

Incidence of Second Primary Tumor in Patients with Oral Squamous Cell Carcinoma: Experience from a Tertiary Cancer Centre

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Abstract: Aims And Objectives:- the aim of the present study was to find out the incidence of second primary tumor in patients diagnosed with oral cancer reporting to our cancer centre and ascertain the cause for their occurrence.

Materials and methods:- this study was done in department of oral oncology at kidwai memorial institute of oncology. The present retrospective study included the patients diagnosed with malignancy involving the subsites of oral cavity and operated for same from January 2014 to January 2016. Data pertaining to the study like demographic details, histological grade, site of primary tumor, status of neck at the time of presentation, radiographic details were all collected from patients medical record.

Results: total 750 patients reported to our department in the defined time and their medical records were carefully analysed and after evaluating according to inclusion criteria, 663 patients were included in the study. Total number of males in the study were 435 and 228 females were present. An overall incidence of second primary tumor was 19% in the present study.

Discussion and conclusion: there are a few factors that might influence survival in patients with oral squamous cell carcinomas (oscc). In present study, we found that spt as significant prognostic factors of oscc survival. Second primary tumors are cancers that are not connected by neoplastic epithelial changes from primary indexed cancer. The process of formation of oral cancer results from multiple sites of pre-malignant change in the oral cavity can be attributed to field cancerization. The presence of a field with genetically altered cells is a high risk factor for cancer.

Keywords:- second primary tumor, oral cancer, field cancerization

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I. Introduction

The oral cavity is one of the most prevalent sites for development of potential malignancies, since it is exposed directly to many carcinogens. The squamous cell carcinoma can be regarded as one of the most common malignancies involving the oral cavity with an average survival rate of about 5 years. Despite stringent monitoring protocols the original tumor site following a major surgical and non-surgical therapy, the overall mortality rate remains unchanged probably due to the recurrence of the tumor either locally or at a remote site^[1]. Approximately one third of deaths from malignancy of head and neck region are attributable to Second primary tumors, these are roughly triple the number of deaths that are a result of distant metastases^[2]. The aim of the present study was to find out the incidence of second primary tumor in patients diagnosed with oral cancer reporting to our cancer centre and ascertain the cause for their occurrence.

II. Materials And Methods

This study was done in Department of Oral Oncology at Kidwai memorial institute of oncology. The present retrospective study included the patients diagnosed with malignancy involving the subsites of oral cavity and operated for same from January 2014 to January 2016. Data pertaining to the study like demographic details, histological grade, site of primary tumor, status of neck at the time of presentation, radiographic details were all collected from patients medical record. Records were carefully checked for any recurrence or second primary tumor.

Inclusion Criteria:

- 1) Biopsy proven squamous cell carcinoma from oral cavity Subsites.
- 2) Patients who were on regular follow-up for atleast three years.

Exclusion Criteria:

- 1) Patients with malignancy other than squamous cell carcinoma
- 2) Patients with irregular follow-up
- 3) Patients who discontinued the treatment
- 4) Patients who continued the adverse tobacco habits even after the completion of treatment.

Second primary tumor(SPT) in our study was designated as the one which has a distance of at-least 2 cm between the first tumor and the SPT and at least three years had to have elapsed between detection of the tumors.

III. Results

Total 750 patients reported to our department in the defined time and their medical records were carefully analysed and after evaluating according to inclusion criteria, 663 patients were included in the study. Total number of males in the study were 435 and 228 females were present. Out of these 663 patients, there were total of 126 reported cases of second primary tumor which included 24 cases in buccal mucosa, 36 cases from lower gingivobuccal sulcus, 32 cases from tongue and 34 cases from palate. An overall incidence of Second primary tumor was 19% in the present study.

Table 1:- Incidence of second primary tumor according to site

s.no.	Primary tumor	Histological grade	Numbers	Incidence of second primary
1)	Buccal mucosa	Grade 1	39	5
		Grade 2	40	5
		Grade 3	28	7
		Grade 4	20	7
2)	Lower gingivobuccal sulcus	Grade 1	60	8
		Grade 2	58	9
		Grade 3	62	9
		Grade 4	49	10
3)	Tongue	Grade 1	52	7
		Grade 2	48	8
		Grade 3	39	8
		Grade 4	27	9
4)	Palate and upper alveolus	Grade 1	55	6
		Grade 2	29	9
		Grade 3	32	10
		Grade 4	25	9
	Total		663	126 Percentage :- 19%

IV. Discussion

There are a few factors that might influence survival in patients with oral squamous cell carcinomas(OSCC). In present study, we found that SPT as significant prognostic factors of OSCC survival^[3]. Second primary tumors are cancers that are not connected by neoplastic epithelial changes from primary indexed cancer^[4]. They can be synchronous, that is, tumors which are diagnosed simultaneously or within 6 months of the primary lesion or metachronous, that is, lesions that develop after 6 months of the original tumor. These lesions can alter the therapeutic approach to original tumors and can significantly affect the prognosis of the same^[4]. Panosetti et al. stated that there was a better survival in metachronous SPT than in synchronous SPT (55% and 18% in 5 years, respectively)^[1].

The description of field cancerization refers to a group of genetically altered clones of cells in multifocal patches, which are prone to the development of synchronous and metachronous tumors. The field cancerization theory also emphasizes the greater probability of recurrences in patients with head and neck squamous cell carcinoma^[1]. The term field cancerization has been utilized to explain the followings findings: (a) Oral cancer developing in multifocal areas of a pre-cancerous change; (b) abnormal tissues surrounding the tumor (c) oral cancer often consisting of multiple independent lesions that may coalesce; (d) the persistence of abnormal tissue even after surgery may explain secondary primary tumor and recurrences^[5]. The concept of field cancerization can be interpreted in different ways to explain the phenomenon of secondary primary tumors: (a)In classic view, large areas of aerodigestive tissue are affected by long-term exposure to carcinogens. In this preconditioned epithelium, multifocal carcinomas can develop as a result of independent mutations; (b) in terms of clonal theory, a single cell is transformed and gives rise to one large, extended, pre-malignant field by clonal expansion and gradual replacement of normal mucosa^[5].

The term lateral cancerization was suggested later to suggest the lateral spread/growth of tumors, which occurs due to a progressive alteration of the tissue adjacent to the tumor rather than the extension of pre-existing cancer cells into the adjacent tissue. It is a well-known clinical experience that even after surgical removal of a tumor, there is a high risk for another tumor to develop in the same anatomical area^[1]. In some cases, the new tumor formation can be explained because of the growth of incompletely resected carcinoma. However, for the cases where the tumor had been completely removed, a genetically altered field is the cause of new cancer^{[6],[7]}.

V. Conclusion

The process of formation of oral cancer results from multiple sites of pre-malignant change in the oral cavity can be attributed to field cancerization. The presence of a field with genetically altered cells is a high risk factor for cancer. The definition of field cancerization refers to a group of genetically altered clones of cells in multifocal patches, which are prone to the development of synchronous and metachronous tumors. The patients who have developed a second primary tumor have a significantly worse prognosis. Thus, the best strategies are prevention and early diagnosis (especially premalignant lesions). After treatment of the primary tumor, it is necessary to maintain close follow-up of patients and always properly investigate their complaints and any suspicious lesion.

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