antineoplastic agents have been shown to predispose to oral candidiasis by altering the oral flora, disrupting the mucosal surface and altering the character of the saliva (Bergman, 1991). Other factors which predispose the candida infections are: smoking, diabetes, cushing's syndrome, immunosuppressive conditions such as HIV infection, Malignancies such as leukaemia and, Nutritional deficiencies vitamin B deficiencies (Khan *et al.,* 2014).

Laboratory Tests

Due to a variety of clinical forms of candidiasis a number of differing specimens such as smears, swabs, imprint samples, salivary samples, oral rinse samples, and biopsy specimens may be submitted to the laboratory (Prabhu *et al.,* 2013). If lab investigations are required, a potassium hydroxide stained cytologic preparation that demonstrates the fungal pseudohyphae penetrating the epithelial cells can be used for confirmation. Confirmation by biopsy and a periodic acid Schiff stain (PAS) is also possible, as the stain will turn the spores and pseudohyphae bright magenta, making them easily visible by light microscope (Khan *et al.,* 2014).

Treatment

The treatment of oral candidiasis is based on four fundaments: making an early and accurate diagnosis of the infection; correcting the predisposing factors or underlying diseases; evaluating the type of Candida infection; appropriate use of antifungal drugs, evaluating the efficacy / toxicity ratio in each case (Aguirre Urizar, 2013). First has been supported the use of conservative measures before starting drug treatment, promoting good oral hygiene along with removing the dentures at night. Dentists should also correct the predisposing factors and underlying diseases and try to promote the use of oral antiseptic and antibacterial rinses such as Chlorhexidine or Hexetidine. These measures are very effective in patients with denture stomatitis (Koray *et al.,* 2005). Regarding the pharmacological treatment of candidiasis can be distinguished between two procedures. Topical drugs, which are applied to the affected area and treat superficial infections and systemic drugs those that are prescribed when the infection is more widespread and has not been enough with the topical therapy (Prabhu *et al.,* 2013). When choosing between some treatments it will take into account the type of Candida, its clinical pathology and if it is enough with a topical treatment or requires a more complex systemic type, always evaluating the ratio efficacy and toxicity.

Primary line of treatment

Nystatin is the drug of choice as a primary line of treatment and for the mild and localized candidiasis this primary line of treatment is used other drugs includes Clotrimazole which is available as Lozenges and Amphotercin B as oral suspension.[16]

- **Nystatin:** It is available as cream & oral suspensions. It is to be applied four times a day and allowed to act approximately for two minutes in the oral cavity and then it is to be swallowed. Nystatin shows no significant drug interaction or side effects. It acts by

binding to the cell membrane of the fungi and alters the cell permeability leading to the leakage of intracellular components followed by cell death.

- **Amphotercin B:** Available as Lozenge and oral suspension which is to be applied 3 to 4 times daily. It inhibits the adhesion of Candida to epithelial cells. It is a nephrotoxic drug.
- **Clotrimozole:** It reduces the fungal growth because this drug inhibits the synthesis of ergo sterol which is a part of call membrane of fungi. It is not indicated for systemic infection. This drug is available as Creams and Lozenge. The main side effects are: Unpleasant mouth sensation, increases liver enzyme levels, nausea andv omiting.

Second line of treatment (Pappas *et al.*, 2004):

The second lines of treatment are used for severe, localized, immune suppressed patients and patients who respond poorly to primary line of treatment. Drugs mainly used in second line of treatment are: Ketoconazole, Fluconazole, Itraconazole.

- **Ketoconazole:** It is absorbed from the gastro intestinal tract (GIT) and metabolized in the liver and blocks ergosterol synthesis in fungal cell membrane. Dosage: The dose is 200 - 400mg tablets once or twice daily for 2 week. Side effects: Nausea, Vomiting, Liver damage and Interacts with anticoagulants.
- **Fluconazole:** It is used in oropharyngial candidosis. This drug inhibits fungal cytochrome P450 sterol C-14 alpha demethylation. Dosage: 50 – 100mg capsule once a day for 2-3 weeks. Side effects: Nausea, Vomiting and Headache. It interacts with anticoagulants and this drug is contraindicated in pregnancy, liver& renal disease
- **Itraconazole:** It is one of the broad spectrum antifungal drugs. Dosage: 100 mg capsule once a day for 2 weeks. Side effects: Nausea, Neuropathy and Rashes. Contraindicated in pregnancy & liver disease.

Conclusion

Oral hygiene maintenance and early diagnosis of the infection is very important. Management involves proper history taking, clinical examination, and appropriate antifungal treatment with a few requiring samples to be taken for laboratory analysis. The prognosis of oral candidiasis is good when the proper treatment is given and predisposing factors associated with this infection are eliminated.

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