

Pseudomembranous candidiasis by *Candida tropicalis* in an immunocompromised patient: Case Report.

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Abstract: Pseudomembranous candidiasis is the most frequent type of infection by *Candida* spp., and *Candida albicans* is the most common species to cause it. Candidiasis can be due to other *Candida* species less frequently, as is the case of *Candida tropicalis* a pathogenic species that can cause infection in immunocompromised patients. The aim of this case report is to describe a pathological condition produced by *Candida tropicalis*.

Keywords: Oral candidiasis; *candida tropicalis*; immunocompromised host.

INTRODUCTION.

Candidiasis refers in general terms to a superficial or deep infection of the skin, mucosa, or both, caused by members of the genus *Candida*,¹ which can occur at any age depending on risk factors such as diabetes mellitus, frequent use of antibiotics, behavioral factors, and immunosuppression.^{2,3} The genus *Candida* has several virulence factors such as adhesion factors, the production of biofilms, and the production and secretion of proteolytic enzymes, enabling it to colonize and cause infection.^{4,5} Oral candidiasis is a condition associated with the use of dental prostheses and patients with immunosuppression and it is mainly caused by *Candida albicans*, a *Candida* species with both a yeast and hypha morphology and accounts for more than 80% of oral fungal isolates⁶ from both healthy and diseased persons. Other *Candida* species that have also been isolated from the oral cavity, albeit less frequently, include *Candida glabrata*, *Candida tropicalis*, *Candida krusei*, *Candida guilliermondii*, *C. kefyr* and *Candida parapsilosis*.⁶ Nonetheless, there has been an increase in recent years in the number of infections produced by *Candida* species other than *albicans* in both systemic or oral candidiasis.^{6,7}

Four forms of presentation of oral candidiasis have been described: pseudomembranous candidiasis, acute erythematous candidiasis, chronic erythematous candidiasis and chronic hyperplastic candidiasis.⁸

Each of these forms of candidiasis is associated with local clinical signs and symptoms such as the use of extra- or intra-oral devices such as prosthetics, the use of steroid inhalers, a reduction of salivary flow, and a diet rich in carbohydrates; and a variety of predisposing factors such as age (newborns and the elderly), endocrine disorders, immunosuppression or immunodeficiencies, broad spectrum antibiotic therapy and nutritional deficiencies.⁶

Pseudomembranous candidiasis is characterized by the presence of superficial white plaques, especially on the palate and tongue, which are

easily removed from the lesion using swabs, revealing a bloody erythematous area.⁶

This form of candidiasis is frequently associated with the use of steroids, and has a direct relationship with immunodeficiencies in HIV positive patients and those with leukaemia.^{6,9,10} The objective of this clinical report is to describe a case of pseudomembranous candidiasis produced by *Candida tropicalis*.

CASE REPORT.

A 37-year-old male patient sought medical attention at the odontology clinic of the Facultad de Odontología of the *Universidad Católica de Santa María* in Arequipa, Perú. During anamnesis the patient states he is completely healthy and during the intraoral examination, whitish plaques are noted throughout the mouth, mainly on the palate (Figure 1.A), back of the tongue (Figure 1.B) and cheeks (Figure 1.C and Figure 1.D). The patient mentions

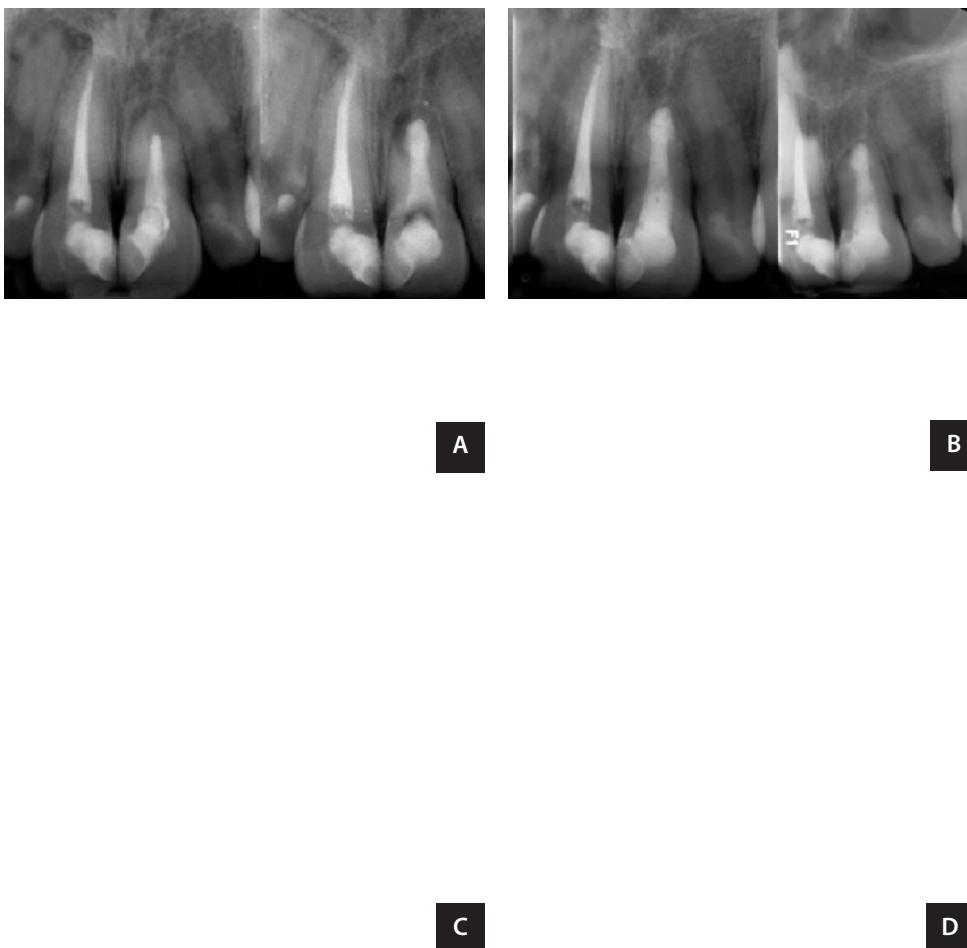
these asymptomatic plaques appear frequently for 3 to 4 months.

The easy removal of the whitish plaques with sterile swabs and the consequent bloody erythematous zone leads to a diagnosis of pseudomembranous candidiasis. Several samples were immediately inoculated in CHROMagar *Candida* and incubated at 37°C for 48 hours. Blood glucose and HIV tests are ordered.

Dark blue colonies resulted from all samples on CHROMagar *Candida* (Figure 2) identifying *Candida tropicalis*.¹¹ The laboratory blood analysis shows that the patient is HIV positive so he is sent to the appropriate hospital center for clinical management.

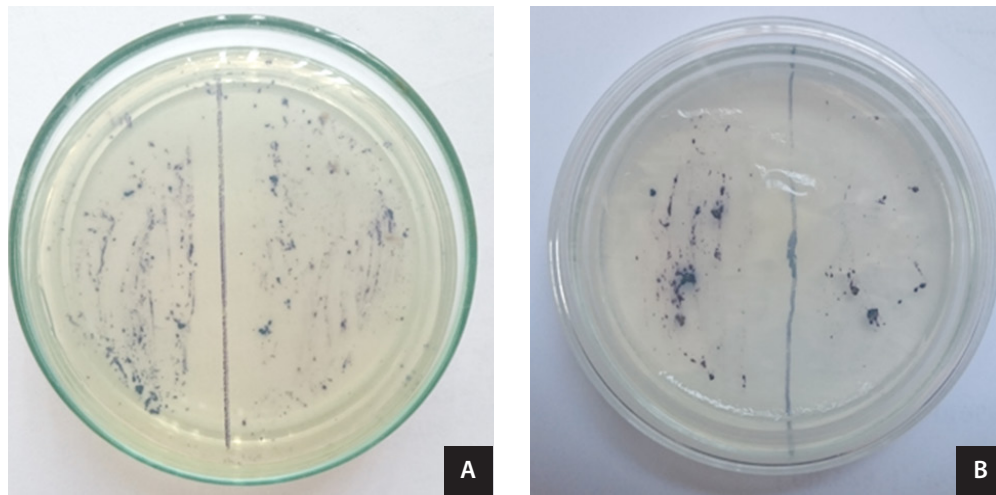
The patient is prescribed fluconazole 50mg once a day for 7 days. At a follow-up visit the patient subsequently informs that he is following the medical protocol prescribed for HIV and that the whitish plaque had disappeared approximately 20 days after the initial dental visit.

Figure 1. Pseudomembranous candidiasis with whitish plaques and erythematous regions.



A. Palate. B. Dorsum of tongue. C. Right buccal cavity. D. Left buccal cavity.

Figure 2. Blue colonies of *Candida tropicalis* on CHROM-agar *Candida* from samples obtained from:
A. Palate and Tongue. **B.** Right and Left buccal cavities.



DISCUSSION.

Candida spp. is the main cause of fungal infections in humans, existing not only as a commensal but as an opportunistic pathogen as well.⁷ Oral candidiasis is a common superficial infection in the elderly, immunocompromised patients, patients with dental prostheses and people with xerostomia, and *Candida albicans* is the most predominant species in these lesions.⁷ Other species have been reported, with reports of *Candida glabrata*, *Candida tropicalis*, *Candida parapsilosis*, *Candida dubliniensis*, *Candida guilliermondi*, *Candida krusei* and *Candida kefyr* isolated and cultured from oral lesions.^{6,7}

Pseudomembranous candidiasis is the most common form of oral candidiasis, it is mostly asymptomatic, present as white plaques on the tongue, buccal mucosa, soft and hard palate, and oropharynx.^{6,8} It is mostly associated with *Candida albicans* infection, having acute or chronic characteristics caused by the overgrowth of yeast in the oral mucosa with desquamation of epithelial cells and accumulation of keratin, fibrin, necrotic tissue and the presence of fungal hyphae.⁸

Candida tropicalis is considered an important member of the *Candida* genus regarding epidemiology and virulence, as it is able to produce true hyphae and is a great producer of biofilms and virulence factors similar to those of *Candida albicans*.¹² *Candida tropicalis* is normally present in the normal human microbiota and is associated with superficial and systemic infections around the world,

being the third or fourth most isolated species in clinical practice¹³ and the second or third most isolated in Brazil and Latin America.¹⁴ Other factors that predispose oral candidiasis in immunocompetent patients are occlusion trauma, poor oral hygiene, xerostomia, and diabetes.^{15,16}

Some studies have reported increased virulence of *Candida tropicalis* in immunocompromised patients;¹⁷⁻¹⁹ which is in agreement with the clinical findings of this case report regarding HIV status. It is important to order HIV testing in cases of candidiasis since its association with the virus is common. Likewise, it has been shown that *Candida tropicalis* is more invasive than *Candida albicans*,²⁰ due to the neutropenia presented in patients, which indicates that polymorphous nuclear leukocytes are the first line of defense against *Candida tropicalis*.²¹

The antifungal agent fluconazole, an inhibitor of ergosterol synthesis, is the most used drug for the treatment of oral candidiasis due to its ability to absorb very well into mucous membranes.⁶ Fluconazole was an antifungal agent of choice in this case report. However, resistance to fluconazole in *Candida tropicalis* has been reported mostly in refractory candidiasis,¹⁸ so isolates should undergo susceptibility testing to antifungals in order to resolve these issues.

CONCLUSION.

Pseudomembranous oral candidiasis is an infection caused by members of the genus *Candida*, especially in

immunocompromised patients, and is generally caused by *Candida albicans*; however, other non-*albicans*

species of *Candida*, such as *Candida tropicalis*, can also cause this type of infection.

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