Cancer in young patients (Part 1)

Clinical and histopathological analysis of squamous cell carcinoma of the oral cavity in young patients

A descriptive and comparative study in Mexico

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Abstract

Oral cavity and head and neck cancer occurs most often between the fifth and sixth decade of life and is generally attributed to the indiscriminate use of substances such as alcohol and tobacco snuff for a considerable amount of time. However, recent studies show an increased incidence in younger patients who have never been exposed to these and other risk factors such as occupational risk, genetic predisposition and diet.

Keywords: Oral cancer, Squamous cell carcinoma, Young patients.

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Introduction

Oral cavity squamous cell carcinoma (OCSCC) is a malignant tumor which rarely affects people under 45 years of age. Of the total number of cases reported, 6 % of OCSCC cases appear in this age group. Since the eighties, scientific literature has reported an increase in the frequency of OCSCC cases in young adults, even when conventional risk factors such as tobacco and alcohol are not present. It has been suggested that the biological behavior of OCSCC in young patients is more aggressive. Some have even suggested that it should be considered a distinct entity (1-2).

To help shed light on this disease, the main aim of this study was to find the clinical and histological features of OCSCC in young adults, and to compare them to OCSCC features in patients over 45 years of age.

Materials and methods

All the histopathological diagnosis files were reviewed at the Oral Pathology Service of the Division of Postgraduate and Research Studies at Universidad Nacional Autónoma de México. The period analyzed to identify all the OCSCC cases went from January 1989 to May 2013. The inclusion criteria were as follows: having hematoxylin and eosin stained slides or enough biological material embedded in paraffin.

The cases with insufficient or no clinical information were excluded. Demographic data were obtained from the files: age, sex, and lesion location. A specialist in Oral Pathology analyzed the histological sections according to the guidelines set by the WHO in 2005 and by Broders. Cases were graded into well differentiated, moderately differentiated and poorly differentiated. An EpiData database was expressly created so that the frequency distribution would be known at a later stage.

Results

Out of 18,971 files reviewed, 250 OCSCC cases were identified, of which 117 fulfilled the inclusion criteria.

The cases were classified into two groups according to the patient´s age when the diagnosis was made: the first group included 21 patients under 45 (12 men and 9 women with an average age of 30.48; SD 6,8; 17-44 age range), and the second group included 96 patients over 45 (41 men and 55 women; with an average age of 66.65; SD 14.42; 4595 age range).

There follow the results when distributing the cases according to the histological diagnosis and grading: in the first group, 16 of the 21 OCSCC cases were well differentiated, 5 were moderately differentiated and there were no poorly differentiated cases. In the second group, 68 of the 96 OCSCC cases were well differentiated, 19 were moderately differentiated and 9 were poorly differentiated.

Chart I. Grading of squamous cell carcinoma per group

SQUAMOUS CELL CARCINOMA	(n=21)	(n=96)
Well differentiated	76.20%	70.83%
Moderately differentiated	23.80%	19.80%
Poorly differentiated	0%	9.37%
TOTAL	**100%**	**100%**

Regarding location, in the first group it appeared most frequently on the lateral edge of the tongue, in 6 cases, followed by the gum, in 5 cases, the retromolar trigone, in 4 cases, the mucosa, in 3 cases, the palate in 2 cases, and the lip in only 1 case. In the second group, it appeared most frequently on the lateral edge of the tongue, in 31 cases, followed by the gum, in 30 cases, the mucosa, in 21 cases, the palate in 7 cases, the lip in 6 cases, and the retromolar trigone in only 1 case.

Chart II. Location per group

LOCATION	< 45	%	>=45	%
Tongue	6	28	31	33
Gum	5	24	30	31
Retromolar trigone	4	19	1	1
Mucosa	3	15	21	22
Palate	2	9.5	7	7
Lip	1	4.5	6	6
TOTAL	**21**	**100**	**96**	**100**

Discussion

In the few last decades, an increase of approximately 5.5% in the number of oral cavity squamous cell carcinoma cases has been reported in young patients worldwide.

In this study we found 17.9% of OCSCC cases in patients <45 when the diagnosis was made. These figures are consistent with what Farnaz (4) reports. In that study, 21 squamous cell carcinoma cases in young patients are studied out of a total of 158 cases diagnosed in a period of 13 years. Other studies conducted in Iran report a prevalence of between 11% and 15%. In Tehran, there is a 21.6% prevalence of squamous cell carcinoma in this age group.

Regarding dental care-seeking behavior, 57.3% of the patients in the >45 group were women, whereas 57% of the patients in the <45 group were men. This sex distribution may suggest that, in the last few decades, young patients have adopted a preventive approach and a responsible behavior regarding prevention. This also indicates that, in the past, a higher percentage of women sought preventive medical and dental care, both in public and private institutions in Mexico.

Regarding the age range when the diagnosis was made, Soudry et al. (5) report an average age of 61 and only 9 % are diagnosed before age 45, and 2 % before age 35. We observed that the average age in the <45 group was 30.48, and in the >45 group it was 66.65. This average falls within the ranges described in the reports mentioned.

Regarding the grading of oral cavity squamous cell carcinoma in our group of patients, well differentiated carcinoma had a higher prevalence in both groups, with a similar distribution in the <45 group, 76.20%, and in the >45 group, 70.83%. This contradicts the findings of Vargas et al.(6) and Friedlander et al. (7), who suggest that in their group of young patients, the most frequent type was the poorly differentiated squamous cell carcinoma. This suggests a more aggressive biological behavior, and requires a complex and radical treatment plan as well as a reserved prognosis.

Regarding the anatomic location of the lesion, it appeared most frequently on the tongue in both groups: 28 % in the <45 group, 6 cases, and 33 % in the >45 group, 31 cases. These findings match what Myers et al. (8), Newman et al. (9) and Falaki et al. (4) report. However, there were significant differences in the third most frequent location: it was the oral mucosa in 22 % of cases in the >45 group, whereas in the <45 group it was the retromolar trigone in 19 % of cases.

Regarding OCSCC etiological factors in young patients, Toner & Regan (3) include: family history, viral infections including human papillomavirus, Epstein-Barr virus and herpes simplex, multiple deficiencies, nutritional deficiencies, especially iron and folic acid, as well as polyploidy and genetic instability, and epigenetic factors, and a large number of external conditioning factors.

Conclusions

The specific features of the population studied suggest that OCSCC in young patients has a

different biological behavior than OCSCC in older people.

Therefore, we conclude that there is a lack of knowledge about this specific group regarding OCSCC. The evidence presented in other reports suggests that OCSCC in young patients probably has an aggressive biological behavior due to substance abuse, such as alcohol and tobacco, due to orogenital sexual practices, and drug use, such as marihuana, which has a disinhibiting effect, thus facilitating risk contacts. This is also related to the fact that these habits develop at an early age. Therefore, the exposure time and the early onset of the disease increase, which shows a paradigm shift regarding the demographic distribution and usual clinical practice experience, as this disease was connected, for many decades, to groups of older patients with a chronic history of tobacco use and alcoholism. As in the last decade this neoplasm has been linked with a group of patients that lack these characteristics, we have an ethical obligation as health professionals to contribute to a better understanding of this new presentation, and to monitor the clinical, biological and molecular behavior of this lesion. Thus we will be able to establish prevention and confidence criteria to aid decision-making, so as to help clinicians plan for the comprehensive treatment of patients, which will include better prognosis and an adequate quality of life.

References

1. Majchrzak E, Szybiak B, Wegner A, Pienkowski P, Pazdrowski J, Luczewski L, Sowka M, Golusinski P, Malicki J, Golusinski W. Oral cavity and oropharyngeal squamous cell carcinoma in young adults: a review of the literature. Radiol Oncol [Internet]. 2014 Jan 22;48(1):1-10. [Cited: 2016 Apr 1]. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3908841/#!po=60.8108
2. Toner M, O'Regan EM. Head and Neck Squamous Cell Carcinoma in the Young: A Spectrum or a Distinct Group? Part 1. Head Neck Pathol [Internet]. 2009 Sep;3(3):246-8. [Cited: 2016 Apr 1]. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2811623/
3. Toner M, O'Regan EM. Head and neck squamous cell carcinoma in the young: a spectrum or a distinct group? Part 2. Head Neck Pathol [Internet]. 2009 Sep;3(3):249-51. [Cited: 2016 Apr 1]. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2811629/
4. Falaki F, Dalirsani Z, Pakfetrat A, Falaki A, Saghravanian N, Nosratzehi T, Pazouki M. Clinical and histopathological analysis of oral squamous cell carcinoma of young patients in Mashhad, Iran: a retrospective study and review of literature. Med Oral Patol Oral Cir Bucal [Internet]. 2011 Jul 1;16 (4):e473-7. [Cited: 2016 Apr 1]. Available from: http://www.medicinaoral.com/pubmed/medoralv16_i4_p473.pdf
5. Soudry E, Preis M, Hod R, Hamzany Y, Hadar T, Bahar G, Strenov Y, Shpitzer T. Squamous cell carcinoma of the oral tongue in patients younger than 30 years: clinicopathologic features and outcome. Clin Otolaryngol. 2010 Aug;35(4):307-12.
6. Vargas H, Pitman KT, Johnson JT, Galati LT. More aggressive behavior of squamous cell carcinoma of the anterior tongue in young women. Laryngoscope. 2000 Oct;110(10 Pt 1):1623-6.
7. Friedlander PL, Schantz SP, Shaha AR, Yu G, Shah JP. Squamous cell carcinoma of the tongue in young patients: a matched-pair analysis. Head Neck. 1998

Aug;20(5):363-8.
8. Myers JN, Elkins T, Roberts D, Byers RM. Squamous cell carcinoma of the tongue in young adults: increasing incidence and factors that predict treatment outcomes. Otolaryngol Head Neck Surg. 2000 Jan;122(1):44-51.
9. Newman AN, Rice DH, Ossoff RH, Sisson GA. Carcinoma of the tongue in persons younger than 30 years of age. Arch Otolaryngol. 1983 May;109(5):302-4.

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