

Oral squamous cell carcinoma in patients less than 40 years in a Nigerian population.

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ABSTRACT

Objectives: Oral cancer ranks amongst the sixth to eight most common cancers worldwide and exhibits a great variation in incidence among countries. Oral squamous cell carcinoma (OSCC) is rare in individuals less than 40 years of age, with occurrences averaging 4 to 6% in people less than 40 years. The aim of this study was to review the clinical and pathological characteristics of OSCC cases in patients less than 40 years of age in five tertiary health facilities in Nigeria.

Methods: All OSCC in the period from 1970 to 2015 from case file records and biopsy reports were retrieved from the records of the five teaching hospitals, to obtain age, gender, location and histologic grades.

Results: Ninety-seven (17.4%) cases of OSCC were diagnosed in patients less than 40 years of age. These included 58 males and 38 females giving a male: female ratio of 1.5:1. The mandibular mucosa with 27 (28.7%) cases was the most common site followed by the maxillary mucosa with 24 (25.5%) and palate with 14 (14.4%) cases. Only 5 (5.3 %) cases of OSCC occurred in the tongue. The well differentiated OSCC was the most common histological grade accounting for 48 (50.0 %) cases while the moderately differentiated and poorly differentiated OSCC accounted for 31 (32.3 %) and 17 (17.7 %) cases respectively.

Conclusion: OSCC was relatively more common in patients less than 40 years of age in this study than those of previous studies from other regions and OSCC in patients less than 40 years of age was relatively rare in the tongue when compared with similar cohorts from other continents.

Key words: oral squamous cell carcinoma; age less than 40; tongue; mandibular mucosa, Nigeria.

INTRODUCTION: Oral cancer ranks amongst the sixth to eight most common cancers worldwide and exhibits a great variation in incidence among countries¹. Oral cancers account for between 2% and 4% of all cancers in most parts of Europe and America^{2,3}, but they account for up to 40% of all cancers in India and Sri-Lanka³. Oji et al⁴ reported that oral cancer accounted for 2.7% of all cancer cases seen in Enugu, Nigeria over a six-year period. Oral Squamous Cell Carcinoma (OSCC) is the most common malignant neoplasm of oral cavity accounting for up to 80 to 90% of all malignancies in the oral cavity⁵. OSCC is commonly seen in men in the sixth and seventh

decades of life, predominantly in those that consume alcohol and or tobacco⁵.

Most authors have reported OSCC as rare in individuals less than 40 years of age, with occurrences averaging 4 to 6% in people less than 40 years^{6,7}. This is presumably due to the considerably less period of exposure that young people have to risk factors, particularly tobacco and alcohol compared to elderly patients. More so, some authors have reported that OSCC in younger patients are more likely to be seen in non-smokers and non- alcohol consumers and have suggested the possibility of other aetiological factors such as genetic aberrations, nutritional deficiencies and HPV infection in young populations^{6,7,8}.

In addition, there is a controversy amongst authors about the prognosis of OSCC in young adults compared to the elderly. While some authors claim that there is no difference in prognosis between the disease in the elderly and the young adult patients^{9,10,11}, others report a poor prognosis in young adults and therefore recommend a more aggressive management regimen for this group^{8,12}. Although, several previous

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Table 1: Site distribution of OSCC in patients younger than 40 years

Site	Number of patients	Percentage
Mandibular Mucosa	27	28.7
Maxillary Mucosa	24	25.5
Buccal mucosa	10	10.6
Palate	14	14.9
Tongue	5	5.3
Floor of mouth	1	1.1
Lip	8	8.5
Gingiva	5	5.3
Total	97	100.0
Histological grades		
Well differentiated N [%]	48 [50.0]	
Moderately differentiated N [%]	31 [32.3]	
Poorly differentiated N [%]	17 [17.7]	

Table 2: Comparison of OSCC in Patients less than 40 years and in those 40 years and above

Category	Less than 40 years	40 years and above
No [% of Total]	97 [17.4]	461 [82.6]
Gender		
Male: N [%], Female: N [%]	M: 58 [60.4], F: 38 [39.6]	M: 275 [59.7], F: 186 [40.3]
Male: female ratio	1.5:1	1.5:1
Age		
Peak age N [%]	30-39 [59.8%]	60-69 [28.0%]
Site		
Most common sites N [%]	Mand M 27 [28.7] Max M 24 [25.5] Palate 14 [14.4]	Man M 139 [30.5] Max M 84 [18.4] Palate 77 [16.9]
OSCC of Tongue N [%]	5 [5.3]	52 [11.4]

studies have examined the clinical and epidemiologic characteristics the OSCC^{4,6,13}, only few have studied OSCC in young adults and there is dearth of studies of OSCC in young adults in the Nigerian population. The aim of this study was to review the clinical and pathological patterns of OSCC cases in patients less than 40 years of age in five tertiary health facilities in Nigeria.

METHODS

OSCC cases were retrieved from the archival records of five teaching hospitals in Nigeria. Researchers from these centres obtained records including age, gender and topography in the period from 1970 to 2015. The

lesions were classified into; well differentiated, moderately differentiated and poorly differentiated according to Broder's classification. The anaplastic OSCC were left out of the classification since this variety was sparingly reported from almost the centres.

All cases of OSCC with ages of less than 40 years at the time of presentation were included for analysis. The data was analyzed with the SPSS software version 20. Simple descriptive and comparative analyses were done, with the test of statistical significance set at $p \leq 0.05$. Ethical approval for the study was obtained from the University of Ibadan/University College Hospital Ethical Committee.

Table 3: Comparison of Studies of OSCC in Young adults

Year	Country	Age range	Total no of OSCC	% of OSCC in young people	M: F	Site (%)	Histologic grade (%)
2012 ⁵	Yemen	= 40	451	14.0	1.24:1	Tong; 59.7 PL; 14.5 FOM; 11.3	Well; 51.6 Mod; 27.4 Poor; 6.5
2012 ⁷	Germany	<40	977	3.9	3.75:1	FOM; 39.5 Tong; 34.2 Max& Man Mucosa; 10.5	Well; 18.4 Mod; 63.2 Poor; 13.2
2016 ⁴	Brazil	<45	2311	3.3	4.42:1	Tong; 40.8 LoLi; 31.6 FOM; 9.2	N/A
2018 ^x	Nigeria	<40	558	17.4	1.7:1	Man M; 28.7 Max M; 25.5 PL; 14.9 Tong; 5.3	Well; 50.0 Mod; 32.3 Poor; 17.7

Tong=Tongue, PL=Palate, FOM=floor of mouth, Max M= Maxillary Mucosa, Man M= Mandibular mucosa, Mod= Moderately differentiated, LoLi= Lower lip, x=present study

RESULTS

Out of 558 OSCC cases, 97 (17.4 %) were diagnosed in patients less than 40 years of age. These patients were made up of 58 males and 38 females giving a male: female ratio of 1.5:1. Table 1 shows the topographical distribution of OSCC in patients less than 40 years of age. The mandibular mucosa with 27 (28.7 %) cases was the most common site followed by the maxillary mucosa and palate with 24 (25.5 %) and 14 (14.9%) cases respectively. Only 5 (5.3 %) cases of OSCC occurred on the tongue of patients less than 40 years of age.

Concerning the histological grade of OSCC in patients less than 40 years of age, the well differentiated OSCC was the most common histological grade accounting for 48 (50.0%) cases while the moderately differentiated and poorly differentiated OSCC accounted for 31 (32.3%) and 17 (17.7%) cases respectively. Table 2 shows the comparative demography of OSCC patients less than and greater than 40 years. Most of these demographic indicators were similar in patients less than 40 years and those of 40 years and above. However, OSCC had a much higher predilection for the tongue in patients 40 years and above, accounting for 52 cases (11.4 %) in this group, compared to 5 cases (5.3 %) in patients less than 40 years. Table 3 compared results from this study with previous studies.

DISCUSSION

OSCC is generally considered a disease of the elderly with peak age incidences mostly reported in the sixth and seventh decades of life. This is well established such that aging has even been considered a risk factor for OSCC^{5,14}. Our study demonstrates that 17.3% of OSCC occurred in patients less than 40 years of age and this was at variance with most studies that reported incidences of between 4%-6%^{8,15,16}. However, the report of 15.75% incidence of OSCC in young people by Hart et al¹⁷ in the USA and 18.4% by Chidzonga¹⁸ in Zimbabwe were similar to our finding. Effiom et al¹⁷ in a study in Lagos, Nigeria had previously reported an incidence of 40% of OSCC in patients less than 40 years which was much higher than our finding of 17.3%. It is possible that there are yet to be determined aetiologic factors that account for early onset of OSCC in the Lagos cosmopolitan area that may not be significant in the wider Nigerian population. In young patients, OSCC has been attributed to exposure to human papilloma virus (HPV), herpes simplex virus (HSV), human immunodeficiency virus (HIV), and some other viral infective diseases, although their causative role remains to be established^{8,12,20,21}. To date and to the best of our knowledge, no Nigerian study has been done to corroborate this theory.

OSCC affects predominantly males as reported in this study with a male to female ratio of 1.5:1. Although, almost all previous studies are in agreement with a higher incidence of OSCC in males both in general population and in young patients, the percentage in males and female, however, differs from region to region. Most studies reported ratios of between 1.6:1 to 2.3:1⁸ but Cusamo and Persky⁸ in New York reported a remarkably higher male: female ratio of 6.7:1 in patients 40 years and less, though their study population was relatively small. In contrast, a few studies have found higher incidence in females^{7,22}. It has been suggested that differing social life styles and environmental factors amongst different world populations may in part explain these variations for the different geographic locations⁸.

Most previous studies have shown that the tongue is the most preferred site of occurrence for OSCC both in the general population, and in young people^{5,21,23,24}. However, our study showed the mandibular mucosa (with 28.7% of cases) to be the most common site of occurrence while only 5% occurred in the tongue. Chidzonga et al¹⁸ and Effiom et al¹⁹ from Zimbabwe and Nigeria respectively also reported the mandibular gingiva to be the most common site of OSCC in the general population while Udeabor et al⁸ reported highest site incidence in the floor of the mouth.

The well differentiated OSCC was the most frequent histologic grade seen in this study and this was consistent with reports from Germany⁸, Yemen⁸, Thailand²⁵ and Iran²⁶. A study from Romania had shown that the moderately differentiated OSCC was the most common histologic grade accounting for 44.4% of OSCC of the tongue from their centre²⁷. However, a previous study from Lagos, Nigeria found that poorly differentiated OSCC was the most common histological grade of OSCC¹⁹. Although the reason for these observed differences is not immediately apparent, different prevalence of the risk factors, intensity of exposure to these factors and the role of the genetic factors have been suggested⁶.

This study sought to review the clinical and pathological patterns of OSCC and did not consider the TMN staging and some of its modifications which have been reported to more significantly affect treatment planning and prognosis than the Broders classification that was used in this study^{28,29}. More so, the disparities and lack of common reportage system from the different centres made collection and collation

of data quite challenging.

In conclusion, our study found that OSCC was relatively more common in people less than 40 years of age in a Nigerian population when compared with findings from other regions and OSCC in patients less than 40 years of age was relatively rare in the tongue when compared with similar cohorts from other continents.

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