

Research Article

# The effect of age on the clinicopathological features of oral squamous cell carcinoma

Alaa S. Saeed<sup>1,\*</sup>, Bashar H. Abdullah<sup>2</sup>

<sup>1</sup> PHD Student, Ministry of Health / Al Sader Medical City , Al Najaf Al Ashraf ,Iraq.

<sup>2</sup> Professor, Department of Oral and Maxillofacial pathology, College of Dentistry ,University of Baghdad .

\* Corresponding authors , [drbasha69@yahoo.com](mailto:drbasha69@yahoo.com)

**Abstract :** Background: Squamous cell carcinoma is a disease of elderly people and it is uncommon in people with less than 40 years old; however many literatures revealed that tumor developing in patients younger than forty years appears more aggressive at the time of diagnosis. The purpose of the present study was to focus on the clinicopathological features of the oral SCC in different age groups. Material and methods: In this study thirty five cases of paraffin embedded tissue blocks of oral squamous cell carcinoma were studied. The age range was from 16 to 80 years. The clinicopathological data were recorded for evaluating the tumor characters according to age of patients. Results : The age was not significantly correlated to the clinicopathological features that involved the gender of the patients, anatomical site of the tumor, perineural invasion , histological grading and staging .

**Keywords:** Oral squamous cell carcinoma, age category, tumor behavior.

Received date: 5-10-2021

Accepted date: 8-11-2021

Published date: 15-3-2022



Copyright: © 2022 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>). <https://doi.org/10.26477/jbcd.v34i1.3088>

## Introduction

Oral SCC which is a multifactorial disease can be classified microscopically in to three grades including well differentiated, moderately differentiated and poorly differentiated tumor <sup>(1)</sup>As was reported in many literatures, a tumor developing in younger patients increased nowadays<sup>(2)</sup>. However, the main etiological factors that have been seen in elderly patients rarely occur in young individuals. Developing of this malignancy in the young patients mostly associated with different etiologies and different outcomes <sup>(3)</sup>. Hypothetically, a tumor developing in a young patient may be considered as a distinct clinical entity that needed more research and studies. This study intended to evaluate the clinicopathological features of the oral SCC among different age groups.

## Materials and Methods

This retrospective study applied on thirty five cases of paraffin embedded tissue blocks of oral SCC including twenty cases of patients with age >forty years and fifteen cases were patients with <forty years. These cases were retrieved from the Oral pathology Department, College of Dentistry, University of Baghdad.

The clinicopathological characters of the tumor involved: the gender of the patients, tumor site, histological grading, perineural invasion and tumor staging were collected and studied. From each a tissue block one section of four micron thickness mounted on ordinary glass slide and stained with hematoxylin and eosin for microscopic reexamination. Fisher exact test was used to analysis the data with a significant level of  $p < 0.05$ .

## Results

Both of the study groups were not significantly different ( $p > 0.05$ ) in their demographic and clinical characteristics (Table-1). From a clinical point of view, patients younger than forty years demonstrated advanced stage more than elderly patients as stage III and IV were recorded for 76.9 % of young patients vs 46.7% for elderly patients ; however, this was not reach the statistical significant. Moreover, a slightly higher histological grading was recorded in young patients (33.3% a high grade) than elderly patients (15%) but this difference was non-significant as well.

**Table 1:** Clinicopathological comparison of the study groups.

Variables	Age (year)				p.value	
	< 40		> 40			
	No.	%	No.	%		
Gender	Male	8	53.3	9	45.0	0.625
	Female	7	46.7	11	55.0	
Site	Tongue	8	53.3	14	70.0	0.58
	Floor	4	26.7	2	10.0	
	Buccal mucosa	1	6.7	2	10.0	
	Other	2	13.3	2	10.0	
Grade	Low grade	4	26.7	9	45.0	0.361
	Intermediate grade	6	40.0	8	40.0	
	High grade	5	33.3	3	15.0	
Stage	Stage 1-2	3	23.1	8	53.3	0.102
	Stage 3-4	10	76.9	7	46.7	
Perineural Invasion	Positive	3	20.0	5	25.0	0.727
	Negative	12	80.0	15	75.0	

## Discussion.

It is well known that adult people with smocking history are at a high risk for oral SCC development<sup>(4)</sup>. Eventhough the fifths and the sevenths decade of the life are the usual age for oral SCC<sup>(5)</sup>, many researchers recorded increasing in the tumors incidence now a days below this age<sup>(6)</sup>. This demographic changing in the tumor incidence is not well obvious because the long period of smocking habit (that have been seen in adults patients) is uncommon in young individuals. So, tobacco smocking may not be an important factor in the tumor development in young patients or it may be considered as a cofactor with other parameters such as viruses including HPV16<sup>(7,8)</sup>.

Despite that, some authors showed poor tumor out- com and more aggressive behavior in the young individuals<sup>(9,10)</sup>. Yet, the result of the studies still conflicting and many molecular markers and cell cycle proteins used as a prognostic indicators for the tumor behavior in the young and adult patients<sup>(11,12)</sup>. In the present study, the samples were analyzed and studied as two age categories considering the forty years was the limit value for the young participants. It should be noted that using such age as break point between the young and adult is common in the research since the tumor incidence is usually high above this age<sup>(4,7,13)</sup>. The present study showed slightly a higher tumor incidence in females than in male patients as 51.4% in the females vs 48.5 % in the males which were in accordance with another study<sup>(14)</sup>. However, males are the most commonly affected and this a slight difference may be related to the life style modification including smocking habits that recently increased among females<sup>(15)</sup>.

This study revealed that the most predominant affected anatomical site is the tongue in both age groups which was in accordance to previous Iraqi- study<sup>(16)</sup>. With respect to the histological grading, there is no statistically significant difference in both age groups despite that young patients relatively associated with higher grade. This finding was mentioned by other studies<sup>(8,15,17)</sup>. However, some authors suggested that low histological grading is more commonly seen in a young patients<sup>(4,18)</sup>.

Clinical analysis of the present study revealed that advanced tumor stage was highly recorded for young patients in comparison to adult patients but it was statistically non significant. This finding was in agreement with other studies<sup>(17,19)</sup>. on the other hand, that Shuwei et al. (2020)<sup>(20)</sup> in their study did not show any differences in TNM staging at the time of diagnosis between old and young patients . Advanced tumor stage in young patients might be due to delay in the tumor diagnosis or more aggressive tumor behavior. Moreover, when studying the perineural invasion at both age groups non significant difference was recorded. This finding was consistent with another studies<sup>(21,22)</sup>.

## Conclusion

Statistically the age was not the main causative factor of the clinicopathological features of the tumor; however the subject was still controversy and large study sample with a molecular basis was required for better understanding of the biological behavior of oral SCC in different age groups.

**Conflict of interest :** None

## References

1. Dascălu IT, Coleș E, Țircă T, et al. Histopathological aspects in oral Squamous cell carcinoma. J Dental Sci . 2018;3(2): 000173
2. Cassarino DS, DeRienzo DP, Barr RJ. Cutaneous squamous cell carcinoma: a comprehensive clinicopathological classification part one. J Cutan Pathol. 2006;33(3): 191-206.
3. Ribeiro AC, Silva AR, Simonato LE, et al. Clinical and histopathological analysis of oral squamous cell carcinoma in young people. BrJ.Oral Maxillofac. Surg.2009: 47(2) 95-98.
4. Muller S, Pan Y, Li R, et al. Changing trends in oral squamous cell carcinoma with particular reference to young patients: 1971–2006. The Emory University experience. Head Neck Pathol. 2008 ; 2:60-06.
5. Pires FR ,Ramose AB, Oliveira JB, et al. Oral squamous cell carcinoma: clinicopathological features from 346 cases from a single oral pathology service during an 8-year period. J Oral Science. 2013;21(5), 460-67.
6. Shiboski CH, Schmidt BL & Jordan RC. Tongue and tonsil carcinoma. J Cancer 2005; 103(9), 1843-49.

7. Udeabor SE, Rana M, Wegener G, et al. Squamous cell carcinoma of the oral cavity and the oropharynx in patients less than 40 years of age: a 20-year analysis. *Head Neck Onco.*2012;4:28-34.
8. Supriya NK, Srikant N, Karen B .Comparison of Clinicopathological Differences in Oral Squamous Cell Carcinoma in Patients Below and Above 40 Years of Age. *J Clin. Diagnostic. Res.* .2017; Vol-11(9): ZC46-ZC5.
9. Soudry E, Preis M, Hod R, et al. Squamous cell carcinoma of the oral tongue in patients younger than 30 years: clinicopathologic features and outcome. *Clin Otolaryngol* 2010; 35(4):30712.
10. Santos-Silva AR, Ribeiro AC, Soubhia ,et al. High incidences of DNA ploidy abnormalities in tongue squamous cell carcinoma of young patients: an international collaborative study. *Histopathology* 2011;58(7):112735 .
11. Rushatamukayanunt P, Morita K, Matsukawa S, et al. Lack of association between high-risk human papillomaviruses and oral squamous cell carcinoma in young Japanese patients. *Asian Pac J Cancer Prev.* 2014; 15(10):413541.
12. Luan EG , Aline CB, Elismauro F , et al. Cell cycle markers and apoptotic proteins in oral tongue squamous cell carcinoma in young and elderly patients. *Braz Oral Res.*2019; 33-e103.
13. Komolmalai N, Chuachamsai S, Tantiwipawin S ,et al. Ten year analysis of oral cancer focusing on young people in northern Thailand. *J Oral Sci* 2015;57(4):327-334.
14. Suresh T, Hemalatha A, Kumar MH, et al. Evaluation of histomorphological and immunohistochemical parameters as biomarkers of cervical lymph node metastasis in squamous cell carcinoma of oral cavity: A retrospective study. *J. Oral Maxillofac. Pathol* 2015; 19(1), 18.
15. Razavi SM & Khalesi S. Clinico-Pathological Differences of Oral Squamous Cell Carcinoma among Younger and Older Patients. *J Clin Exp Pathol.* 2017; 7: 316.
16. Museedi OS & Younis WH. Oral cancer trends in Iraq from 2000 to 2008. *Saudi J.Dent.Res.*2014; 5(1), 41-47.
17. Syedmukith R, Ahmedmujib BR, Bastian TS. Oral Squamous Cell Carcinoma in Elderly vs Young Patients: A Comparative Analysis using STNMP StagingSystem. *J OralMaxillofac. Pathol* 2014;5(2):471-475
18. Sasaki T, Moles DR, Imai Y, et al. Clinico-pathological features of squamous cell carcinoma of the oral cavity in patients <40 years of age. *J Oral Pathol Med.* 2005;34:129-33
19. Iype EM, Pandey M, Mathew A, et al. Oral cancer among patients under the age of 35 years. *J Postgrad Med.*2001; 47(3):171-176.
20. Shuwei C, Zhu L, Jingtao C , et al . Older age is a risk factor associated with poor prognosis of patients with squamous cell carcinoma of the oral cavity *European Archive of Oto-Rhino-Laryngology.*2020 ; 277:2573–2580.
21. Zhang YY, Wang DC, Su JJ et al. Clinicopathological characteristics and outcomes of squamous cell carcinoma of the tongue in different age groups. *Head& Neck* 2017;39: 2276-82.
22. Gyuheon C, Joon S, Seung HC et al. Comparison of Squamous Cell Carcinoma of the Tongue Between Young and Old Patients, Seoul, Korea .*J Patho Transl Med.*2019;53(6).

#### العنوان: تأثير العمر على السمات السريرية المرضية لسرطان الفم الحرشفي

الباحثون: علاء صبحي سعيد , بشار حامد عبد الله

#### المستخلص

سرطان الفم الحرشفي أكثر شيوعاً لدى الكبار و نادر حدوثه تحت سن الأربعين . ولكن وفقاً للعديد من الدراسات فإن ظهور المرض لدى صغار السن وخصوصاً الذين لا تزيد أعمارهم عن الأربعين يكون أكثر عدوانية ويرتبط بسلوك بايولوجي مختلف . الغرض من الدراسة هو تسليط الضوء على السمات المرضية للورم لدى فئات عمرية مختلفة المواد وطرق العمل : أجريت الدراسة على 35 عينة من أنسجة سرطان الفم الحرشفي المظمورة بشمع البرافين وكانت أعمار المرضى تتراوح بين 16 و 80 عاماً تم جمع البيانات لدراسة السمات المرضية السريرية وفقاً لأعمار المرضى . النتائج: لم تظهر الدراسة الحالية فروق ذات دلالة إحصائية بين المجموعات المقارنة فيما يتعلق بموقع الورم ، التصنيف النسيجي ، مرحلة الورم والغزو حول العصب. الاستنتاجات : العمر عامل غير مؤثر في تحديد الصفات السريرية والنسجية للورم . الموضوع يحتاج إلى دراسة جزيئية باستخدام المعلمات المناعية لتفسير السلوك البايولوجي للورم عند الفئات العمرية المختلفة.