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ORIGINAL ARTICLE/ARTICLE ORIGINAL

# Prevalence of chronic hyperplasic candidiasis. Its association to risk factors in an Oral Medicine Service in Rosario, Argentina

*Prévalence de la candidose hyperplasique chronique. Son association aux facteurs de risque dans un service de médecine buccale de Rosario, Argentine*

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## KEYWORDS

Oral candidiasis;  
Hyperplasic candidiasis;  
Leukoplasia

## Summary

**Introduction.** – Chronic hyperplasic candidiasis (CHC) is one of clinical forms of infection caused by fungi from genus *Candida*, basically *Candida albicans*, and less frequently by other species of the genus, such as *Candida tropicalis*, *Candida guilliermondii*, *Candida glabrata*, *Candida parapsilosis*, *Candida dubliniensis* y *Candida krusei*.

**Objective.** – The aims of this work were to evaluate CHC prevalence in the oral mucosa of individuals who attended the Oral Medicine Service–School of Dentistry at the National University of Rosario, Argentina during the last 5 years; and to study the significance of association of this clinical form to other risk factors for dysplastic changes in the oral mucosa.

**Patients and methods.** – Retrospective study of patients (2785) attending the Oral Medicine Service were conducted. Study included all cases of candidiasis diagnosed and confirmed by mycological and histopathological studies. Analyzed samples indicated that 123 (4.41%) out of 2785 patients (mean age 56.10, SD 18.69) showed candidiasis in its different clinical forms. Nineteen (15.41%) out of those 123 individuals manifested CHC, mean age 56.08 (SD 16.76). Twelve out of 19 patients used dental prostheses.

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**MOTS CLÉS**

Candidose buccale ;  
Candidose hyperplasique ;  
Leucoplasie  
candidosique

**Results.** — It was indicated that 68.42% of patients with CHC were smokers while this number was lower (34.23%) for those individuals displaying other clinical forms of candidiasis.

**Conclusion.** — A statistically significant correlation between CHC and dysplastic epithelial changes was determined. Study of the virulence factors in pathogenic species of the genus *Candida*, which allow for either hyperplastic or dysplastic changes or eventual malignant transformations is currently being explored in numerous papers. The characteristics of the parasite-host interaction are also being examined.

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**Résumé**

**Introduction.** — La candidose hyperplasique chronique (CHC) est une des formes cliniques de l'infection occasionnée par des champignons du genre *Candida*, plus fréquemment par *Candida albicans*, et à moindre fréquence par d'autres espèces telles que : *C. tropicalis*, *C. guilliermondii*, *C. glabrata*, *C. parapsilosis*, *C. dubliniensis* et *C. krusei*.

**Objectif.** — Les objectifs visés dans ce présent travail, ont été d'évaluer la prévalence de CHC dans la muqueuse buccale dans une culture ayant été prise en charge au service de médecine buccale, faculté d'odontologie de l'université nationale de Rosario, Argentine, dans les cinq dernières années ; et d'étudier ainsi la signification de l'association de cette forme clinique avec d'autres facteurs de risque de modifications dysplasiques dans la muqueuse buccale.

**Patients et méthodes.** — Il a été procédé à l'étude rétrospective descriptive des patients traités au département de médecine buccale. Deux milles sept cents quatre-vingt-cinq patients ont été analysés. Ont également été inclus dans l'étude menée, tous les cas de candidose diagnostiqués et avérés mycologiquement et histopathologiquement.

**Résultats.** — Des 2785 personnes étudiées, 123 (4,41 %) ont présenté une candidose sous ses différentes formes cliniques ; âge moyen : 56,10, déviation standard (DS) : 18,69. De ces 123 patients, 19 (15,41 %) ont eu une CHC, âge moyen : 56,08 (DS 16,76). Un total de 12, sur les 19 utilisait des prothèses. 68,42 % des patients atteints de CHC étaient des fumeurs, alors que chez les patients présentant d'autres formes cliniques de candidose, seulement 34,23 % l'étaient.

**Conclusion.** — Une relation statistiquement significative a été vérifiée entre la CHC et les changements dysplasiques épithéliaux. Les facteurs de pathogénicité du genre *Candida*, ainsi que les particularités de la relation hôte-parasite font l'objet de nombreuses études, leur ayant entre autres déjà permis d'effectuer des changements hyperplasiques épithéliaux, dysplasiques et éventuellement des transformations malignes dans les CHC.

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**Introduction**

Candidiasis is an infectious disease caused by the genus *Candida*, with *Candida albicans* as the prevalent species. Other species of the same genus such as *C. tropicalis*, *C. guilliermondii*, *C. glabrata*, *C. parapsilosis*, *C. dubliniensis* y *C. krusei* can eventually be isolated but at a lower frequency [1,17].

These fungi can usually be found as part of the oral microbiota and they become pathogenic under different conditions: when the oral flora is modified [17], in patients suffering metabolic disease, in HIV positive-patients [11], when the mucosa is scratched by prostheses, etc. It has been reported that microorganisms of this genus may be present in the orofaringeal region of healthy individuals (between 20 and 37%). The interaction with these opportunistic agents may lead to a saprophytic association with the host or to a localized oral infection.

Its persistence on mucosal surfaces is the key contributing factor to *C. albicans* virulence. Such persistence results from fungal adherence to epithelial cells, acrylic surfaces of prostheses [19] and the presence of certain microbes (*Streptococcus mutans*, *Streptococcus sanguis*) [2,3,8,9] or microbial products (glucans) in the oral cavity. Otherwise, it would be removed by saliva. After colonization, epithelial cells are

invaded by yeast, a process involving extracellular hydrolases (proteinases, fosfolipases, phosphomonoestearases), which facilitates adherence as well as mucosal invasion [13,14,21].

Chronic hyperplastic candidiasis (CHC) is one of the clinical forms in which *Candida* infection may appear. It is characterized clinically by the presence of white, translucent or opaque patches of different size. The surface feels soft and moist to palpation, with clearly defined borders and occasional erythematous areas. Hyperplastic or nodular lesions located anywhere in the oral cavity can be found as well. Histopathological examination typically reveals a hyperplastic keratinized epithelium with polymorphonuclear and lymphocytic inflammatory infiltrates, and invaded by candidal pseudohyphae [23,25].

Evidence continues to mount indicating that *C. albicans* can cause dysplastic changes in the oral mucosa through the production of endogenous nitrosamines (N-nitrosobenzylmethylamine) from sodium nitrite in saliva and certain amines derived from food. These observations would be cause to speculate that the mucosal dysplastic changes could be due to *Candida* infection [21].

The objective of this study were to evaluate the prevalence of CHC in oral mucosa of a population attending the Oral Medicine Service at the School of Dentistry (National

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