Research Article

Clinicopathological assessment of chronic hyperplastic candidasis
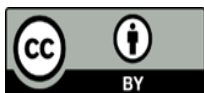
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Abstract: Background**:** Chronic hyperplastic candidiasis is the least common type of oral candidiasis. The diagnosis, long-term treatment, and prognosis of this potentially malignant oral condition are still currently unclear. Objective**:** the aim of this study is to analyze the demographic features and clinical characteristics of oral chronic hyperplastic candidiasis. Materials and Methods: A retrospective analysis was performed on blocks and case sheets of patients who were diagnosed with chronic hyperplastic candidiasis in the archives of Oral and Maxillofacial Pathology at the College of Dentistry/University of Baghdad. Demographic and clinical characteristics were analyzed. Results**:** twenty-one cases with chronic hyperplastic candidiasis were collected and reviewed. Buccal mucosa was the most affected sites. Regarding the clinical features, lesions color frequently presented as white plaque. Regarding clinical diagnosis, leukoplakia was noted the highest one among other previous diagnosis. Conclusions**:** Older adults are the mostly affected age group by chronic hyperplastic candidiasis with slight male predilection. White plaque is the most presented clinical feature with buccal mucosa being the most affected oral site.

Keywords: Chronic hyperplastic candidiasis, clinicopathological features

Introduction

Oral candidiasis, also known as oral candidosis (OC), is the most prevalent fungal infectious illness of the oral mucosa, caused mostly by Candida spp., an opportunistic pathogen. OC is divided into three types according on the clinical manifestations: pseudomembranous candidiasis, erythematous candidiasis, and chronic hyperplastic candidiasis (CHC)[1,2]. CHC is a rare kind of OC, affecting mostly middle-aged smokers and having an incidence of around 1.61 percent in OC patients[3]. Due to the rarity of CHC, there have been no significant sample size studies to date. Chronic hyperplastic candidiasis is of special importance because of the difficulty in distinguishing between the many types of candidiasis and, more significantly, the risk of malignant transformation. It presents clinically as thick white plaques, erythematous lesions, or mixed red and heterogeneous white plaques, resembling and frequently misdiagnosing illnesses that appear as white lesions like lichen planus and leukoplakia[4]. As a result, diagnosing CHC can be challenging and time-consuming.

Aside from clinical signs, the sensitivity of laboratory testing such as exfoliative cytology and fungal culture in establishing the diagnosis is quite low. The diagnosis must be based on histopathology in order to rule out dysplasia or malignant conditions[5]. The incidence of epithelial dysplasia in CHC has previously been reported to be as high as 15%[6]. Some lesions in CHC patients may develop to varying degrees of epithelial dysplasia and potentially malignant transformation to oral squamous cell carcinoma (OSCC) if they are not treated immediately and properly. Malignant transformation has been predicted to occur in as many as 10% of untreated CHC patients[7]. CHC diagnosis, long-term treatment, and prognosis remain difficult to come by. There are just a few studies on CHC in the literature, therapy in recent years, as well as clinical and

histological aspects CHC's efficacy and long-term follow-up are still being investigated. The aim of this study is to assess the demographical and clinicopathological features that affecting CHC.

Materials and methods

Study design and ethics approval

This retrospective study design was conducted at the department of Oral and maxillofacial pathology at the college of dentistry, University of Baghdad. The research ethics committee of the college of dentistry, University of Baghdad has reviewed and approved this study (NO. 283721).

Study population

The researcher looked at the patients' healthcare records from different hospitals. Cases were collected from college of dentistry laboratory, university of Baghdad. Patients having a confirmed CHC diagnosis were gathered and analyzed.

Data collection and follow-up

Demographic data of the patients (gender, age, smoking, systemic disease) mycological information including clinical information, characteristics of lesions (site, type, size and clinicopathological parameters) were collected.

Statistical analysis

Data were expressed as a mean ± standard deviation and assessed by using Chi square test. Differences were considered significant at * = $P < 0.05$, ** = $P < 0.01$, *** = $P < 0.001$. Statistical analyses were conducted using GraphPad prism software version 7.0.

Results

Demographic characteristics

A total of 21 cases with 12 (57%) males and 9 (43%) females, with a definitive diagnosis of CHC were reviewed and presented in Figure 1. The age range was from 18 to 75 years, with a mean of 52.33 years and standard deviation (SD) of ± 13.7. The highest proportion was between 50 -68 years, Figure 2. A total of 11 of 21 patients had a history of smoking Figure 3. Furthermore, over 70 % of patients who had CHC had systemic disease as revealed in (Fig. 4).
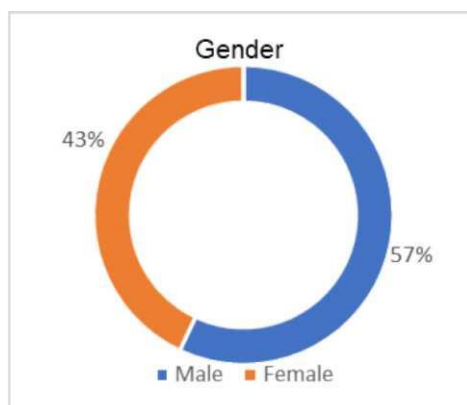

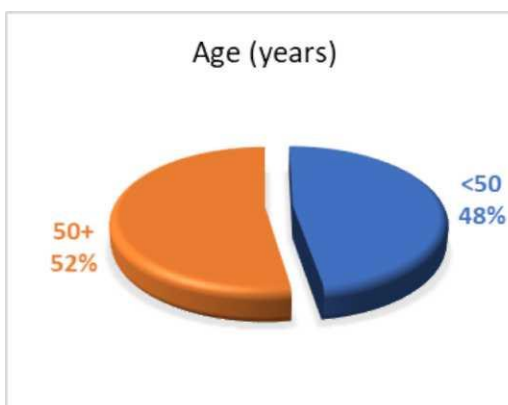**Figure 1:** Distribution of patients by gender

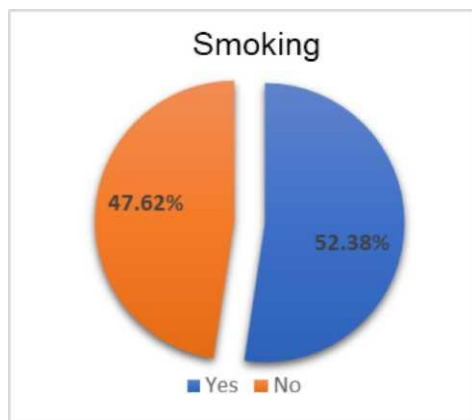**Figure 2:** Distribution of patients by age

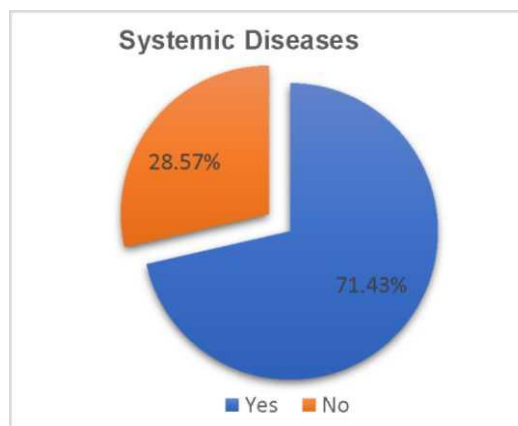**Figure 3:** Distribution of patients according to smoking

Figure 4: Distribution of patients by systemic disease

Clinical features

Figure 5 revealed Buccal mucosa was the most affected sites (No.=15, %=71.4) while the remaining sites constitutes only one case for each site (4.76%). Regarding the clinical features, lesions color frequently presented as white plaque (n=17), The size of biopsy varied from 0.5 cm to 3 cm with a mean of 1.3cm. Collected data showed that the duration was variable and ranged from 2 months up to 14 years. Oral manifestations of CHC, Leukoplakia LP (52.38%) was noted the highest one among other diagnosis are shown in Table 1.
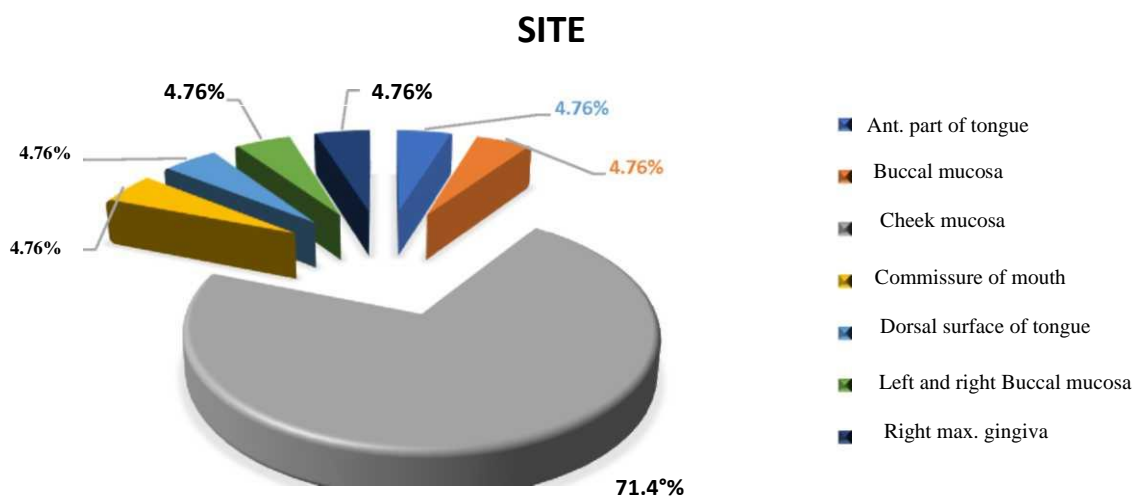

Figure 5: Site of involvement of CHC by clinical information

Discussion

Age was not significant risk factor for CHC that caused by candida infection, likewise in other previous study showed that the age has no bearing on the transformation of oral leukoplakia[8]. In contrast with other study that showed elderly were susceptible to candida infection and in oral leukoplakia proposed that age has a role in Candida infection[9]. Few research has looked at gender differences in a broad group of people. Both the female and male subgroups in this study showed the same trend of rising oral Candida infection rates. Furthermore, in all age grouping, not surprisingly, the preponderance of the male had higher overall infection rates than females [10].

Table 1: Distribution of study sample according to clinicopathological parameters

	Variable	Frequency	Percentage
Size	<1cm	3	14.29
	1-3cm	18	85.71
Biopsy	Excisional	15	71.43
	Incisional	6	28.57
	<1	14	66.67
Duration (years)	1-3	3	14.29
	4-6	2	9.52
	>7	2	9.52
	Red	1	4.76
Color lesion	White	17	80.95
	Whitish pink	2	9.52
	Yellowish	1	4.76
	Carcinoma	1	4.76
	CHC	1	4.76
Diagnosis	fibroma	1	4.76
	Hyperkeratosis	6	28.57
	Leukoplakia	11	52.38
	Pyogenic granuloma	1	4.76

In conclusion, male patients are more sensitive to oral candidiasis than female patients, and advanced age may be a risk factor for oral candidiasis, presumably due to complicated systemic diseases. For the systemic diseases and smoking, our results concluded that over 70 % of patients who had CHC had systemic disease. Oral candidiasis is common in people who have a variety of systemic disorders. Immune dysfunction is the most common cause of oral candidiasis. Candidiasis can occur at any age in people with immunodeficiency syndromes who have an underlying defect in their capacity to remove any fungal attachment to the oral mucosa [11].

Candida albicans' dimorphic nature allows the organism to convert from a commensal to pathogenic state mostly through the production of biofilms when host defenses are reduced due to systemic diseases[12]. For other factor, smoking, the results showed that the incidence of smokers in chronic hyperplastic candidiasis were high but not significant. Although it is unclear if smoking accelerates the development of cancer from oral leukoplakia, there is considerable evidence of a link between smoking and the development of CHC. According to other research, nonsmokers had an increased risk of malignant transformation of oral leukoplakia[13]. Most histopathologist consider incisional biopsy as a reliable method of determining the nature of oral leukoplakic lesions. Results of the present study showed incisional biopsy seemed to occur only in 28.5% (6/21) and 71.5% (15/21) of cases in the excisional biopsy group. Excisional biopsy is hypothetically preferable since

the entire clinically abnormal area were examined histopathologically. Regarding provisional diagnosis, leukoplakia was significantly pointed the highest one among other diagnosis. To validate the provisional diagnosis given during a clinical oral examination, many specialized tests are necessary. Leukoplakia is a condition that is best defined as a white plaque that can appear on any mucosal surface and cannot be removed [14].

In this study, results showed that the predominant lesion color was white, over 80% of lesions were white in color. On average, roughly 5% of oral leukoplakia will develop into cancer. With observation periods ranging from 1 to 30 years, the reported incidence of malignant transformation of oral leukoplakia ranges from 13 percent to 34 percent [15].

Conflict of interest: None declared.

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العنوان: التقييم السريري المرضي لفرط التنسج المزمن

الباحثون: حسين صادق حسين, بان فاضل الدروبي

المستخلص:

الخلفية: داء المبيضات المفرط التنسج المزمن هو أقل أنواع داء المبيضات الفموي شيوعًا. لا يزال التشخيص والعلاج طويل الأمد والتشخيص لهذه الحالة الفموية الخبيثة غير واضحة حاليًا. الهدف: الهدف من هذه الدراسة هو تحليل السمات الديموغرافية والخصائص السريرية لداء المبيضات الفموي المزمن المفرط التنسج. المواد والطرق: تم إجراء تحليل بأثر رجعي على كتل وأوراق حالة لمرضى تم تشخيص إصابتهم بداء المبيضات المفرط التنسج المزمن في أرشيف أمراض الفم والوجه والفكين في كلية طب الأسنان / جامعة بغداد. تم تحليل الخصائص الديموغرافية والسريرية. النتائج: تم جمع ومراجعة 21 حالة مصابة بداء المبيضات مفرط التنسج المزمن. كان الغشاء المخاطي الشدق هو الأكثر تضررا. فيما يتعلق بالسمات السريرية ، يظهر لون الآفات بشكل متكرر على شكل لوحة بيضاء. فيما يتعلق بالتشخيص السريري ، لوحظ أن الطلاوة هي الأعلى بين التشخيصات السابقة الأخرى.

الاستنتاجات: كبار السن هم الفئة العمرية الأكثر إصابة بداء المبيضات مفرط التنسج المزمن مع ميل طفيف للذكور. اللويحة البيضاء هي أكثر السمات السريرية ظهورًا مع كون الغشاء المخاطي الشدق هو الموقع الفموي الأكثر تضررًا.