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Original Article

Clinico-epidemiological study of oral squamous cell carcinoma: A tertiary care centre study in North India

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ARTICLE INFO

Article history:
Received 30 September 2015
Accepted 6 November 2015
Available online 4 December 2015

Keywords:
Oral squamous cell carcinoma
Oral cancer
Cancer of oral cavity
Head and neck cancer
OSCC

ABSTRACT

Introduction: Oral squamous cell carcinoma (OSCC) ranks 12th most common cancer in the world.
Objective: The aim of this study was to retrospectively evaluate the OSCC.
Methods: A retrospective study of 611 OSCC patients from January 2010 to December 2013 was carried out in Department of Surgical Oncology, King George's Medical University, Lucknow, India. Details of patient's sex, age, tobacco habit and site of cancer were noted. Data were analyzed by Student's *t* test and chi-squire (χ^2) test.
Results: The prevalence of OSCC was significantly ($p < 0.001$) higher in males (75.9%) than females (24.1%). The mean age of female patients was higher than males ($p < 0.001$). In both the genders, the buccal mucosa and gingivobuccal sulcus were found to be the most affected sites. Moreover, the smokeless form of tobacco was found to be significantly associated with OSCC, especially in females.
Conclusion: The study concluded that OSCC is more common in men as compared to women, probably due to habit of tobacco consumption. Smokeless tobacco use is an important risk factor, especially in females.

1. Introduction

Oral squamous cell carcinoma (OSCC) is the most common form of carcinoma of oral cavity and ranks as the 12th most common cancer in the world.[1] Oral cancer is one of the major health problems in India and Indian subcontinent countries. Tobacco is the main etiological factor for oral carcinoma. Tobacco is used in various forms in these countries including betel quid, tobacco with lime, bidi, hookah, etc. Human

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http://dx.doi.org/10.1016/j.jobcr.2015.11.002

papilloma virus[2,3] and dietary deficiencies[4] and poor oral hygiene[5] are minor etiological factors of oral carcinoma. People of lower socio-economic strata of society are more commonly affected by oral cancer because of higher prevalence of life style risk factors.[6]

The aim of this study was to identify the clinical and epidemiological features of OSCC. This study is in continuation with my previous study.[7]

2. Methods

A retrospective study of 611 OSCC patients from January 2010 to December 2013 was carried out in Department of Surgical Oncology, King George's Medical University, Lucknow, India. The cases of buccal mucosa, alveolus, anterior two-third of tongue, gingivobuccal sulcus, hard and soft palate, floor of mouth and retromolar trigone were included in the present study. Details of patients' sex, age, tobacco habit and oral cancer subsites were analyzed. Cases were classified according to the TNM classification of the Union for International Cancer Control (7th edition) staging of carcinoma of oral cavity.[8]

3. Statistical analysis

Continuous data were summarized as mean ± SD while discrete (categorical) in numbers (n) and percentage (%). Continuous groups were compared by independent Student's t test. Categorical groups were compared by chi-square (χ^2) test. A two-tailed ($\alpha = 2$) p value less than 0.05 ($p < 0.05$) was considered statistically significant. Analyses were performed on SPSS software (Windows version 16.0).

4. Results

A total of 611 OSCC patients were included in this study. The age of patients ranged from 20 to 85 years with mean (±SD) 48.35 ± 13.07 years. Among patients, 464 were males (75.9%) and 147 were females (24.1%) (Table 1). The age of male and female patients ranged from 20 to 80 years and 25 to 85 years, respectively with mean (±SD) 46.95 ± 13.05 years and 52.77 ± 12.14 years, respectively. The mean age of females was significantly higher than males ($t = 4.79$. $p < 0.001$).

Table 1 – Prevalence of OSCC according to gender.

Cases	No. of cases ($n = 611$) (%)
Male	464 (75.9)
Female	147 (24.1)

In males, the OSCC was most prevalent in 40–49 years (25.2%) while in females, it was in 50–59 years (26.5%) (Table 2). Further, the frequency (%) of OSCC differed significantly between age and gender ($\chi^2 = 22.09$, $p = 0.001$).

The frequency of OSCC according to tobacco habits and gender is summarized in Table 3. In males, the frequency of OSCC was highest in patients with history of smokeless tobacco consumption (45.0%) followed by person with history of smoking and smokeless tobacco users (41.8%) together accounting for 86.8% prevalence. Conversely, in females, the frequency of OSCC was highest in smokeless tobacco users accounting for 72.8% prevalence. Thus, in OSCC patients, the prevalence of OSCC differed significantly according to habits and genders ($\chi^2 = 90.09$, $p < 0.001$).

Similarly, the frequency of OSCC according to site and gender is summarized in Table 4. In both males and females, the OSCC was most prevalent in buccal mucosa and gingivobuccal sulcus accounting for 49.8% and 40.1% prevalence, respectively. The prevalence of OSCC did not differ between different sites between the sexes in our patients ($\chi^2 = 8.34$, $p = 0.139$), i.e. found to be statistically the same.

Likewise, the frequency of OSCC according to stage and gender is summarized in Table 5. The highest frequency of both male and female OSCC patients presented with stage IV disease followed by Stage III, together accounting for 91.8% prevalence in both the sexes. Moreover, the prevalence of OSCC also did not differ significantly with reference to stage between the sexes in OSCC patients ($\chi^2 = 0.60$, $p = 0.879$), i.e. also found to be statistically the same.

Table 2 – Prevalence of OSCC according to age and gender.

Age (years)	Male ($n = 464$) (%)	Female ($n = 147$) (%)	χ^2 value (df = 5)	p value
<30	33 (7.1)	3 (2.1)	22.09	0.001
30–39	107 (23.1)	18 (12.2)		
40–49	117 (25.2)	33 (22.4)		
50–59	102 (22.0)	39 (26.5)		
60–69	77 (16.6)	36 (24.5)		
≥70	28 (6.0)	18 (12.2)		

Table 3 – Prevalence of OSCC according to tobacco habit and gender.

Tobacco habit	Male ($n = 464$) (%)	Female ($n = 147$) (%)	χ^2 value (df = 3)	p value
No tobacco	16 (3.4)	24 (16.3)	90.09	<0.001
Smokeless	209 (45.0)	107 (72.8)		
Smoking	45 (9.7)	6 (4.1)		
Smoking and smokeless	194 (41.8)	10 (6.8)		