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Original Research Article

Neck node metastasis: the strong prognostic indicator in oral cavity malignancy

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ABSTRACT

Background: Oral cavity malignancy is common in INDIA. Many patients come with neck node metastasis, result in poor prognosis, patients treated in early stage, results in good prognosis. As Lymph node metastasis is strong prognostic indicator in oral cavity malignancy. The objective of the study was to assess prognosis of oral cavity malignancy (Squamous Cell carcinoma) with respect to number of neck node metastasis.
Methods: Total 106 patients of Oral cavity malignancy, were treated in surgical oncology, unit in Krishna Hospital Karad between Oct 1997 to Dec 2004. Operative procedures were WE (Wide excision) and RND (Radical neck dissection) and SOHND (Supraomohoid neck dissection) with post-operative Radiotherapy and Chemotherapy. Histopathological assessment was done for primary lesions and neck node metastasis in operative specimen. Analysis and summation of data was done by using statistical software SPSS.
Results: There were 81 patients with no neck node metastasis (NO). 14 with 1 to 3 neck node metastasis, their mortality was 35.7% (at 1 year follow up) 6 with 4 to 7 neck node metastasis, their mortality was 66.7%, 4 with 7 to 9 neck node metastasis, their mortality was 75%. 1 patient was having above 9 neck node metastasis, died with other disease.
Conclusions: Lymph node metastasis is a strong prognostic indicator in oral cavity malignancy. If patients are treated in early stage (stage 1 and 2) survival is significantly better.

Keywords: Oral cavity malignancy, Prognostic indicator, Neck, Lymph node metastasis

INTRODUCTION

Oral cavity malignancy is common in India.[1-6] Districts in Western Maharashtra (Satara, Sangli and Kolhapur) contribute many cases of oral cavity malignancy.

Many patients come in advanced stage; when the treatment/services are of little benefit. Few patients come in early stage; many of them refuse the treatment because of cancer panic and other reasons. Cancer panic is associated with poverty and illiteracy.

The prognosis of the outcome, survival/death, depends on many factors like TNM stage, grade, site, sex, age, adjuvant therapy, nodal status, number of nodes, levels in the neck, continuation of tobacco use etc.) that lead to a better overall survival (OS) and event free survival (EFS). Studies revealed that increase in number of neck node metastasis leads to higher chance of mortality.[7-14] Thus the present study was carried to assess involvement of number of neck node metastasis and outcome for different follow up periods.

METHODS

106 patients of oral cavity malignancy were managed by surgery, Radiotherapy and Chemotherapy Between Oct 1997 and Dec 2004. All were followed, at Krishna Hospital and Medical Research Center (K.H. and M.R.C. Karad, Dist. Satara, Maharashtra, India) K.I.M.S. University. Demographic, pathologic and surgical procedure related data was recorded during the hospitalization.

Treatment

Treatment for primary lesion treatment for neck nodes metastasis and Repair of Anatomical defect. Different treatment strategies for primary lesion were WE and STSG (Split thickness skin grafting), WE and Primary reconstruction (P.R.) with pedicle graft (forehead and deltopectoral flap).[15] When lesion was involving mandible, Hemimandibulectomy and marginal mandibulectomy as per the indications were done. Treatment for tongue Hemiglossectomy was done. Treatment for Neck nodes-Clinically NO-WE and WE with SOHND were done. The patients treated with only WE they were followed regularly and subsequently SOHND was done as per requirement.[16,17] For clinically palpable neck nodes – SOHND and RND was done.[18-22] Postoperative Radiotherapy was given to 74 patients, according to involvement of anatomical site (e.g. tongue), tumour size and lymph node metastasis status. Chemotherapy three and more cycles were given to 48 patients. Histopathological assessment was done of primary lesion and neck nodes metastasis. Immunohistochemistry facility was not available. Regular follow up was done for recurrence, mortality with same malignancy, with other malignancy and with other disease. Observation of death during follow up period was recorded along with his/her survival period since hospitalization (initiation of treatment).

Statistical analysis

Survival was studied for different follow up periods - A: 5 years and above up to 8 years, B: 3 years and above up to 8 years, C: 1 years and above up to 8 years. Association between nodes involved and outcome (survival or death) was assessed by applying chi-square-test, for all the three follow up periods. Association was said to be significant when P was <0.05. Analysis and summation of data was done by using statistical software S.P.S.S.

RESULTS

Total 106 patients of oral cavity malignancy, were managed surgically in K.H. and M.R.C. Karad. It was observed that, in 21 to 30 years age group there were 4 (3.78%) patients, in 31 to 40 years age group 13 (12.26%) patients, in 41 to 50 years age group 30 (28.3%) patients, in 51 to 60 years age group 23 (21.7%) patients, in 61 to 70 years age group 28 (26.6%) patients, in 71 to 80 years age group 8 (7.55%) patients and above 80 years age 8 (7.55%) patients. The youngest patient was of 24 years and the oldest patient was of 85 years. Disease was common at 5th, 6th and 7th decade of life. There were 70 Male patients and 36 female patients. Tobacco addict patients were 92 (86.79%). Tobacco addiction was in the form of tobacco chewing (quid), smoking cigarettes and biddies, tobacco mishri, (All females were having habit of tobacco mishri.[23-26] There was family h/o cancer in 8 (7.5%) patients. All were from low economical status, from rural areas and remote places of the districts.

Table 1: Sex distribution.

Sex	Number of patients
Male	70
Female	36

Table 2: Age distribution.

Age group	Number of patients
20-30	4
31-40	13
41-50	30
51-60	23
61-70	28
71-80	8
>80	8

Clinical presentation

Ulcerative lesion was observed in 69 (65%) patients and ulceroproliferative lesion was in 37 (35%) patients. 4 patients were having swelling of the mandible and 2 patients swelling of cheek. One patient was having oro-cutaneous fistula.

Anatomical sites

Anatomical sites involved were: Lower lip 11 (10.3%) patients, buccal mucosa 36 (35.8%) patients. Alveolus 20 (18.87%) patients, Buccogingival sulcus 15 (14.2%) patients and Tongue 24 (22.6%) patients.

Clinically neck node status

N0 - were 27 (25.4%) patients, Level 1 – were 73 (68.3%) patients, Level II were- 6 (5.6%) patients. Size of the neck nodes <3 cm 73 patients, 3 to 6 cm size 6 patients.

Different operations done

W.E.- in 10 patients, W.E. and S.T.S.G. in 2 patients, W.E. and S.O.H.N.D. in 6 patients, W.E.-S.O.H.N.D. and S.T.S.G. in 16 patients, W.E.-S.O.H.N.D. and D.P. Flap

in 6 patients, W.E.- S.O.H.N.D. and Forehead Flap in 6 patients, W.E.-R.N.D. and S.T.S.G. in 1 patient, W.E.-R.N.D. and D.P. Flap in 1 patient, Hemimadibullectomy and S.O.H.N.D. in 27 patients, Marginal Mandibullectomy and S.O.H.N.D. in 3 patients, Hemiglossectomy and S.O.H.N.D. in 15 patients, Hemimadibullectomy and R.N.D. in 5 patients, W.E. Hemimadibullectomy and R.N.D. in 3 patients, W.E.-Hemimandibullectomy R.N.D. and D.P. Flap in 2 patients, W.E. and bilateral S.O.H.N.D. in 2 patients and W.E. and Labial Flap in 1 patient.

Table 3: Nodes involved and cause of death at 8-year follow up.

	Outcome (follow up period: 8 years)				
Number of nodes involved	**Survival**	**Death due to same malignancy**	**Death due to other malignancy**	**Death due to other disease**	**Total**
0	34 75.6%	9 20.0%	1 2.2%	1 2.2%	45 100.0%
1 to 3 nodes	2 40.0%	2 40.0%		1 20.0%	5 100.0%
4 to 6	1 33.3%	1 33.3%	1 33.3%		3 100.0%
7 to 9 nodes		2 100.0%			2 100.0%
>9 nodes				1 100.0%	1 100.0%
Total	3 66.1%	14 25.0%	2 3.6%	3 5.4%	56 100.0%

Table 4: Nodes involved and cause of death at 3-year follow up.

	Outcome (follow up period: 8 years)				
Number of nodes involved	**Survival**	**Death due to same malignancy**	**Death due to other malignancy**	**Death due to other disease**	**Total**
0	45 75.0%	13 21.7%	1 1.7%	1 1.7%	60 100.0%
1 to 3 nodes	5 45.5%	5 45.5%		1 9.1%	11 100.0%
4 to 6	1 16.7%	4 66.7%	1 16.7%		6 100.0%
7 to 9 nodes	1 33.3%	2 66.7%			3 100.0%
>9 nodes				1 100.0%	1 100.0%
Total	52 54.2%	24 29.6%	2 2.5%	3 3.7%	81 100.0%

Histopathological assessment confirmed that 106 patients were squamous cell carcinoma. Out of these, 58 (52.83%) patients were well differentiated squamous cell carcinoma (WD.S.C.C.), 28 (26.41%) patients were Well to Moderately DSSC, 11 (10.37%) patients were Moderately DSCC, 2 (1.8%) patients were moderately to poorly DSCC, 1 (0.8%) patient was Poorly DSCC, 6 (4.8%) patients were Verrucus carcinoma,

Neck node metastasis was observed NO-81 patients, 1 to 3 nodes involved - 14 patients, 4 to 6 nodes involved – 6 patients, 7 to 9 nodes involved - 4 patients and more than 9 nodes involved - 1 patient. Staging According to AJCC, there were Stage I - 23 patients, Stage II - 41 patients, Stage III - 32 patients and stage IV - 10 patients.[27]

Survival no immediate postoperative death was observed. 56 patients were having 5 years and above, up to 8 years follow up (A), 81 patients were having 3 years and above,

up to 8 years follow (B) and 106 patients were having 1 year and above, up to 8 years follow up (C). In all follow up periods presented in table 1, table 2 and table 3, the mortality was observed to be increasing with increased number of neck node metastasis (x^2: 37.09, P<0.001), (x^2: 43.89, P<0.001), (x^2: 57.51, P<0.001), respectively.

Table 5: Nodes involved and cause of death at 1-year follow up.

	Outcome (follow up period: 8 years)				
Number of nodes involved	**Survival**	**Death due to same malignancy**	**Death due to other malignancy**	**Death due to other disease**	**Total**
0	63 77.8%	16 19.8%	1 1.2%	1 1.2%	81 100.0%
1 to 3 nodes	8 57.1%	5 35.7%		1 7.1%	14 100.0%
4 to 6	1 16.7%	4 66.7%	1 16.7%		6 100.0%
7 to 9 nodes	1 25.0%	3 75.0%			4 100.0%
>9 nodes				1 100.0%	1 100.0%
Total	73 68.9%	28 26.4%	2 1.9%	3 2.8%	106 100.0%

Recurrence

Recurrence was noticed in 23 patients. Recurrence within year was in 14 patients Recurrence within 1 to 3 years was in 7 patients. Recurrence within 3 to 5 years was in 1 patient. Recurrence after 5 years was in 1 patient.

Table 6: Recurrence.

Follow up period	No. of patients
1 year	14
1-3 years	7
3-5 years	1
>5 years	1
Total	23

DISCUSSION

Oral cavity malignancy is common in India in districts in Western Maharashtra. Satara, Sangli and Kolhapur also noticed many cases of oral cavity malignancy. Study of 106 cases of oral cavity malignancy was done, at K.H. and M.R.C. K.I.K.S. Deemed University Karad. This is located in rural area; all patients were from rural and remote area of the district. There is great amount of cancer panic, poverty and illiteracy in this area.

Most of the oral cavity cancer patients come to hospital in advanced stage, Small percentage come in early stage, but because of cancer panic, poverty many are not ready for treatment.

In present study male: female ratio was 2:1, probably because males are more addicted for tobacco and alcohol in this study population. Tobacco use in the form of tobacco chewing (quid), smoking cigarettes and biddies, tobacco mishri, snuff dipping, was usual aetiological factor. High incidence of the disease was observed at 5^{th}, 6^{th} and 7^{th} decades of life. There was family history of cancer in 8 (7.5%) patients.

Common clinical presentation was ulcerative and ulceroprofarative lesions. These lesions were associated with enlarged neck nodes. Clinically palpable nodes were mainly upper neck (sub mental, submandibular (Level I), upper deep cervical (Level II) and omohoid group of lymph nodes (Level III)

Anatomical site commonly involved in our study were, buccal mucosa with bucogingival sulcus, followed by through tongue as second common site involved. As tobacco quid is always kept at buccogingival sulcus, for long time. Next common site was tongue.

For upper neck nodes, WE and SOHND and when there was high suspicious of involvement of omohoid nodes RND was done. In NO neck WE of lesion and WE and SOHND was done, according to anatomical site involvement, T stage and compliance of the patient for follow up.

Accurate histopathological assessment of neck node metastasis is very vital. Immunohistochemistry facility was not available in our center. In N0 patients, with immunohistochemistry some would have been positive for neck node metastasis. This may be one reason for

mortality in NO patients with same malignancy. 106 patients had squamous cell carcinoma No neck node metastasis (NO) was reported in 81 patients, 1 to 3 lymph node metastasis in 14 patients, 4 to 6 node metastasis in 6 patients, 7 to 9 lymph node metastasis in 4 patients and more than 9 lymph node metastasis in 1 patient. Clinically there were NO 27 patients, level I nodes palpable 73 patients and level II nodes palpable 6 patients. There is no correlation observed between clinically palpable neck nodes and histopathological involvement of neck nodes. Clinically neck node metastasis is found to be difficult to predict accurately.

Radiotherapy was given to 75 patients and 48 patients have received three and more cycles of Chemotherapy.

In all, 5 years and above, up to 8 years follow up (A), 3 years and above up to 8 years follows up (B) and 1 year and above up to 8 years follow up (C), no neck nodes metastasis (NO) patients received treatment in early stage. Their survival was significantly good. In A 75.6% survival, in B 75.0% survival and C 77.8% survival. The mortality with same disease in no neck node metastasis (NO) is significantly low. In A 20% mortality, in B 21.7% mortality and in C 19.8% mortality. As number of neck nodes metastasis goes on increasing, the mortality with same disease goes on increasing and survival goes on decreasing. It proves that if oral cavity malignancy patients are operated in early stage (NO), they are having good survival and good prognosis. As number of neck nodes metastasis increase, survival decreases and mortality increases. It shows neck node metastasis is strong prognostic indicator in oral cavity malignancy.

CONCLUSION

Oral cavity malignancy patients who treated in early stage (No neck node metastasis (NO)) there is good survival and good prognosis. As number of neck nodes metastasis increases, the survival goes on decreasing with major difference and the mortality increases, though radiotherapy and chemotherapy is used along with surgical modality. Neck node metastasis is strong prognostic indicator in oral cavity malignancy.There is role of cancer awareness program to get early stage cancer patients, to achieve high percentage of benefit of treatment of oral cavity malignancy.

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