ORIGINAL ARTICLE (APMC – 297) DOI: 10.29054/APMC/18.297

Influence of the Margin Status on the Recurrence of Oral Cancer

Asad Aizaz Chatha, Uzair bin Akhtar, Shoaib Younus, Saman Chaudhary, Kiran Zulfiqar, Muhammad Jawad Manzoor

ABSTRACT

Background: The prognosis of squamous cell carcinoma involving the oral cavity depends on various factors. The most important predictor of relapse and hence poor prognosis is the positive surgical margin of resected tissue. Therefore, it should be considered a priority while performing surgical resection. **Objective:** To estimate the frequency of presence of tumor cells on margins of histopathological specimens of oral squamous cell carcinoma after safe margin resection and the reoccurrence rate. **Period:** Two years from January 2015 to December 2017. **Setting and design:** This quasi experimental study was carried out at the department of oral and maxillofacial surgery, Mayo hospital, Lahore. **Methodology:** Fifty patients with squamous cell carcinoma of orofacial region requiring safe margin surgical resection were selected. Presence of tumour cells on margins of histopathological specimens was determined. And monthly follow up was done for six months to check the recurrence. **Results:** Histopathological results of margins of total 50 patient showed that 70% patient had negative margin,26 %patients had close margin and 4% patients had involved margin. Out of these patients 12% had recurrence of the disease. **Conclusion:** Margins are an important predictor of disease control and its recurrence.

Keywords: Squamous cell carcinoma, safe margin resection, relapses.

Corresponding Author
Dr. Uzair Bin Akhtar
Assistant Professor of OMFS
Sharif Medical and Dental College, Lahore
Contact: +92 321-7344153
Email: druzairgill@gmail.com

Submitted for Publication: 12-01-2018 *Accepted for Publication: 20-02-2018*

Article Citation: Chatha AA, Akhtar U, Younus S, Chaudhary S, Zulfiqar K, Manzoor MJ. Influence of the Margin Status on the Recurrence of Oral Cancer. APMC 2018;12(1):1-3.

INTRODUCTION

Oral squamous cell carcinoma represents about 90–95% of all malignant neoplasms of the region. It can occur anywhere in the oral cavity but there are geographical changes in sites throughout the world. In South East Asia buccal mucosa is the most common site, while in western countries, tongue and floor of mouth are the commonest sites due to the use of alcohol and smoking[1].

Oral squamous cell carcinoma is encountered as one of the most common cancers in the head and neck region. Even after extensive resection of the involved mucosa, many cases present with recurrent disease. Relapse of the tumor is considered to be associated with many factors including stage of the tumor, with T3 and T4 lesions being more challenging to manage. Grade of tumor, depth or thickness of tumor, the existence of molecularly transformed cells in areas adjacent to the primary tumor, which is the concept behind field cancerization and the positive or closed margins of the tumor[2].Acquisition of safe margins for a tumor is related to the decision of the surgeon made intra-operatively.[3]

Our study revealed this relationship between the margin status of the tissue at the time of resection and the relapse of tumor. We treated all our patients with the standardized guidelines (i.e. 1.5cm) for safe margin resection. We followed our patients monthly six months and assessed for any signs of recurrence.

METHODOLOGY

Study Design: Experimental study.

Place of Study: Department of Oral and Maxillofacial Surgery, King Edward medical university, Lahore

Duration of Study: Two years from January 2015 to December 2017.

Patients with biopsy proven squamous cell carcinoma at resectable stage of any age and gender were included in the study. Patients with previous history of surgery or radiotherapy were excluded from the study.

Fifty patients with oral squamous cell carcinoma, requiring surgical resection were selected. All patients underwent excision of tumor with safe margin of 1.5 cm. Presence of tumor cells in resected margins of specimens of oral squamous cell carcinoma was determined at the department of pathology, King Edward medical university, Lahore. Monthly follow up was scheduled for six months to detect the recurrence of squamous cell carcinoma.

Collected information was transferred to statistical package for the social sciences (SPSS) version 11.5 analysis. Quantitative variables are presented in the form of mean±SD. Qualitative variables are presented in the form of frequency tables, percentages and graphs.

RESULTS

50 patients were included in the study who presented with oral squamous cell carcinoma. Mean age was 51.78±16.72 years. Minimum age of patients was 15 and maximum age of patients was 80 years, respectively. Mean age of male and female patients was 50.03±17.34 and 54.63±15.67 years, respectively.

Table 1: Descriptive statistics for age in relation to gender

	Male	Female	Total
N	31	19	50
Mean	50.03	54.63	51.78
Std. Deviation	17.34	15.67	16.72
Range	65.00	59.00	65.00
Minimum	15.00	21.00	15.00
Maximum	80.00	80.00	80.00

50 cases of oral squamous cell carcinoma were treated with surgical resection of soft and/or hard tissue. Excisional biopsies were examined and patients were followed up for a period of six months. It was seen that 30% of our patients had either positive or closed margins on final histopathological analysis of the specimens.12% had recurrence of the disease in the oral cavity. None of the patients with negative margins presented with recurrence of the disease.

Table 2: Histopathological results of resected margins in relation to tumor site

Site	Total Patients	Closed Margins	Involved Margins	Recurrence
Alveolus Mandible	11	3	1	2
Buccal Mucosa	15	4	0	0
Alveolus Maxilla	8	3	0	2
Floor of Mouth & Ventral surface of Tongue	6	2	0	1
Lower Lip & Labial Mucosa	4	1	0	0
Lateral border of Tongue	5	0	1	1
Soft palate	1	0	0	0
Total	50	13	2	6

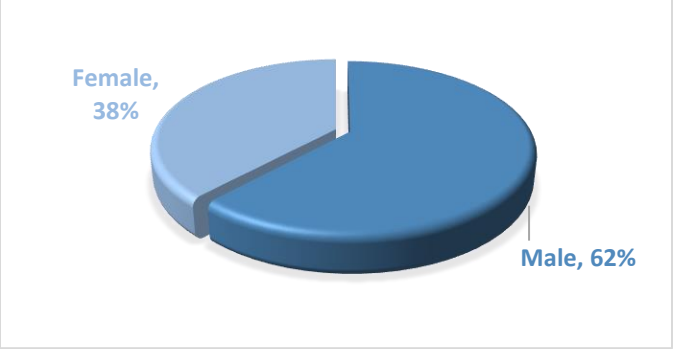


Figure 1: Gender distribution of patients

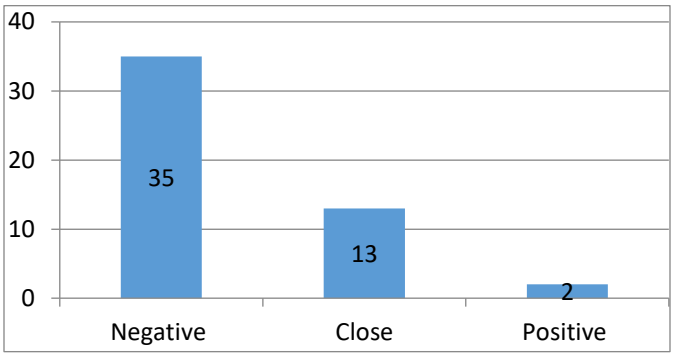


Figure 2: Distribution of histopathological results of resected margins

Another interesting finding of our research was the role of anatomic site to the acquisition of safe margins. It has been seen that acquiring safe margins when there is involvement of hard tissue along with the overlying soft tissue is the most difficult, hence leads to more recurrences. Similarly, if the hard tissues are compared, then successful safe margin is difficult to be taken in maxilla than it is in the mandible. Among the soft tissue sites, ventral surface of the tongue and floor of the mouth are the sites most susceptible to positive margins and recurrences.

DISCUSSION

Margin status of the resected oral squamous cell carcinoma is the most important prognostic factor even when considered independent of the other factors mentioned previously.[4] The primary resection of the tumor when it is presented in the oral cavity is made difficult due to presence of many vital structures, but in a patient with relapse of tumor, it is even difficult due to the altered anatomy of the tissue as a result of surgical insult and post-operative healing. Therefore, it is imperative to obtain adequate margins in the primary surgery.

A negative margin is when the resected tissue does not contain any tumor cells within an area of 10mm around the tumor while close margins are when the resected tissue is free of any tumor cells for at least 5mm from the involved mucosa.[5] When the tumor cells are involving all of the resected margin, the margins are said to be positive. Even the presence of dysplastic changes and carcinoma in situ at the resected margins is considered positive[6]. While examining a tumor, it is easier to define the above mentioned safe margins but during surgery, when the mucosa is being resected, the ability of the tissue to shrink or recoil makes the acquisition of margins difficult. It is one of the main reasons behind relapse of tumor especially in soft tissue component of the oral cavity and in maxilla.

Curative surgery for tumors of head and neck must ensure that an adequate margin of uninvolved tissue be resected around the tumor in all three dimensions. There are guidelines on defining margin width. However, margin of 2 cm has been advocated by some. It is also an accepted practice to go as wide as is possible, keeping in mind the issues of reconstruction and of functional impairment.[7]

One of the goals in performing resection is to achieve histopathologically proven negative margins, but at the same time, it is worth mentioning that just the negative margins do not predict a complete cure from the disease and the patient still requires follow up with the operating surgeon[8]. Similarly, positive or closed margins do not always predict the recurrence of cancer, but it indicates the presence of tumor cells in the surgically resected region.

In cases where the patient has a positive or closed margin, further management will include either surgical resection or post-operative radiotherapy (PORT). But many clinicians also believe in the wait and watch policy, which includes closely monitoring the patients with closed margins especially at early stages (T1 and T2).[9]

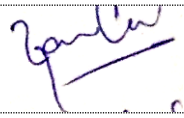
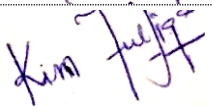
CONCLUSION

Malignant involvement of the margin in the resected tissue is the most important predictor of relapse of the disease. Obtaining clear margin while performing the resection of oral squamous cell carcinoma is very important.

REFERENCES

1. Link JO, Kaugars GE, Burns JC. Comparison of oral carcinomas in smokeless tobacco users and nonusers. J Oral Maxillofac Surg. 1992;50(5):452-5.
2. Wreesmann VB, Katabi N, Palmer FL, et al. Influence of extracapsular nodal spread extent on prognosis of oral squamous cell carcinoma. Head Neck. 2016 ;38 Suppl 1: E1192-9.
3. Barry CP, Ahmed F, Rogers SN, et al. Influence of surgical margins on local recurrence in T1/T2 oral squamous cell carcinoma. Head Neck. 2015;37(8):1176-80.
4. Woolgar JA, Triantafyllou A. A histopathological appraisal of surgical margins in oral and oropharyngeal cancer resection specimens. Oral Oncol. 2005;41(10):1034-43.
5. Alicandri-Ciufelli M, Bonali M, Piccinini A, et al. Surgical margins in head and neck squamous cell carcinoma: what is 'close'? Eur Arch Otorhinolaryngol. 2013;270(10):2603-9.
6. Wong LS, McMahon J, Devine J, McLellan D, Thompson E, Farrow A, Moos K, Ayoub A, et al. Influence of close resection margins on local recurrence and disease-specific survival in oral and oropharyngeal carcinoma. Br J Oral Maxillofac Surg. 2012;50(2):102-8.
7. Hinni ML, Ferlito A, Brandwein-Gensler MS, et al. Surgical margins in head and neck cancer: a contemporary review. Head Neck. 2013;35(9):1362-70.
8. Sieczka E, Datta R, Singh A, Loree T, Rigual N, Orner J, et al. Cancer of the buccal mucosa: are margins and T-stage accurate predictors of local control? Am J Otolaryngol. 2001;22(6):395-9.
9. Azzopardi S, Basyuni S, Rogers S. Is it ever safe to closely monitor involved margins in early and late stage oral squamous cell carcinoma? Br J Oral Maxillofacial surg 2015;53(10):47.

AUTHORSHIP AND CONTRIBUTION DECLARATION

AUTHORS	Contribution to The Paper	Signatures
Dr. Asad Aizaz Chatha Associate Professor of Oral & Maxillofacial Surgery Institute of Dentistry, CMH Lahore Medical College, Lahore	Principal Author, Data Collection and Analysis	
Dr. Uzair bin Akhtar Assistant Professor of Oral & Maxillofacial Surgery Sharif Medical & Dental College, Lahore	Results and data analyzing	
Dr. Shoaib Younus Associate Professor of Oral & Maxillofacial Surgery Institute of Dentistry, CMH Lahore Medical College, Lahore	Manuscript writing, Statistical analysis	
Dr. Saman Chaudhary Assistant Professor, Radiology Fatima Jinnah Medical University, Lahore	Data Collection and Analysis	
Dr. Kiran Zulfiqar PGR, Oral & Maxillofacial Surgery King Edward Medical University, Lahore	Literature Review, References writing	
Dr. Muhammad Jawad Manzoor PGR, Oral & Maxillofacial Surgery King Edward Medical University, Lahore	Literature Review, Discussion writing