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### Review Article

#### A CLINICAL SUCCESS STORY OF ORAL CANDIDIASIS W.S.R. TO *KAPHAJA MUKHROGA*

**Dr. Rajkumar Parihar<sup>1</sup>, Dr. Prem Prakash<sup>2</sup>, Prof. Ram Kishor Joshi<sup>3</sup>**

1.Ph.D Scholar Department of *Kayachikitsa*, National Institute of Ayurveda (De-Novo), Jaipur.

2.Ph.D Scholar Department of *Kayachikitsa*, National Institute of Ayurveda (De-Novo), Jaipur.

3. Professor and Head Department of *Kayachikitsa*, National Institute of Ayurveda (De-Novo), Jaipur.

#### Address for correspondence:

**Dr. Rajkumar Parihar**, Ph.D Scholar Department of *Kayachikitsa*, National Institute of Ayurveda (De-Novo), Jaipur.

E-mail- [dr.rajsonu@gmail.com](mailto:dr.rajsonu@gmail.com)

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#### ABSTRACT

Oral candidiasis also known as Oral thrush is a fungal infection of oral cavity caused by a fungus called *Candida albicans*. This fungus is normally found in oral cavity but when it overgrows due to some favourable conditions, it causes thrush. The symptoms of oral thrush can be correlated with *Kaphaja Mukhapaka* in Ayurvedic literatures. **Materials and Methods:** In the present study a 55 years female patient with symptoms of recurrent Oral thrush since 3-5 months was administered with *Shamana* therapy and *Kavala* therapy for 1 month. **Result:** Patient showed gradual improvement and reduction of the symptoms of oral thrush in a month. Also the patient was advised to follow the *Pathya Ahara Vihara* and avoid the *Apathya Ahara Vihara*. Results were appreciable with approx 90% relief. **Conclusion:** There are established treatments in the current science for Candidiasis, However despite of being so well-equipped many a times the current treatments fail to help the patients, some patients experience side effects of antifungal medications and symptoms occur recurrently so the Ayurvedic management was approached for easy and non side effective treatment.

**Keywords:** Oral thrush, Candidiasis, *Kaphaja Mukhapaka*, *Pratisarana*, *Kavala*

## INTRODUCTION:

### Continuing Education Activity

Oral candidiasis is an infection of the oral cavity by *Candida albicans*. The condition is generally obtained secondary to immune suppression, which can be local or systemic, including extremes of age (newborns and elderly), immunocompromising diseases such as HIV/AIDS, and chronic systemic steroid and antibiotic use. This activity illustrates the evaluation and treatment of oral candidiasis. It highlights the role of the interprofessional team in evaluating and treating patients with this condition; it describes the disease's original discovery, epidemiology, and pathophysiology and reviews how a clinician should approach a patient with potential oral candidiasis, including history taking, physical examination, evaluation, differential diagnosis, and appropriate treatment.

### Etiology

*Candida* species cause oral candidiasis, most commonly *Candida albicans*, isolated from more than 80% of lesions. *Candida albicans* is a dimorphic yeast that can present as both hyphal and yeast forms depending on the environment.

Although much less common, other implicated species include *Candida glabrata*, *Candida tropicalis*, *Candida krusei*, *Candida guilliermondii*, *Candida lusitanae*, *Candida parapsilosis*, *Candida pseudotropicalis*, and *Candida stellatoidea*. Non-*albicans* *Candida* species have been shown to colonize patients 80 years old and above more frequently than younger patients.

*Candida* is part of the normal oral microflora of immunocompetent individuals. Around 30 to 60% of adults and 45 to 65% of infants carry *Candida* species in their oral cavities. Most of these species live in the oral cavity as a commensal population rather than a pathological one.

Risk factors for the pathologic colonization of *Candida* include but are not limited to malnourishment, age extremes (young children and elderly), metabolic disease, immunocompromising conditions, concomitant infections, radiation therapy, organ transplantation, long-term steroid treatment, antibiotic treatment, and salivary gland hypofunction.

### Epidemiology

Oral candidiasis can occur in immunocompetent or immunocompromised patients but is more common in immunocompromised hosts. More than 90% of patients with HIV develop oral candidiasis at some point during the duration of the disease.

Oral candidiasis occurs equally in males and females. It typically occurs in neonates and infants; it is rare in the first week of life. It is most common during the fourth week of life and less common in infants older than

six months, likely secondary to the development of host immunity. Signs and symptoms of immunosuppression in these patients are diarrhoea, rashes, repeated infections, and hepatosplenomegaly.

### **Pathophysiology**

Candidal species cause oral candidiasis when a patient's host immunity becomes disrupted. This disruption can be local, secondary to oral corticosteroid use. Overgrowth of the fungus then leads to the formation of a pseudomembrane. Vaginal infections can colonize neonates as they pass through the birth canal. Alternatively, neonates and infants may contract the disease through colonized breasts when breastfeeding. A patient's oral *Candida* infection can often lead to GI involvement and subsequent candidal diaper dermatitis. Candidal species thrive in moist environments. As such, females can develop vaginal candidiasis as well.

In healthy patients, the patient's immune system and normal bacteria flora inhibit candida growth. Consequently, immunosuppression such as diabetes, dentures, steroid use, malnutrition, vitamin deficiencies, and recent antibiotic use often leads to the disease.

### **Histopathology**

Oral candidiasis is a clinical diagnosis. Further evaluation is necessary when a differential diagnosis is required and for cases resistant to antifungal therapy. However, a biopsy is indicated for chronic hyperplastic candidiasis due to its risk of malignant transformation. The commonly implemented methods for identifying *Candida* are 10% potassium hydroxide stain and culture with sabouraud dextrose agar. Differentiation of specific species is possible with special culture mediums like Chromagar Candida. ELISA and PCR tests are used in cases of invasive candidiasis and to differentiate *Candida dubliniensis* from *Candida albicans*.

### **History and Physical**

Pseudomembranous candidiasis, also known as oral thrush, is the classic and most common presentation of oral candidiasis, but several other types exist. Candidiasis can appear in the oral cavity as white or erythematous lesions. White lesions develop as pseudomembranous or hyperplastic lesions; erythematous lesions include atrophic lesions in acute and chronic forms, angular cheilitis, median rhomboid glossitis, and linear gingival erythema. Other rare oral types that cannot be included in these categories are cheilocandidiasis, chronic mucocutaneous candidiasis, and chronic multifocal candidiasis.

### **Acute Pseudomembranous Candidiasis**

Pseudomembranous candidiasis is the most frequently encountered oral candidiasis, accounting for a third of cases. It is most commonly seen in newborns and immunocompromised patients, but the elderly are also

susceptible. Other risk factors include topical steroids use in the form of inhalers, gels, or rinses and decreased salivary flow.

It typically presents with extensive white patches that can be easily removed with gauze, leaving an erythematous mucosa surface. The pseudomembrane is formed by desquamated epithelial cells, fibrin, and fungal hyphae. The lesions are usually asymptomatic and appear on the tongue, labial and buccal mucosa, gingival tissues, hard and soft palate, and oropharynx. If symptomatic, patients report a burning sensation in the mouth, oral bleeding, and changes in taste perception.

### **Hyperplastic Candidiasis**

Hyperplastic candidiasis presents as slightly raised and well-circumscribed white plaques, usually on the buccal mucosa, which may extend to the labial commissures. The lesions may also be nodular or spotted. Unlike oral thrush, hyperplastic candidiasis cannot be easily wiped off. Smoking seems to be linked to the development of the lesion, and smoking cessation is required for complete resolution.

Hyperplastic candidiasis has the potential to evolve into severe dysplasia or malignancy. Candida involvement in leucoplakia lesions has been shown to increase the risk of malignancy compared to non-candidal leucoplakias.

### **Acute Atrophic Candidiasis**

Acute atrophic candidiasis presents as a generalized or localized erythema on the oral mucosa, most commonly on the palate. Still, it may also develop on the buccal mucosa and tongue's dorsum. Atrophy of tongue papillae may accompany the erythema. Patients usually seek consultation due to a burning sensation in the mouth or tongue. Therefore, it should be included in the differential diagnosis of a sore tongue.

Acute atrophic candidiasis is frequently secondary to treatment with broad-spectrum antibiotics. However, other risk factors have been described, including corticosteroids, HIV disease, iron deficiency anaemia, vitamin B12 deficiency, and uncontrolled diabetes mellitus.

### **Chronic Atrophic Candidiasis**

Chronic atrophic candidiasis, also known as denture stomatitis, is localized erythema of the oral mucosa under dentures. It is a common condition, with an incidence of up to 65%. It may sometimes be seen in relation to orthodontics appliances. Risk factors mainly include poorly fitted dentures, prolonged use of dentures – patients that wear their dentures for 24 hours- and poor oral hygiene.

Lesions are typically oedematous and erythematous and limited to the area in contact with the denture. Angular cheilitis is usually found simultaneously with chronic atrophic candidiasis.

The clinical aspect of denture stomatitis can be classified into three types. In type I, there is petechial hemorrhage and local inflammation; in type II, there is erythema of the mucosa under the dentures; in type III, there is erythema of the central area of the hard palate or papillary hyperplasia of the oral mucosa under the denture.

The condition is often asymptomatic, but patients may report a sore mouth or oral burning.

### **Median Rhomboid Glossitis**

Median rhomboid glossitis is a very rare type of oral candidiasis, occurring in less than 1% of the population. It presents as a rhomboid-shaped erythematous patch in the center of the tongue's dorsum anterior to the circumvallate papillae. The appearance of the lesion results from the atrophy of the filiform papillae. Smoking and inhaled steroids are associated with the condition.

A concomitant erythematous lesion can develop on the palate directly opposite the tongue's lesion, known as a "kissing" lesion, which frequently signifies immunosuppression. The kissing lesion is a potential HIV marker, and further investigations should be performed.

### **Angular Cheilitis**

Angular cheilitis presents as erythematous fissured patches in one or both commissures of the mouth, but it is typically bilateral. The lesions are usually painful and sore. A moist environment due to the accumulation of saliva in the corners of the mouth favors *Candida* growth. But, bacteria, including *Staphylococcus aureus* and *streptococcal* species, are also isolated from the lesions. Wearing dentures, licking the lips, biting the commissures, and facial wrinkling at the commissures and along the nasolabial fold contribute to the accumulation of saliva; hence, chronically moist commissures and angular cheilitis. Other factors linked to the etiology of angular cheilitis include iron, folic acid, thiamine, riboflavin, and vitamin B12 deficiencies.

### **Linear Gingival Erythema**

Linear gingival erythema is typically seen in HIV patients and may even reveal how the disease progresses. However, the condition can also develop in healthy children. Clinically, the lesion presents as an erythematous line or band over the gingival margins of one or more teeth. *Candida* and bacterial infections participate in its development.

### **Evaluation**

Diagnosis of oral candidiasis is often clinical, based on clinical examination, medical history taking, and assessment of risk factors. The diagnosis is made after finding the typical lesion's features, excluding other conditions, and assessing the lesion's response to antifungal treatment. Acute atrophic candidiasis and

chronic hyperplastic candidiasis resemble premalignant or malignant lesions; therefore, a biopsy is recommended on top of the empirical treatment.

Cultures and sensitivity tests can be done if antifungal treatment is ineffective. Several methods have been developed to obtain a sample from the oral cavity to identify *Candida* species. The selection of the method mostly depends on the clinical findings. If visible lesions can be identified, taking a swab with a plain microbial swab or an imprint with a sterile foam pad is recommended. If no specific lesion is identified, but a *Candida* infection is suspected, collecting a whole saliva sample in a sterile container or the oral rinse technique is advised. If denture stomatitis is suspected, a sample should be obtained from both the internal surface of the denture and palatal mucosa, as sampling from the oral mucosa alone may be negative.

In addition to confirming candidiasis, testing to diagnose an underlying immunocompromising condition should be considered. Patients may be tested for diseases such as HIV, adrenal insufficiency, malnutrition, steroid use, and diabetes mellitus.

### **Differential Diagnosis**

The differential diagnosis of erythematous forms of oral candidiasis includes oral mucositis, erythroplakia, thermal burns, erythema migrans, and anaemia. Chronic hyperplastic candidiasis may be confused with leukoplakia, lichen planus, pemphigoid, pemphigus, and oral squamous cell carcinoma (OSCC).

Other conditions included in the differential diagnosis of oral candidiasis are oral hairy leukoplakia (a condition triggered by the Epstein-Barr virus), angioedema, aphthous stomatitis, herpes gingivostomatitis, herpes labialis, measles (Koplik spots), perioral dermatitis, Steven-Johnson's syndrome, histiocytosis, blastomycosis, lymphohistiocytosis, diphtheria, esophagitis, syphilis, and streptococcal pharyngitis.

### **Aims and Objectives: -**

- Identify the etiology of oral candidiasis.
- Review the presentation of the different types of oral candidiasis and their evaluation.
- Explain the treatment and management options available for oral candidiasis.

Identify the differential diagnosis, prognosis, and possible complications of oral candidiasis.

### **Prognosis**

The prognosis for oral candidiasis is quite good when receiving appropriate and effective treatment. When patients relapse, it is usually due to poor patient compliance with therapy, the failure to appropriately remove and clean dentures, or the inability to resolve any underlying or predisposing factors to infection.

## **Complications**

Although unlikely in an immunocompetent host, oral candidiasis can lead to pharyngeal involvement, which presents as dysphagia and respiratory distress. A significant concern for immunocompromised patients is the systemic dissemination of the disease. Candidal esophagitis is a prevalent complication of oral candidiasis in those with HIV/AIDS.

## **Deterrence and Patient Education**

Patients with oral candidiasis should receive counselling regarding the future spread of the disease. They must also understand the importance of diagnosing and treating any immunosuppressive conditions.

- Patients using steroid inhalers must be advised to rinse their mouth with water every time after application.
- Oral candidiasis has been linked to malnutrition, iron, and vitamin deficiency; patients must be advised on appropriate nutrition.
- Patients must receive appropriate advice regarding dentures and dental hygiene, which can prevent the development of oral candidiasis.
- High sugar intake favors the multiplication of *Candida*; reducing sugar intake may be advised.

## **Enhancing Healthcare Team Outcomes**

*Candida* species are found in the oral cavity of immunocompetent individuals as a commensal population, and a shift to pathological activity is triggered by a decrease in the host's immunity, e.g., extremes of age, immunocompromising diseases, long-term steroids, and antibiotic treatment. It is essential to emphasize that oral candidiasis is not a single entity; it does not only present as acute pseudomembranous candidiasis, commonly known as oral thrush, but erythematous forms also exist.

Each type of oral candidiasis has a different clinical presentation, so the efforts of an interprofessional healthcare team are beneficial in such cases. Patients may be asymptomatic and unaware of the infection or report oral burning, discomfort, and changes in taste. The diagnosis of oral candidiasis is based on history taking, assessment of risk factors, and clinical examination, and further evaluation is usually indicated for refractory cases. General practitioners and dentists are usually the ones who diagnose and treat cases of oral candidiasis. Pediatricians also play a crucial role in managing cases in neonates and infants, who commonly develop oral thrush. In addition, in breastfeeding infants, mothers must also receive treatment, and nurses can participate in identifying symptoms of thrush in this group. All interprofessional team members, including dental nurses, must provide oral and denture hygiene instructions for all types of oral candidiasis

but particularly for those directly linked to the use of dentures, and document all observations and interactions in the patient's healthcare record, so everyone on the team has access to the same data.

Depending on the underlying immunosuppressing condition, oncologists and infectious disease specialists may provide consultations. As oral candidiasis is often the first sign of a systemic immunocompromising condition, referring patients with suspected or diagnosed underlying conditions to the appropriate specialist is crucial. The pharmacist should educate the patient on the importance of medication compliance, verify medication dosing, check for drug-drug interactions, and report any concerns to the healthcare team. Patients with diabetes mellitus should be urged to monitor their blood sugar levels. Also, the patient should receive instructions to quit smoking. Patients who take inhaled steroids should be asked to perform water gargles after each use and follow up with the clinician. Nurses administer medications for inpatients and provide significant counselling to reinforce the points above. Only with an interprofessional collaborative team approach with open communication between team members can oral candidiasis treatment achieve optimal patient results.

**Material and Methods:** - In the present study a 55 years female patient with symptoms of recurrent Oral thrush (*Kaphaja Mukhroga*) since 3-5 months was administered with *Shamana* therapy and *Kavala* therapy for 1 month.

**Investigations:** - Routine haematological, routine biochemical-RBS, serum lipid profile, serum creatinine, and routine urine examination before treatment were carried to rule out any other disorder.

**Treatment protocol and Posology: -**

Treatment was planned for this patient includes: -

1. *Shaman* therapy

2. *Kavala* therapy

Both for the duration of one month.

1. *Shaman* therapy included:-

*Triphla Churna*-3gm

*Yavkshara*-250mg

*Trikatu Churna*-2gm

Combination B.D with luke warm water for a month.



2. Followed by *Kavala Karm*:-

*Triphla Kwath* added with *Tankan Bhasm* for 10 mins.

**RESULTS:-**

**PRE-TREATMENT**



**POST-TREATMENT**



**CONCLUSION: -**

Chronic as well as resistant cases of Oral thrush/Candidiasis gets very well responses through the classical *Yukti Chikitsa* as per Ayurvedic science. All the cases pertaining to the diagnosis of Candidiasis are categorised under the broad sub heading of *Kaphaja Mukhroga* as per Ayurveda hence treatment protocol was planned in such a way to alleviate the *Kapha Dosha* locally as well as systemically.

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