



MAXILLARY SQUAMOUS CELL CARCINOMA: AN EXPERIENCE FROM TERTIARY CANCER CENTRE OF SOUTH INDIA

Oncology

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ABSTRACT

INTRODUCTION: Squamous Cell Carcinoma of Maxillary alveolus and hard palate are relatively rare and account for 3.5% of oral squamous cell carcinoma. Clinically they exhibit aggressive biological behaviour owing to its complicated anatomic structure and late presentation. They seldom present with regional and distant metastasis at the time of diagnosis. In this paper we aim to present our experience in treating Maxillary Squamous Cell Carcinoma at our tertiary cancer centre and to evaluate on the factors influencing its treatment outcome.

MATERIALS & METHODS : The study consists of 125 patients reported to department of Oral Oncology in our cancer institute from 2000 to 2018. The patient record were reviewed retrospectively with regard to clinical and demographic parameters and staged according to AJCC 8th edition. The patients were evaluated with the parameters of cTNM and pTNM, resection margin status, histopathological grading, lymphovascular & perineural invasion, incidence of recurrence, accomplishment of END and its effect on regional recurrence and survival. Statistical analysis were performed using SPSS version 24.

RESULTS : Within the N0 cohort, 28 patients (22.4%) developed neck metastasis, 22 patients (17.6%) developed local recurrence and 17 patients (13.6%) with locoregional recurrence during the follow up period after primary tumour treatment. The incidence of delayed metastasis in the observation group was 20.8% (26/125) and the incidence of pN+ in clinical N0 patients in elective neck dissection group was 16.8% (21/125), accounting for occult metastatic rate of 37.6% (47/125).

The incidence of recurrence rate based on mode of neck management and stratified to staging of tumour showed a significant correlation (p value – 0.0001). Survival outcome based on mode of neck management, recurrence rate and marginal status and staging of tumour showed a significant outcome. (p value 0.0001) and non significant with relation to histopathological grading and lymphovascular & perineural invasion.

CONCLUSION: Advanced T stage have a significant risk of cervical metastasis and END for N0 patients significantly reduce the risk of regional recurrence and improve the survival outcome when compared to observation group. Risk of cervical metastasis of maxillary squamous cell carcinoma is comparable to those of other oral primary sites. Marginal status and mode of neck management being a most important risk factor for local regional recurrence and survival outcome, while histopathological grading, lymphovascular and perineural invasion being non significant.

KEYWORDS

Maxillary squamous cell carcinoma END – Elective neck dissection

INTRODUCTION:

Squamous Cell Carcinoma of Maxillary alveolus and hard palate are relatively rare and account for 3.5% of oral squamous cell carcinoma¹. Clinically they exhibit aggressive biological behaviour² owing to its complicated anatomic structure and late presentation³. They seldom present with regional and distant metastasis at the time of diagnosis⁴, which may be clinically apparent or present as an occult foci of carcinoma. Untreated occult metastasis may manifest as a delayed regional recurrence later in the course of the disease, despite achieving adequate primary control. There is a paucity of study indicating the incidence of occult metastasis from this particular site and elective neck treatment is indicated generally when the incidence of occult metastasis exceeds 20% to achieve adequate regional control⁵.

In this paper we aim to present our experience in treating maxillary squamous cell carcinoma at our tertiary cancer centre and to evaluate on the factors influencing its treatment outcome.

MATERIALS AND METHODS:

The study consists of 125 patients reported to department of Oral Oncology in our cancer institute from 2000 to 2018. The patient record were reviewed retrospectively with regard to clinical and demographic parameters and staged according to AJCC.8th edition.

INCLUSION CRITERIA:

- Carcinoma of hard palate, maxillary gingiva and alveolus
- Histological diagnosis of squamous cell carcinoma
- Surgical treatment

EXCLUSION CRITERIA:

- Prior surgery, radiotherapy or chemo radiotherapy
- Presence of tumor involving oropharynx, retromolar trigone and buccal mucosa.

All patients underwent primary surgical resection with a clearance of 1 cm margin. Adjuvant radiotherapy was given in case of close margin and pN+ neck and included the primary tumor region and ipsilateral neck. END was not routinely performed in case of cN0 neck, but was subject to surgeon's preference. For patients with cN+, modified radical neck dissection was performed. The patients were divided into two groups according to treatment of neck. Patients were followed up every one month in the first year every three months in the second year then every six months till fifth year and then annually after five years. Local and regional recurrences were determined by clinical and radiographic examination and histopathologically if necessary. Salvage surgery was performed if delayed metastasis at the regional site was confirmed.

The patients were evaluated with the parameters of cTNM and pTNM, resection margin status, histopathological grading, lymphovascular & perineural invasion, recurrence type – local or regional and its frequency, accomplishment of END and its effect on regional recurrence and survival, .

Statistical analysis were performed using SPSS version 24. Survival was analysed using Kaplan Meier method, p value < 0.05 in the Log Rank test was considered statistically significant.

RESULTS:

One hundred and twenty five patients were included in the study, 49 were males and 76 were females. The median age of patients at the time of diagnosis was 52 years, with a range from 30 to 76 years. The demographic and clinical parameters of patients are given in table 1

Table 1 : Demographic & Clinical Parameters Of Patients

S.NO	PARAMETER	NO.	PERCENTAGE
1	Gender		
	Male	49	39.2 %
	Female	76	60.8 %
2	Age		
	<50	51	40.8 %
	50 and above	74	59.2 %
3	Histopathological grading		
	I	73	58.4 %
	II	36	28.8 %
	III	16	12.8 %
4	T stage		
	T1	3	2.4 %
	T2	44	35.2 %
	T3	39	31.2 %
	T4	39	31.2 %
5	N stage		
	N0	93	74.4 %
	N+	32	25.6 %
6	Staging of tumour		
	I	4	3.2 %
	II	33	26.4 %
	III	40	32 %
	IV	48	38.4 %
7	Mode of treatment in N0 neck		
	Observation	71	56.8 %
	Elective neck dissection	54	43.2 %

At initial consultation, 112 patients were N0 (89.6%) and 13 patients had regional disease(10.4%). Within the N0 cohort, 28 patients (22.4%) developed neck metastasis, 22 patients (17.6%) developed local recurrence and 17 patients (13.6%) with locoregional recurrence during the follow up period after primary tumour treatment.

The incidence of delayed metastasis in the observation group was 20.8% (26/125) and the incidence of pN+ in clinical N0 patients in elective neck dissection group was 16.8% (21/125) , accounting for occult metastatic rate of 37.6% (47/125).

The incidence of recurrence rate based on mode of neck management showed a significant correlation (p valve – 0.0001)

Table 2 : Incidence Of Recurrence Rate Based On Mode Of Neck Management

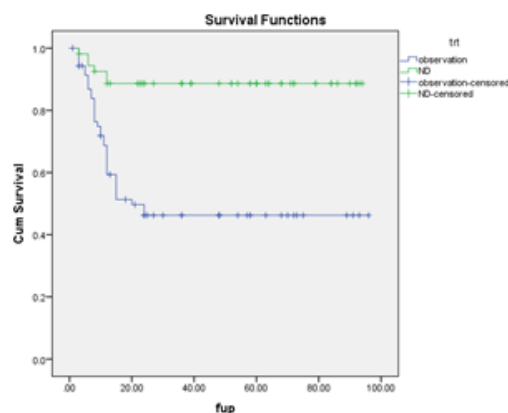
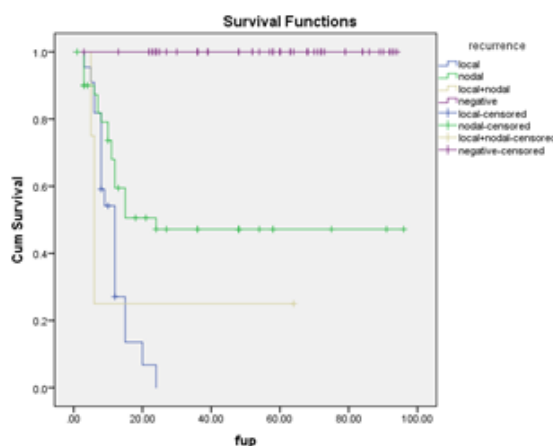
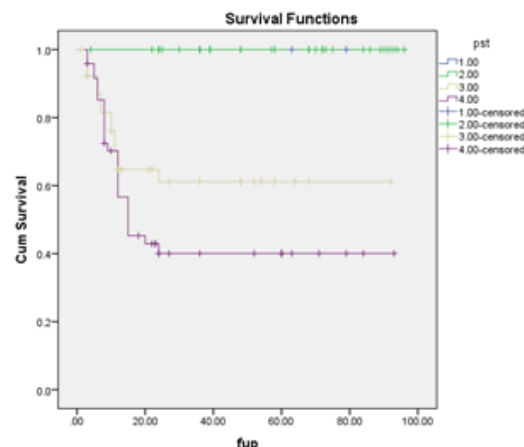
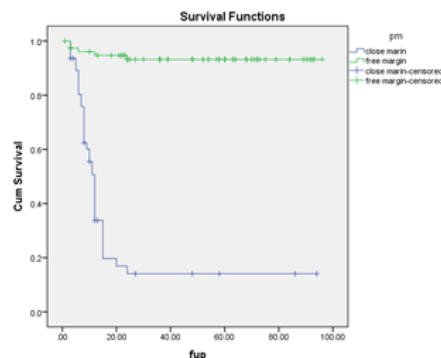
Trt		Recurrence				Total
		local	nodal	local+nodal	negative	
	observation	17	26	14	14	71
	ND	5	2	3	44	54
Total		22	28	17	58	125

Similarly, the incidence of recurrence rate stratified to staging of tumour showed a significant correlation (p valve – 0.0001)

Table 3 : Incidence Of Recurrence Rate Stratified To Staging Of Tumour

	local	nodal	Local+nodal	Negative
St I	0	0	0	4
St II	0	5	0	28
St III	2	22	8	8
St IV	20	1	9	18

Post treatment median follow up was 24 months with a range from 2 to 96 months. Survival outcome based on mode of neck management, recurrence rate, marginal status and staging of tumour showed a significant outcome. (p value 0.0001) and non significant with relation to histopathological grading and lymphovascular & perineural invasion.

**Fig 1: Survival Outcome Stratified To Mode Of Neck Management****Fig 2: Survival Outcome Stratified To Recurrence Rate****Fig 3: Survival Outcome Stratified To Tumour Stage****Fig 4: Survival Outcome Stratified To Marginal Status**

DISCUSSION:

Females are more commonly affected than males with median age of distribution being 52 years. Most patients were presented at advance stage T3 & T4 accounting for 72.4% (88/125). The incidence of neck metastasis during initial examination was 25.6% (32/125) and cN0 was 74.4% (93/125) in our study.

Nodal recurrence being the most common cause of treatment failure accounting for 36% (45/125) and was the most common pattern of recurrence, requiring strategies for improving regional control for the management of this kind of disease and 31% of patients had disease failure locally. There was a significant correlation in the recurrence rate based on the mode of neck management with 45.6% (57/125) in observation group and 8% (10/125) in END group.

The role of END in management of N0 neck remains debatable either END or observation was applied for CN0 Neck. With regard to 41 number of patients who underwent END 16.8% (21/125) were found to have positive neck after pathological examination, while 20.8% of patients (26/125) present delayed metastasis during wait and watch period in observation group.

More recently several retrospective studies have reported incidents of cervical lymph node metastasis ranging from 21% to 66% in maxillary squamous carcinoma, which is much higher compared to rates for other primary oral sites⁶⁻¹². In our study cervical metastasis accounts for 25.6% which is similar to previous studies.

Occult metastasis being responsible for early regional recurrence. The occult metastasis rate for other oral sites reported to be around 20% to 30%.¹³⁻¹⁴ In our study the occult metastatic rate of maxillary squamous cell carcinoma is much higher than expected and comparable to those of other oral sites, accounting for 37.6%. For CN0 neck of maxillary squamous cell carcinoma patients occult metastasis was responsible for early regional recurrence. In most cases regional recurrence occurred without local recurrence indicating its strong correlation with occult metastasis.

Advanced T stage, T3 & T4 had significantly higher risk of metastasis 24% (30/125) than early stage tumors T1 & T2 1.6% (2/125), indicating the need of selective neck dissection from level I to III for advanced stage tumors of maxillary squamous cell carcinoma. Correlation between cervical metastasis and pathological grading showed a non significant correlation with a metastatic rate of 18.4% (23/125), 4.8% (6/125) and 2.4% (3/125) for grade I, II and III respectively. There was a significant difference in incidence of recurrence rate between END and observation group 8% (10/125) and 45.6% (57/125). Comparison of survival rate in END and observation group showed significant difference (p value 0.0001), which suggests that END can improve survival outcome and reduce the recurrence rate. Similarly, survival rate according to T stage showed significant correlation. Advanced T stage, significantly affects the survival outcome supporting the need for END. Similarly marginal status significantly impairs the survival outcome, and it was difficult to obtain proper margin from maxillary malignancies in advanced stages due to complexity of advanced structures.

CONCLUSION:

Advanced T stage have a significant risk of cervical metastasis and END for N0 patients significantly reduce the risk of regional recurrence and improve the survival outcome when compared to observation group. Risk of cervical metastasis of maxillary squamous cell carcinoma is comparable to those of other oral primary sites. Marginal status and mode of neck management being a most important risk factor for local regional recurrence and survival outcome, while LVI, PNI and histopathological grading being non significant.

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