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ORIGINAL

# Clinical Update on Oropharyngeal Candidiasis in HIV Patients

## Actualización clínica sobre candidiasis orofaríngea en paciente HIV

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**ABSTRACT**

**Introduction:** Oropharyngeal candidiasis (OOP) is a candidiasis of the oral mucosa, which is caused by yeast species of the genus Candida spp. and develops in individuals with predisposing factors such as human immunodeficiency virus (HIV) infection.
**Objectives:** update the clinical presentation of COF in HIV-infected individuals.
**Method:** A descriptive and retrospective bibliographic review of documents published by scientific societies that describe the current clinical approach to diagnosis will be carried out. For the biblio-graphic search, works published in recent years will be included and several documentary sources will be reviewed considering the keywords, to identify relevant and pertinent scientific articles in English and Spanish pages, in different databases such as: PubMed, Elsevier, NCBI, Google Scholar, medical bibliography and clinical practice guides will also be attached.
**Results:** OFC presents clinically in a variety of ways, pseudomembranous, hypertrophic, erythematous and as angular cheilitis, although when the patient is assisted it is common to find mucosal lesions that are observed as whitish areas and erythema in the oropharyngeal region.
**Conclusions:** it is important to consider its relationship with HIV infection, since it may be the first opportunistic manifestation in an individual who is unaware of his or her infection status.

**Keywords:** Candida Albicans; HIV; Oropharyngeal Candidiasis; Immunodeficiency; Opportunistic Dis-ease.

**RESUMEN**

**Introducción:** la candidiasis orofaríngea (COF) es una candidiasis de la mucosa bucal, que es causada por especies de levaduras del género Candida spp., y se desarrolla en individuos con factores predis-ponentes como la infección por virus de inmunodeficiencia humana (VIH).
**Objetivos:** actualizar la presentación clínica de COF en individuos infectados por VIH.
**Método:** se efectuara una revisión bibliográfica descriptiva y retrospectiva de documentos publicados por sociedades científicas que describan el enfoque clínico actual para el diagnóstico, Para la bús-queda bibliográfica, se incluirán los trabajos publicados en los últimos años y se revisaran varias fuentes documentales considerando las palabras claves., para identificar artículos científicos relevan-tes y pertinentes en páginas de inglés y español, en diferentes bases de datos como: PubMed, Else-vier, NCBI, Google Scholar, además se adjuntara bibliografía médica y guías de práctica clínica.
**Resultados:** la COF se presenta clínicamente de manera variada, pseudomembranosa, hipertrófica, eritematosa y como queilitis angular, aunque cuando se asiste al paciente es común encontrar lesio-nes en mucosa que se observan como zonas blanquecinas y eritema en la región orofaríngea.
**Conclusiones:** es importante considerar su relación con la infección por VIH, ya que puede ser la pri-mera manifestación oportunista en un individuo que desconoce su estado de infección y de esta ma-nera ayudar mucho más al enfermo.

**Palabras clave:** Cándida Albicans; VIH; Candidiasis Orofaríngea; Inmunodeficiencia; Enfermedad Oportunista.

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## INTRODUCTION

Oropharyngeal candidiasis (OPC) is a disease involving mucosa inflammation due to infection by any of the yeast species of the genus Candida, presenting as an opportunistic disease that has become very common in recent times. Although these fungi are commensal, they can invade the oral mucosa under certain general or immunosuppressive conditions. Therefore, we must always investigate the presence of factors that favor the growth and pathogenic transformation of the germ.[1,2,3,4,5,6] Candida albicans is the most common species causing oropharyngeal candidiasis. C. albicans are associated with forming biofilms on various surfaces, and the transition of C. albicans from budding yeast to filamentous hyphae is critical for its ability to form pathogenic biofilms.[7] However, other non-albicans Candida species are of medical importance, such as Candida glabrata, C. tropicalis, C. krusei, or C. parapsilosis. Human immunodeficiency virus (HIV) infection, oropharyngeal candidiasis, is a prevalent condition in these patients, often presenting as the first clinical manifestation of HIV infection. Other factors that favor this disease are poor oral hygiene, smoking, extreme age (infants and the elderly), excessive use of antifungal agents, malnutrition, and immunodeficiency, which is particularly relevant in this case.

The problem that prompted this study is its importance as an oral manifestation of human immunodeficiency virus (HIV) infection. The decrease in cellular immunity in patients living with HIV poses a fundamental threat to opportunistic infections. However, it should be noted that patients with CD4 counts greater than 500 cells/mm rarely have oral candidiasis compared to patients with counts closer to 100 CD4 cells/mm.[2] When the number of CD4 T lymphocytes falls below a critical level, cell-mediated immunity is lost, and the body becomes progressively more susceptible to opportunistic infections. Patients become vulnerable to many of the processes associated with AIDS.[6] Oropharyngeal candidiasis has become one of the first HIV-related diseases. It is the most important and recurrent opportunistic infection in HIV-positive patients, with a prevalence ranging from 0,9 to 83,0 %.

### General objective

To update the clinical presentation of OP in HIV-infected individuals.

### Hypothesis

Whether HIV infection predisposes to the appearance of different clinical manifestations compared to uninfected individuals.

## METHOD

### Study design

A descriptive and retrospective literature review will be conducted of documents published by scientific societies that describe the current clinical characteristics and prevalence of oropharyngeal candidiasis in HIV patients. To locate bibliographic records from the last 10 years, several reliable sources will be reviewed, considering keywords in both Spanish and English, such as Candida albicans, HIV, and oropharyngeal candidiasis, to identify relevant scientific articles in English and Spanish in different databases such as PubMed, Elsevier, NCBI, and Google Scholar.

### Study population

The study population consisted of all the results obtained during the literature review from different articles related to oropharyngeal candidiasis in HIV patients.

### Inclusion criteria

Articles in Spanish or English.

Published within no more than 20 years (2004-2024).

Systematic reviews, meta-analyses, or observational studies containing information on the epidemiology, diagnosis, and treatment of oropharyngeal candidiasis in HIV.

### Exclusion criteria

Publications in other languages.

Duplicate articles or articles with restricted access to information.

## RESULTS

It is a generally mild and usually asymptomatic infection. It can present in various clinical forms in people living with HIV. Pseudomembranous forms are typically the most prominent: they present with extensive white patches that can be easily removed with gauze, leaving an erythematous mucosal surface. The pseudomembrane comprises desquamated epithelial cells, fibrin, and fungal hyphae. The lesions are usually asymptomatic and appear on the tongue, lip and buccal mucosa, gingival tissues, hard and soft palate, and oropharynx.[5] Hyperplastic: presents as slightly raised, well-circumscribed white plaques, usually on the buccal mucosa, which may extend to the corners of the mouth. The lesions may also be nodular or mottled. Unlike oral candidiasis, hyperplastic candidiasis cannot be easily removed. Angular cheilitis: presents as erythematous fissured patches in one or both corners of the mouth but is usually bilateral. The lesions are typically painful and tender.[5] Erythematous: can be subdivided into antibiotic stomatitis, denture stomatitis, median rhomboid glossitis, and HIV-associated candidiasis. Candidal leukoplakia, a form of chronic hypertrophic candidiasis, is much more common in smokers, although it is not exclusive to them. It usually manifests as pseudomembranous candidiasis, also known as aphthous stomatitis or thrush, chronic hyperplastic candidiasis characterized by

typical whitish or cream-colored spots or plaques, sometimes covered by a brown or black layer, which settle on the tongue, cheeks, palate, and other surfaces of the oral mucosa, with a tendency to coalesce and cover much of the mouth and pharynx, which are removed by scraping, leaving a bleeding and painful surface.

Occasionally, the skin may also be affected, especially in patients with chronic mucocutaneous candidiasis. The spread of oropharyngeal candidiasis can cause laryngitis and esophagitis. The latter complication is common in patients with AIDS. In patients with HIV infection, it is the most common opportunistic infection. The symptoms of this mycosis are dysphagia (difficulty swallowing) and odynophagia (pain when eating).

## DISCUSSION

The review focuses on oropharyngeal candidiasis in HIV patients. This condition remains a significant challenge in the health management of these patients, particularly in evaluating recent changes in their health. Candidiasis of the mucosa, including the oropharynx, esophagus, and vagina, is common among people infected with human immunodeficiency virus (HIV). Colonization of mucosal surfaces and symptomatic disease caused by Candida species are associated with the development and danger of cellular immunodeficiency. Oral candidiasis has long been considered a significant clinical indicator of the progression of HIV disease.[3]

Comparison of findings with other authors: This research has found several points in common. When comparing different medical articles related to oropharyngeal candidiasis in patients with HIV, common aspects of this disease can be found, such as "Infections caused by species of the genus Candida are an important cause of morbidity and, to a lesser extent, mortality in HIV-positive patients or AIDS cases (HIV+/AIDS). This disease is recognized as the most common opportunistic fungal infection in this population, and although it can take different clinical forms, its manifestations are typically localized in the oropharynx. Most of these patients are colonized, and between 75 % and 90 % develop at least one episode of oral candidiasis during their underlying disease".[4,8,9] Results were found highlighting that this infection is more common in patients who are not receiving effective antiretroviral therapy and that oropharyngeal candidiasis may be one of the first signs of progression from HIV infection to AIDS, underscoring the need for early diagnosis and constant monitoring.

Identification of Methodological Errors and Limitations: It is important to recognize certain limitations in this study, which is based on a review of the existing literature. One limitation is the heterogeneity in the diagnostic methods and inclusion criteria used in the studies reviewed, which could affect the comparability of the results. In addition, the review was limited to studies published in English and Spanish, which could exclude relevant research in other languages. The lack of consistent and standardized data on viral load and CD4+ counts in different cohorts presents a significant challenge for accurate comparative analysis.

Another limitation is the apparent reliance on observational and retrospective studies, which may be subject to selection bias. Although the findings are highly consistent with the existing literature, the results should be interpreted cautiously due to these limitations.

## CONCLUSIONS

This study highlights the importance of oropharyngeal candidiasis as a significant clinical manifestation in HIV patients, underscoring the need for close monitoring of patients with low CD4+ counts. Effective implementation of antiretroviral therapy is crucial to reducing the incidence of this infection. In addition, the need to develop specific management guidelines for oropharyngeal candidiasis in the context of HIV is suggested.

A key finding in this study is identifying specific risk factors and the connection between the patient's immune status and the onset of oropharyngeal candidiasis. These findings may help in choosing prevention and treatment strategies, thereby improving the clinical management of patients with HIV.

Several areas requiring further research have been identified. First, longitudinal studies are needed to understand better the relationship between viral load, CD4+ count, and the incidence of oropharyngeal candidiasis. The efficacy of different antifungal treatments in this specific population and the impact of new antiretroviral therapies on the prevention of opportunistic infections also need to be investigated.

Future studies should focus on comparing different ART regimens and their efficacy in preventing oropharyngeal candidiasis. In addition, research on potential biomarkers that can predict susceptibility to fungal infections in HIV patients could provide valuable tools for clinical practice.

Theoretically, proper management of oropharyngeal candidiasis in HIV patients could have significant implications for the quality of life and long-term prognosis of these patients. The integration of specific preventive and therapeutic strategies could reduce complications associated with this infection, promoting better oral and overall health in HIV patients.

The possibility that oropharyngeal candidiasis may serve as a clinical marker for disease progression suggests that its early detection and treatment could play a crucial role in the overall management of HIV. Furthermore, reducing the incidence of oropharyngeal candidiasis through effective ART underscores the importance of treatment adherence and regular patient monitoring.

In conclusion, this review provides insight into oropharyngeal candidiasis in HIV patients, highlighting the importance of early detection and appropriate treatment for this disease. The information requires further research to improve clinical management and care for affected patients. Implementing effective prevention and treatment strategies can significantly enhance this vulnerable population's quality of life and clinical outcomes.

This discussion highlights the importance of oropharyngeal candidiasis in the context of HIV and how its proper management can positively influence the overall health of patients. With a focus on prevention, early diagnosis, and appropriate treatment, it is possible to significantly improve the well-being and quality of life of people living with HIV.

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## CONFLICT OF INTEREST
The authors declare that there is no conflict of interest.

## AUTHORSHIP CONTRIBUTION
*Conceptualization:* Joaquin Edgardo Torres, Virginia Marta Jewtuchowicz.
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