EFFECT OF CLOSE MARGIN AND LOCAL RECURRENCE IN ORAL CAVITY SQUAMOUS CELL CARCINOMA

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Background

More than 90% of all head and neck cancer is a form of squamous cell carcinoma (1). Worldwide over the last 10 years head and neck cancer cases have been on the risk. The incidence of lip and oral cancers has risen 36.5%; larynx cancer has increased by 23.1%; other pharynx cancers have increased by 29.9% (2). With 63,000 cases per year and 13,000 deaths per year, head and neck squamous cell carcinoma comprises roughly 3% of all cancers in the United States (3).

Oral cavity squamous cell carcinoma is primarily treated with primary surgery, with or without adjuvant therapy based on pathologic risk factors. One of the primary drivers of survival and locoregional control is achieving negative margins on the primary specimen (4, 5). While a positive margin universally denotes an increased risk of poor outcomes, there is still ongoing debate regarding the interpretation of a close margin (5). It has been suggested that not all close margins have the same prognostic information and that they should be subdivided into further categories.

Purpose

To perform a single-center retrospective evaluation of oral cavity squamous cell carcinoma resection, focusing on the effect of close margins on local recurrence.

Materials and Methods

Institutional review board-approved retrospective review of the electronic medical records of all patients who underwent surgical resection of primary oral cavity squamous cell carcinoma at Emory University from 2011-2016. Pertinent demographics, risk factors, clinical and pathologic staging, pathologic data, clinical course, and up to 27-month post-surgical imaging surveillance were recorded. Exclusion criteria included prior treatment of head and neck cancer, <18 years of age, or distant metastatic disease at presentation. Statistical analysis was performed.

Results

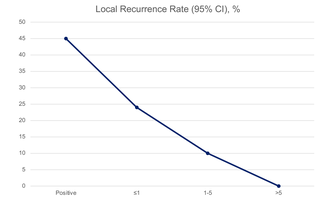
A total of 203 patients were included in the study.

Average Age	62.1	
Sex		
	Male	112 (55%)
	Female	91 (45%)
Tobacco		
	Y	133 (72%)
	N	71 (38%)
	UNK	1 (<1%)
EtOH		
	Y	113 (56%)
	N	89 (44%)
	UNK	1 (<1%)
Path T Stage		
	T1	72 (35%)
	T2	49 (24%)
	T3	3 (1%)
	T4	80 (39%)
	UNK	1 (<1%)
Path N Stage		
	NX	16 (11%)
	N0	59 (43%)
	N1	7 (5%)
	2a	1 (<1%)
	2b	6 (4%)
	2c	3 (2%)
	N3	0 (0%)
	UNK	60 (39%)

Table 1. Demographics

Subsite		
	Oral Tongue	111 (54%)
	RMT	4 (2%)
	FOM	33 (16%)
	Buccal	10 (5%)
	Maxilla	16 (8%)
	Mandible	33 (16%)
Neck Dissection		
	None	38 (19%)
	Elective ND	106 (52%)
	Therapeutic ND	60 (30%)
Perineural Invasion		
	Y	102 (50%)
	N	98 (48%)
	UNK	4 (2%)
LVI		
	Y	47 (23%)
	N	149 (73%)
	UNK	8 (4%)
Differentiation		
	Well	55 (31%)
	Moderate	95 (54%)
	Poor	20 (11%)
	UNK	6 (3%)
ECS		
	Y	45 (31%)
	N	101 (69%)

Table 2. Demographics, cont



Specimen Margin, mm	Tumors, No.	Local Recurrence Rate (95% CI), %
Positive/0	11	45 (15-75)
≤1	25	24 (7-41)
1-5	80	10 (4-16)
>5	42	0 (0)

Figure 1. Rate of local recurrence based on margin status. p=0.0012

Conclusion

This data supports that not all close margins have a similar effect on local control rates and should be further subdivided to ascertain appropriate risk stratification. Positive margins have the worst local control as expected when compared to all other groups with a risk of recurrence of 45%. Patients with very close margins (≤1 mm) have the second highest risk of local recurrence at 24% while margins between 1-5mm had a 10% risk of local recurrence. The gold standard and optimal margin to maintain the lowest risk of local recurrence remains at ≥5mm where no patients experienced a local recurrence. While many other adverse pathologic factors can influence the risk of recurrence, margin status is a strong predictor for locally recurrent disease. Further analysis will be performed giving information on any mitigating effects of adjuvant treatment along with a multivariate analysis on other pathologic risk factors.

References

1. Stewart BW, Wild C, eds. World Cancer Report. Lyon, France: International Agency for Research on Cancer; World Health Organization; 2014

2. Simard EP, Torre LA, Jemal A. International trends in head and neck cancer incidence rates: differences by country, sex and anatomic site. Oral Oncol. 2014 May;50(5):387-403. doi: 10.1016/j.oraloncology.2014.01.016. Epub 2014 Feb 13. PMID: 24530208.

3. Siegel RL, Miller KD, Jemal A. Cancer Statistics, 2017. CA Cancer J Clin. 2017 Jan;67(1):7-30. doi: 10.3322/caac.21387. Epub 2017 Jan 5. PMID: 28055103.

4. Cook JA, Jones AS, Phillips DE, Soler Lluch E. Implications of tumour in resection margins following surgical treatment of squamous cell carcinoma of the head and neck. Clin Otolaryngol Allied Sci. 1993 Feb;18(1):37-41. doi: 10.1111/j.1365-2273.1993.tb00807.x. PMID: 8448889.

5. Li MM, Puram SV, Silverman DA, Old MO, Rocco JW, Kang SY. Margin Analysis in Head and Neck Cancer: State of the Art and Future Directions. *Ann Surg Oncol*. 2019;26(12):4070-4080. doi:10.1245/s10434-019-07645-9