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Original Research

Pattern of Recurrence and Metastatic Disease in Post Operative Postradiotherapy Patients of Squamous Cell Carcinoma of Oral Cavity

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Objective: Oral cavity is one of the common site of cancer in head and neck. They have high cure rate but locoregional failure seen in some cases at primary, nodal or metastatic site. We retrospectively analysed treatment results of oral cavity cancer in our institute and intented to define the prevalence and pattern of failure.

Materials and Methods: It is a prospective cohort study. 179 cases of post operative oral cavity cancer between January 2019 to December 2021, who took radiotherapy or chemoradiotherapy treatment in our institute were studied. 79 patients had loss of follow up during and after treatment. Results of study excluded these patients.

Results: Median follow up was 24 months (8-40 months). Treatment failure after radiotherapy or chemoradiotherapy at primary site and at nodal site was 22 % and 2 % respectively. In 8% cases recurrence was present at both primary and nodal site. Metastasis at extra nodal site occurred in 4% cases (3% in liver, 1% in bone).

Conclusion: Operated case of oral cavity cancer when treated with radiotherapy or chemoradiotherapy has very high cure rate and few locoregional failures at primary and nodal site and rarely at distant site. Recurrence most commonly seen in advanced disease. Therefore, advanced disease patients should be treated with more aggressive treatment to achieve higher cure rate in oral cavity cancer patients. Disease free survival and overall survival was better in early stage than in advanced stage. Node positive disease had more risk of recurrence and metastasis.

Introduction

Oral cavity is one of the common site of cancer in head and neck. For oral cancer, death rates are higher among males, particularly those of African American descent. The death rate is 2.5 per 100,000 population per year based on 2013–2017 deaths, age-adjusted [1] . Surgery is preferred treatment for early stage T1 or T2N0 lesions. Combined modality approach involving surgery followed by adjuvant radiotherapy or chemoradiotherapy is recommended for advanced disease. They have high cure rate but locoregional failure seen in some cases at primary, nodal or metastatic site.

Aim of this study was to study pattern of recurrence and metastatic disease in post operative postradiotherapy patients of oral cavity cancer.

Materials and Methods

It is a prospective cohort study. 179 cases of post operative oral cavity cancer between January 2019 to December 2021, who took radiotherapy or chemoradiotherapy treatment in our institute were studied. 79 patients had loss of follow up during and after treatment. Results of study excluded these patients.

CTV high risk covered tumor bed, microscopic or gross residual disease and grossly positive ipsilateral and contralateral lymph node. CTV low risk covered ipsilateral and contralateral at risk lymph node. Concurrent weekly cisplatin with radiotherapy was given to patients with positive or close margins and extra nodal positive disease. Radiotherapy alone was given to all patients with adverse features like pT3 or pT4, node positive, level IV or V lymph node positive, lymphovascular invasion positive or perineural invasion positive.

Clinical examination and imaging studies were done to assess current disease status. Presently patients who have disease free survival are on observation.

Results

Median follow up was 24 months (8-40 months). Treatment failure after adjuvant radiotherapy or chemoradiotherapy at primary site and at nodal site was 22 % and 2 % respectively. In 8% cases recurrence was present at both primary and nodal site. Metastasis at extra nodal site occurred in 4% cases (3% in liver, 1% in bone). Treatment failure was mainly related with lymph node metastasis, positive margin and extranodal extension. Recurrence was more common in those who continued tobacco chewing or smoking.

2 years disease free survival is 100% in stage I, 95% in stage II, 76.9% in stage III and 29.2% in stage IV. 2 years overall survival is 100% in stage I and stage II while 84.6% in stage III and 36.5% in stage IV (Table 1, 2 and 3).

Variable	Category	Number of patients	Percentage
Age(in years)	<40	13	13
	40-60	55	55
	>60	32	32
Gender	M	68	68
	F	32	32
Site of disease	Oral tongue	22	22
	Buccal mucosa	45	45

	Retromolar trigone	8	8
	Hard palate	13	13
	Alveolus	7	7
	Gingivobuccal sulcus	4	4
	Floor of mouth	1	1
Tobacco use	Yes	72	72
	No	28	28
Post op Margin	Negative	66	66
	Close/positive	34	34
Extranodal extension	Absent	47	47
	Present	53	53

Table 1. Patient Characteristics.

Variable	Category	Number of patients	Percentage
T staging	T1	10	10
	T2	39	39
	T3	29	29
	T4	22	22
N staging	N0	50	50
	N1	31	31
	N2	19	19
	N3	0	0
M staging	M0	100	100
	M1	0	0
Staging	I	9	9
	II	24	24
	III	26	26
	IV	41	41

Table 2. Staging of Tumour.

Stage	Disease free patients		Recurrence		Metastasis	No.of deaths
		Primary site	Nodal site	Both		
I	9	0	0	0	0	0
II	23	1	0	0	0	0
III	20	3	1	0	2	4
IVa	12	18	1	8	2	26

Table 3. Results.

Discussion

Tumor stage is a prognostic factor of overall survival in head and neck cancer. 67% patients had advanced disease while 23% had early stage disease. Most common site of cancer in oral cavity was buccal mucosa (45%).

In developed countries, 5-year overall survival in all the stages combined is 30 to 70% [2- 6]. Better survival rate of up to 80% seen in stage I and II, while lower survival rate of 30–50% seen in advanced disease. In advanced stages surgery followed by radiotherapy has become the standard of treatment in oral cancer patients [7]. In this prospective study, 2 years overall survival is 100% in stage I and stage II while 84.6% in stage III and 36.5% in stage IV. Better public awareness and affordable and accessible health care system can improve survival and decrease recurrence in oral

cavity cancer patients.

Poverty, illiteracy, advanced stage at presentation, lack of access to health care and poor treatment infrastructure are some of barriers in the treatment of cancer patients in the majority of the Asian countries which pose a significant barrier to achieving good treatment outcome.

Recurrence of disease is significantly associated with involvement of nodes, which indicates a locally advanced cancer. Advanced stage disease is treated with radiotherapy or chemoradiotherapy after surgery. The tumor is aggressive and shows potential for metastasis in disease with involvement of nodes. Various factors like advanced stage, deep infiltration, perineural spread and lymphovascular emboli are the factors determining the nodal spread. Neck node metastasis significantly affected the outcome of patients which causes a reduction in survival. 50% of patients in our study had nodal involvement, therefore have a higher stage of cancer, and hence, advanced stage was also a significant factor predicting the outcome. Multiple node involvement and lower node involvement significantly affects the survival [8]. In 8% cases recurrent disease was present at both primary and nodal site. Disease recurrence at primary site occurred in 3% and 1% recurrence occurred at nodal site. Our study showed that ipsilateral node involvement had significant association with recurrence of the disease. Many of our patients presented with locally advanced cancers due to lack of timely reference and neglect, on part of the patients. Many of these oral cancer patients presented with nodal metastasis in addition to the locally advanced tumor.

The study has important policy implications. First, the results of the study highlight the importance of oral cancer screening for early detection at the primary health care (PHC) setting which may help in improving survival rates. Future studies are recommended to explore the feasibility of cancer screening at the PHC level. Second, those detected at an early stage also require regular follow-up so as to detect and treat complications at the earliest and provide a better quality-of-life to the patients [9]. Third, strategies to improve general public awareness about early detection of oral cancers must be in place.

In conclusion, operated case of squamous cell carcinoma of oral cavity when treated with radiotherapy or chemoradiotherapy have very high cure rate and few locoregional failure at primary and nodal site and rarely at distant site. Recurrence most commonly seen in advanced disease. Therefore, advanced disease patients should be treated with more aggressive treatment to achieve higher cure rate in oral cavity cancer patients. Disease free survival and overall survival was better in early stage than in advanced stage. Node positive disease had more risk of recurrence and metastasis.

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• Author declares no conflict of interest

• Study was approved by Research Ethic Committee

of author affiliated Institute.

• Study’s data is available upon a reasonable request.

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Authors Contribution

Shruti Paliwal: Conceptualization, Methodology, Data curation, Writing- Original draft preparation.

Shankar lal Jakhar: Visualization, Investigation, Supervision, Writing.

Rama chandra: Data curation, Writing- Original draft preparation.

Neeti Sharma: Supervision.

Saroj Dhaka: Software, Validation.

Prachi Gupta anf Anjali T: Writing- Reviewing and Editing.

Kapil Malav, Mayur Khandelwal, Shankar singh Dhaka: Data curation.

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